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KNOWLEDGE

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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Leading on the Edge

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FROM THE DASAF

"One **MAJOR** way of **DEALING** with human performance or human error is to **IMPROVE** how our Soldiers **INTERFACE, WORK AND COMMUNICATE** with each other."

MISSION PREPARATION

While many Soldiers understand and already execute what I'm about to share, I offer these thoughts to help you enhance your existing practices and assist you in refining your thoughts and how you do business.

During the course of duty performance, there will be times you'll have a habitual opportunity to fight from or transport in Army aircraft. The great crews that transport our Soldiers are dedicated Warriors with an intense desire to achieve mission success. Our crews are mission focused and strive for "Mission Accomplishment." However, I suggest you'll want to establish mutually understood and agreed to criteria for risk acceptance prior to wheels rolling or breaking friction with the ground.

Let me explain. In aviation (or any other functional area), crew coordination doesn't begin when an aircrew straps on an aircraft and fires up the engines. Effective aircrew coordination begins with mission receipt, planning, and with the mission briefing. That's when everybody who has a stake in the successful accomplishment of the mission discusses what has to be done, when it has to be done, and why it has to be done. It is during the mission brief when all crewmembers determine what is expected of them during each phase of flight and during contingencies.

Here is where you enter the picture. Crewmembers aren't the only ones onboard or the only ones with a "stake" in mission success. As a member of the crew (or habitual passenger), you have an obligation to ensure there exists a clear understanding of "acceptable risk." The understanding of mission urgency and acceptable risk must be discussed. All personnel should clearly address and define, prior to mission initiation, what "acceptable risks" exist (such as weather, enemy or other contingencies). It is in everyone's best interest to establish the exact criteria for mission continuation prior to encountering a threat (weather, IEDs, SAFARE, obstacles, etc.) before tension and stress surface.

The human side of accident equations is our single largest problem area, and the one area where we lose the most Soldiers. Coincidentally, in this human factor is where we stand to make the greatest advances in accident reduction. One major way of dealing with human performance or human error is to improve how our Soldiers interface, work and communicate with each other. All too often, someone knew, or had that "gut" feeling, that something was wrong before an accident sequence began. Or even worse, the habitual passenger had "no idea" of what was happening and was merely "along for the ride."

Since all personnel on board have a stake in mission accomplishment, there should be a conscious decision before mission initiation to continue the mission into an area where either the personnel or passengers are uncomfortable or unaware. The best communication and most effective coordination are absolutely essential if our Army aircrews, teams, squads, platoons, etc. are to complete their demanding missions safely and effectively. But that effective communication starts in the "crew brief" where calm prevails, not when the threat appears and stress enters the equation.

Effective operations dictate we function as a team. Just prior to an impending disaster is no time to decide what game plan we'll execute.

Leading on the Edge!

William H. Forrester
Brigadier General, USA
Commanding

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FIGHTER MANAGEMENT 101

Perhaps the greatest challenge for any commander during a combat deployment is developing a comprehensive resource management schedule that can support combat operations without burning out his or her personnel. The battlefield has no interruptions thanks to technological advancements, and whether it's day or night we must always be prepared to fight. However, these continuous operations present a series of personnel management issues that must be addressed by every level of leadership.

The generally accepted rule is there are three standard shifts to accomplish 24-hour operations: day, night and quick reaction force. One company should be responsible for only one shift, but working out a schedule with limited manpower is a daunting task and one solution doesn't fit all situations. Each airframe or vehicle has its own unique work environment, and commanders must tailor their rest program based on their aircraft's idiosyncrasies, not a generic fighter management plan developed at the MACOM level.

Due to the unusual demands placed on our Soldiers in terms of hours worked, stress, family separation and countless other problems, it's of paramount importance that commanders do all they can to establish a consistent and equitable work pattern when practical. A consistent work pattern offers security and mental stability for Soldiers, allowing them to organize their days and lives. We're all creatures of habit, and habit promotes safety and efficient production. This is a good thing.

A good commander will realize the issue of fighter management is at the heart of true leadership. One that neglects this subject or delegates it to someone else is shirking their responsibility. Anyone can mindlessly say, "Work until the regulation or SOP says you can't work anymore." But leaders must remember this fight is a marathon, not a sprint.

Think of it in terms of engine temperature. Imagine an aircraft's engine temperature consistently operating in the yellow or red range. When your Soldiers are pushed beyond the limit every day, just like that engine they'll fail. This failure will show in the form of safety breaches, operational errors and even suicides. Find the "green" and keep your Soldiers there with limited time in the yellow and red zones. Soldiers want to do the mission and they want to serve their country proudly; otherwise, they wouldn't have volunteered for duty. Give them a schedule that allows this to occur, not one that takes advantage of their patriotism.

I FEEL YOUR YOUR PAIN

LTC R.M.WILDZUNAS, SGT L.V. PALACIO,
DR. RA. LEDUC, MS. L.S. MILAM, MS. T.N. ROUSE
U.S. Army Aeromedical Research Laboratory
Fort Rucker, Ala.

It seems the words fatigue and Soldier are almost synonymous. These two words together can spell disaster for all Soldiers, but it's especially true in the aviation community.

Numerous investigations have focused on ways to alleviate and/or eliminate fatigue in aviation, and several studies involving stimulants have been conducted at the U.S. Army Aeromedical Research Laboratory using similar test schedules for simulator flights and mood evaluations. A recent dual-pilot study indicated, oddly enough, that some stimulants resulted in nearly equal performance as compared to previous single-pilot studies that examined twice the dosage of the same drugs. Since it's unlikely the lower doses of these stimulants produced the same behaviors to the same degree as the higher doses, psychosocial interaction—the interaction between the two pilots—provides the most plausible explanation for these results in dual-pilot crews.

To remove confounds of the drug and dosage, we isolated the psychosocial component of these studies by comparing mood and flight performance among the various placebo groups during comparable periods of sleep deprivation. Simulator flights focused on simple flight maneuvers. Regarding mood data, the Profile of Mood States and Visual Analog Scale were administered during similar times throughout the testing schedule. The POMS measured factors such as tension, depression, anger, vigor, fatigue and confusion. The VAS questionnaire asked how alert, anxious, energetic, confident, irritable, jittery, sleepy and talkative the test subjects were.

Analyses of these data found both groups demonstrated equal overall flight performance. Mood reports indicated the dual-pilot group reported significantly lower levels of tension and depression but higher levels of anger, anxiety and jitteriness. In general, however, the dual-crew teams exhibited significant trends toward lower negative mood traits and higher positive mood traits. Additionally, as compared to their baseline mood states, they took longer to reach their maximum moodiness (whether positive or negative) during periods of extended wakefulness than single-pilot crews.

The pilots in our dual-pilot studies seemed more social, more agreeable and less likely to express discomfort or complain than single subjects. Interactions between them, their co-pilot and the research staff indicated no loss of temper or social withdrawal as had been seen in previous studies. The pilots' mood data suggests they internalized any negative feelings and still were motivated by their co-pilot to perform. In addition, they felt they had not only a co-pilot but also a confidant and someone who could relate to their situation, in this case sleep deprivation.

These findings generally indicate pilots flying as a crew tend to motivate each other to do well and feel better. The psychosocial environment seemingly has significant effects on pilot mood during periods of sleep deprivation. These data underscore the need to examine the resilience and vulnerability of team behavior as a fatigue countermeasure. By doing so, we'll be better able to prepare our Soldiers for situations where fatigue can cause mission problems while they keep alert and look out for one another in the combat zone.

Set yourself apart from other leaders by carefully looking at everything you and your Soldiers are facing to determine the best crew endurance program for your team. Some obvious factors to evaluate include the environment, mission demands, equipment issues, personal affairs, support systems and culture. Remember, they're your team, not the enemy, and the circle of support begins with you. Anyone can be put in charge, but not everyone can handle the responsibility correctly.

A leader shows his concern (or lack thereof) for his Soldiers through his scheduling system. Morale will increase or decrease proportionate to the level of thought revealed in a work schedule. A poor schedule results in low morale, but a good schedule will create positive workers that produce positive results. Positive attitudes create environments conducive to successful operations that in turn equal mission success. This success can be achieved through a good fighter management program.

> "Leaders have to **KNOW** their Soldiers, and this **PERSONAL KNOWLEDGE** is the key to an effective fighter management program. **TALK** to them and listen to **THEIR CONCERNS**."

Commanders are human resource managers, so know your Soldiers. The U.S. Army Aeromedical Research Laboratory has performed several studies regarding human biology and peak performance levels during the course of a day, including such variables as extreme heat and cold. The goal is to put our Soldiers in the fight when they're at their biological peak so they can perform at optimal levels. For aviators, this means ensuring they begin flight duties in the first third of their day, but no later than the second third. The same concept holds true for ground troops as well. They deserve to be put in the fight at their best.

Leaders have to know their Soldiers, and this personal knowledge is the key to an effective fighter management program. Talk to them and listen to their concerns. A conscientious work schedule will reap immeasurable rewards in terms of support and unit morale. Make it happen because it's worth the effort —engaged leaders save lives.

Editor's note: The author's name was withheld by request. If you would like to publish a story anonymously in Knowledge, *please contact the editor by e-mail at knowledge@crc.army.mil.*

AT ANY COST?

Risk management, safety and constant planning are a way of life for the military, but so are chaos, deadlines, demands and stress. Sometimes it seems as if there isn't enough time in the day to accomplish all our tasks, but the job always seems to get done. Benjamin Franklin wrote, "If you want to enjoy one of the greatest luxuries in life, the luxury of having enough time, time to rest, time to think things through, time to get things done and know you have done them to the best of your ability, remember, there is only one way. Take enough time to think and plan things in the order of their importance." When leaders forget to follow basic principles like these, people get hurt or killed.

We were setting up a convoy operation from North Carolina to Virginia. We were doing all the usual steps: planning for hours on end, reviewing courses of action, preparing maps, checking routes, scheduling sleep plans, briefing personnel, testing equipment and establishing emergency plans. We needed to complete the trip in less than two days and, according to the risk assessment, that goal was attainable.

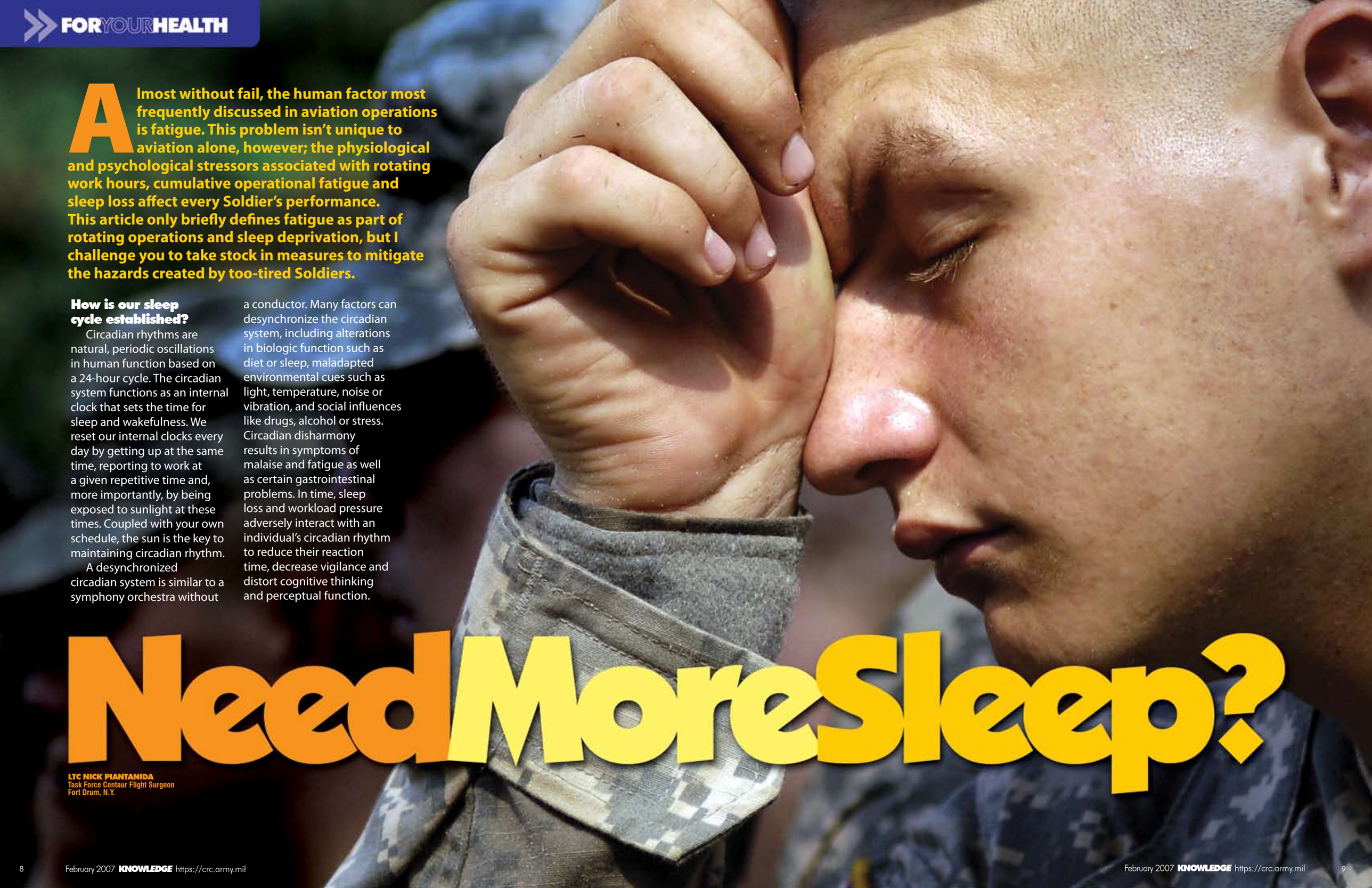
The first leg of the trip was pretty uneventful except for a few vehicle breakdowns, but otherwise everything seemed to be going well. There was, however, one factor we overlooked along the way—fatigue.

All our vehicles needed fuel about halfway to our destination, and we'd planned for the refueling stop. Refueling the vehicles would take all night, and our plan called for all drivers to get eight hours of sleep with no exceptions. This is where leadership really should've been on their toes, but as we all know it takes just one person to break the rules and create tragedy.

One of our 5-ton drivers didn't rest that night and fell asleep at the wheel on our way back to North Carolina the next day. The truck hit a car that was pulling onto the highway from a gas station.

What could our leadership have done to prevent this accident? We should've practiced Composite Risk Management continuously since circumstances can change every minute, hour or day. Constantly reassess the situations and hazards around you to determine if the mission is worth the risk and apply new control measures when needed, then follow up with close supervision to ensure those risk decisions are carried out by everyone. Teamwork and communication are the keys to success, but everyone must realize they have a leadership role when it comes to risk management and getting the job done safely.

Editor's note: The author's name was withheld by request. If you would like to publish a story anonymously in Knowledge, *please contact the editor by e-mail at knowledge@crc.army.mil.*



Need More Sleep?

Almost without fail, the human factor most frequently discussed in aviation operations is fatigue. This problem isn't unique to aviation alone, however; the physiological and psychological stressors associated with rotating work hours, cumulative operational fatigue and sleep loss affect every Soldier's performance. This article only briefly defines fatigue as part of rotating operations and sleep deprivation, but I challenge you to take stock in measures to mitigate the hazards created by too-tired Soldiers.

LTC NICK PIANTANIDA
Task Force Centaur Flight Surgeon
Fort Drum, N.Y.

How is our sleep cycle established?

Circadian rhythms are natural, periodic oscillations in human function based on a 24-hour cycle. The circadian system functions as an internal clock that sets the time for sleep and wakefulness. We reset our internal clocks every day by getting up at the same time, reporting to work at a given repetitive time and, more importantly, by being exposed to sunlight at these times. Coupled with your own schedule, the sun is the key to maintaining circadian rhythm.

A desynchronized circadian system is similar to a symphony orchestra without a conductor. Many factors can desynchronize the circadian system, including alterations in biologic function such as diet or sleep, maladapted environmental cues such as light, temperature, noise or vibration, and social influences like drugs, alcohol or stress. Circadian disharmony results in symptoms of malaise and fatigue as well as certain gastrointestinal problems. In time, sleep loss and workload pressure adversely interact with an individual's circadian rhythm to reduce their reaction time, decrease vigilance and distort cognitive thinking and perceptual function.

What constitutes restorative sleep?

Sleep is like food and water in terms of a basic human requirement. Restorative sleep is defined by four cycles of stage 1 to 4 sleep and one cycle of REM, or dream state, sleep. Sleep efficiency varies between individuals and circumstances; however, as a general rule, a restorative sleep cycle can occur within five to six hours of continuous sleep.

Are you challenged with rotating shifts?

Constantly changing work shifts, such as quick reaction force or night duty, challenge the body to make circadian adjustments. Studies show it takes one day for each hour shifted into the work zone. Obviously we can function during this transition period, but we're less than efficient and proficient in our mental and physical performance. Such schedule adjustments maximize human error between 2330 and 0130 Zulu on your night-adjusted clock. When you're adjusted to your new schedule, however, avoid or minimize morning exposure to sunlight. Too much exposure will desynchronize your night-adjusted clock.

Is there any rest for the weary?

In the 1990s, NASA introduced a program called "Alertness Management." NASA scientists linked the long-haul requirement of space flight with the real-world challenges of sleep management and safety in operations. NASA scientists demonstrated that when individual sleep requirements were not met daily, a sleep debt accumulated. They further determined this sleep debt could be paid off in small installments over time, which is the concept behind fighter management. Finally, they described the "NASA nap" as part of an optimal system of fatigue countermeasures. The NASA nap lasts exactly 40 minutes and takes full advantage of all four sleep stages, but be sure to avoid all naps—however short—within four hours of an approaching sleep cycle.

What are the best measures to stay awake?

Caffeine is the supplement of choice for most people, but timing is important. Never consume caffeine within four hours of an approaching sleep cycle because it will probably keep you awake. Conversely, carbohydrates and sugary foods induce sleep, but small meals or snacks rich in protein or fiber are proven stop-gap measures to fight off fatigue. Don't forget about exercise, which is your body's natural way of creating energy stores for later use. Maximize your health and fitness with 30- to 40-minute installments of exercise most days of the week and hydrate regularly with water. Aggressively manage boredom with physical and mental activities on the job. Get up and walk around if you're feeling tired for an instant energy boost.

Operational mission requirements in Iraq and Afghanistan will press unit leaders and their Soldiers to manage workloads under recurrent cycles of fatigue. Fighter management and the countermeasures listed here are vital steps in safeguarding the goal to "finish strong" and "finish safe." Always lead on the edge, but get a good night's (or day's) sleep first! «

ASLEEP AT THE WHEEL

CW4 PATRICK BOARDMAN
U.S. Army Human Resources Command
Alexandria, Va.

Eight hours of sleep isn't a luxury we're all afforded. Sleep was hard to come by when I was stationed in Fulda, Germany, and it wasn't uncommon for me to go up to three days without it. Every fourth day I was comatose, but it was a routine I'd grown accustomed to. Unfortunately, sleep isn't one of those basic needs your body can do without for long. I eventually found out you've got to pay your sleep debt.

The ink wasn't dry on my promotion orders to sergeant when the executive officer of my troop tasked me to relieve the sergeant of the guard at squadron headquarters. Although I was in day three of my sleepless sequence and still suffering from jetlag from my flight to Europe, I dismounted the aircraft I was working on and reported to the squadron. I didn't give my lack of rest a second thought. I just wanted to do a good job and impress my chain of command.

After a briefing from the command sergeant major, I logged in and dispatched a vehicle from the motor pool so I could check on the guards. I ensured everything was in order, went back to the squadron, and the rest of the day passed without incident. About 3 a.m., I began another check of the guards, but by that time I was extremely tired and having trouble even keeping my eyes open.

Determined to finish the job, I climbed into the vehicle and began to back up. In my exhausted state, however, I failed to notice the privately owned vehicle that was parked behind me and backed right into it. Now fully awake, I dismounted and inspected my vehicle. There was no damage to it, but the POV's bumper was dented. I'd also managed to knock out its front lights and damage the grill. The owner of the POV, an aviator assigned to the unit, heard the sound of crashing metal and ran outside. I took a sound tongue lashing from the guy and later paid his $500 insurance deductible.

I should've done things differently that night, but I didn't because I was too nervous to speak up and too eager to do a good job. I should've told my XO I wasn't in any condition to drive. I also should've spoken up while the command sergeant major was briefing me, but I didn't for the same reasons.

Soldiers today aren't any different than I was then. I was lucky because my accident just hurt me in the wallet. As leaders, we must be aware of what our Soldiers are doing and talk with them to gain some insight into their lives and what they're going through. Our intervention might keep them from making a mistake that could cost them their lives. «

> "AS LEADERS, we must be AWARE of what our Soldiers are doing and TALK WITH THEM to gain some INSIGHT into their lives and what THEY'RE GOING THROUGH."

CRITICAL CONDITIONS

WILLIAM E. VAN TASSEL, Ph.D.
Manager, Driver Training Operations
American Automobile Association
Heathrow, Fla.

Driving is especially risky during poor weather. Conditions such as rain, snow and ice reduce traction and, combined with driver errors, can create a recipe for injury or death. The fact that many of these accidents are preventable means we can identify the risks and do something about them. Here are some tips to keep safe on wintry roads:

Brakes

If your vehicle has an antilock braking system, test it before you need it and become familiar with its operation. Pick a rainy day and find a safe, open area where you can practice hitting your brakes and engaging the ABS. If you've never done it before, you might be surprised at the pedal vibration and the sounds you'll hear, but these events are normal.

The key is to keep firm pressure on the brake pedal and steer where you want to go. Your ABS brakes will keep you from sliding, allowing you to maneuver during an emergency. If you're not sure your vehicle has ABS, watch the dash lights when you start the engine. If you have ABS, an ABS light will illuminate briefly.

Tires

Tires are vital to your safety and are the key to how well your car steers, brakes and accelerates. Check to see if the tread is deep enough to divert water from beneath the tires and enhance traction in snowy or icy conditions. A simple test is to stick a penny in the tread. If you can see the top of Lincoln's head, it's time for new tires. Also check the air pressure in each tire and make sure it's set to the manufacturer's recommended pressure. Tire inflation affects the speed at which your vehicle will hydroplane. Underinflated tires will increase your traction at speeds under 50 mph, but above that speed they're more likely to hydroplane. Checking tire pressure at least once a month is one of the most important steps you can take to ensure your family's safety.

Seat belts

Occupant protection is the simplest, most effective tool for reducing injuries during a crash. For adults, this means using the vehicle's seat belts. For children, this means using the appropriate child safety seat. Because inspections have found almost 90 percent of these seats are installed improperly, have your child's seat checked by a certified safety seat technician. Your child's school should be able to put you in touch with these specialists.

Contolled braking

Brake earlier than you would in good conditions and apply brake pedal pressure very smoothly. The vehicle's weight transfers toward the front as you brake, reducing the weight over the rear tires and increasing the possibility of skidding and oversteering. Don't use your entire leg to depress the brake pedal; instead, set your heel on the floorboard and use your ankle as a pivot point, gently pushing with the ball of your foot. This stance will increase your control as you brake.

Distractions

Free yourself from distractions. When the weather turns bad, you need to concentrate even more on controlling your vehicle. Turn the radio down or off and turn off your cell phone's ringer. Take a deep breath, relax your hold on the steering wheel and focus on maintaining control and avoiding less careful drivers.

While winter weather poses additional risks to drivers, those risks don't have to result in accidents. Make sure you and every driver in your family practices using ABS until it's instinctive. It's far better to steer clear of trouble than to slide into it!

FYI

If your rear wheels begin to skid, take the following steps:

- **Continue looking in the direction you want to travel. Your hands and feet will automatically do what's necessary to steer you in that direction.**
- **Gently ease up on the brakes and allow some of the vehicle's weight to transfer toward the rear where it's needed.**
- **Resist panic braking every time there's a problem—you'll only increase your chances of losing control of the vehicle.**

YOU'RE ONLY HUMAN

MAJ GINA E. ADAM, Ph.D.
U.S. Army Research Institute of Environmental Medicine
Natick, Mass.

"The human is the weakest link." This statement often can be heard when people describe accidents of any sort. Given the complexity of the machinery and computer technology that make up today's aircraft, it's mind-bending to think humans would be the weakest link. Surely components will break and computers will fail more than an aircrew! On the other hand, could it be that machine parts and computer processes perform consistently, whereas humans are more easily affected by situations, environments and personal factors? This is a question that plagues the field of human factors.

The Army Aviation environment is ripe for human error due to such factors as operational tempo and the addition of advanced technology in the cockpit. For example, modern aircraft with multifunction displays often have increased capabilities over their traditional counterparts (e.g., map displays vs. kneeboards and paper maps). This increase in functionality might not only increase the amount of information available to aviators in the cockpit, but also the missions and tasks they are responsible for while in flight. The addition of functions and tasks requires pilots to spend more time managing the aircraft as opposed to flying it.

Essentially, the more time pilots need to spend inside the cockpit managing the aircraft and flight systems, the less time and attention they have to direct toward keeping the aircraft in flight and away from obstacles. Increased heads-down time in the cockpit can significantly impair pilots' abilities to maintain situational awareness and properly coordinate their and their crew's actions. The combination of these factors might lead to increased aircraft accidents due to human error.

Within the aviation realm, it's common to hear the statistic that 80 percent of accidents are due to human error. In fact, there are whole divisions of researchers working on these questions, trying to determine the incidence of human error, the best way to classify accidents and how to catalog human error in these accidents. The reason for this push is the need to learn from past mishaps to improve risk management and reduce the potential for future accidents. To state the obvious, the Army is very concerned with risk management and the reduction of accidents. After all, you're reading this magazine, which is published by the U.S. Army Combat Readiness Center!

While the USACRC is the organization primarily responsible for accident investigations and analysis, the information gathered by their investigators is useful for many in the human factors field. Their Risk Management Information System Web site provides information regarding accident rates and statistics as well as details about accident causes and recommendations. Researchers use this information to answer some human factors questions.

There are several frameworks used by different organizations and researchers to evaluate accidents and their causes. Before getting to the big questions regarding human error in Army Aviation accidents, let's review a few facts about accident data. We all know that aviation accidents can be called flight, flight-related or ground accidents depending on their circumstances and are classified according to their severity as Class A, B, C, D or E. Accident investigators determine the causes (environment, materiel or human error) of each accident to answer the question of what happened. Investigators also evaluate system inadequacies or root causes in each accident to determine why the accident happened. This additional classification allows for a more detailed understanding of hazards present in aviation operations.

The system inadequacies or root causes considered include support, standards, training and leader and individual failures. Of course, many

DID YOU KNOW?

***Knowledge* is now available in a new, easy-to-use online version! Check out the magazine Web site at https://crc.army.mil/Knowledge/index.html to find individual articles in easy-print PDF format or download an entire month's issue for even more safety information. You also can subscribe to the magazine through the site and even share your "war stories" with your fellow Soldiers! For more information or to provide feedback on *Knowledge*, e-mail the editor at knowledge@crc.army.mil.**

accidents have more than one causal factor and multiple root causes. For our current purposes, we're interested in examining human error more closely and also looking specifically at individual failures present in those human error accidents.

One important question in analyzing Army Aviation safety is, "How often is human error a cause of accidents?" However, acknowledging the presence of human error is merely the first step. A more complete understanding can be developed only when looking at the root causes of accidents. Many accidents have several root causes, all of which are important. Yet the individual failure category contains failures that are tied directly to the crewmembers and are most typical when thinking about human error. Some of these individual failures include overconfidence, complacency, crew coordination lapses, crew issues and distraction due to high workload. While it's not possible in the space allotted here to define every possible individual failure, here are a few descriptions and examples.

Overconfidence and complacency

These two attitudes often are found in similar situations. They're both tied to an individual's confidence in himself, his crew, his aircraft or his ability to handle situations and can result in poor decisions while in flight. Pilot confidence is a very good thing; however, in Army Aviation, the saying "You can't have too much of a good thing" isn't always the case. A common example of overconfidence is continued flight in decreasing weather, which often leads to problems.

Crew coordination

Thankfully, much attention and training have been geared toward improving crew coordination. The ability of crewmembers to distribute the workload while flying and accomplish their missions is dependent upon their ability to communicate effectively. Unfortunately, there are other less-known crew issues that can adversely affect crew coordination.

Crew issues

The makeup of an aircrew can be an important factor in crew coordination. How often have you heard of situations where a student pilot said he assumed the instructor pilot had the controls or knew what he was doing? What about times when there are experience or rank differences in the cockpit? Is it possible student pilots and junior officers are reluctant to question their co-pilots' actions, thus hampering crew coordination? In fact, accident investigators have found that oftentimes a pilot's confidence in his IP or higher-ranking co-pilot can hinder communication. For example, a pilot might refrain from providing obstacle clearance details because he thinks the other pilot's experience means he doesn't need assistance. However, because there had been a communication breakdown, what the pilots in these situations didn't know was their experienced co-pilot was involved with other tasks and needed their input.

"The **ARMY AVIATION** environment is **RIPE** for **HUMAN ERROR** due to such factors as **OPERATIONAL TEMPO** and the addition of **ADVANCED TECHNOLOGY** in the cockpit."

Distraction due to workload

Workload in aviation operations is often high, especially with the technological advancements of recent years. The susceptibility to distraction while flying is always a great risk and a major contributor to individual failures. The need to maintain attention outside the aircraft is in conflict with the time taken to manage flight tasks with attention inside the aircraft. A brief review of accident findings shows that division of attention is extremely important. For example, in one accident the findings included statements that "both crewmembers were focused inside the cockpit" and "failure to effectively divide cockpit duties." Another accident with a completely different flight scenario was found to be the result of "attention diverted inside the cockpit" and "both of the crewmembers had focused their attention inside the aircraft." As you can see, these very similar findings indicate improper management of workload and cockpit attention is an important and common individual failure.

These individual failure descriptions are examples of how crewmember actions and attitudes can affect human error in Army Aviation accidents. You might be wondering how common individual failures actually are identified in the accident database. As it turns out, when looking at any given sample of aviation accidents within the last 15 or so years, we see individual failures are identified in 84 to 92 percent of accidents classified as having a human error component.

This is not to say only individual failures are present. These numbers indicate at least one individual failure was identified by either the accident investigators or the author's research team; many of the accidents had a combination of failures, including support, standards, training and leader failures. Nonetheless, it's important to remain aware of the importance of workload management, crew coordination and aircrew attitudes such as complacency and overconfidence to increase Army Aviation safety.

Highway Hijinks

U.S. ARMY COMBAT READINESS CENTER

The engineer platoon was almost mission complete after a successful deployment that included mechanical destruction of a three-story building. The platoon's last mission included discharging the barge transporting their equipment and conducting a convoy back to home station. Unfortunately, a series of human errors led to an Army Motor Vehicle accident that tarnished an otherwise successful deployment.

The accident sequence

The platoon began discharging equipment from the barge the day of the accident. Shortly thereafter, the platoon leader had drivers start convoying vehicles loaded with equipment from the port back to home station. The platoon leader's initial intent was to have two serials moved in the morning and two in the afternoon; however, he never stated his intentions to the platoon.

Instead, five serials departed in the morning, with some consisting of a single vehicle. Four of those five serials required convoy clearances, special hauling permits and escort vehicles with rotating amber warning lights, none of which were available or used. One of the drivers wasn't trained on the truck he was operating, nor did he have a military driver license.

The fifth serial—the accident vehicle—was an M916A3 truck that was pulling an M870A1 trailer loaded with a Link-Belt 330LX hydraulic excavator. This serial required but did not have a convoy clearance, special hauling permit or the escort vehicles with rotating amber warning lights. The HYEX also wasn't on the unit's modified table of organization and equipment; it had been leased from a civilian vendor as a special requirement for the mission.

None of the unit's Soldiers were trained or licensed to operate the HYEX, but two of them had previous experience with the excavator in civilian jobs. Unfortunately, the platoon leader didn't have those two Soldiers on the mission that day. The Soldiers that were on duty improperly loaded the HYEX on the trailer, leaving it more than 4 feet above the maximum safe height for the selected route. The platoon leader and driver failed to measure the vehicle's load height, although the driver did say he thought it was too high.

It's not hard to imagine what happened next. As the truck and trailer traveled on a five-lane highway, the HYEX struck a pedestrian walkway overpass. No one was hurt, but the impact damaged the HYEX, the trailer and two civilian vehicles, and traffic on the busy highway was backed up for about 14 hours. The overpass suffered such heavy damage the state demolished it.

Why the accident happened

The platoon leader briefed the company commander on the movement mission three weeks before the execution date. The company commander then gave the details to the platoon leader, who'd been in charge of the deployment mission since its beginning. This is where the series of errors began.

The company commander told the battalion staff when the equipment was to arrive. The battalion staff considered the mission routine and provided no oversight. No operations order was published, and no one at the battalion level was backbriefed to ensure the company could perform the mission. More importantly, the company had no trained unit movement officer. Although the battalion leadership was aware of the requirement to have movement documents, they failed to assist or ensure the unit had the required convoy clearances or special hauling permits for tracked, overheight and overwidth vehicles.

The same errors occurred at the company level. An operations order wasn't published, and the unit failed to conduct backbriefs and rehearsals to ensure the platoon could perform the mission. The company commander also didn't know the platoon leader's concept of operations for the mission. The company commander was the approval authority for low-risk missions and was aware of the movement documents requirement, but he didn't ensure there was an approved risk assessment matrix for the mission or that the platoon leader had the necessary documents.

The errors continued through to the platoon level. The platoon leader briefed his platoon members a week before the mission, but the brief wasn't clear. Platoon members weren't assigned to mission-specific positions such as discharge team members, convoy/serial commanders, drivers or truck commanders. The platoon leader also didn't have an approved risk assessment matrix for the mission. The platoon dispatched the four M916A3 trucks used during the mission from a sister unit's motor pool but failed to document the preventive maintenance checks and services on the trucks and trailers.

> "**NO OPERATIONS ORDER** was published, and no one at the **BATTALION LEVEL** was backbriefed to ensure the company could perform the mission. **MORE IMPORTANTLY,** the company had no trained unit movement officer."

What can be done?

This accident involved leader and individual error through the battalion, company and platoon levels. Leaders understood the standards but failed to ensure their subordinates followed them. There are several ways this accident could've been prevented, including:

- Operating vehicles in accordance with federal, state, local and military regulations, including having the appropriate convoy clearances, special hauling permits and escort vehicles.
- Only allowing trained and licensed Soldiers to operate equipment.
- Developing special training requirements to train and license operators on nonstandard and non-MTOE equipment.
- Properly planning, coordinating, briefing, backbriefing and rehearsing missions, assuming none are "routine."
- Paying special attention to oversized loads and validating their size before movement. Failing to do so could spoil an otherwise successful deployment.

GOT TREAD?

Due to a manufacturer's shortfall, the U.S. Army Tank-Automotive Command recently issued Maintenance Advisory Message 07-010, which restricts the issue of new radial HMMWV tires for equipment in or heading to Southwest Asia. Other units will have their requests for HMMWV radial tires placed on backorder until more tires become available. So, where does this leave units outside SWA? They might be able to use the older bias-ply tire if their vehicle is an M966, M998, M998A1, M996, M1025, M1026, M1037 or M1038. See the MAM for details.

Here are a couple of precautions to keep in mind. First, never mix radial and bias tires on the same vehicle. Second, never use radial tires on the eight-bolt bias rims. You can, however, use either radial or bias tires on the 12-bolt radial tire rim. Keep in mind that if you use a bias tire on a radial rim, you'll also need to use a bias run-flat and spacer kit as listed in the MAM. Third, never operate vehicles with tires past their wear limit. Finally, locally purchased tires such as Super Swamper tires create additional hazards and aren't authorized for use on HMMWVs. For more information on unauthorized tires, see MAM 05-021 or contact your local logistics area representative.

This problem might tempt some Soldiers to keep radial tires on their vehicles past the wear-out criteria referenced in MAM 07-010. Units might also try to use unauthorized tires that haven't passed safety certification. Both of these additional hazards are unacceptable, and leaders at all levels must ensure any existing or replacement tires are up to standard.

For more information on MAMs 05-021 and 07-010, see the U.S. Army Combat Readiness Center's ground messaging Web site at https://crc.army.mil/Guidance/cat.asp?iCat=569&iChannel=15&nChannel=Guidance.

FYI

- **Never use radial tires on bias rims. Eight-bolt rims are to be used with bias tires only. Twelve-bolt rims can be used with either bias or radial tires.**
- **When using a bias tire on a radial rim, use a bias run-flat and spacer kit as listed in MAM 07-010.**
- **When changing from radial to bias tires, all four tires and run-flats must be changed at the same time.**
- **Do not mix radial and bias tires on the same vehicle.**
- **Replace tires when they reach their wear limit.**
- **Use only approved bias or radial tires in accordance with MAM 05-021.**
- **Remeber to check the tires on your trailers, too.**

STACOM 07-04

INSTRUCTING INSTRUCTORS

As of Oct. 1, 2006, the UH-60 Aircraft Crewmember Standardization Instructor Course is the Department of the Army-approved and funded course for UH-60 non-rated crewmember flight instructors. Commanders are authorized to qualify a non-rated crewmember FI or SI as required at the unit level until Jan. 31, 2008.

For initial FI or SI qualification after Jan. 31, 2008, personnel must have satisfactorily completed the UH-60 ACSI Course (Non-rated Crewmember Instructor Course) or an equivalency evaluation administered by Headquarters, Department of the Army (Directorate of Evaluation and Standardization) in accordance with Army Regulation 95-1, paragraph 4-33.b. FIs qualified before Jan. 31, 2008, may continue to perform duties as an FI as required by their command but are highly encouraged to attend the ACSI Course. To continue to perform duties as an SI after Jan. 31, 2008, personnel must have attended the ASCI (NCIC) or satisfactorily completed an equivalency evaluation by DES.

Unit commanders will ensure their Soldiers are entered into the Army Training Requirements and Resources System for course enrollment in the ACSI Course, 600-ASIN1 (UH-60), school code 011, Fort Rucker, Ala., or school code 960, Fort Indiantown Gap, Pa. Requirements for the equivalency evaluation are as follows: Commanders will coordinate with DES (ATZQ-ES), Fort Rucker, before submitting a request for an equivalency evaluation to DAMO-AV. Equivalency evaluations will consist of all ACSI Course written tests, an academic evaluation and a flight evaluation conducted under all modes of flight. Evaluation study materials can be found on the DES portal at https://www.us.army.mil/suite/folder/6834557.

GOOD INFLATION

MARTY CHARLIER
Senior Technical Specialist for Utility Helicopters
Huntsville, Ala.

An article in the March 2004 *Flightfax* recounted an accident involving two Soldiers performing routine tire servicing on the main gear of a UH-60. The Soldiers didn't have the proper equipment to inflate the tire and inadvertently overinflated it with nitrogen to the point of failure. The explosion shot large chunks of the magnesium wheel in all directions. One Soldier was hit in the lower torso and killed instantly, while the other Soldier's arms were severed above the elbow. The power released during the explosion was strong enough to lift the aircraft off the ground and cause significant damage to the airframe.

Fortunately, industry has developed a fix for this problem so the same accident doesn't happen again. The UH-60 program manager recently approved a new tire inflation cage for UH-60 and AH-64 aircraft that provides two additional levels of protection for the Soldier. First, it's portable and fits over the main or tail wheels and can be used with the wheels installed on the aircraft. Second, the device features an inline relief valve to prevent overinflation if other safety devices fail and a cage to contain the debris from an explosion or other catastrophic tire or wheel failure.

The cage can be requisitioned through normal supply channels using NSN 4920-01-545-0763 and part number SK2000TC-6. For more information on this product, contact Marty Charlier, Senior Technical Specialist for Utility Helicopters, at (256) 955-9735 or by e-mail at marty.charlier@us.army.mil.

foresight for eyesight

FRANK MCCLANAHAN
Safety and Occupational Health Manager
U.S. Army Combat Readiness Center

It's easy to take for granted the things in our lives we depend on every day and yet give very little thought. Imagine for a moment you could never see the face of your spouse or children again. You could never watch a snowfall in the winter or see the orange sun go down over the ocean during a warm summer evening. What would it be like if you couldn't watch your favorite sports team or NASCAR driver, see your favorite film stars or television programs, or read the morning newspaper or a best-selling novel by your favorite author? Most of us don't give much thought to the significance of such a loss, yet catastrophic eye injuries occur in the workplace every day.

According to the U.S. Department of Labor's Occupational Safety and Health Administration Web site, thousands of individuals are blinded each year by work-related eye injuries. These injuries result in more than $300 million annually in lost production, medical expenses and worker's compensation. The National Institute for Occupational Safety and Health points out on the Centers for Disease Control Web site that most workplace eye injuries are caused by small pieces of wood, metal or cement striking or abrading the eye. Objects that penetrate the eyes can result in permanent blindness.

Federal law mandates employers provide their workers a safe and healthful work environment. As such, employers must conduct workplace assessments to identify hazards where eye and face protection are needed. OSHA describes the common types of workplace hazards as heat, chemicals, dust and optical radiation.

Once the employer identifies any of these hazards during an assessment, consideration must be given to the risk of exposure, the potential for multiple exposures

DID YOU KNOW?

According to the American National Standards Institute, workplace eye injuries are a leading cause of eye trauma, vision loss and blindness. An estimated 2,000 eye injuries occur in the workplace every day, but according to the American Academy of Ophthalmology, nearly 90 percent of all eye injuries could've been prevented by using the right kind of protective eyewear.

PROTECTING YOUR EYES

There really isn't much to be said about protecting your eyes other than you'd be foolish not to do so at all times while on the job. Eye protection devices have been used in the construction industry since 1910. While the original eye protection devices were somewhat limited, today there are styles for every type of exposure. Many tasks require that workers wear eye protection, including:

- Chipping, sledging and hammering metal, stone or concrete
- Use of manual, pneumatic and power impact tools
- Caulking, brushing and grinding
- Drilling, scaling and scraping
- Babbitting, soldering and casting hot metals
- Handling acids, caustics and creosoted materials
- Gas welding, cutting and brazing
- Drilling overhead
- Working in excessively dusty environments
- Electric arc welding and cutting and other operations that expose the eyes to flying particles, dust, hot liquids, molten substances, gases, fumes and liquids

Some people just don't like to wear safety glasses and goggles. One complaint is goggles tend to fog up. Fogging happens when sweat vaporizes and coats the inside of the lens. If you have this problem with goggles and glasses, wear a handkerchief or sweatband around your forehead to keep perspiration out.

Another complaint is eye protection devices are uncomfortable, but usually this is because they don't fit properly. Make sure you have the device properly adjusted for the correct fit or simply get another that fits better. You can see a lot better out of a properly fitted eye protection device than you can out of a glass eye.

Like all safety devices, eye protection is there for you and your eyes. Be smart and use eye protection at all times when on the job. What have you got to lose? Your sight?

For more information go to https://crc.army.mil.

and determining the highest level of required protection. The first course of action is to engineer out the identified hazard, including using shields and guards if possible. If this solution isn't possible, the employer must provide the appropriate eye or face protection and employee training.

Employees who wear prescription eyewear also must wear eye protection. Eye protection that fits comfortably over prescription eyewear is available, as are safety goggles and spectacles incorporating prescription lenses. Eye and face protection issued to employees must comply with the American National Standards Institute ANSI Z-87.1 1989 standard if purchased after July 5, 1994, or ANSI Z87.1-1968 if purchased before July 5, 1994.

OSHA Standard 1910.132(f) requires that employers train employees to know when protection is necessary, along with what type is needed and how it should be worn. Employees also must learn proper care, useful life and proper disposal of their protective equipment. That training, which should be presented in a manner easily understood by employees, must be provided by a knowledgeable person. Employees who receive training must demonstrate how to properly use their protective equipment before working in an area where it's required. Training must be certified for each employee and include documentation containing the employee's training date and certification subject.

While the consequences described above are severe and not all eye injuries result in total blindness, eyesight is a precious gift that must be protected. Employers must make every effort to protect their workers and ensure appropriate information and necessary resources are available to eliminate workplace eye injuries.

HAZARD ASSESSMENT

Hazard Type	Hazard Examples	Common Related Tasks
Impact	Flying objects such as large chips, fragments, particles, sand and dirt	Chipping, grinding, machining, masonry, woodworking, sawing, drilling, chiseling, powered fastening, riveting and sanding
Heat	Anything emitting extreme heat	Furnace operations, pouring, casting, hot dipping and welding
Chemicals	Splash, fumes, vapors and irritating mists	Acid and chemical handling, degreasing, plating and working with blood
Dust	Harmful dust	Woodworking, buffing and general dusty conditions
Optical Radiation	Radiant energy, glare and intense light	Welding, torch cutting, brazing, soldering and laser work

SEEING IS BELIEVING

CW2 CRAIG LAURENSON
Fort Hood, Texas

While working in the motor pool one day at Fort Hood, Texas, I heard people yelling and running toward the gate. The buzz of activity got me curious, so I went to see what was happening. I couldn't tell what was going on when I got to the gate, but I later found out a sergeant in my company had burned his eyes. Apparently he'd been working on a HMMWV battery when it exploded, sending battery acid into his face. After this incident, we were all briefed on wearing our personal protective equipment.

As it turned out, the sergeant was all right and his eyes weren't damaged permanently. However, he did say they burned like nothing he had ever felt before. I took this in but figured it could never happen to me. Boy was I wrong!

Six years later, while stationed at Fort Drum, N.Y., I was working on my car battery. Although I always wear PPE to protect my eyes and ears when I mow the lawn or work with power tools, it never crossed my mind to wear it while working on my car. No loud noises, no big deal. I'd forgotten about the incident at Fort Hood by then.

As I stood in my driveway and tried to pry off the battery cap, it suddenly broke free. It all happened so quickly I didn't have time to turn my head. I had a de'ja' vu moment as I felt my eyes burning like you wouldn't believe! Yep, I'd gotten battery acid in my eye just like that sergeant I'd forgotten about a few years before.

I couldn't see, so I felt and bumped my way through the garage and stumbled into the house. My wife told me to flush my eye for 15 to 20 minutes, and that was bad enough. We went to the doctor's office after that, where they put dye in my eye and used a black light to check for injuries. I was lucky—my eye wasn't scratched. The doctor said flushing it right away had been a good thing and probably helped prevent a more serious injury.

I couldn't believe this happened to me. When it did, though, I immediately thought about that incident at Fort Hood. I now make it a point to wear eye protection whenever I work on a vehicle battery. The funny part of this story is I was getting my car ready for the drive to Fort Rucker, Ala., to take the Aviation Safety Officer Course!

When someone tells you to wear your PPE, listen up and do it. They're not doing it to merely hear themselves talk. They're probably speaking from experience and just trying to protect you.

FYI

When working with equipment or volatile substances, be sure to:

- Always wear eye protection.
- Wear rubber gloves to protect your hands.
- If you need corrective lenses and handle batteries often, wear prescription glasses, not contacts.
- Do not smoke, have open flames or make sparks around a battery. Batteries emit an explosive gas.
- Make sure the vent holes in the vent caps are open to prevent a dangerous buildup of gasses.

Take a Hike!

WILLIAM J. LADD
Directorate of Emergency Services
Fort Drum, N.Y.

Are you one of those hardy souls who enjoy the great outdoors during winter? Sure, the Army trained you to work and fight in the cold, but what about when you're off duty, hiking or backpacking with friends or family? Do you remember to plan for the cold weather hazards? And what about the people hiking or camping with you? How well trained are they to survive? To ensure your visit to the outdoors ends happily, here are some tips derived from the New York State Department of Environmental Conservation:

• Plan your trip well in advance and leave a trail plan with someone at home and, as a backup, a friend or co-worker. Don't overestimate your stamina and choose a reasonable daily destination. Stay in good physical shape and get plenty of rest. If you're hiking a trail, sign in at all trailhead registers on your route.

• Be familiar with your area of travel. Obtain up-to-date maps and take them with you. Check your maps often and stay oriented.

• Avoid traveling alone. As a minimum, travel in a group of three or more. If a hiker is injured, a member of the group can stay with the victim while the others seek help.

• Carry gear suitable for changing weather conditions, including rain and snow. If you're planning an overnight trip, take a tent, space blanket or good tarp for shelter. Also bring a stove, good rain gear, wool pants, a hat, a sweater and a change of dry clothes for the cold. Always wear wool or appropriate synthetics, as cotton does not insulate when wet; it actually draws heat away from the body. Also, every group of day hikers should carry at least one sleeping bag in case of an emergency. Should someone be unable to get to shelter, the bag can help keep them warm.

• Bring plenty of high-energy foods such as cereal, granola bars, dried fruit and nuts to snack on while traveling. Drink lots of fluids to prevent dehydration.

• Camp early and set up well before dark or at the first sign of stormy weather. Keep your group together, especially toward the end of the day.

• Don't take unnecessary chances or push too hard. Abandon the trip if anyone becomes sick or bad weather sets in. Know your group's limitations and make modifications as necessary. The mountain, lake, river or trail will still be there for the next trip.

• If you think you're lost, STOP AND SIT DOWN. Try to think calmly, refer to your map and compass and check for landmarks. Don't continue traveling unless you know where you are. The other members of your group also should stay put; remember, there's a leader in every team, and sometimes that leader has to be you.

• If you're indeed lost, STAY IN ONE PLACE. Put out signals in threes: three yells, whistle blasts, gunshots or columns of smoke. Any signal of three is a standard distress signal. Make your area and yourself highly visible. Also ensure children know what to do if they get lost.

• Each person should carry a survival kit that includes the following items as a minimum: map, compass, signal mirror, matches, whistle, enough change for a pay phone, flashlight, rope, space blanket, raingear, extra wool sweater and snacks. Carry a cell phone or, better yet, look into renting a satellite phone so you can call for help if needed.

Following these steps can lead to a fun, safe and successful winter outing. Use Composite Risk Management to assess the hazards and develop countermeasures to reduce or eliminate them. And when you're warm and cozy back home, take a few minutes to remember the great time you had thanks to your CRM skill! «

FYI

Visit the New York State Department of Environmental Conservation's Web site at http://www.dec.state.ny.us for more outdoor safety tips. Additional information on hypothermia and other cold weather injuries can be found on the U.S. Army Center for Health Promotion and Preventive Medicine Web site at http://chppm-www.apgea.army.mil/coldinjury.

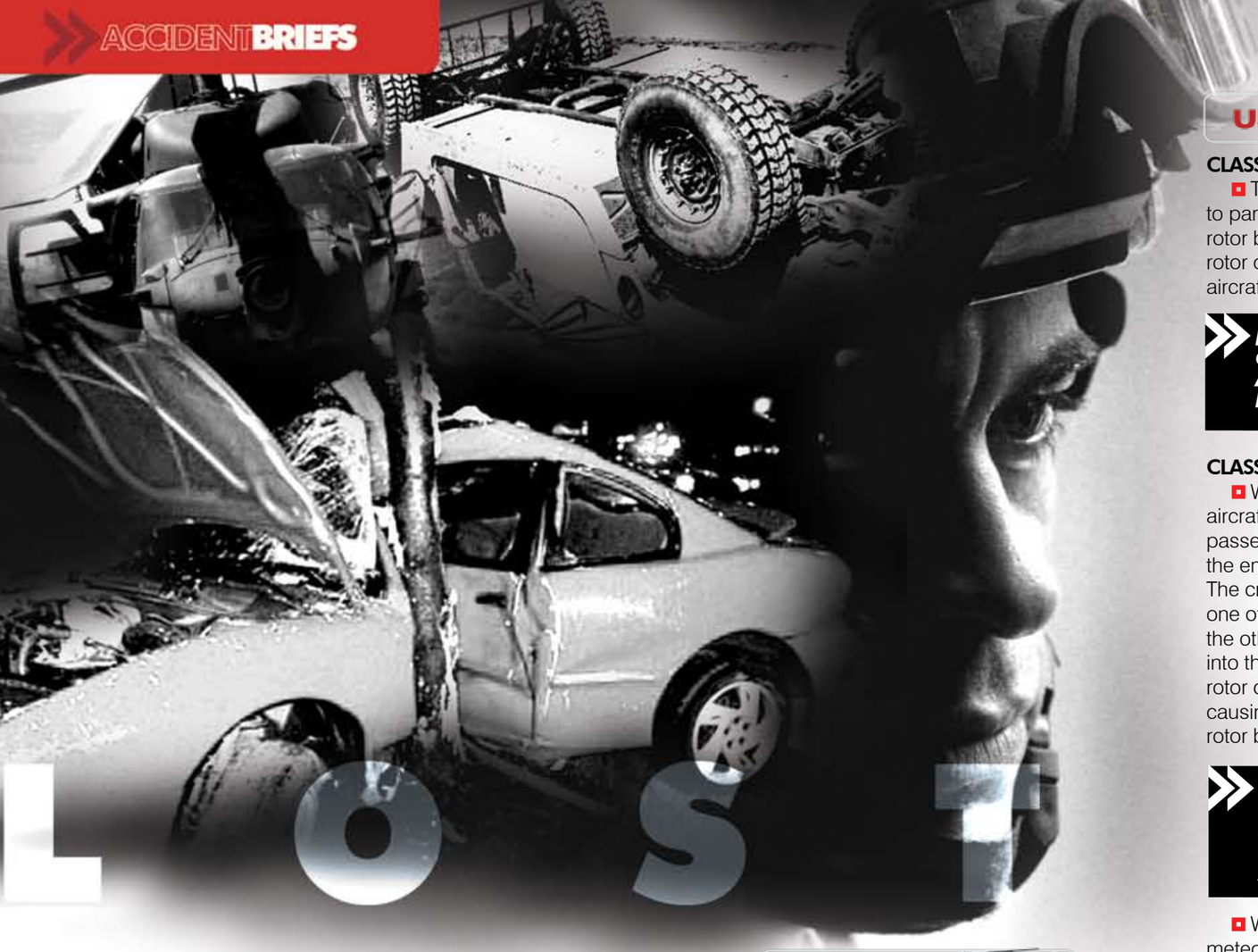
SURVIVING HYPOTHERMIA

Hypothermia can pose a serious danger should you or others be caught without shelter during cold weather. This condition happens when the body's inner core begins to cool and leads to the victim's progressive mental and physical collapse. Hypothermia can occur at temperatures above freezing and is accelerated by dampness, wind and exhaustion.

Because the signs of hypothermia are progressive, victims might not recognize the beginning stages. Here are some of the more noticeable early warning signs:

- **Uncontrollable shivering**
- **Reduced muscle coordination leading to difficulty walking or fumbling when trying to handle things**
- **Reduced mental awareness leading to incoherent speech, apparent drowsiness and irrational or uncooperative behavior**

Treat hypothermia by immediately warming the victim. If possible, protect the victim from the wind and rain and remove any wet clothing, replacing it with dry clothes. Also try to get the victim to a source of warmth such as a campfire. If a campfire or heater isn't available, warm the victim by placing them inside a sleeping bag where they can have skin-to-skin contact with a healthy person. Give the victim hot drinks such as soup or sugared water, but avoid caffeine and alcohol. Keep the victim awake and conscious and seek medical help immediately.



AVIATION

AH-64

CLASS B D Model

While conducting a ground run, the aircraft experienced an engine No. 2 overspeed. Engine No. 2 was started, but during the start sequence the rotor brake disengaged. The No. 2 power lever was pulled to the off position, but the engine continued to engage. The crew attempted to turn the engine off using the ENG CHOP collar, but the engine continued to overspeed while simultaneously beginning to roll and pitch left.

CLASS C

The 30 mm gun came out of the stow position during landing and struck the ground, causing the turret assembly to separate from the aircraft.

MH-47

CLASS C E Model

The aircraft struck a bird during a night vision goggle training flight, resulting in damage to the engine driveshaft and fairing.

TH-67

CLASS C A Model

The instructor pilot initiated a power recovery during termination of a standard autorotation. The aircraft yawed approximately 90 to 100 degrees to the right and landed hard on the tarmac, resulting in damage to the forward underbelly and fuselage at the forward bulkhead.

DO YOU INITIATE AUTOROTATION POWER RECOVERIES IN ACCORDANCE WITH AIRCREW TRAINING MANUAL OR FLIGHT TRAINING GUIDE STANDARDS?

UH-60

CLASS C A Model

The aircraft was taxiing to parking when the main rotor blade contacted the tail rotor of a parked aircraft. Both aircraft suffered damage.

DO YOU USE A GROUND GUIDE TO ENSURE AIRCRAFT CLEARANCE IN HAZARDOUS AREAS?

CLASS C L Model

While attempting to open the aircraft's right-side cargo door, a passenger inadvertently pulled the emergency window release. The crew chief was able to secure one of the cabin windows, but the other window was pulled into the main rotor system by rotor downwash and vortices, causing damage to the main rotor blades and cabin window.

DO YOU CONDUCT A THOROUGH PASSENGER BRIEF IAW THE AIRCRAFT OPERATOR'S MANUAL AND CHECKLIST?

While performing a visual meteorological conditions approach to a dusty landing zone, all crewmembers lost visual contact with the ground and failed to notify the pilot in command, who was on the flight controls. On final termination of the approach, the aircraft drifted forward and struck a HESCO barrier.

RC-12

CLASS C N Model

The crew struck a small deer just before rotation on a touch-and-go landing. The takeoff was aborted, and the runway was cleared without further incident.

UAS

RQ-7B

CLASS C

The Unmanned Aircraft System initiated uncontrolled flight during operator training. The recovery chute was deployed, but it separated from the airframe. The UAS landed hard and a postcrash fire ensued.

The aerial vehicle operator experienced rpm decline and subsequent engine failure during flight. The recovery chute was deployed before ground impact.

RQ-11

CLASS C

The aircraft voltage fluctuated between 19 to 22 vdc during flight. Once voltage dropped below 19 vdc, the aircraft was directed to return home. The aircraft was within 1,400 meters of home station when the voltage dropped to 16 vdc, causing the operator to lose control.

The aircraft completed the first two legs of a reconnaissance mission when wind and rain quickly developed. The operator noticed the remote video terminal was getting poor reception and tried to maneuver the aircraft back to the rally point. Contact with the aircraft was lost momentarily, regained for two minutes and then lost for good.

GROUND

ACV

CLASS A

Two M1126 Strykers were conducting an ambush scenario when the gunner failed to disengage the targets. The gunner continued firing his M249

ARMY AIRCRAFT LOSSES

FY02 to Present

thru 23 Jan

	Hostile/ Non-hostile
AH-64A/D	9/44
U/MH-60L	7/24
C/MH-47	6/13
OH-58D	8/21
TOTAL	30/102

ARMY GROUND LOSSES

FY07

thru 31 Dec

	Class A/Fatalities
AMV	5/6
ACV	4/3
PERSONNEL INJURY	9/10
WEAPONS HANDLING	1/0
FIRE/ EXPLOSION	0/0
TOTAL	19/19

Squad Automatic Weapon as the vehicles passed, striking and fatally wounding one Soldier. The accident occurred in the late evening.

DID YOUR SOLDIERS CONDUCT REHEARSALS UNDER THE SAME CONDITIONS THEY'D EXPERIENCE DURING LIVE-FIRE ITERATIONS? IS THE RANGE SAFETY OFFICER FREE OF ALL OTHER DUTIES WHILE THE RANGE IS HOT?

- A Soldier was operating an M2A3 BFV when the dirt road beneath it collapsed. The M2A3 rolled over into an adjacent canal and came to rest upside down in standing water. The vehicle commander and driver drowned. The accident occurred in the early morning.

AMV

CLASS A

- A Soldier operating an LMTV lost control while attempting to avoid road debris and obstacles on an overpass. The vehicle ran off the road and fell to the ground below. The gunner was killed, and the driver and another Soldier suffered broken legs. The accident occurred in the late evening.

- An M1114 HMMWV that was the trail vehicle in a six-serial convoy overturned after the driver lost control. The vehicle's gunner was pinned beneath the vehicle and died within an hour of arrival at the local combat support hospital. The accident occurred in the mid-morning.

CLASS B

- Two Soldiers were placing cement barriers at an entry control point with a Palletized Loading System when a raised barrier swung around, pinning one Solider below the torso and the other by the left hand. Both Soldiers suffered permanent partial disabilities. The accident occurred in the mid-evening.

CLASS B (DAMAGE)

- The driver of an M977 HEMTT lost control of the vehicle's brakes during a combat logistics patrol, causing the vehicle to run off the road and into a ravine. The driver suffered cuts in the accident, and the vehicle commander fractured his leg. The vehicle was a total loss. The accident occurred in the mid-afternoon.

CLASS C

- A Solider suffered an arm injury while taking part in mobile down-driver drills. The Soldier was the driver-side rear passenger in an M1025 and took control of the vehicle when the driver simulated being down. The throttle was locked during the transition to stop, and the vehicle rolled over when the Soldier reached up to unlock the throttle. The accident occurred in the mid-afternoon.

CLASS C (DAMAGE)

- A contractor driver was transporting sand in a dump truck when a local driver lost control of his vehicle, drifted into the contractor's lane and collided head-on with the truck. The contractor was uninjured in the accident. The local driver suffered non-life-threatening injuries and was transported by a civilian vehicle to the local hospital. The accident occurred in the mid-afternoon.

Personnel Injury

CLASS B

- A Soldier was conducting a door breach when fragmentation from the shotgun blast ricocheted and struck him in the face and right eye. The Soldier suffered a permanent partial disability. The accident occurred in the late evening.

- A Soldier fell backward and tumbled 20 to 30 feet down a retaining wall while attempting to kick in a door during a cordon-and-search mission. The incident left the Soldier with a permanent partial disability. The accident occurred in the early morning.

POV DRIVING LOSSES FY07

thru DEC 2006

	Class A accidents/Soldiers killed
CARS	9/10
VANS	0/0
TRUCKS	10/10
MOTORCYCLES	6/6
OTHER*	3/2

*Includes tractor-trailers, unknown POVs and bicycles

28 TOTAL DEATHS

06 FY06: 25 3 year average: 27

HOLIDAY ACCIDENT TRENDS

Thirteen Soldiers died on the road during the Army's recent holiday exodus, which ran from Dec. 15, 2006, through Jan. 2, 2007. Two Soldiers were killed in motorcycle accidents, while the remaining 11 died in their POVs. This number represents a more than 100-percent increase in POV fatalities compared to the 2005 exodus, and the accident reports are revealing some new, disturbing trends.

Most significantly, eight of the fatal accidents involved NCOs in the grade of sergeant through sergeant first class, two of whom weren't wearing their seat belts. Additionally, five off-duty military policemen were killed during this year's exodus. Most of the fatal accidents occurred between 5 a.m. and 5 p.m. during good weather, factors that are normally considered low-risk conditions. Only one fatality involved fatigue, and six Soldiers were killed in full-size pickup trucks, often considered safer than most passenger cars. The vast majority of these accidents involved a single vehicle or motorcycle, and most were attributed to a combination of excessive speed and loss of control.

> "Most significantly, **EIGHT** of the **FATAL ACCIDENTS** involved NCOs in the grade of **SERGEANT THROUGH SERGEANT FIRST CLASS**, two of whom **WEREN'T** wearing their **SEAT BELTS**."

Of the 13 Soldiers who died, only seven were registered ASMIS-2 users, and none had completed an assessment for their trip.

DO YOUR SOLDIERS EMPLOY THE PRINCIPLES OF COMPOSITE RISK MANAGEMENT TO ALL THEIR ACTIVITIES?

- A Soldier was diving with a friend when he began showing signs of distress. The Soldier's diving buddy surfaced to get help but could not find the Soldier when he returned to the dive area. Two divers searched for about 30 minutes and found the Soldier, who then was brought aboard a charter vessel. Attempts to revive the Soldier failed.

DRIVING

POV

CLASS A

- A Soldier was on PCS leave with his family when his large sport utility vehicle hit a highway median curb, crossed over a guardrail and rolled over several times. The Soldier and his son were thrown from the vehicle and suffered fatal injuries.

- A Soldier was riding in a van being driven by his brother when they made a left turn across traffic and were struck by another vehicle on the passenger side. The van rolled over and caught fire upon impact. Bystanders were able to rescue the driver but not the Soldier, who was pronounced dead at the scene.

PASSENGERS PLAY A VITAL ROLE IN THEIR OWN SAFETY BY HELPING ALERT DRIVERS TO HAZARDS.

POM

CLASS A

- A Soldier was operating a motorcycle with a female passenger when they struck an SUV that turned into their path. The Soldier and passenger were transported to a local hospital, where they later died. Neither had been wearing their helmet or personal protective equipment. The Soldier was not licensed to operate a motorcycle, had not taken Motorcycle Safety Foundation training and did not inform his unit he had a motorcycle.

- A Department of the Army civilian driving a transportation motor pool vehicle on post failed to yield right-of-way at an intersection and struck and killed a civilian contractor on a motorcycle. The rider was properly licensed, wearing all required PPE and had registered his motorcycle on post.

DRIVERS MUST BE VIGILANT WHEN ENTERING INTERSECTIONS AND WATCH FOR SMALLER VEHICLES SUCH AS MOTORCYCLES, WHICH CAN BE DIFFICULT TO SEE.

GOT TREAD?

- Never use radial tires on bias rims. Eight-bolt rims are to be used with bias tires only. Twelve-bolt rims can be used with either bias or radial tires.
- When using a bias tire on a radial rim, use a bias run-flat and spacer kit as listed in Maintenance Advisory Message 07-010.
- When changing from radial to bias tires, all four tires and run-flats must be changed at the same time.
- Do not mix radial and bias tires on the same vehicle.
- Replace tires when they reach their wear limit.
- Use only approved bias or radial tires in accordance with Maintenance Advisory Message 05-021.
- Remeber to check the tires on your trailers, too.

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own the EDGE
Leading on the Edge

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Julie Shelley Managing Editor
Bob Van Elsberg Editor
Chris Frazier Editor
Paula Allman Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

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FROM THE DASAF

POSITIVE ENGAGEMENT SAVES LIVES

"It's **EVIDENT** our Army clearly **UNDERSTANDS** the "No. 1 Most Effective Tool" in our vast array of "things we use" to **MITIGATE LOSSES** and make a difference in saving lives is **ENGAGED LEADERS AT ALL ECHELONS.**"

The Combat Readiness Center is often remiss in passing along the great work our Army is doing and sharing with our teammates our collective "good news stories." It's well worth mentioning and remembering the multitude of successes of our Army and, just as important, looking at acquired lessons learned to ensure we incorporate them in our next event.

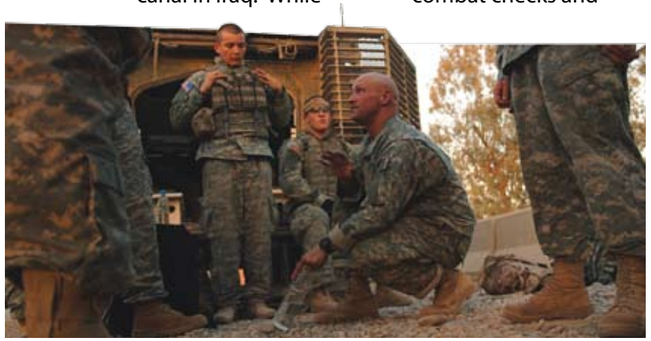
While the USACRC can tell you exactly how many Soldiers are lost in accidental fatalities, what's impossible to pass along are the many, many Soldiers your direct leadership has "saved." As an "Army Strong" formation, we do many things well. Please allow me to discuss some of these great things our Army is executing.

The attention and awareness level focused on identifying and mitigating risk in all we do is as high as anytime in my years of service. This energy and willingness to "engage" is evident from our most senior-level leaders down to and including the youngest Soldiers in our basic and advanced individual training. I personally spoke with and observed young Soldiers, cadets and our civilian teammates that are proactive and adamant in their roles, missions and contributions as "part of the solution set versus part of the problem."

While we expect the involvement of leaders in day-to-day risk mitigation, the good news is most of our younger Soldiers are absolutely involved and understand that complacency and overconfidence are dangerous.

Engaged leaders promoting and executing the Motorcycle Mentorship Program dropped our Army's motorcycle losses by some 50 percent. Weekly, the USACRC receives personal accounts from Soldiers that attribute training, adherence to standards, and our Army's active engagement in this most "worthwhile program" to saving lives.

Included in this issue of *Knowledge* is an article about a crew whose Bradley Fighting Vehicle rolled into a rain-swollen canal in Iraq. While the BFV was crossing a bridge, the road beneath collapsed. This and and like scenarios, are played time and again with BFVs, HMMWVs and M1s and, more often than not, with disastrous consequences for the lives of our Soldiers. This time, however, the outcome was different. All three Soldiers survived and escaped without serious injury.



Why did this crew make it when many before did not? We attribute their success to a combination of things: training, survival equipment and pre-combat checks and procedures. But when it comes down to it, the individual Soldiers themselves made the difference by correctly applying their training and experience gained under the watchful eye of an "engaged leader".

Training and experience also were evident in our last two catastrophic Class A aviation accidents, where numerous personnel successfully egressed from an otherwise totally destroyed aircraft. In another event, when an AH-64D in Iraq was hit by enemy fire and rendered unflyable, the crew was able to quickly diagnose the damage and remarkably land the nearly-destroyed aircraft. They were quickly recovered by a sister aircraft operating in the immediate area.

These two examples demonstrate how aviators used their training to great effects. These successes by our aviators contribute to an overall decrease in accident rates and aircraft losses the Army is experiencing in fiscal 2007.

Leadership is evident in every aspect of what our Soldiers execute throughout the world. It's evident our Army clearly understands the "No. 1 Most Effective Tool" in our vast array of "things we use" to mitigate losses and make a difference in saving lives is ENGAGED LEADERS AT ALL ECHELONS. All that said, we can do better.

These accidents and the actions of our crews reinforce the importance of direct leadership engagement, training and executing to standard. Doing the correct thing when no one is watching will save lives. While you can't dictate outside forces such as the weather or the enemy, you can control your actions inside your vehicle, cockpit or living area and turn a bad situation into a survivable one.

Be a leader, act as a team and stay engaged to stay alive!
ARMY STRONG!!!! «

William H. Forrester
Brigadier General, USA
Commanding

As Soldiers, we have to be prepared for any threat we might encounter in the field. With the spring and summer months just around the corner, we can soon expect to see a variety of weather-related hazards in our training and operational environments. One of the most common weather events encountered in the field is thunderstorms, which can include hazards such as lightning, tornadoes and flash floods. Let's take a quick look at each of these hazards individually.

WEATHER the STORM

SFC RAYMOND HAMILTON
173rd Airborne Brigade
Bamberg, Germany

Lightning

Since fiscal 2002, at least 21 Soldiers have been injured by lightning strikes, including one Soldier who died from his injuries. If you're caught outside in a thunderstorm with lightning, seek shelter in a sturdy structure or hardtop vehicle. If you find yourself in a metallic-type vehicle, sit with your hands in your lap.

If possible, shut off electronic communications equipment when lightning is in the area and don't use it unless you have to. If you're inside a building equipped with a telephone, don't use it either unless absolutely necessary. Avoid large pieces of metallic equipment, and make risk decisions concerning vehicles loaded with various types of explosives or ammunition. Each type of explosive and ammunition has a different explosive radius for fragmentation and damage. Keep this in mind when making a call on how far to clear away.

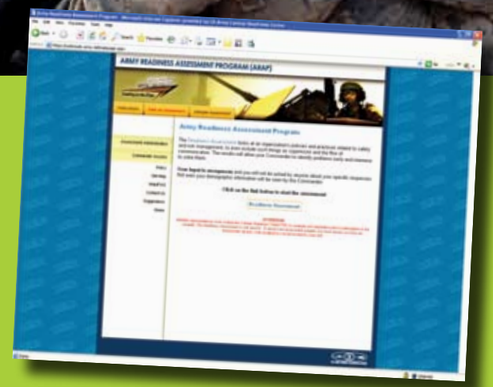
When caught in the open with no place to go, ensure you're not close to tall trees or structures that are the highest points in the area. In wooded areas, seek shelter under a thick growth of small trees. Avoid tall objects, isolated trees, bodies of water, sheds and fences. If you're part of a group, spread out and squat down in an attempt to keep as low a profile as possible while keeping both feet planted firmly on the ground; never sit or lie on the ground. The tactical situation dictates other types of mitigation. For instance, radio operators should take down long whip antennas to help create a low profile.

Fighting positions create a unique point of interest. During lightning storms, make sure you're not leaning or resting your body on the inside of the hole. Center yourself and remain alert until the storm passes. A properly constructed fighting position will provide you with overhead cover from hail and high winds and you'll have the lowest profile possible.

Keep in mind most lightning strikes occur after a thunderstorm has passed. Wait about 30 minutes after the storm passes to resume activities. A general rule of thumb in estimating the hazard area for lightning strikes is flash-to-bang time. If you see lightning, begin counting seconds; if you hear thunder within 30 seconds, you're in a hazard area. Get into the "lightning safety position" by squating down near the ground with your heels touching and your hands over your ears.

FYI

Before the next storm hits, make sure your Soldiers are ready for the mission and use the Army Readiness Assessment Program. It's a Web-based initiative that provides battalion-level commanders with data on their formation's readiness posture. Check it out today at https://unitready.army.mil/.



Tornadoes

Tornadoes are violent atmospheric storms with winds ranging from 200 to 300 mph in the most severe cases. If you or your unit is caught in the field when a tornado hits, follow these guidelines:

- Seek shelter immediately.
- Avoid trailers or vehicles.
- Never attempt to outrun a tornado in a vehicle; instead, abandon it immediately.
- Seek shelter in a substantial structure and go to the basement or an interior room.

If no shelter is available and you're caught in a convoy, dismount your vehicle and lie flat in the nearest ditch or depression. Be sure to secure your Kevlar helmet and other protective items to prevent injury from flying debris. In a defensive position or base camp, a properly constructed fighting position will place you below the ground with overhead cover if suitable structures aren't available.

Flash floods

Flash floods are another hazard associated with storms, and you don't even have to be in the area receiving the rain for this particular hazard to strike. When selecting operational sites, stay clear of low-lying areas, dry riverbeds, flood plains and canyons. If you're caught outside in a flash flood, move to higher ground immediately. Avoid rivers, streams and low spots. Don't try to walk through flowing water higher than ankle deep and never attempt to drive through flooded areas. Underwater hazards aren't visible, and water more than 1 foot deep can easily displace 1,500 pounds. Just 2 feet of water will move or carry most automobiles!

> "Whether you're in the **FIELD** or in **GARRISON**, the **BEST** method for **MAINTAINING** environmental situational awareness is to monitor **WEATHER REPORTS**."

What else can you do?

Whether you're in the field or in garrison, the best method for maintaining environmental situational awareness is to monitor weather reports. This usually is accomplished in the field via the chain of command and tactical operations centers receiving routine weather data as part of operations. However, if the National Weather Service has deemed weather severe enough to put out a watch or warning, your chain of command usually will provide more guidance on unit actions. If you don't have access to immediate weather data, you can rely on your own judgment and still take appropriate measures to prevent or limit the risk to you and your Soldiers.

These are just a few general tips. Depending on your particular circumstances, you might want to conduct further research into what you can do as a leader when faced with changing weather that might affect mission outcome.

DID YOU KNOW?

Since fiscal 2002, at least 21 Soldiers have been injured by lightning strikes, including one Soldier who died from his injuries.

- A Soldier was killed by a lightning strike while erecting a tent that had blown over during a storm. The Soldier died at a local medical facility. Four other Soldiers were struck in the same incident, but none suffered serious injuries.
- Three Soldiers training small unit tactics in a wooded area were injured when lightning struck a nearby tree. All three Soldiers were knocked to the ground. The first Soldier to regain consciousness immediately evaluated the other Soldiers and found one wasn't breathing. The Soldier called for help on his radio and began CPR on the injured Soldier. After approximately two cycles of CPR, the injured Soldier started breathing on his own.
- Three Soldiers were injured when lightning struck near their observation point. All three Soldiers were hospitalized.
- A Soldier was directing vehicle traffic on a parking apron when lightning struck the wet ground about 10 to 30 feet from him. He immediately began convulsing and vomiting. The Soldier was taken to the emergency room, where he was treated and held several hours for observation. The Soldier was not near or holding any metal objects at the time of the strike.
- A Soldier suffered facial injuries after being struck by lightning. The Soldier had been walking across a road during inclement weather when a lightning bolt struck the ground nearby and caused him to fall on his face. The Soldier was unconscious until he arrived at the hospital about 20 minutes later with an injury to his left eye, upper lip, teeth and nose, as well as internal injuries.
- A Soldier was burned after being struck in the head by a lightning bolt. The Soldier was dazed but coherent after the strike and recognized what had happened. The Soldier was checked for injuries by a medic before being transported to the emergency room.
- Eight Soldiers suffered various injuries when they were struck by lightning during annual training. The Soldiers were seeking shelter from a thunderstorm underneath a tarp when lightning struck three trees about 50 feet from their position and traveled at ground level until reaching them. Three of the Soldiers were hospitalized, while five others were treated and released.
- A Soldier was burned after being struck by lightning while walking across an airfield tarmac. The Soldier didn't have a pulse and wasn't breathing when he was found by a Department of the Army Civilian, who revived him.
- A Soldier suffered a head injury after being struck by lightning while talking on the telephone. The Soldier was sitting in a 5-ton vehicle during a severe thunderstorm and was trying to contact his supervisor via land line when an electric current came through the phone.

THREE TIME'S A CHARM

BOB VAN ELSBERG
Editor, *Knowledge*
U.S. Army Combat Readiness Center

Think your chances of being zinged by lightning are about the same as being abducted by aliens? Think again. Perry Humble, a retired Army aviator, tells how he went three rounds with the big "zapper" and lived to tell the tale.

Round One—Hosed!

When you live in southern Alabama, it's nice every so often to wash your car so you remember what the paint looks like. If it's a summer afternoon and you time it just right, Mother Nature will often send a brief monsoon for your "final rinse." Rain, however, isn't the only thing she sends from the skies. As Perry was scrubbing his car one afternoon, he heard the rumble of thunder. He decided curtailing his car washing sooner rather than later was the best course of action and headed across the yard to the spigot. Little did he know he was in for an "enlightening" experience.

"I was reaching down to turn off the spigot with my left hand while holding the nozzle in my right hand. As I turned the spigot, I saw a flash and heard a loud boom."

When he woke up, he was on his back several feet from the spigot with his dog howling next to him. He checked himself for burns but found only a little white dust on his fingertips. His heart was OK, but that didn't mean he'd escaped unscathed. The jolt tightened his muscles so badly he could barely open his hands.

And just how did Perry get zapped? Lightning hit the water main and traveled through his plumbing to the spigot.

Lessons learned: If you can hear thunder, you're within range of lightning. Avoid all water sources in and around your home. Don't take baths or showers and stay away from all water fixtures, including the toilet.

Perry survived round one, albeit zinged and slightly dinged. However, they say people who've survived a close call with lightning attract future bolts like a magnet. That, or maybe it's just lightning trying to finish the job.

Round Two—A special "afterglow"

Perry's second experience came after he'd left active duty and was helping his dad move mobile homes. He and a friend were splitting a doublewide in half so it could be moved. While his friend removed the cap on top of the trailer, Perry, wearing leather gloves and rubber-soled boots, knelt on the ground, separating the halves with a hydraulic jack. Behind him stood several oak trees with exposed roots, some running beneath the trailer. Suddenly his partner yelled, "There's a thunderstorm coming—put the trailer back together!"

Perry frantically worked the jack to rejoin the halves to prevent rain from damaging the interior. Suddenly, there was a loud boom as lightning hit one of the trees behind him. The bolt went through the tree's roots and into the mobile home. Perry said the sight was surreal.

"I saw what looked like electricity running through the trailer's frame rails and axles. It went through the jack, up the handle and covered my right arm."

The charge knocked him backward, but he wasn't hurt. However, not wanting to tempt fate, he jumped into a large truck to wait out the storm.

Lessons learned: Trees aren't stingy; they'll share the wealth if you're nearby when lightning strikes. Also, it pays to wear personal protective equipment like heavy gloves and rubber-soled boots if you work outdoors.

Perry finished round two with a new appreciation for how effectively tree roots conduct electricity, especially when there's an inviting metal object nearby. However, lightning wasn't done with him yet. Not discouraged after two near misses, it took a shot at him where he thought he was safest.

Round Three—You can run, but you can't hide!

Perry was in his workshop with his son one afternoon when a storm appeared suddenly. Concerned about tornadoes, he and his son beat feet to their home. Running through the rain, they flew through the kitchen door and into the living room. As they did, lightning either hit the house or very near it. What happened looked like something from a Stephen King movie.

"There was a waist-high, gray-purple haze settling on the floor throughout the house," Perry said. "You could feel the electricity tingling, like when your hair stands on end."

Round three, fortunately, didn't result in injuries or damage—but it was scary!

Lessons learned: In the Southeast, dry, sandy soil can keep normal lightning rods from working well. More extensive systems such as buried wire loop encircling a house and surge protectors between the utility meter and home might be needed.

Will there be a fourth round? Only time will tell. However, to keep lightning from knocking you out, the National Lightning Safety Institute offers the following tips:

If outdoors

- Avoid water, high ground and open spaces.
- Avoid all metal objects including electric wires, fences, machinery, motors and power tools.
- Avoid taking shelter beneath canopies, small picnic or rain shelters or near trees. Wherever possible, find shelter in a substantial building or in a fully enclosed metal vehicle. Make sure the vehicle's windows are shut completely.
- If lightning is striking nearby, crouch down and put your feet close together. Cover your ears to minimize hearing damage from thunder, and stay at least 15 feet away from other people.

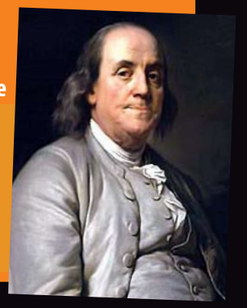
If indoors

- Avoid water and stay away from doors and windows.
- Don't use land-line telephones or wear headsets.
- Turn off, unplug and stay away from electrical appliances, computers, power tools and TV sets. Lightning might strike exterior electric and phone lines and send a powerful electric shock inside a building.

Finally, just because the sky is clear doesn't mean you're safe. Wait at least 30 minutes after the last flash or boom before resuming normal activities.

DID YOU KNOW?

Ben Franklin came up with the idea of lightning rods more than 200 years ago, and this invention has helped save millions of homes from damaging or deadly strikes. For more information on home lightning protection, visit this University of Florida Web site: http://www.napa.ufl.edu/2002news/lightningrod.htm.



DUST IN THE WIND?

DANIEL MCGLONE
2nd Brigade Combat Team
1st Infantry Division
Schweinfurt, Germany

Mother Nature can be ruthless, particularly in the desert. Even our Army, the most mobile and powerful in the world, must bend to her power, especially during sandstorms. Sandstorms have a negative impact on personnel and equipment readiness, and any type of operation during such conditions is dangerous. You can protect yourself and get the mission done, however, even during the worst of conditions.

Sandstorms occur frequently on the Arabian Peninsula and are most common in April. These storms are created by strong, dry winds that blow close to the desert's surface. The heat of the desert terrain causes the winds to become stronger and hotter. Throw in a cold front and tornado-like forces suddenly appear, complete with howling winds and swirling sand.

A sandstorm's leading edge creates a wall of dust that reduces visibility to near zero. Driving in Iraq is already dangerous even in the best of conditions. The probability of an accident increases when you factor in a sandstorm and near-zero visibility.

Operating vehicles during a sandstorm is extremely difficult, so the optimum choice is to stay put on your base or in a safe place. However, if the mission must go on, drive slowly. Wear goggles with the clear or yellow-tinted lens insert to protect your eyes. If you don't have goggles, wear any type of eye protection that might be available.

Thermal imaging devices provide vehicle and tank drivers better visibility during sandstorms. An Army News Service story explained the benefits of these devices to Soldiers at the beginning of the Iraq conflict. "During the infamous Iraqi sandstorms … our Army had very limited visibility," the story read. "Soldiers in Iraq discovered they still had good visibility with their individual and crew-served thermal weapons sights, even when the sandstorms obscured nearly every other optical sensor."

Communication during sandstorms is problematic. Sometimes the wind and blasting noises make communication between crewmembers and other Soldiers nearly impossible. Even so, drivers, co-drivers and vehicle commanders must communicate with one another. Situational and environmental awareness is vital to Soldier safety during sandstorms, especially in moving vehicles. Drivers and vehicle commanders must use the scanning method while driving during these storms.

Sandstorms also present physical dangers to Soldiers. Blowing sand can make breathing difficult, and fine sand particles cause a hacking cough. Place a T-shirt or cloth over your nose and mouth to help you breathe and protect your airway. Close all vehicle vents and place sand bags or other material over any openings. Both these measures are important because sand and dust within the Persian Gulf region can carry infectious diseases, so protect your airway as much as possible.

Sandstorms aren't a force to be taken lightly. Be prepared and know the proper techniques to prevent an accident and protect yourself when sandstorms strike.

FYI

Keep the following tips in mind when Mother Nature decides to surprise you with a sandstorm during your desert deployment:

- **Always wear protective eyewear.**
- **Protect your airway by placing a cloth over your nose and mouth.**
- **Close vehicle vents and cover all openings.**
- **Drive slowly.**
- **Communicate with all crewmembers.**
- **Know your route and maintain situational awareness.**
- **Drive with lights on to help others see your vehicle.**
- **If your vehicle breaks down, use it for cover from the elements. Don't leave the vehicle to search for help; the storm will end eventually.**
- **Be prepared for the unexpected. Always carry a kit bag, rucksack, basic issue items, batteries and food and water in your vehicle in case you break down or have to pull over.**

BROWNED OUT AND CONFUSED

COL JAMES S. McGHEE and LTC IAN R. CURRY
U.S. Army Aeromedical Research Laboratory
Fort Rucker, Ala.

Numerous Army studies conducted over the years show spatial disorientation plays a significant role in the number and outcome of rotary-wing accidents. Although these studies have provided valuable insight into this problem, until recently SD had never been studied specifically in combat. To fill this information void, the U.S. Army Aeromedical Research Laboratory evaluated summaries of all Class A through C Army rotary-wing accidents in operational areas (excluding loss from enemy action) from October 2000 to June 2005.

The results of our study were disturbing. Although the rate of SD-related accidents in training was about 27 percent of all Class A through C accidents, that number jumped to 37 percent in combat. Not only have these accidents become more frequent, they've also become more lethal and expensive. Of the 151 accidents studied, 56 were directly attributed to SD and killed 45 Soldiers while injuring almost twice that number. The rate of nearly one death per SD accident in combat is more than double that seen in CONUS training accidents. The high financial cost of $5.96 million per accident, which is three times the cost of accidents not attributed to SD, reflects the high proportion of destroyed aircraft.

Why are SD accidents so lethal and expensive? The answer probably lies in the environmental conditions in which most of our combat flying has been conducted over the last few years. The majority of SD accidents we studied occurred in phases of flight close to the ground, and 34 of the 56 accidents (61 percent) were caused by brownout. Another piece of supporting evidence regarding environmental conditions is just as many accidents are happening during the day as at night. Before we began operations in these dusty countries, the overwhelming majority of our SD accidents happened at night.

The obvious association here is restriction of an aircrew's visual cues. Anyone who's ever landed in a desert knows vision suddenly is lost when a dust cloud catches up to the aircraft. Our analysis showed numerous crews continued their maneuvers despite losing all visual reference and crashed as a result. These crews became acutely disoriented and didn't deal with what can be a completely overwhelming situation.

So what's the answer? There are potential technological fixes in the works, but as of yet there's no "magic bullet" that allows completely safe flight in a dust cloud near the ground. The themes that kept recurring during this study were incorrect procedures and poor crew coordination.

The first thing that stops in highly stressful situations such as flying into a dust cloud is effective communication. Crews often lose their normally excellent coordination and vital information is lost or never transmitted. Any crewmember might have the information that could save the aircraft, but they often don't say a word because the guy on the sticks appears to be "maxed out."

Crew coordination and the confidence to throw away a bad situation are the two best tools in the box to avoid a brownout accident. Enhancing those tools with good flight procedures and training gives us the best armament we have to stop people dying in the dust.

FLIGHT INTO IIMC

BILL RAMSEY
Operations Research Systems Analysis
U.S. Army Combat Readiness Center

"During night vision goggle currency and readiness-level progression training, the crew of a UH-60L encountered instrument meteorological conditions. The aircraft entered 70- to 80-foot-tall trees in a 30-degree nose-low attitude with a 45-degree left bank angle at approximately 80 to 100 knots. The rotor system cut the trees and began to separate as the aircraft descended. The aircraft was destroyed and three crewmembers were fatally injured."

I reflected on my past experiences as an Army aviator as I read the details of this accident. What got me through 30 years of flying without killing myself? Was it the training I'd received, my flying skills or just plain luck?

Unplanned or unintentional flight into clouds in deteriorating weather continues to be a root cause of Army flight accidents. Since January 1997, 13 IMC-related accidents have claimed 41 lives and cost the Army nearly $209 million. Flying is serious business. If you're going to fly an aircraft in marginal visual flight rules conditions, you have to be proficient and confident in your abilities.

Like any other aviator, I never planned to fly into marginal conditions; but when I did, I didn't want to commit to flying instrument flight rules. I know some of you are probably thinking times are different now, with aviators operating in combat where flying higher than 200 feet will get you killed. Trust me, though, flying at 150 knots straight into the ground will kill you just as dead.

Case in point: I was flying with a first lieutenant in an OH-58D in Iraq during Operation Desert Storm. We'd been conducting a screen line and the lieutenant was flying when our aircraft went IIMC. I was prepared for this situation, and we safely maneuvered the aircraft back into VFR conditions. We successfully joined up with our Apache and made it to the screen line without incident.

> "Flying **INSTRUMENTS** should become **SECOND NATURE** to you. Through **TRAINING AND PRACTICE**, you can develop critical skills and the **CONFIDENCE** to make your next IIMC encounter a **SUCCESS**."

In combat, we push ourselves and our aircraft to support the troops on the ground. I went IIMC three more times under NVGs during my 9-month stint in theater, and I came back to talk about it every time. That's because I made myself fly on instruments when returning from training and support missions, used the simulator and planned every flight as if it would be flown in marginal conditions.

"The ~~Five~~ Six Cs"

Several years ago, someone established "the five Cs," a procedure to help aviators handle those first critical seconds when an aircraft flies into IMC: control, coordination, clearance, course and call. I've added a sixth, commit, which should be your first step to ensure all the other steps work effectively. The six Cs of IMC also include those actions specified in the acronym AHTA: attitude, heading, torque and airspeed. This procedure gives the pilots something to follow when confronted with IMC.

Commit

You must commit to landing the aircraft or flying under IFR. Never attempt to re-establish visual meteorological conditions if you bump into a cloud; if you do, you're sure to end up in the accident briefs section of this magazine. I found landing to live and fight another day is better than being a statistic. If landing isn't an option, however, make the decision to fly instruments. Once you've convinced yourself that clouds aren't your enemy, you'll be able to maintain control not only of your aircraft, but also yourself.

Control

Maintaining aircraft control is the most important factor in recovering from IIMC. You'll be in serious trouble if you fail to make this transition, and the other five Cs depend on you controlling the aircraft.

Here's where AHTA comes into play. Maintain control by leveling the wings on the attitude indicator; maintain the heading and turn only to avoid known obstacles; adjust torque to climb power; and adjust airspeed to climb airspeed.

Coordination

Before flight, each crewmember should discuss what their role will be in case of IIMC. It should be understood that the pilot on the controls will concentrate on flying the aircraft by referencing the instruments. The pilot not on the controls should monitor the pilot flying and look outside for VFR conditions and obstacles. Always remember to check your onboard navigational equipment before flight too. If the weather is marginally VFR or less, it could mean the difference between living and dying.

Clearance

Climb straight ahead to an altitude that will provide clearance over the highest obstacles along the route of flight.

Course

Select the appropriate heading and turn to it. The heading you turn to most likely will be dictated by the IMC recovery procedures at your installation.

Call

Make any required radio calls for assistance or advisories.

Training

The six-C process is a tool that can help you cope with IIMC, but tools alone will not provide you confidence in your abilities. That necessary confidence will come only through training. Training to be proficient at coping with IIMC flight is probably the single most important thing you can do to ensure your survival during an IMC encounter.

My intent here isn't to debate the issue of currency versus proficiency. However, if you only fly the minimums in accordance with your aircrew training manual and conduct the majority of your simulator and hood time toward the end of your 6-month period, you're probably current but not very proficient in instrument flying.

DID YOU KNOW?

Knowledge is now available in a new, easy-to-use online version! Check out the magazine Web site at https://crc.army.mil/Knowledge/index.html to find individual articles in easy-print PDF format or download an entire month's issue for even more safety information. You also can subscribe to the magazine through the site and even share your "war stories" with your fellow Soldiers! For more information or to provide feedback on *Knowledge*, e-mail the editor at knowledge@crc.army.mil.

Instrument training should be challenging but realistic and promote aviator confidence. Your training also should reflect the kind of flying you do most of the time. Analysis shows most IIMC accidents occur at night and often under NVGs. If you're an NVG pilot and fly little or no instrument training in the aircraft at night, you're playing Russian roulette with your life.

I know pilots in combat have a difficult time maintaining instrument proficiency, but sooner or later you'll find yourself inadvertent. Take every opportunity to maintain your confidence in instrument flight. A battalion commander once told me he didn't have time for his UH-60s to be used for instrument training and besides, their mission wasn't to fly instruments anyway. Instead, they were designed to move troops and supplies on the battlefield. He believed that until he went inadvertent and almost lost an aircraft and crew; afterward, he committed the time for his flight crews to conduct instrument training until they became proficient.

One last thought

Flying instruments should become second nature to you. Through training and practice, you can develop critical skills and the confidence to make your next IIMC encounter a success. Commit yourself to taking every opportunity to fly instruments. It might save your life, and who knows? You could be the next generation of Army aviator writing to others about what brought you home every time. «

RESTRICTED FLIGHT

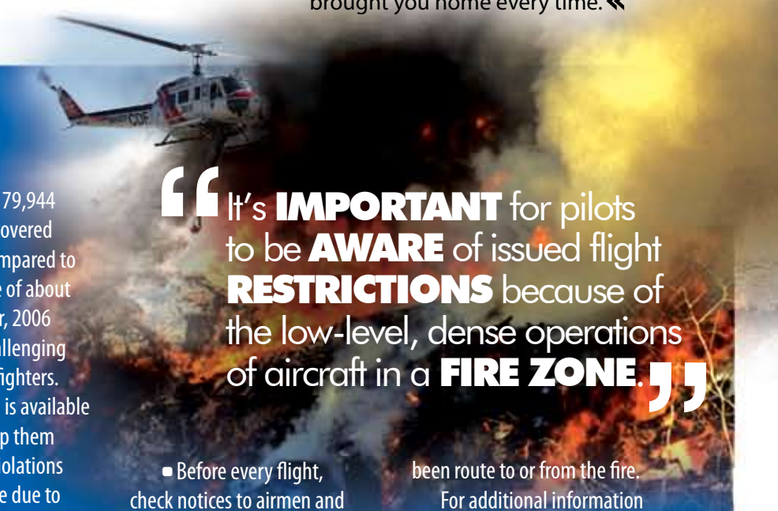
GARY MORGAN
Eastern Region
U.S. Department of Agriculture Forest Service

Every year, interagency firefighting units place temporary flight restrictions on airspace over fires where aviation resources are needed to support ground-based units. Like fires, these airspace restrictions emerge with little warning. Besides creating distractions and hazards for ground and air units fighting the fire, aircraft that penetrate these areas put themselves and others at risk for midair collisions. Below is an excerpt from a safety communication report received on August 28, 2006, during last summer's especially active fire season.

"While working out of the Purdy Fire Helibase located at Dubois Airport (U25), helitack personnel observed three military Black Hawk helicopters in loose formation traveling from southeast to northwest along the southwest side of the runway approximately 800 to 900 feet above ground level. At this time, helibase radio operators were notified and in turn notified the helicopter coordinator and other airborne helicopters. HLCO attempted to contact the Black Hawks on air-to-air radios without success. At this point the Black Hawks had not yet entered the fire TFR area; however, they quickly passed the airport and then continued west-northwest, climbed slightly over terrain and eventually crossed the fire entering at approximately Division X and continued through the middle of the fire going northwest, exiting the TFR on the west-northwest side and then continued to Jackson, Wyo. HLCO was over the fire at this time along with one medium helicopter performing bucket work. The Black Hawks flew below the HLCO at approximately 500 to 800 feet AGL as they went through the fire airspace and TFR. There was a presidential TFR in place 25 miles to the west for Jackson, Wyo., at the time of the intrusion."

A review of wildland fire airspace intrusion incidents reported for fiscal 2006 showed 41 TFR violations, with 11 of those being military aircraft. In the first 8 months of 2006, there were 79,944 wildland fires that covered 7,820,449 acres. Compared to the 10-year average of about 58,000 fires per year, 2006 was particularly challenging for interagency firefighters.

TFR information is available to all aviators to help them avoid inadvertent violations of restricted airspace due to firefighting operations and other national airspace restrictions. It's important for pilots to be aware of issued flight restrictions because of the low-level, dense operations of aircraft in a fire zone. Military aviators can help wildland firefighters maintain a safe firefighting environment by doing two things:



"It's **IMPORTANT** for pilots to be **AWARE** of issued flight **RESTRICTIONS** because of the low-level, dense operations of aircraft in a **FIRE ZONE.**"

- Before every flight, check notices to airmen and Web sites that carry the latest TFR information. One excellent source is the National Airspace Information Web site at http://airspace.nifc.gov/mapping/nifc/index.cfm.
- Look for signs of wildland fire such as smoke and remain well clear of the area, keeping a lookout for aircraft that might been route to or from the fire.

For additional information on how wildland firefighters use airspace and aircraft in support of their missions, check out our airspace Web site at http://www.fs.fed.us/r6/fire/aviation/airspace/web/index.html. Help us keep the skies safe so all aviators and firefighters can go home at the end of their shift. «

JUST ANOTHER LOW-RISK TRAINING FLIGHT?

U.S. ARMY COMBAT READINESS CENTER

"A specific area of concern is single-ship operations, which are most often categorized as low-risk operations. Multi-ship operations, the standard in combat, lower risk by adding experience, maturity, judgment and command attention to the mission. The more aviators involved in the planning and execution of a mission, the better the preparation and decision making. When briefing single-ship operations, specific involvement by the command and mission brief authority are required to identify all hazards and have thorough, honest dialogue with crews to (1) assess the aircrews' ability to conduct the mission and (2) ensure the appropriate level of pre-mission planning has taken place."

—GEN Richard A. Cody's thoughts on aviation risk management and leadership

What started out as a low-risk, single-ship training mission in the desert ended with two deceased crewmembers, four injured service members and a destroyed MEDEVAC aircraft. The accident crew was one of two MEDEVAC crews assigned to a remote forward operating base. They were the first-up crew and were going to conduct two hours of aircrew training manual training. The crew mix looked good on paper; both pilots were pilots-in-command, one with 920 hours and the other 690 hours. The crew chief and flight medic were experienced in the aircraft and the mission.

The mission was approved by the company commander (a major) and the Marine Corps' higher headquarters for day, night and night vision goggles and was rated low risk on the risk assessment worksheet. The crew would remain within 10 nautical miles of the FOB while conducting the training. They planned to fly unaided up to a lake north of the FOB for confined area operations, followed by pinnacle operations near another lake to the south. They then would return to the FOB, drop off the passengers, get fuel and continue with an hour of NVG training.

The UH-60A departed two minutes after official sunset. The flight proceeded as planned until they arrived at the pinnacle area next to the lake south of the FOB. Approximately 45 minutes into the flight during a visual meteorological conditions takeoff from the pinnacle, the aircraft impacted the water in a tail-low attitude. The Black Hawk flipped tail over nose, causing the main rotor blades to disintegrate and ripping the nose off the aircraft. It came to rest inverted in about 10 to 12 feet of water. Fortunately, the PC, pilot and two passengers emerged from the zero-visibility muddy water. Only one of these passengers, a former Navy flight surgeon, had previous dunker training. The crew chief and flight medic didn't survive.

ENGAGE!

Unfortunately, two Soldiers were killed during this low-risk mission. Preventable? Yes. How can leaders make a difference? When you're leading on the edge, think about the following:

- **Leaders stay engaged**
- **Leaders are accountable**
- **Someone always knows**
- **Never leave a fallen comrade (and not just in the physical sense)**

Why?

Why did this accident happen? What could the crew have done better to prevent this accident?

- **Pre-mission and in-flight planning.** Flying over the desert unaided in an area of low contrast 49 minutes after official sunset doesn't pass the common sense test. The crew should've had their NVGs easily accessible since they were first-up MEDEVAC and could've launched on a mission anytime during the training flight. However, their NVGs were stowed in the back of the aircraft.
- **Flotation equipment.** The crew was in full compliance with Army Regulation 95-1 glide distance requirements for the over-water portion of the flight. The unit didn't deploy with flotation devices based on a METT-T analysis of the operations area. In theater, there are large bodies of water that might pose an over-water hazard based on flight altitudes.

This company received only a partial fielding of the Air Warrior system at home station. Flotation components weren't issued to the unit, and the unit didn't bring the flotation equipment they had to theater. Commanders need to think through all possible mission profiles and ensure Soldiers are equipped to mitigate those risks.

- **Underwater egress and water survival.** Would dunker training have enabled the crew chief, who made it out of his seat, to reach the surface? The crew chief's body was recovered away from the main cabin near the nose wreckage. His body was free from all restraints, indicating he'd been physically able to exit the aircraft but drowned while attempting to surface.

Five of the six crewmembers hadn't been trained in underwater aircraft egress. As a result, the crewmembers had problems egressing because of disorientation, water pressure and zero visibility. The one crewmember who'd previously conducted water egress and survival training had no trouble exiting the aircraft. This is an Army-wide problem that's being addressed in Initial Entry Rotary Wing training but still requires a solution for the rest of Army Aviation.

- **Crew coordination.** Effective communication and interaction between the crewmembers was another missing tool. Had the pilot not on the controls properly performed his duties as outlined in the ATM, this accident wouldn't have happened. Every crewmember in that aircraft had a vital role to fulfill. It doesn't matter if the mission is in combat or training; a flight crew must always have their game face on. If this had been a combat mission instead of a "low-risk" training flight, the crew most likely would've put the proper emphasis on pre-mission planning and the appropriate level of vigilance required for flying in the desert during reduced light levels.

Editor's note: To read GEN Richard A. Cody's full message concerning leader involvement and mission planning in his June 23, 2006, "Thoughts on Aviation Risk Management and Leadership," go to the USACRC Web site at https://crc.army.mil/Guidance/detail.asp?iData=246&iCat=578&iChannel=15&nChannel=Guidance.

spring fever!

CW4 EARNEST EAKINS
and STEVE KURTIAK
Driving Task Force
U.S. Army Combat Readiness Center

The days are getting longer and warmer, the geese are heading north and the urge to throw your leg over the saddle and fire up your motorcycle is almost too much to bear. As Steppenwolf said, all you want to do is "Get your motor runnin', head out on the highway!" Before you bring that bike back to life, however, there are a few things you must do to get it and yourself ready for the riding season.

First, listen to your MOM. We're not talking about that sweet lady that cooks Sunday dinner and tells you to pack a sweater in 90-degree weather. Instead, we're referring to your motorcycle owner's manual. If you put your bike in hibernation the way your MOM told you to, just follow its instructions to get your scoot back on the road. You'll have your work cut out for you, though, if you just parked that baby in the corner of your garage or shed.

For those of you that followed the MOM, your prep time will be relatively short. Pull the cover off, fill the gas tank, change the oil and check the tires for correct pressures and signs of dry rot. Remove any plugs you installed to keep the critters out of your exhaust, carburetor and air filter intake, and then connect the battery following your MOM's procedures. If you didn't put your battery on a trickle charger, you might have problems getting your bike fired up. But between your MOM and T-CLOCS (see poster inside this issue), your pre-ride inspection should cover everything.

Although your bike might be road ready now, you have to check your personal protective equipment to make sure it still fits and is in serviceable condition. Those extra pounds you put on over the holidays might mean a trip to the bike shop to buy a new jacket or leather chaps. This is also the time to make sure your bike is properly licensed and insured. Some of you might have de-registered your motorcycle during the winter to place it on your homeowners' insurance. If so, you'll have to go through the registration and insurance processes again. Do it early so you can get on the road as soon as the weather breaks.

Now you need to get yourself ready for the road. Your first trip shouldn't be from Fort Riley to Daytona for bike week. Ease back into shape and knock the rust off your riding skills by practicing the drills outlined in the Motorcycle Safety Foundation's "Riding Tips" handbook. You can get a free copy of the handbook online at http://www.msf-usa.org/downloads/Riding_Tips.pdf. You might need a refresher course if it's been longer than a few months since your last ride, so contact your local safety office to schedule an experienced rider's course.

Lane position is important when you're on the road. Always position yourself in the lane of travel so you can be seen at the greatest distance possible. You'll also need to be more diligent with your scanning technique and pay particular attention to the road surface so you can spot any cracks or potholes that developed over the winter. Those of you stationed in colder climates know what I'm talking about: the pothole that bottoms out your suspension, rattles your eyeteeth and leaves you wondering if you bent your rims.

Every May is designated Motorcycle Awareness Month, but there's no reason why we should limit our commitment to safety to just one month a year. The greatest rise in motorcycle purchases and use occurs between March and April. According to the Insurance Information Institute, more than a million two-wheeled vehicles were purchased in 2005. More than 9 million motorcycles are registered in the United States, and about 33,000 of those are owned by Soldiers. Today's riders are your fellow Soldiers of all ranks and gender and your friends, relatives and neighbors. As the saying goes, it takes two to tango; motorcyclists and motorists share the responsibility of watching for and giving each other room to maneuver.

If your installation has a Motorcycle Mentorship Program, call them up and join the group. The MMP is a great way to meet people that share the same passion for riding, and you also can enjoy group rides and activities. If your installation doesn't have an MMP, contact your safety office to check on starting one.

Local MMPs increase the general public's awareness of motorcyclists by putting groups of Army riders, whether they're active duty, retired or DOD civilians, together on the road. Therefore, it's important to remember some folks still think motorcyclists are "over the edge" people that don't abide by the norms of society. We all know this isn't true and applies to only a very small percentage of the riding population, but be aware that someone is always watching. Your conduct can help elevate riding to a respectable and acceptable form of recreation, so save the wheelies for a sanctioned event.

Whether you're a hard-core or fair-weather rider, machine, mind and body have to be firing on all cylinders to ensure a safe and enjoyable riding season. Warm weather will come and go, so enjoy it while it's here. Live to ride, and ride safe! «

FYI

Before hitting the road, check out the Army Motorcycle Mentorship Program Web site at https://crc.army.mil/mmp/index.asp. Use the site as a resource for finding local riding associations and information on how to be a safer rider.

Full Service, Please

CW3 DAVID MUEHLEISEN
Ground Task Force
U.S. Army Combat Readiness Center

Hot, dry climates often are responsible for the premature failure of equipment components. If not addressed properly, high heat, dust and sand will hinder your equipment's performance and your efforts in conducting maintenance activities. Fortunately, a little preventive maintenance goes a long way in ensuring your equipment stands up to any hazard the desert offers.

The safe conduct of preventive maintenance checks and services is a combat multiplier that will support the successful accomplishment of your missions. Below you'll find some recommendations based on my experience in maintaining equipment in hot weather. Before getting started on any maintenance activities, however, remember to remove all jewelry, button all sleeves and wear appropriate personal protective equipment.

Filters. The heavy dust and sand conditions experienced in most hot climates can clog engine air filters or v-packs in a hurry. Keeping the sand and dust out of filters and air inlet areas will help the overall performance of a vehicle's engine. Compressed air will help blow the dust out, but ensure Soldiers wear goggles and hearing protection while operating an air compressor.

Engines. Internal combustion engines generate a lot of heat in conditions with high ambient temperatures. Ensuring the vehicle's radiator fins are unobstructed and not smashed or blocking airflow will keep the cooling system operating properly. Most organizational tool rooms have a radiator fin comb that can reshape damaged fins and open the airflow passages. You also should regularly inspect cooling system components such as the surge tank, belts and hoses. Remember, however, never to open the surge tank when the engine coolant is hot. A shower in 200-degree coolant is not the ticket for personal hygiene! Soldiers should wear gloves and eye protection when working around cooling systems.

Lubrication. When performing vehicle maintenance, remember to lube by the lube order. Each vehicle has a lube order that explains lube intervals and the location of lube points. High heat and extended operating hours require operators to reapply grease more often. A clean rag, coveralls and eye protection will ensure you get the job done safely.

Tires. Maintainers must inspect tires during PMCS. Worn tread or sidewall damage can lead to tire failure during a mission. Sidewall damage decreases the structural integrity of the tire and can result in rupture, especially under high heat conditions. Proper tire pressure also is a critical factor in maintaining vehicle stability. In fact, just a 20-percent disparity in tire pressure can mean the difference between a vehicle that's under control or out of control.

Underinflation or overinflation can cause tires to wear unevenly and also results in poor fuel mileage. Tire air pressure should be checked weekly, but remember split-rim or multipiece wheels require special equipment and training. For more information and a link to Occupational Safety and Health Administration charts on how to service these wheels, visit the Tire Industry Association's Web site at http://www.tireindustry.org/cts.asp.

Batteries. If neglected, vehicle batteries are very susceptible to heat damage. Hot, arid climates can cause battery electrolyte levels to evaporate quickly. Use only distilled water when refilling a battery's fluid levels. Cleaning and tightening battery holds and applying a small amount of grease to battery clamps is the best defense to ensure battery life longevity.

Glass. The addition of armor plates reduces visibility from the cab for both the driver and truck commander, so clean and serviceable ballistic glass is a must. When applicable, only clean ballistic glass with mild detergent and warm water. Don't scratch the inner surface or apply stickers or labels to ballistic glass. When cleaning windows, give mirrors and lights a quick wipe as well.

Cooling systems. Most of the Army's wheeled vehicles now have aftermarket air conditioning installed. Inspecting and servicing these systems can help keep crews 10 to 20 degrees cooler during missions. The systems are simple to inspect; tight belts and clean filters are the only operator checks. Compressed air is the best remedy for cleaning dirty filters or blowing out fans. If a system doesn't blow cool air, see the maintenance reps. Remember to keep your hands away from belts and pulleys while the equipment is running and also watch for the condenser fins, which are sharp and can cut skin easily.

Generators. Preventive maintenance isn't for vehicle components only; power generators require the same attention. If your unit has two of the same-type generators, alternate their use with a 12-hours-on, 12-hours-off schedule and PMCS them often. Put generators in the shade whenever possible; the cooling effect might help their performance. Additionally, load the generator at 80 percent to prevent "wet stacking," or a buildup of fuel that can damage the generator's engine.

Don't forget to ground! Achieving a good ground in desert environments can be difficult, but it's critical to preventing shock hazards. In the August 2005 edition of *PS*, the article "Grounding Right in the Desert" offers several techniques to overcome this issue. Slide hammers are the proper tool for hammering ground rods.

Maintenance activities in extremely hot weather are just around the corner. By following the cautions and warnings in your equipment's technical manuals, using proper personal protective equipment for the mission and employing some common sense, you can prevent needless accidents from affecting you and your fellow Soldiers.

FYI

Planning to perform some preventive maintenance on your vehicle? If so, consult the chart below to see what PPE you should wear for the job.

Activity	Acid-resistant Apron	Work Gloves (hazard dependent)	Goggles	Ballistic Eye Protection	Helmet (Army Combat Helmet or Kevlar)
Battery Maintenance	●	●	●		
Camouflage/Tarp Erection		●			●
Grounding Rods		●		●	●
Compressed Air		●	●		

a real Witch's Brew

BOB VAN ELSBERG
Editor, *Knowledge*
U.S. Army Combat Readiness Center
and
FRANK MCCLANAHAN
Safety and Occupational Health Manager
U.S. Army Combat Readiness Center

"Wow … what a mess!" I thought as I looked at the bathroom of the dry cleaners where I worked part-time. Latrine duty was my least favorite chore, the dirtiest of the many dirty jobs that had to be done at the cleaners.

I wasn't relishing the task. As I looked at the stains, I figured using bleach cleanser would be the only way to get them out. I grabbed a wet sponge, dipped it in a bucket of hot water and cleanser and started scrubbing, but to no avail. Then I had an idea. I had a bottle of ammonia, something I'd seen my mom use at home. Why not mix the bleach and ammonia together? I figured the combination would create a high-powered cleaner sure to remove even the toughest stains.

I poured some ammonia into the bucket and began scrubbing again. But before long I was feeling dizzy and my lungs were hurting. When I walked out of the bathroom for some fresh air, the owner rushed over to see what was wrong. She was shocked when I told her what I'd done. I'd unwittingly concocted chloramine, or chlorine gas, a "witch's brew" similar to the phosgene gas used to kill Soldiers in World War I. I'd almost gassed myself! All it took was mixing a couple of household products with a lot of ignorance.

Chemicals can be hazardous because of their toxicity, flammability, corrosiveness or how they react when combined with other substances. Toxic chemicals such as fungicides or insecticides can damage skin and other tissue and lead to serious injury or death. At low temperatures, flammable substances including hair sprays, solvents, adhesives and paint thinners can spontaneously combust. Corrosive chemicals such as cleaners for ovens, drains and toilets and battery acid can damage your skin on contact.

Reactive substances including dishwashing detergent and pool chemicals typically contain chlorine. When exposed to shock, pressure, temperature, air, water or other chemicals, they'll polymerize vigorously (the process where one or more small molecules form larger molecules). That's what happened when I mixed the bleach and ammonia.

Every day we're exposed to chemicals used for a variety of purposes in and around our homes. We have air fresheners and products for cleaning kitchens and bathrooms, washing dishes and removing stains from carpets and furniture. In our bathrooms we have deodorants and hair care products. For pets we have flea and tick killers. We store stain, caulk, sealers, adhesives and other home maintenance items in our garages along with lawn care chemicals such as fertilizers, weed killer and pesticides. For our vehicles and fuel-powered tools, we store things such as gasoline, brake fluid, battery acid, lubricants and degreasers. Homeowners with pools typically keep chemicals such as chlorine, algaecide and pH balance in their garage or storage shed.

Protecting yourself and your family from the hazards posed by these products is simple; it just takes a little time and attention. First, thoroughly read product labels to understand how to use them safely and what protective equipment might be required. Second, inspect your house, storage closet and garage for proper storage conditions. Ensure substances that are dangerous when mixed aren't stored side by side. Also make sure cabinets and doors are secured properly to prevent children or pets from opening them.

Finally, there are some important numbers you need to keep next to your phone. If you have a poisoning emergency, call the American Association of Poison Control Centers' toll-free hotline at (800) 222-1222 for immediate help. In addition, have the number for your family doctor and nearest hospital readily available. Each state has a poison control center; to find the one for your state, visit the AAPCC's Web site at www.aapcc.org/findyour.htm.

SHOULD A POISONING OCCUR:

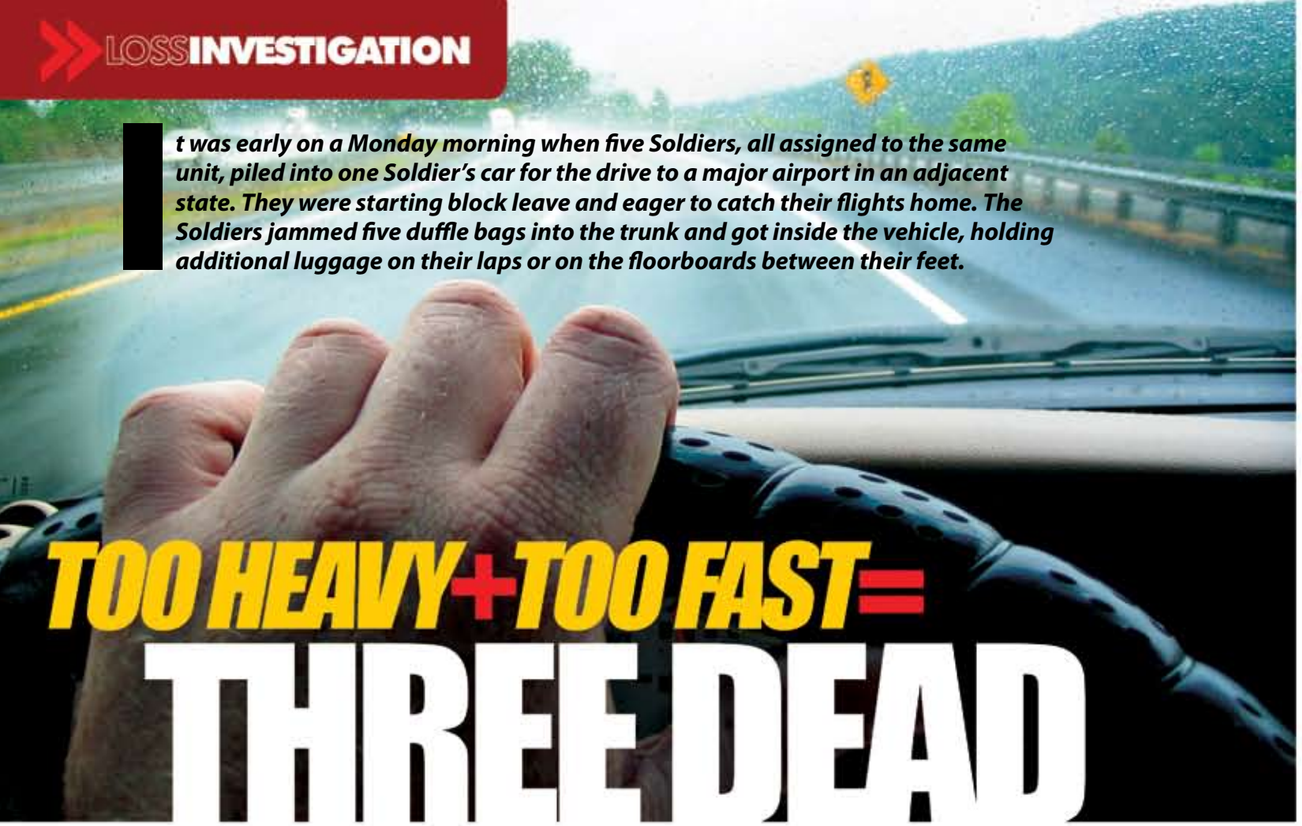
- Stay calm
- Immediately call your poison control center or the AAPCC's hotline and have the following information ready:
  - Victim's condition, age and height
  - Name of the product and ingredients
  - How much of the product was taken
  - Time the poisoning occurred
  - Your name and telephone number
- Follow the poison center's instructions

Prevention tips

- Keep all household poisons and medicines in their original, labeled and child-proof containers.
- Lock poisons and medications out of the reach and sight of small children.
- Be as careful with non-prescription medicines as with prescription medications. Never refer to them as candy or take them in front of children.
- Never leave children alone with household products or medications. If you're using a product and must answer the telephone or door, take the child with you.
- Return household and chemical products to safe storage immediately after use.
- Know which plants can be poisonous and keep them away from children. Contact a local nursery or your state's poison center to find out which plants are safe.
- Never store household cleaning products in the same place you store food.
- Never place poisonous products in a container that once held drinks or food.

FYI

For more information on poison prevention, visit the AAPCC's home page at http://www.aapcc.org/ and click on "Poison Prevention & Education."



It was early on a Monday morning when five Soldiers, all assigned to the same unit, piled into one Soldier's car for the drive to a major airport in an adjacent state. They were starting block leave and eager to catch their flights home. The Soldiers jammed five duffle bags into the trunk and got inside the vehicle, holding additional luggage on their laps or on the floorboards between their feet.

TOO HEAVY+TOO FAST= THREE DEAD

U.S. ARMY COMBAT READINESS CENTER

Although the car was a mid-size luxury model, the Soldiers had exceeded its load limitations. With three people in the backseat and more than 350 pounds of luggage in the trunk, the vehicle's weight distribution shifted toward the rear. This reduced front-tire traction and altered the vehicle's handling and stability.

The Soldiers had received a safety briefing from the rear detachment NCOIC during morning formation. The briefing addressed driving techniques, speeding, drunk driving and driving while fatigued. After they were finally released on leave, the Soldiers wasted no time getting on the road.

They had to cover a lot of miles quickly to make it to the airport on time. The state highway they started out on wasn't the best, being narrow, poorly maintained and limited to 55 mph. The intermittent rain showers they hit didn't help matters. However, as they crossed the state line, the road improved significantly. The broad, two-lane road allowed drivers to go 70 mph during daytime hours.

After a brief stop at a gas station, the five Soldiers got back on the road and headed west toward the city where the airport was located. The road was wet from the occasional rain showers they were still encountering, and the driver had his lights on and his wipers going. They'd gone about eight miles when the road curved slightly to the right and descended, providing a short passing zone for westbound traffic before quickly entering a no-passing zone and an uphill grade.

While the Soldiers' vehicle was in the passing zone, another driver swept past and then swerved back into the westbound lane, cutting their car off. The Soldier driving the vehicle panicked and slammed on the brakes, causing the car to skid right and then left. As the car slid, the driver hit and released the brakes but failed to regain control.

The car slid across the oncoming lane and down an embankment before skidding across a muddy, sparsely grassed shoulder and up a slight incline into some large trees. The front passenger side hit a tree, causing the car to spin and hit another tree on the driver side. The vehicle wound up about 50 feet in a forest, far enough off the road to not be seen easily by passing traffic.

After briefly losing consciousness, the driver awoke, got out of the car, checked the other passengers and made his way to the road to get help. Two truck drivers stopped on the shoulder and went into the woods toward the crashed car. Another motorist stopped and called 911 for assistance. State troopers and emergency medical services were dispatched quickly to the accident scene, where fire department personnel used their Jaws of Life equipment to free some of the Soldiers from the badly smashed car.

The driver, who had suffered only minor injuries, was treated and taken to a local hospital. The truck drivers had gotten the driver-side rear passenger out of the vehicle and laid him on his back on the ground. Paramedics treated the Soldier for difficulty breathing and prepared him for air evacuation to a hospital.

Unfortunately, the three other Soldiers didn't survive. The right-front passenger was found a few feet from the car. He was lying prone on his door, which had been torn from the vehicle during the accident. The right-rear passenger was crushed into his door and rested in a fetal position. The rear-center passenger's feet were touching the ground through a hole that had been ripped in the right-rear passenger's floorboard. Although the five Soldiers had worn their seat belts, it wasn't enough to save all of them during this violent, high-speed crash.

So what killed them?

Driver inexperience. The driver improperly applied his brakes during the accident sequence. His vehicle was equipped with anti-lock brakes, but the driver pumped them instead of applying firm, steady pressure to the pedal and steering through the situation, sending the car out of control. The vehicle's overloaded state also made it far less controllable when the driver attempted to brake.

Speed. The accident occurred 101 miles into the trip, but the Soldiers had been on the road for only an hour and 10 minutes. To cover that distance in such a short time, the driver had to average a speed of 86 mph. Taking into account the stop lights in two towns along the route and the brief gas station stop, the driver must have accelerated well above 86 mph on some sections of the road. This action violated the 70-mph speed limit and also was far too fast for the wet road conditions.

Final thoughts

Although seat belts and crush zones in modern vehicles can save the lives of passengers, there is a limit when speed is involved. For every increase of 10 mph, impact forces are doubled during a crash. There comes a point when no vehicle can withstand the impact and remain intact. Also, the g-forces on passengers, even those properly restrained by seat belts, can be more than the human body can survive.

The Soldier who caused this accident was properly trained and licensed and had just received a safety briefing. He has no excuse. Likewise, the passengers were responsible to speak up for their own safety but didn't. Sadly, in the end, three of them paid for that silence with their lives.

DON'T FLIP YOUR LID

BOBBY J. PIIRAINEN
U.S. Marine Corps

Working at a treatment storage disposal facility might not be the most glamorous job, but what goes on inside is pretty important business. Where do you think all that hazardous waste we create ends up? What the job lacks in excitement, though, is more than made up by the potential for danger, as I found out firsthand.

I'd just arrived at my job as a hazardous waste handler and was on my way to change into my work clothes. As I approached the changing room, I saw a drum we'd picked up the previous day sitting on a pallet. What caught my eye was the drum had started to "football," or bulge, at both ends.

Being a first responder for the base, I immediately recognized this as a potential problem and decided to investigate. One of the first things you look or listen for when a drum takes this shape is pinging. If the drum begins to ping, it means the metal is starting to fatigue and might burst. If that happens, you could be facing anything from a normal spill to a full-blown disaster, depending on the material contained in the drum.

There wasn't any pinging, so I moved on to the second warning sign, which is whether the drum is hot. If it's hot, a chemical reaction probably is happening inside the drum, which can lead to a real problem. I carefully walked up to the drum to check for heat but felt none.

Once I determined the drum wasn't going to blow, I pulled the paperwork out to see what it contained. The only substances listed were waste oil and paint. I figured the bulging probably was due to someone overfilling the drum and not leaving a vapor space. It was a warm morning, so it made sense this was the problem. I decided there was nothing more to do than let the extra air out, so I put the paperwork back on the drum and continued to the changing room.

It took me less than five minutes to get changed, but as I finished I started thinking about that drum again. There was something about it that gave me an uneasy feeling, and I wanted to investigate more. I left the changing room and walked back toward the drum. I was about 30 feet from it when the top blew.

You must understand this container was a bung-type drum, and its top was welded on tight. The only way to put material or waste inside this type drum is to unscrew one of the two bung tops. The force of the blast sent the drum's top about 50 feet in the air. I could feel the force of the explosion from where I was standing.

When it finally dawned on me what had just happened, I decided to leave work a little early. What would've happened to me had that drum exploded while I was standing over it? The outcome surely would've been bad. Since that day, I've made it a point to tell my story whenever I get the chance. Hopefully my experience will keep someone from making the same mistake

As GOOD as it GETS

U.S. ARMY COMBAT READINESS CENTER

Execution of rollover drills and situational awareness turned a potentially deadly rollover event into a successful survival story for three Soldiers when their Bradley Fighting Vehicle rolled into a canal in Iraq.

SSG Logan Wallace, Bradley commander; SPC Mark Hoiland, gunner; and SPC Ray Ness, driver, were able to successfully exit their BFV after the road on the bridge they were crossing gave way, causing the vehicle to slide and overturn before coming to rest upside down in the canal.

"We were in a vehicle convoy on a night mission," said Wallace. "We saw the crossing and proceeded to make the turn over a canal."

With knowledge of tactics, techniques and procedures specifically developed for the operational terrain and background experience through training and rollover drills, Wallace and his crew made the proper preparations before crossing the bridge.

"When the road started to break away, causing us to slide into the canal, I yelled over the intercom system that we were sliding," said Ness. "SPC Hoiland then yelled 'rollover.'"

"We slid in and tipped upside down," said Hoiland. "The BFV hit the bottom and water filled the turret."

While water was filling the vehicle, the three Soldiers immediately began trying to exit the vehicle and made certain not to leave a fallen comrade behind.

"I was able to turn myself around upwards after the water filled the turret," said Hoiland. "I then yelled for SSG Wallace and started pulling on him because he was still upside down."

"I was able to get down in the turret of the Bradley before we were upside down but was forced into the BC's hatch," said Wallace. "I was face first in the mud and water. I tried to get free and upright but was stuck in the mud and my IBA (Interceptor Body Armor) was catching on something. Water filled the turret very fast and I didn't know the fate of my crew members. I continued to struggle to free myself from the river bed, holding my breath and thinking time was running out. I started taking a little water into my lungs and then I heard SPC Hoiland screaming my name and pulling on my IBA until he was able to get me upright."

While Hoiland was freeing Wallace and getting his head above the water, Ness was also taking action.

"I was stuck up in the driver area," said Ness. "I finally freed myself and made my way through to the back troop area of the BFV. Once I got back in the troop compartment and saw that the gunner's (turret shield) door was not open, I heard SPC Hoiland yelling that he couldn't get the turret door open because he was pinned against it. I then felt for the handle to the gunner's door and pulled it open."

The driver and gunner of the BFV that had been following the Soldiers' vehicle dove into the water to assist them out of the water.

"The Soldiers knew the TTPs and procedures that helped save their lives," said MAJ Michael Murray, the battalion safety officer. "By placing the turret in the 12 o'clock position, part of the training and preparation to cross canals, it allows the Soldiers to get the door open. Otherwise it could be blocked. Additionally, the crew conducted their rollover drill as the vehicle entered the water. That is training saving lives."

Training and proper execution of TTPs also had the three Soldiers securing all their equipment as part of pre-combat checks.

"This prevented the vehicle from being cluttered and having items that could have hit the crew members as the vehicle overturned," said Murray. "The 'hell hole' was clear, which allowed Ness to get out as well as get back to open the door."

According to Army statistics, rollovers have been decreasing. This reduction is directly attributed to improved TTPs such as reduced speeds, increased rollover drills and leaders ensuring Soldiers are aware of hazards.

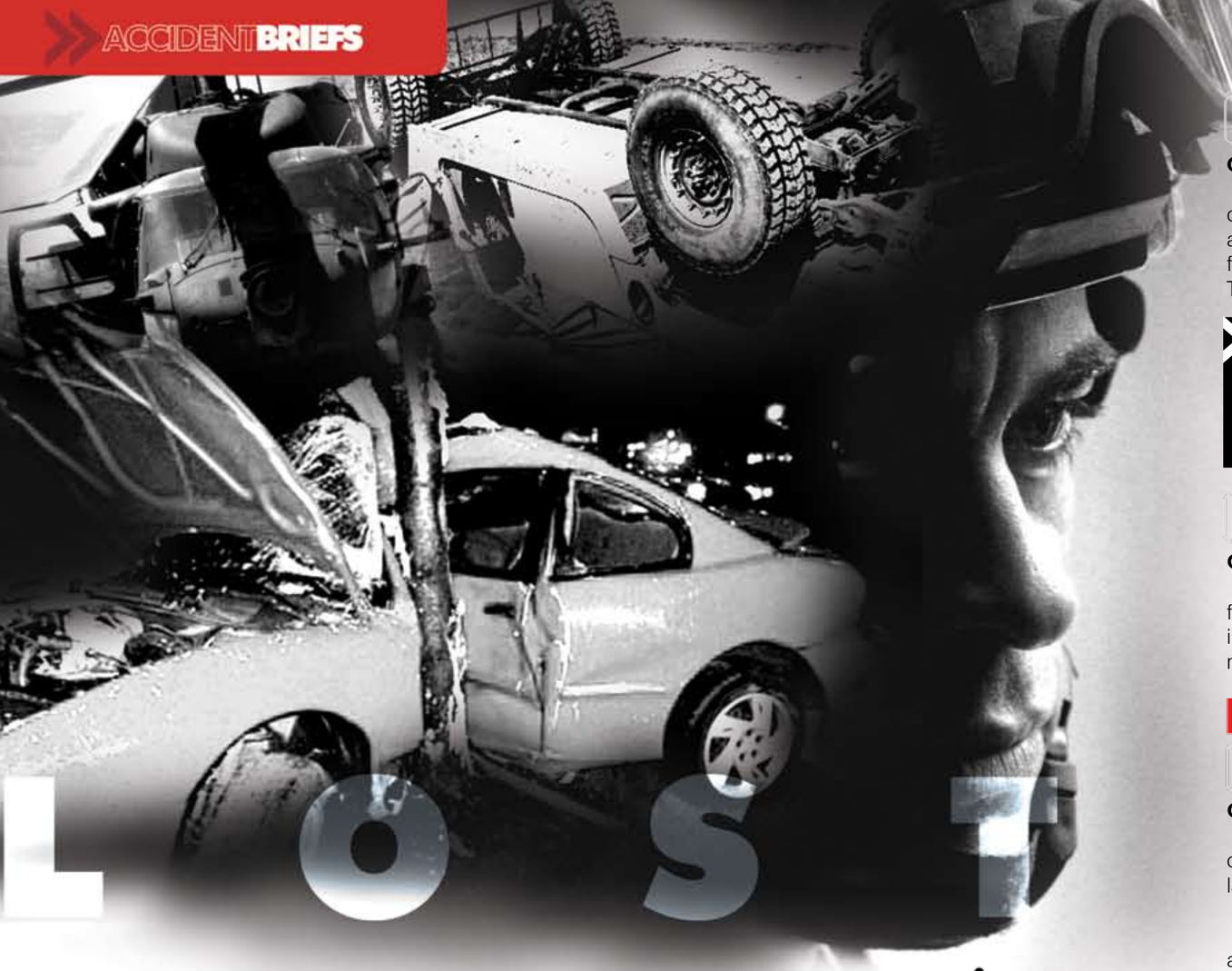
Comparing fiscal 2006 to fiscal 2005, the Army had an 82-percent reduction in drowning fatalities resulting from rollovers.

"These Soldiers did everything right," said Murray.

TRiPS FOR YOUR TRIPS!

This March, Soldiers will notice something different about the tool they've come to depend on for assessing risk during POV trips. What was formerly known as ASMIS-2 is now the Travel Risk Planning System, or TRiPS, and it's been adopted across the Department of Defense for use by the Navy, Marines, Coast Guard and Air Force. The name change and expanded reach doesn't change the tool's value, however. Soldiers will continue to input and receive hazard and risk mitigation information based on their trip specifics, including vehicle type, driver age, destination, seat belt use and more. However, supervisors will have more oversight thanks to a new feature that allows them to view the activity of their subordinates two levels down, thereby expanding leadership engagement and awareness.

TRiPS was implemented in the Army as ASMIS in 2004 and to date, Soldiers have completed more than 1,783,000 assessments with only six fatalities reported during assessed trips. In the year since the Navy released TRiPS, no fatalities have been reported among the nearly 30,000 Sailors registered for assessments. These statistics show fatal POV mishaps might be less likely among service members who use the tool.For more information or to register for TRiPS, visit the U.S. Army Combat Readiness Center's Web site at https://crc.army.mil.



AVIATION

CH-47

CLASS C D Model

Aircraft was ground taxiing on the runway when its rotor wash caused damage to a parked DC-3.

CLASS D

The pilots felt a high-frequency vibration in the forward transmission during cruise flight and returned the aircraft to base for further inspection. The vibration was present on the ground, although less noticeable. After shutdown, maintenance personnel determined the #1 FLT HYD pump was failing and replaced it.

MH-47

CLASS D E Model

The crew noticed the No. 2 aircraft pylon hydraulic access panel was missing during the post-flight inspection. The inspection revealed the leading edge camlock fastener on the access panel had failed, resulting in the panel separating from and striking the airframe during flight. The aircraft was released for repair.

OH-58

CLASS B D(R) Model

Aircraft experienced an overtorque condition during out-of-ground effect hover.

CLASS C

The aircraft suffered damage during an M4 weapons test fire when some of the rounds contacted a main rotor blade.

DO YOUR PILOTS-IN-COMMAND CONDUCT CREW AND PASSENGER BRIEFS THAT INCLUDE DISCUSSION OF WEAPONS USAGE AND EFFECTS DURING FLIGHT OPERATIONS?

UH-1

CLASS A H Model

Four crewmembers and five civilians suffered injuries when their aircraft contacted wires during flight and struck a mountainside. The aircraft was destroyed.

DO YOU CONDUCT ADEQUATE PRE-MISSION PLANNING AND USE A CURRENT HAZARD MAP FOR RECONNAISSANCE AND NAVIGATION?

UH-60

CLASS A L Model

Three crewmembers suffered fatal injuries when their aircraft impacted the ground during a night vision goggle training flight.

UAS

RQ-7B

CLASS B

The UAS crashed and was destroyed during return to the launch and recovery site.

Engine rpm dropped abruptly as the UAS proceeded up the launcher, preventing the aircraft from maintaining flight. The UAS glided under minimum power for 525 feet and crashed into a motor pool, causing extensive damage to the aircraft.

RQ-11

CLASS C

While conducting a surveillance reconnaissance mission, the UAS operator lost all power on the ground control unit. The GCU came back up and reset with no GPS lock or light setting. In addition, the aircraft did not return to its programmed rally point nor respond to manual controls. The UAS crashed and could not be located.

GROUND

AMV

CLASS A

A Soldier was killed when the HMMWV he was riding in rolled over. The Soldier, who was serving as the gunner, was pinned underneath the vehicle. The accident occurred in the early morning.

ARE YOUR VEHICLES RETROFITTED WITH THE IMPROVED GUNNER RESTRAINT SYSTEM?

A Soldier suffered fatal injuries when the FMTV he was driving overturned. The Soldier was attempting to drive around an impassable portion of roadway when the accident occurred. The Soldier was evacuated for treatment but died at the aid station. Seat belt use was not reported. The accident occurred in the mid-evening.

CLASS B (DAMAGE)

Two Soldiers suffered minor injuries when their M978A2 HEMTT fueler rolled over. The driver was operating the vehicle on an unimproved surface at a high rate of speed when he attempted to make a turn. The vehicle's excessive speed, combined with the weight of the JP8 fuel it was carrying, caused it to fishtail and overturn. The driver and vehicle commander were evacuated to a hospital and treated for their injuries. Both Soldiers were wearing their seat belts, Kevlars and eye protection. The vehicle suffered a bent frame and was deemed a total loss. The accident occurred in the mid-evening.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru Feb. 28, 2007

	Hostile/ Non-hostile
AH-64A/D	13/44
U/MH-60L	9/24
C/MH-47	6/14
OH-58D	8/21
TOTAL	36/103

ARMY GROUND LOSSES

FY07

thru Jan. 2007

	Class A/Fatalities
AMV	7/7
ACV	5/3
PERSONNEL INJURY	14/14
WEAPONS HANDLING	3/3
FIRE/ EXPLOSION	0/0
TOTAL	29/27

Personnel Injury

CLASS A

A Soldier suffered a fatal gunshot wound to the head during an enemy engagement. Friendly fire is suspected. The accident occurred in the early morning.

ARE YOUR SOLDIERS PRACTICING PROPER WEAPONS HANDLING?

A Soldier died after becoming ill while participating in a physical training test. The Soldier was evacuated to a local hospital before being transferred to a heart and lung center, where he was pronounced dead. The accident occurred in the mid-morning.

Two Soldiers drowned when they were caught on a lake in bad weather. The Soldiers were fishing in a small boat, and their bodies were found three days later. Neither Soldier was wearing a life jacket.

HAVE YOU TALKED WITH YOUR SOLDIERS ABOUT THEIR OFF-DUTY ACTIVITIES AND HAZARDS?

A Soldier drowned while body boarding. His body was discovered in shallow water. No further details were reported.

CLASS B

A Soldier suffered a permanent partial disability when a .50-caliber round detonated inside the chamber of the weapon he was operating. Shrapnel struck the Soldier's leg. The accident occurred in the late evening.

A Soldier suffered a permanent partial disability when the taxi he was riding in was struck by a pickup traveling on the wrong side of the road. The Soldier's spleen was removed during subsequent surgery.

CLASS C

A Soldier was injured during range training when his .50-caliber weapon misfired and the round exploded. The Soldier was knocked backward and fell into a 5-foot-deep foxhole, fracturing his skull and cutting his face and head. No shrapnel was found in the Soldier's head. The accident occurred in the mid-morning.

ARE YOUR SOLDIERS WEARING THE APPROPRIATE PPE?

A Solider suffered an eye injury while conducting an area security mission. The Soldier was moving toward the rear of a vehicle when the M249 gunner engaged a target. The Soldier was struck in the right eye by a blank round after it was ejected from the weapon. The Soldier was transported to the emergency room, where he received two sutures in his cornea and was hospitalized for four days. The accident occurred in the mid-afternoon.

Three Soldiers suffered minor injuries when a burlap sack containing a substance believed to be a homemade explosive discharged. The Soldiers were examining the sack when some ashes from one of the Soldier's cigarette ignited the substance. Two of the Soldiers were treated at the troop medical clinic and returned to duty. The third Soldier was transported to the hospital for an eye injury and kept overnight for observation. He returned to duty the following day with a 30-day duty restriction. The accident occurred in the early afternoon.

DRIVING

POV

CLASS A

A Soldier was killed when his POV left the road and struck a tree. The Soldier was wearing his seat belt.

A Soldier suffered fatal injuries when his vehicle left the road, struck a culvert, became airborne and landed in a ditch.

POV DRIVING LOSSES FY07

thru Jan. 2007

	Class A accidents/Soldiers killed
CARS	25/16
VANS	0/0
TRUCKS	15/11
MOTORCYCLES	29/8
OTHER*	10/2

*Includes tractor-trailers, unknown POVs and bicycles

37 TOTAL DEATHS

06 FY06: 30 3 year average: 34

WEAR YOUR SEAT BELTS!

A Soldier was killed when his truck left the roadway. The pickup crossed the opposing traffic lanes and exited the road's shoulder as the driver was rounding a left-hand curve. Seat belt use was not reported.

HAVE YOU TOLD YOUR SOLDIERS SEAT BELTS INCREASE THE ODDS FOR SURVIVAL IN A CRASH BY 80 PERCENT?

The Soldier was en route to his duty station for weekend drill. Seat belt use was not reported.

A Soldier died when his POV crossed a median and overturned on an icy road. The Soldier was traveling to his leave location and was wearing his seat belt.

Two Soldiers were killed when the POV they were riding in hit a tractor-trailer. The driver, also a Soldier, was attempting to pass the tractor-trailer when he lost control of the vehicle. Seat belt use was not reported.

A Soldier suffered fatal injuries when his POV rolled over on an interstate highway. The Soldier reportedly fell asleep at the wheel and when the vehicle rolled, its roof caved in on the Soldier and his brother. Both the Soldier and his brother, who suffered minor injuries, were wearing their seat belts. The Soldier is believed to have been behind the wheel for three hours and had driven about 180 miles when the accident occurred.

DO YOUR SOLDIERS DISCOUNT THE VALUE OF A GOOD NIGHT'S SLEEP?

A Soldier suffered fatal burns when his POV caught fire after a single-vehicle accident. The Soldier was trapped inside the car and pronounced dead at a local hospital.

A Soldier was killed when his pickup drifted off the road, spun around, overturned, struck an electrical post and caught fire.

A Soldier died when his truck hit an oncoming tractor-trailer. The Soldier was traveling eastbound when he lost control of the pickup, which crossed the median into the opposing lane. The accident happened after sunset during adverse weather conditions. Seat belt use was not reported.

A Soldier suffered fatal injuries when his pickup hit an oncoming tractor-trailer. The Soldier was traveling on an interstate highway during bad weather when he lost control of the truck. Seat belt use was not reported.

A Soldier was killed when his truck left the roadway. The pickup crossed the opposing traffic lanes and exited the road's shoulder as the driver was rounding a left-hand curve. Seat belt use was not reported.

A Soldier died when his pickup rolled over several times after being hit by a bus on a freeway onramp. The Soldier was thrown from the vehicle and pronounced dead at the scene.

POM

CLASS A

A Soldier died when his motorcycle collided head-on with a pickup. The Soldier was attempting to pass another vehicle on the right when the motorcycle crossed the centerline. The Soldier was wearing his helmet and required personal protective equipment.

A Soldier suffered fatal injuries when his motorcycle overturned and hit a concrete pole. The Soldier was rounding a curve at the time of the accident. He was properly licensed and wearing required PPE.

CLASS B

A Soldier suffered head injuries resulting in a permanent partial disability when he was thrown from his bike. The Soldier lost control of the motorcycle when a POV entered his path. The Soldier was properly licensed and wearing required PPE.

CLASS C

A Soldier suffered a dislocated shoulder when his motorcycle crashed in a ditch. The Soldier was riding his motorcycle in family housing at 30 mph in a 45-mph speed zone after dark. He reportedly misjudged the angle of a turn and attempted to make it too fast, resulting in the accident. The Soldier was properly licensed and wearing required PPE.

IT ISN'T HOW LITTLE YOU KNOW...

IT ISN'T HOW LITTLE YOU KNOW
THAT GETS YOU IN TROUBLE.

IT'S BELIEVING THAT WHAT LITTLE YOU KNOW
IS ENOUGH TO KEEP YOU OUT OF TROUBLE.

U.S. ARMY
ARMY STRONG.

U.S. ARMY COMBAT READINESS CENTER
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own the EDGE
Leading on the Edge

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KNOWLEDGE

VOL 1 APRIL 2007

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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own the EDGE

Leading on the Edge

KNOWLEDGE

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Julie Shelley Managing Editor
Bob Van Elsberg Editor
Chris Frazier Editor
Paula Allman Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

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ARMY STRONG, ARMY SAFE

FROM THE DASAF

"We must take **OWNERSHIP** of our **ACTIONS** and those of our teammates. The first team's power thought, '**I CAN SAVE MY OWN LIFE**,' is indeed powerful but could be more so if we add '**AND MY TEAMMATES**.'"

Great things are happening in our Army today. We're not just "Army Strong," we're also "Army Safe." In my opinion, our Army is doing more today than any other time in recent memory. But I also believe our continued successes are the direct result of actions from the entire Team, contributing in ways we might not have in the past. We must ask ourselves, "How can we execute everything we have before us today, including successively more difficult missions, and do it all safely?" That rhetorical question is a GREAT topic for discussion!

The number of technical safety experts within our formations is limited. It's probably accurate to say that, except for aviation units, there's just one full-time professional safety officer at brigade level in most units today. Fortunately, the Army recently received approval to hire the extremely valuable civilian safety professionals now embedded at brigade level. These folks deploy, execute mission sets, redeploy and make the same sacrifices as our Soldiers while making significant contributions to combat readiness.

However, there simply aren't enough of these safety professionals to go around. They can't be with us all the time to remind us what's important. We must augment their efforts, and this is where the power of YOU comes into play. We must take ownership of our actions and those of our teammates. The first team's power thought, "I can save my own life," is indeed powerful but could be more so if we add "and my teammates." There's indeed power and a combat multiplier in protecting our teammates. Remember, if you don't, you'll operate with less than you came.

All of us are leaders with a responsibility to look out for our comrades. We should acknowledge a fallen comrade isn't just someone who's in a hot landing zone or taking fire in a Baghdad alleyway. A fallen comrade might reveal themselves to us as one too tired to drive to drill or home on leave, or one riding their new motorcycle without a helmet or proper training, or one depressed to the point of suicide or suffering the effects of sexual assault.

As an Army of leaders engaged at all echelons, we're required to look at each other and ask, "Are you ok?" Let's commit to lead at the levels we're trained, get the mission accomplished and then lead some more. Your job as a Soldier and a leader never ends. Take care of yourself and take care of each other. If you don't, who will?

William H. Forrester
Brigadier General, USA
Commanding

ENGAGED LEADERSHIP: IT WORKS!

When I was just a lieutenant back in 1989, I learned the hard way what happens when Soldiers don't follow the rules. I was a platoon leader, and one of my Soldiers died in a vehicle accident. I'll never forget that Soldier or the lessons I learned following his accident. Another Soldier from a different platoon chose to drive drunk one night, and my Soldier made a decision to get in the vehicle with him. The other Soldier survived the accident and was charged with vehicular manslaughter.

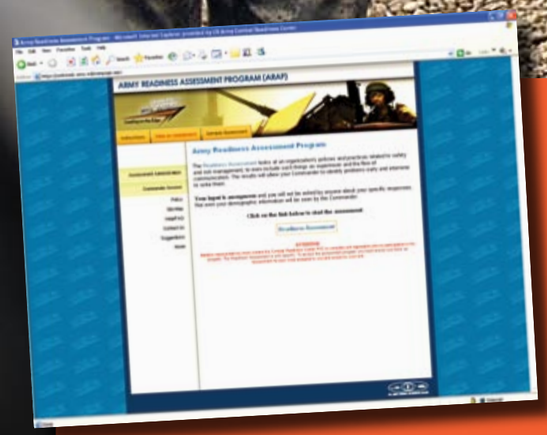
Several years and promotions later I was assigned as a battalion commander. Going into this command, I promised I'd do everything in my power to make sure we didn't lose a single Soldier to an accident. I believe all accidents are preventable IF leaders at all levels stay engaged. In keeping with that philosophy, we kept safety at the forefront of every Soldier's mind without hindering our mission.

I don't know how many lives we saved, but I can tell you we didn't lose even one Soldier to an accident. We'd logged more than 450 accident-free days as I relinquished command, and the post commanding general recognized the unit's success with a safety award. Just over a year later, the unit is still in the top quartile of the Army Readiness Assessment Program. So, how did we do it?

First, let me say I'm writing this article anonymously because the success of this battalion's program isn't about me. It's about the sacrifice, discipline and attention to detail these Soldiers demonstrate every day, a true team effort to keep everyone in the fight to preserve combat power. The credit doesn't go to me, but to the brave Soldiers and leaders that get to the core of preventing needless accidents. I was blessed just to be a part of this great success story, and I have the highest respect for the current commander who's doing his job so well.

I think the biggest factor in our success was engaged leadership. We held leaders at every level, especially our squad and junior leaders, accountable for their Soldiers' actions. I occasionally spoke with all leaders (corporal and above) about their engagement and safety responsibilities, and the battalion command sergeant major would talk with Soldiers about discipline and safety awareness. We made it clear every leader had a responsibility to identify high-risk Soldiers and implement controls to keep those Soldiers in check.

Undoubtedly, command emphasis is important; however, we believed the center of gravity for preventing accidental loss was the squad leader. As first-line supervisors, squad leaders spend more time with and know their Soldiers better than anyone else. We allowed time every Friday for squad leaders to talk with their Soldiers in a format similar to U.S. Army Europe's "Under the Oak Tree



DID YOU KNOW?

Make sure your Soldiers are ready for the mission by using the Army Readiness Assessment Program. It's a Web-based initiative that provides battalion-level commanders with data on their formation's readiness posture. Check it out today at https://unitready.army.mil/.

> "To make sure everyone was **LISTENING**, we sometimes called for **VOLUNTEERS** to give the weekly safety brief. This practice was a **BIG SUCCESS**; our volunteers always did a **SUPERB** job telling their fellow Soldiers to **STAY OUT OF TROUBLE** and be safe."

Counseling." When the squad leader was finished, the platoon leader and sergeant, followed by the company commander and first sergeant, addressed their Soldiers. Finally, I gave a safety brief before releasing the Soldiers for the weekend.

This process, which included interaction from all levels of leadership, occurred every week. To make sure everyone was listening, we sometimes called for volunteers to give the weekly safety brief. This practice was a big success; our volunteers always did a superb job telling their fellow Soldiers to stay out of trouble and be safe. We also occasionally invited military police and Mothers Against Drunk Driving representatives to speak at the final formation.

The battalion was very aware of the top hazards that could seriously injure or kill our Soldiers. We spent a lot of time putting controls in place to eliminate all types of accidents, including POV, motorcycle, combat logistical patrol, weapons handling, maintenance and swimming, to name a few. We completed a risk management worksheet for every major on-duty event, and the CSM and I received a back brief on the risk assessments for these missions.

Obviously, motorcycle and POV accidents were a huge concern. All motorcycle riders signed a contract with the battalion and their company commanders, and I personally conducted a one-on-one counseling session with them. We also began a mentorship program where we paired experienced bikers with novice riders so they could share their knowledge of the road. The buddy system was a big part of our success as well. Every Soldier was assigned a battle buddy to help keep each other straight, especially after duty hours. In addition, we conducted mandatory POV inspections and risk assessments before every three- or four-day weekend.

Products from the U.S. Army Combat Readiness Center, including preliminary loss reports, the ASMIS-2 POV Risk Assessment Tool (now TRiPS), posters, videos and other media, also helped us stay accident free. We distributed and discussed the latest PLRs with our Soldiers every week at final formation, emphasizing hazards and controls. Every Soldier had to complete an ASMIS-2 assessment before being released for pass or leave with no exceptions. The videos were invaluable for safety stand-down days, and we hung the posters in common areas for maximum exposure.

Here are some additional TTPs that worked for my unit:

- Mandatory quarterly safety councils
- Incentives and awards
- Newcomers' briefs—an excellent opportunity to indoctrinate new Soldiers in the battalion's safety culture

If you're a leader reading this article, get and stay engaged. Command involvement down to squad level enhances the commander's safety program and keeps our Soldiers in the fight. We turned the arrow down in fiscal 2006, so continue to do your part in preventing accidental loss. You ARE making a difference!

FROM THE HEART

CW2 PAUL DEVINCENZO
Pennsylvania Army National Guard
Fort Indiantown Gap, Pa.

In the good old tradition of the military, our Army Aviation support facility recently changed command. As the AASF and airfield safety officer, I met extensively with our new commander regarding the unit's safety program. I reminded him that in accordance with Army Regulation 385-95, *Army Aviation Accident Prevention*, paragraph 1-6 (2), all commanders will establish a written commander's safety philosophy.

A new aviation commander, be it a second lieutenant or colonel, must take writing a safety philosophy letter very seriously. He should write the letter using his heart first and his brain second. That letter is sometimes his first official correspondence to the unit, and it might be published while his Soldiers are still forming their impression of him.

What kind of message does a "cookie-cutter" or "check-the-block" safety philosophy letter send to the unit? This is an excellent opportunity for new commanders to make a positive first impression, but many don't take the task seriously. Trust me, I've read my share of poor aviation safety philosophy letters.

They're often cold, emotionless, bureaucratic ramblings that simply regurgitate the Army's basic policy toward risk management and accident avoidance. The worst safety philosophies are the ones that look suspiciously like the previous commander's letter. Others might mimic the higher-level commander's safety philosophy.

A written safety philosophy isn't an officer evaluation report support form! You don't have to write it to be synchronized with your higher-level commander. There's no heart in those safety philosophies. This one is yours, not your predecessor's or your boss's.

The best safety philosophy letters I've seen aren't overly long, but they contain emotion and heart. A commander often will relate his previous experiences as a pilot or pilot-in-command. He might recount an accident, mishap or near-miss incident that left a profound impression on him. Emotion is perfectly all right in a safety philosophy letter. They add a human touch and show the commander cares about his people's safety.

We use risk management to make good, safe decisions, and references to the process are appropriate in a well-written safety philosophy. Emotion and heart, however, aren't appropriate in the risk management process. This is where a commander's safety philosophy must transcend the process. The safety of the unit's personnel and their family members is very much about emotion and heart.

New commanders should remember it's not a requirement to focus exclusively on aviation safety in their philosophies. Ground, POV and home safety are acceptable topics and should be included as well. Adding this information might also be helpful for relatively inexperienced aviation commanders who don't have a lot of experience to draw from.

That's my take on a commander's written safety philosophy after 26 years in Army Aviation. Not everyone will agree with me, but the beauty is the commander has the latitude to make his safety philosophy as personal, unique and emotional as he sees fit. When you write it, write it from the heart. Your Soldiers deserve nothing less.

SPEAK UP

SPEAK UP!

CW3 RICHARD GRIFFIN
Kentucky Army National Guard
Frankfort, Ky.

Some years ago, I learned the value of speaking up for what's right, regardless the consequences. Early in my career as an Army Aviator, I was told to close my pie hole and open my ears so I might learn something. I was careful not to judge other pilots' mistakes harshly because someday I might do something less than brilliant. Whether we admit it or not, we've all done something stupid.

My attitude changed when I had the unfortunate circumstance of being in the field with a unit that suffered a catastrophic Class A accident with multiple fatalities. The accident involved a single aircraft with a full crew and several troops on board. Only one passenger and the pilot survived.

The subsequent investigation determined the primary contributing cause of the accident was "hot dogging" the aircraft. The pilot in command was leaving the Army soon and wanted to give the Soldiers in the back a ride they'd never forget; unfortunately, they never got the chance. The aircraft's radar track showed it making radical heading changes, or bank angles, and traveling at an excessive speed before it struck a tree and crashed.

The devastating impact that tragic and totally unnecessary accident had on the unit and the deceased Soldiers' families was fresh in my mind when I took my next assignment a couple of years later. I was at the Joint Readiness Training Center in Fort Polk, La., working as an observer/controller for a sister company from our battalion. My duties included riding in the aircraft jump seat with a radio to monitor the aircraft in flight, ensuring compliance with JRTC rules of engagement.

One day I was told to fly jump seat with a PC I knew well and considered a friend. His career was rocky from the start; he'd had his PC orders pulled several times and was passed over twice for promotion to CW3. He also had a bad reputation for being stubborn and refusing to follow orders, qualities that directly contributed to his problems at work. Despite these setbacks, he'd finally reached retirement, dropped his paperwork and began counting down his last few months in uniform.

The pilot that day was the polar opposite of the PC. A staff captain from battalion, the PI had a meek personality and little flight experience. The PC sensed this and began teasing and intimidating the captain as soon as we got in the air. He was going to show him how you really fly a Black Hawk.

Keeping his promise, the PC, who was on the controls, became increasingly reckless. He was flying low and fast and banking the aircraft excessively, so much so that I had to grab my seat and hold on for the ride. We were behind on the map and flying fast on the confined JRTC real estate, and at one point we over flew a running aircraft at less than 100 feet. He quickly became autocratic and ignored complaints from me and the crew. He just laughed us off as a bunch of whiners.

A crew chief went to the standardization pilot to complain about the PC after the flight. The SP informally interviewed all the crewmembers and the PI and one crew chief corroborated the other crew chief's statement, but with less forceful language than they'd used in flight. He then came to me and asked me point blank if I thought the PC had been unsafe. I hated to dime out my friend because doing so would likely mean the end of his flying and our friendship.

I decided, however, the consequences of not speaking up were much greater and could be permanent, not just for the PC but for the crew and passengers on his aircraft. I admitted I thought he was unsafe and, as I predicted, the PC was grounded and never flew in the Army again. He confronted me later about what I'd said to the SP. I told him the truth, but he didn't agree and we haven't spoken since.

I'll never know for sure if I did the right thing that day or prevented an accident from happening sometime later. Maybe nothing ever would've happened, but I felt the potential cost of not speaking up was too high. We have a small margin of error in our line of work anyway, and no one should ever be allowed to court death under the guise of fun.

WHO'S NOT TO BLAME?

CPT BILLY EDWARDS
U.S. Marine Corps

Since they were deploying to Iraq soon, the unit's leadership scheduled a night convoy training mission. They arranged the date, time and route and ensured the training vehicles were operational. The commander's intent was to familiarize his Marines with driving under blackout lights and night vision goggles while maintaining dispersion and intervals and maneuvering around obstacles.

All primary and assistant drivers were supposed to wear NVGs and drive under blackout lights through the pre-planned route. The written plan required road guards and signs stating "NVG Driving" to be posted at intersections along the route. No vehicles would be permitted to cross or operate on the paved roads with blackout lights.

The route was a dirt road that crossed a rural highway at two points a little more than a quarter-mile apart. Two road guards wearing fluorescent vests were posted at each crossing to ensure the convoy's safe passage across the 55-mph highway. The guards were supposed to stop the convoy, ensure the highway was clear and direct the vehicles across the intersection when it was safe.

The mission briefer told the drivers to pay close attention to the guards' directions. To help the drivers see the intersections under NVGs, the guards placed infrared glow sticks on both sides of the highway at each crossing. However, they didn't post the required signs at the intersections.

The exercise started without a hitch but was delayed early on when a vehicle suffered mechanical problems. Maintainers fixed the vehicle and the convoy continued through the first intersection. Things started going badly, however, when the convoy approached the second crossing point.

The lead vehicle was a low-back HMMWV that contained four Marines. The driver was fresh out of driving school, but his assistant driver already had one Iraq deployment under his belt. The driver had never operated a HMMWV with NVGs before, so the assistant driver was helping him along the route.

As the convoy approached the second intersection, the two guards stood on opposite sides of the road to look for oncoming traffic. One of the guards saw the headlights of an oncoming vehicle about a quarter-mile away and started walking in its direction, waving his flashlight in a stopping motion. The guard quickly realized the vehicle was a speeding tractor-trailer.

Meanwhile, the lead HMMWV approached the intersection, its driver unaware of the oncoming vehicle and still under blackout lights. The assistant driver told him to pay attention to the road guards because they'd let him know when it was safe to cross. As the HMMWV entered the intersection, the guard who'd spotted the semi motioned his flashlight for the driver to stop while the other guard ran toward the vehicle to stop it.

The HMMWV's driver, however, took cues from his assistant driver to keep moving forward. Neither he nor the assistant driver looked left or right before entering the roadway. The driver believed the flashlight signals coming from the guard meant keep driving rather than stop, so he continued driving into the intersection. Seconds later, the semi driver realized a vehicle was crossing his path and slammed on the brakes, but the truck broadsided the HMMWV's passenger side.

The HMMWV was pushed sideways almost 30 feet and totaled. Two of the Marines suffered broken femurs while the other two, although badly shaken, escaped with only minor injuries. According to the traffic investigation, the semi was traveling about 55 mph when its driver slammed on the brakes. Fortunately, the truck was carrying only a forklift on a flatbed; if it had been carrying a fully loaded trailer, the accident probably would've been much worse.

Why did this accident happen? First, the unit didn't follow its own plan to have signs indicating NVG driver training posted at the intersections. Second, vehicles were supposed to cross the highway with their headlights on. Third, the road guards clearly didn't understand their responsibilities. They thought one was supposed to stop civilian traffic while the other would stop the convoy in case of oncoming vehicles. Finally, the HMMWV's driver, new to NVGs, was disoriented and failed to look left or right before crossing the intersection.

This accident could've been prevented if the unit's leaders and individual Marines had followed their own plan and procedures. There's no such thing as a "simple mission," and leaders at every level must ensure their troops understand and follow instructions. Remember, however, that sometimes you have to be that leader and speak up when you know something isn't right. «

Editor's note: This article originally appeared in the Summer 2005 Ground Warrior, *the Marine Corps' ground safety magazine. It was adapted for use in* Knowledge.

NCOS LEAD THE WAY...SAFELY

1SG (RET) MIKE BARKSDALE
Tactical Safety Manager
U.S. Army Combat Readiness Center

Soldiers who wear the chevron stripes of the noncommissioned officer on their sleeves represent a unique Army strength. Today's NCO is the front-line trainer and role model for our Soldiers and the motivating force for driving down accidental losses. The dedication of our NCOs is largely responsible for this past year's success in accident prevention. As a former NCO, I'd like to share my thoughts on responsibility and ask you to be vigilant so our Soldiers will be safer than ever.

"No one is more professional than I—the Noncommissioned Officer, leader of Soldiers."

An ammunition platoon received a fragmentary order to quickly move to another position. In their haste, they decided to skip the safety briefing. The NCOs failed to brief the convoy route, catch-up speed and hazards of night movement. They also failed to ensure their Soldiers were using seat belts. In the confusion brought on by the rushed departure, one vehicle's driver lost sight of the lead vehicle. His vehicle hit a guardrail and overturned, and three passengers suffered neck injuries. Is this an example of a leader of Soldiers?

"I am proud of the NCO Corps and will at all times conduct myself so as to bring credit upon the Corps ..."

The speeding automobile ran off the road and slid sideways almost 200 feet. The car flipped twice and hit a tree, killing both occupants who weren't wearing their seat belts. The drunk driver was an off-duty NCO. Is this an example of bringing credit upon the NCO Corps?

"Competence is my watchword. My two basic responsibilities will always be uppermost in my mind—accomplishment of my mission and the welfare of my Soldiers."

As the number one cannoneer knelt in front of his howitzer's breech to close the firing lock, the howitzer fired, striking him in the face. Was competence the watchword of this gun chief?

"All Soldiers are entitled to outstanding leadership; I will provide that leadership."

As we came through the ranks, our NCOs taught us the meaning of discipline, leadership and standards. We must pass that knowledge along. Effective leaders identify hazards in night movements and take the proper steps to mitigate those hazards. Teaching and enforcing standards prevents young Soldiers from screwing up crew drills and injuring themselves or someone else. Disciplined Soldiers wear their seat belts. When was the last time you made an on-the-spot correction when a Soldier failed to wear his seat belt? Caring for Soldiers requires us to take the hard right over the easy wrong, especially once the duty day is over. Let's be role models for our young Soldiers. They're entitled to nothing less.

Is the NCO Creed our standard or just another nice thought? I prefer to think our NCOs take the creed seriously and possess a keen desire to make a positive contribution to their units and the entire Army. Each hour of every day, an NCO somewhere in the world enforces a standard, provides leadership or instills discipline in a Soldier that might prevent a future accident. These NCOs exemplify our creed and keep our Soldiers safe. Let's all remember when it comes to safety: **"I will not forget, nor will I allow my comrades to forget that we are professionals, Noncommissioned Officers, leaders!"**

NCOs Lead the Way ... Safely! «

BEATING THE HEAT

COL JOHN CAMPBELL, M.D.
Command Surgeon
U.S. Army Combat Readiness Center

Although we're still experiencing the occasional chilly morning here at Fort Rucker, Ala., that hasn't stopped the U.S. Army Combat Readiness Center from preparing for the hot summer months ahead. It's now common for our Soldiers deployed all over the world to experience extreme temperature changes and work climates on a daily basis, not just in the usual summer months. The bottom line is we must stay ready for heat, cold and altitude changes throughout the year to protect Soldiers from unnecessary injuries.

Heat information has been force-fed to us throughout our careers, so I'm amazed how many heat-related injuries still occur. Despite commanders and leaders being engaged in all aspects of their Soldiers' preparedness, we still had numerous heat injuries reported in fiscal 2006. There are many underlying factors that contribute to heat injuries besides just performing strenuous work in a hot environment. A Soldier's overall physical condition, illness, hydration, fatigue, medications, alcohol, caffeine, energy drinks, excessive weight, enclosed environments such as helicopter cockpits or vehicle interiors, humidity and wind all can contribute to heat injuries.

Leaders and Soldiers must do more than just have water available. Using Composite Risk Management to assess and mitigate the potential health effects Soldiers might suffer during hot weather is critical. Here's how the five steps of CRM should be applied to reduce heat casualties.

1. Identify hazards: HEAT

- High heat category
- Exertion level of activity
- Acclimatization (don't forget altitude)
- Time (length of activity and time of day)

2. Assess hazards

- Ambient temperatures (i.e., a heat category assessment using wet bulb globe temperature should be conducted and adjusted for temperature variance)
- Know your Soldiers (e.g., their hydration status, risk factors or certain medications that might increase risk)

3. Develop controls

- Education: Establish standing operating procedures and train as you'll fight
- Planning: Develop a plan to have ample hydration sources available based on activity levels and provide rest cycles as needed
- Identification: Identify and note previous heat casualties along with current illnesses
- Develop a hydration monitoring system. Use current guidelines; Soldiers should hydrate continuously to produce urine that's clear to very light yellow in color

4. Implement controls

- Ensure risk decisions are made at the appropriate level
- Ensure controls are implemented
- Enforce and monitor the hydration standard
- Execute random checks
- Follow clothing and equipment recommendations

5. Supervise and evaluate

- Enforce SOPs through constant monitoring and frequent walk-throughs
- Conduct spot checks
- Develop contingency plans for injuries that might occur despite preventive measures
- Continually re-evaluate the situation and adjust controls as needed

Heat injury casualties continue to remain highest at our basic and advanced individual training posts. There are many reasons for this, including most training posts are located in southern states with high summer temperatures. Many new recruits aren't acclimated to these hot environments or physically conditioned for the increased intensity of military training. Illnesses are more frequent in crowded conditions, and trainees get minimal sleep due to their hectic training schedules. These units also know how, when and what to report to both the medical community and the USACRC. Still, with all these issues seemingly working against us, units do succeed and most Soldiers graduate without injury.

To help ensure their Soldiers' safety, leaders must stay engaged and be held accountable for their actions or, sometimes, inaction. Soldiers also have a responsibility to look out for each other and speak up if a comrade is in trouble. Someone always knows when a Soldier isn't at his peak performance level; buddies should make leaders aware of these situations to thwart a possible heat injury. Telling isn't a sign of being weak. It's being responsible and keeping our Soldiers in the fight.

Leaders, please use all the resources available to you and your Soldiers as we enter the hot summer months. Take a big-picture look at all the factors that can take a Soldier out of the fight, not just improvised explosive devices or a tragic HMMWV accident. Work closely with the medical community to conduct educational classes and prepare your Soldiers for all aspects of training and deployments. Don't let a heat casualty happen in your formation. Stay engaged and know what your Soldiers are doing!

For more information on heat injury prevention, visit the U.S. Army Center for Health Promotion and Preventive Medicine Web site at chppm-www.apgea.army.mil.

WORK/REST AND WATER CONSUMPTION TABLE

These work/rest times and fluid replacement volumes will sustain performance and hydration for at least four hours of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ quart/hour) and exposure to full sun or full shade (± ¼ quart/hour).

Heat Category	WBGT Index, °F	easy work: Work/Rest (min)	easy work: Water Intake (qt/hr)	moderate work: Work/Rest (min)	moderate work: Water Intake (qt/hr)	hard work: Work/Rest (min)	hard work: Water Intake (qt/hr)
1 WHITE	78°- 81.9°	NL	½	NL	¾	40/20 min	¾
2 GREEN	82°- 84.9°	NL	½	50/10 min	¾	30/30 min	1
3 YELLOW	85°- 87.9°	NL	¾	40/20 min	¾	30/30 min	1
4 RED	88°- 89.9°	NL	¾	30/30 min	¾	20/40 min	1
5 BLACK	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

- NL = no limit to work time per hour
- Rest = minimal physical activity (sitting or standing) accomplished in shade, if possible
- CAUTION: Hourly fluid intake should not exceed 1½ quarts; daily fluid intake should not exceed 12 quarts
- If wearing body armor, add 5 °F to WBGT index in humid climates
- If doing easy work and wearing nuclear, biological, chemical (MOPP 4) clothing, add 10 °F to WBGT index
- If doing moderate or hard work and wearing MOPP 4 clothing, add 20 °F to WBGT index

easy

- Weapons maintenance
- Walking, hard surface, at 2.5 mph with < 30-lb load
- Marksmanship training
- Drill and ceremony
- Manual of arms

moderate

- Walking, loose sand, at 2.5 mph, no load
- Walking, hard surface, at 3.5 mph with < 40- lb load
- Calisthenics
- Patrolling
- Individual movement techniques, e.g., low crawl or high crawl
- Defensive position construction

hard

- Walking, hard surface, at 3.5 mph with ≥ 40-lb load
- Walking, loose sand, at 2.5 mph with load
- Field assaults

OH, DEER!

CHRIS FRAZIER
Editor, *Knowledge*
U.S. Army Combat Readiness Center

Striking a large animal on the roadway is serious business even when you're protected behind the sturdy frame of an automobile. In most cases, the accident is survivable. On a motorcycle, however, the outcome is almost never good, especially if the rider doesn't have the proper training or personal protective equipment. Fortunately for Keith Nolin, when nature called, he was prepared.

It was a misty January morning, and Nolin was traveling down a 40-mph stretch of road that leads to Fort Rucker's Knox Army Airfield, where he works for Army Fleet Support as an avionics, electronics and instruments mechanic. As he crested a hill, he spotted two deer—a buck and a doe—grazing on the side of the road. Since the road is surrounded by woods, the sight wasn't out of the ordinary. But this day would be different.

As Nolin approached, he kept a close eye on the deer. Suddenly, something startled the animals and they bolted across the road. Nolin said there was about a 3-foot gap between the buck and doe, so, rather than lock the brakes on the slick asphalt and risk putting the bike on the ground, he braced himself, leaned forward on the handle bars and aimed for the opening.

Nolin avoided the buck but slammed into the doe's right front quarter. The impact killed the 110-pound deer and sent her spinning around the side of the bike, striking Nolin in the left leg. Amazingly, he didn't lose control of the motorcycle; however, fearing his leg might've been broken in the collision, he continued driving toward the airfield.

"I was only about a mile from the guard shack, so I kept on because I wanted to be around someone when I got off the bike in case my leg was broken," he said. "If there was a problem, then someone would be able to assist me."

Nolin escaped the collision with little more than some bruising and soreness in his leg and foot, but his motorcycle wasn't so lucky. The 1989 Honda Pacific Coast, an 800cc midsize touring bike, suffered heavy damage to the front fairings and fork.

"The deer hit the crash bar before she hit me, and the fairing absorbed the brunt of the impact," Nolin said. "I got the tail end, but the bike protected me as it was designed to do. I'm glad I was on it rather than a smaller one."

So what did Nolin do correctly to come out of his animal encounter unhurt? Well, just about everything. He credits his training—he completed the Motorcycle Safety Foundation RiderCourse™ on post—PPE and 10 years of riding experience, as well as a little luck, for protecting him in the accident.

Nolin said the MSF courses give riders the tools they need to be confident in their skills. He believes every state should require mandatory motorcycle safety courses for all riders before they get on the road.

"(Riding) is fun, but you've got to be serious about it," he said. "If you're not, whenever you're subjected to something, you're not going to be ready and you might lock the rear or front tire and lose control of the motorcycle. If (riders) haven't had a safety course, they need to."

A heavily wooded post, Fort Rucker has more than its fair share of wildlife. When driving through certain areas on the installation, it's common knowledge you might be sharing the roadway with everything from wild boar to turkeys. Unfortunately for Nolin, he's had several previous encounters with the local fauna. Just a few weeks before the deer incident, an owl hit his motorcycle's right mirror. He's also had run-ins with armadillos, possums and too many rabbits to count.

Because the unexpected should always be expected, Nolin wears all his PPE when riding, including a jacket, full-finger gloves, padded boots and a full-face helmet, which he said gives him good visibility and has an anti-fog shield. Although he's required to wear his PPE while riding on post, it's a practice he'd follow even if he didn't work on Fort Rucker. Knowing you've done all you can to protect yourself makes the ride more enjoyable, he said.

"You've got to have good gear," Nolin said. "Had I gone down, I would've had something between me and the road. … There's no way I'd ride without my gear."

Nolin's supervisor, Chris Holmes, isn't surprised Nolin made it through his run-in with the deer virtually unscathed. The attention to detail Keith pays when preparing for a ride also shows up in his work.

"If there's a problem, he's going to fix it," said Holmes, an avionics supervisor for AFS. "He isn't going to leave something undone. That's why he's one of the best we've got."

Although his bike might now be totaled, Nolin's deer encounter won't stop him from riding a motorcycle to work. If his PC800 can't be fixed, he plans on buying a replacement for the two-wheeled commute he's made for the past eight years. Next time, though, he said he might stop and let the deer pass instead of trying to drive past them.

"They're just so unpredictable," he said. "You never know what they're going to do."

FYI

According to the Insurance Institute for Highway Safety, more than 1.5 million deer-vehicle accidents occur annually in the United States, killing about 150 people and causing at least $1 billion in vehicle damage. In 2003, more than one-third of fatal vehicle-animal accidents involved motorcycle riders.

DEER CROSSING

Here are some tips to avoid deer-vehicle collisions from motorcyclecruiser.com:

- Deer travel in groups. One deer means there probably are more, so slow down immediately even if the one you see is off the road and running away.
- Heed deer crossing signs, particularly in the seasons and times of day when deer are active. Slow down, use your high beams and cover the brakes.
- The Wisconsin Department of Transportation says deer collisions peak in October and November, with a smaller peak in May and June. Such crashes between April and August are most likely to occur between 8 p.m. and midnight. Between November and January, 5 to 10 p.m. were the danger times.
- Additional good, powerful driving lights are worth their weight in gold on a deserted road at night. Alternatively, fit a bulb with a 100-watt high beam.
- Noise—a horn, revving your engine, etc.—might drive deer away.
- Flashing your headlights can break the spell that seems to cause deer to freeze.
- Don't challenge large animals by approaching them. A buffalo, moose, elk, mountain lion, bear or large deer might attack to drive you off. Stay back and consider turning and riding farther away.
- Stay away from an injured animal. It might attack or injure you unintentionally if it comes to and tries to escape.
- Don't swerve if a collision appears imminent. Braking hard right up to the point of impact is good, but you want to be stabilized if you do collide, which will give you the greatest chance of remaining upright.
- Spread out if riding in a group. This pattern will keep one rider who hits a deer from taking other riders down with him.
- Wear protective gear. As with other crashes, no one plans to hit an animal. The only way to be ready when it happens is to be ready on every ride.

experience COUNTS

STEVE KURTIAK
Driving Task Force
U.S. Army Combat Readiness Center

A few years ago, I was living with a friend in Westminster, Calif., and we both had motocross motorcycles. I'd sold my Honda 550 street bike before I moved to California and normally drove my pickup to get around. My friend, however, used his Honda 750 as his primary transportation. While I'd become familiar with the area during the three months I'd lived there, I didn't care too much for the congested roads.

My friend and I would occasionally trade vehicles when he worked third shift at the Long Beach refinery. The ride to Long Beach could be chilly and he didn't care for riding after dark. One day I was headed home on his motorcycle when I decided to stop and wash the bike. Just as I finished, it began to drizzle. The rain got heavier and completely soaked the streets as I rode home, but I wasn't concerned. I'd motocross raced in the rain when I lived in Michigan and had plenty of experience riding on wet roads. I was more concerned about the rain ruining my wash job!

I was near Disneyland and heading west when I approached a set of entrance and exit ramps for Interstate 5. Before crossing the interstate, I had to stop for a red light at an intersection. As I did, I pulled up between two stopped cars, which is legal in California, and waited for the light to change. When the light turned green, I checked traffic and entered the intersection. I pulled in front of the cars beside me and eased into the left lane. Just ahead, an approaching Mercedes moved into its left-turn lane to take the onramp for northbound I-5.

I checked my mirrors for traffic and when I looked forward, I saw the Mercedes stopped halfway across my lane. "No big deal," I thought as I rolled off the throttle, checked the right lane, turned on my signal and began moving over. I was shocked when the Mercedes suddenly pulled forward, stopped and blocked both lanes!

It seemed everything was happening in slow motion, but I didn't panic. I contemplated laying the bike down to avoid either going over the Mercedes' hood or trying to jump the huge curbs. I thought I could just barely miss the Mercedes, so that's what I chose to do. I was in a good motocross "attack" position—a slight crouch, my elbows up and feet squarely on the pegs. I was on both brakes and downshifting when the bike's rear tire broke traction. I eased off the brakes to avoid sliding and got on the binders again.

I almost made it but ended up hitting the Mercedes' front fender. I lifted my left leg to protect it from the impact and managed to keep the bike from going down. My thinking sped up to real time again and my first thought was, "This guy is going to run!" When I tried to downshift and turn around, I realized the shifter and foot peg were missing and the engine sounded terrible. I stopped, put the kickstand down and started running toward the Mercedes.

When the driver stepped out his first words were, "Why didn't you go around me?" By then I'd gotten over my initial shock and had my finger and most of my helmet in his face. Then I heard someone yelling at me. A witness gave me his card and said he couldn't believe I'd stayed on the bike. Apparently, my rear tire had lifted three or so feet off the ground.

I called my friend and told him what happened when the California Highway Patrol officer that was taking statements approached me laughing. He told me the Mercedes driver claimed the accident was my fault! The Honda tore a six-inch piece of rubber off the Mercedes' front bumper, but that bumper sheared the Honda's left foot peg and shifter and smashed the engine's left case. When it came to crunching metal, the Mercedes won hands-down.

However, wasn't I the real winner here? After all, I was still standing completely intact after the accident. I believe what saved me that day was five years' experience in American Motorcyclist Association-sanctioned motocross races. That experience helped me react calmly and think through my options up to the moment of impact. The skills I'd learned on dirt tracks were there when I needed them on the highway. The motocross attack position helped me stay centered on the bike and ready to jump off if needed.

Experience beats improvisation, which is one reason the AMA promotes motocross racing as one of the cheapest ways to gain good, perhaps even life-saving, skills. If you're interested, check out the AMA's Web site at http://www.ama-cycle.org. There you'll get information on training, gear and where to race. The Motorcycle Safety Foundation also offers its DirtBike School™ for riders interested in off-road biking. For more information, visit the school's Web site at http://www.dirtbikeschool.com.

While personal protective equipment can help protect you from injuries during a crash, nothing beats experience for helping you avoid or at least reduce the actual impact. Ride with experience to ride safe!

> "I **CHECKED** my mirrors for **TRAFFIC** and when I looked forward, I saw the Mercedes **STOPPED** halfway across my lane. 'No big deal,' I thought … I was **SHOCKED** when the Mercedes suddenly pulled forward, stopped and **BLOCKED BOTH LANES**!"

DID YOU KNOW?

Three out of four workers drive alone to work. According to the U.S. Census Bureau, "Among the 128.3 million workers in the United States in 2000, 76 percent drove alone to work. In addition, 12 percent carpooled, 4.7 percent used public transportation, 3.3 percent worked at home, 2.9 percent walked to work and 1.2 percent used other means (including motorcycle or bicycle)." More facts on transportation can be found at the U.S. Census Bureau Web site at http://www.census.gov/prod/2004pubs/c2kbr-33.pdf.

CONTROLLED FLIGHT Into Terrain

CW4 R. SCOTT HANDLON
Directorate of Evaluation and Standardization
Fort Rucker, Ala.

Before the start of Operations Enduring and Iraqi Freedom, the tactics a generation of attack helicopter pilots used to engage the enemy was a very static event. The aircraft entered an attack-by-fire position, engaged targets at a distance while hovering with an occasional position change and then departed the battle area to rearm and refuel.

Since 2001, we've had to relearn the tactics used during the Vietnam War. These methods involve a more dynamic flight technique than merely hovering and shooting, but the change has come at a cost. Over the past 20 months, the AH-64 community has experienced a dramatic increase in controlled flight into terrain accidents, resulting in five destroyed aircraft and five dead aviators. All these accidents occurred while the crews were conducting either running and diving fire or combat maneuvering flight. In three accidents, both crewmembers had focused their attention inside the cockpit until the aircraft descended below a recoverable altitude or contacted the ground without a recovery initiated.

The Army isn't alone; our sister services regularly perform running and diving fire and have had their share of CFIT accidents. These services have developed tactics, techniques and procedures to help mitigate the risk and include them in their training publications and local standing operating procedures. The Army uses its current aircrew training manuals as a means to address flight techniques, and many tasks reflect measures that mitigate the CFIT risk.

One such procedure is reflected in Task 1422: Perform Firing Techniques. The task description explains the three levels of AH-64 safing: releasing the weapons trigger, deselecting the weapon by the weapons action switch and selecting SAFE on the master arm switch/button. Any one of these actions will prevent the weapons system from firing, and only one of these, selecting SAFE, requires a crewmember to look inside the cockpit (preferably the pilot not on the controls).

These countermeasures were added to Training Circulars 1-251 and 1-238 after a CFIT accident killed one pilot and permanently disabled the other. In this accident, the pilot on the controls directed his attention inside the aircraft to toggle the master arm button to SAFE while coming off a running fire engagement. The co-pilot gunner continued to engage targets with the target acquisition designation sight, and within three seconds the aircraft descended to the ground.

Unfortunately, this same accident occurred yet again a short time later. As in the crash mentioned above, instead of flying the aircraft, the crew directed their attention inside the cockpit to safe the aircraft or perform other actions during a diving fire recovery. Although their intentions were good, this act distracted the crew long enough that the aircraft descended below a recoverable altitude. Both crewmembers were killed.

Another process used to mitigate CFIT can be found in Task 1415: Perform Diving Flight. In this task, the pilot on the controls must remain focused outside the aircraft and clear it throughout the maneuver, which includes the recovery. The pilot not on the controls must provide adequate warning to avoid traffic or obstacles (i.e., the ground) and announce when he's focusing his attention inside the cockpit. The crew also must recover the aircraft by either velocity, not to exceed or 500 feet above ground level, whichever comes first.

One item both these tasks lack is a control when the crew fails to follow the procedure due to human error. This control will be included in Change 1 of the AH-64 ATM. The procedure is a no-brainer and easy to perform. Before entering into running and diving or combat maneuvering flight, set the low altitude warning on the radar altimeter to your recovery altitude, taking into account any lag in the system (10 percent higher than the actual altitude for Longbow drivers). If the low altitude warning audio sounds or "LO" appears in the helmet display unit under the radar altimeter readout, the aircrew will give their sole attention to placing the aircraft back above the minimum altitude.

The pilot on the controls will ensure the aircraft's nose is placed equal to or above the horizon before adding power (somewhere around max continuous torque available) to preclude accelerating, descending flight. There will be no tactical play, radio or nonessential intercommunication system transmissions until the pilot on the controls states "back above" to the pilot not on the controls. This procedure works well for our sister services and should work for us. Remember, however, this procedure is used when the crew fails to perform the task to standard. If done properly, the low altitude warning should never sound and LO should not appear in the HDU.

The Combat Maneuvering Flight Handbook explains that the crew should always leave a way out. No one flies all maneuvers flawlessly every time, so give yourself a buffer. If you're performing CMF, complete the maneuver before slowing below minimum or going above maximum maneuvering airspeed, also known as bucket speed. If your bucket is 1 knot airspeed, as it will be in places like Afghanistan and Iraq in the summer, complete the maneuver before reaching that speed. The bucket is also a good indicator of how much maneuvering you can perform in given environmental conditions.

Although the CMF airworthiness release extends the performance envelope to +/- 120 degrees of bank and +/- 60 degrees of pitch, this increase in the max allowable maneuvering range was included so the operator wouldn't exceed a limit while performing these maneuvers and doesn't reflect actual environmental limitations. If your bucket speed is 1 knot, the maneuver might have to remain within the -10 maneuvering limits. Also, give yourself enough altitude to complete the recovery. The altitude standard for most maneuvers in the ATM is +/- 100 feet, and these are much more mundane than CMF.

A pitch back turn might go badly if you end up 60 degrees nose down at only 190 feet AGL, as a unit in Afghanistan recently discovered. Don't perform a break turn at 98 percent torque, 140 knots true airspeed and 200 feet AGL. You have no excess power available and minimum altitude to lose, and the maneuver is designed to trade altitude for airspeed and transition from level to diving flight. Your available energy states—altitude, airspeed and excess power available—aren't going to help, and you'll probably end up hurting the aircraft or yourself.

The flight regime we're operating in and the TTPs we use aren't dangerous, but they are unforgiving. Controls are in place to keep our aircrews safe yet able to perform their missions if done properly. Deviating from the standards, including not flying the aircraft, directing attention inside the aircraft when it should be outside and performing maneuvers at altitudes or airspeeds that don't allow complete recovery before ground contact, is costing the Army its aviators and equipment. Every aircraft we crash is doing the enemy's job for them, and they don't even have to fire a shot. Keep your head in the game, look outside the aircraft and give yourself an out to prevent future CFIT accidents and stay in the fight!

COMING SOON!

BOB FRAZIER
Apache System Safety Manager
Redstone Arsenal, Ala.

Dive Recovery and Bank Angle Charts for AH-64D Operator's Manual

The AH-64D Apache Longbow is arguably one of the most demanding cockpit workload-intensive aircraft in the Army's inventory. With a proliferation of new technologies and complex missions, the potential exists to inundate crewmembers with distractions resulting in loss of situational awareness. Crews must maintain situational awareness in their area of orientation, closure rates and proximity to the ground. Failure to understand the aerodynamics and power requirements during maneuvering can have catastrophic results.

Since 2003, the Army has experienced an increasing number of Apache accidents involving controlled flight into terrain. Current missions place aircraft in an operational environment where the margin between power required and power available is minimal when performing aggressive maneuvers. To curtail the number of AH-64 accidents, the Apache Project Management Office wants to address CFIT mishaps by providing dive recovery and energy management charts to assist crews and increase situational awareness.

Currently, we can predict an aircraft's performance for any given environmental condition. The Advanced Attack Helicopter PMO, together with Aviation Engineering Directorate, Directorate of Evaluation and Standardization, U.S. Army Aviation Technical Test Center and Boeing, is developing performance planning charts to be included in the aircraft operator's manuals. Additionally, as these charts are verified and algorithms developed, the PMO is working toward a long-term solution of providing visual or audio cueing to the crews when the aircraft executes a dive or aggressive angle of bank that exceeds the aircraft's capabilities in the current operating environment.

During some recent do-it-yourself home improvement projects, I was reminded of two things. First, I make mistakes; and second, they typically happen when I don't do things right in favor of an "appealing" alternative. This isn't unlike what happens in the cockpit or on the road when following the rules is pre-empted for a more attractive path. The trouble is these paths, enticing as they might be, have a nasty habit of ending in a smoking hole.

ASK ME ABOUT HUMAN FACTORS

DR. BRUCE JAEGER
Senior Advisor
U.S. Army Combat Readiness Center

While my shortcuts left me among the upright to consider my lessons learned, yours might not be so forgiving. In the end, what determines whether you're flying or driving above the ground or lying six feet beneath it has a lot to do with human factors. That being said, let's look at four components of human factors: ability, skill, knowledge and motivation/emotion.

The variables in the equation

- Abilities are those natural gifts you're born with such as good hand-eye coordination that can be refined through training.
- Skills come from training and are reinforced through practice.
- Knowledge comes from education, be it from classes, books or other people.
- ME is what motivates you to do something and how emotions affect your performance. It's the vital multiplier because without ME, the best abilities, skills and knowledge would be wasted through inaction. On the other hand, the wrong ME can drive bad decisions.

This systems view of human performance and error applies well to Army accidents. On the aviation side, controlled flight into terrain, and on both the aviation and ground sides, inadequate crew coordination, poor pre-mission planning and hot-dogging, are issues we see accident after accident. Looking at these components can help us understand why errors happen and find ways to prevent or fix them.

Ability

Ability applies to crew selection and crew coordination. Individual abilities should always be considered when choosing crews or discussing roles and responsibilities. Pairing folks with similar abilities might initially seem a good choice, but if they share the same weaknesses, there's no safeguard left to compensate.

Skills

Skills require regular practice. The Army recognizes skills degrade when they're not used, which is the primary reason for readiness level progression and other training as units re-cock. Do you take advantage of all your training opportunities? Do you strive for better skills, or are you simply hoping to get by? Remember, amateurs practice until they get it right; professionals train until they can't get it wrong.

Knowledge

Knowledge equates to currency. Aviators must keep up to date on new policies, procedures and safety of flight messages, along with changing risk assessments and the experiences of other pilots. The same concept applies to ground crews running convoys, conducting security missions or really just about anything. Keeping current allows leaders and Soldiers to better pre-plan their missions, ensuring they wear the proper personal protective equipment and their aircraft and vehicles are used correctly. Professionals stay current.

FYI

Knowledge **is now available in a new, easy-to-use online version! Check out the magazine Web site at https://crc.army.mil/Knowledge/index.html to find individual articles in easy-print PDF format or download an entire month's issue for even more safety information. You also can subscribe to the magazine through the site and even share your "war stories" with your fellow Soldiers! For more information or to provide feedback on** ***Knowledge*****, e-mail the editor at knowledge@crc.army.mil.**

FACTORS IMPACTING PERFORMANCE

Human performance can be incredibly stellar or unbelievably bad. When solid ability and good training are multiplied by the proper motivation, you have a powerful combination that produces awesome results.

P=(A+S+K)*ME

> "When all else fails, the **THREAT** of **DISCIPLINE** against Soldiers who **WILLFULLY MAKE BAD CHOICES** can help them think twice before doing something **STUPID**."

Motivation/Emotion

While abilities, skills and knowledge form the foundation of your performance, whether you apply them properly depends on the ME component. Despite good abilities, skills and knowledge, almost all major mishaps have their roots in ME. In other words, Soldiers know what to do and how to do it properly but willfully choose an alternate course of action. Indiscipline, overconfidence and complacency are not knowledge or skills issues, they're "will" issues.

Why do we choose to misapply our abilities, skills and knowledge? It's because we tend to weigh what we should do against what we want to do and, if the latter looks like a better deal, we often go with it instead of what's right. Human error is usually about ME. This is what leads aviators to ignore published minimums because they seem to be a hassle, get in the way of the mission or just don't make sense.

Some Soldiers might cut corners because it makes things easier or seemingly more efficient. They also might take chances for the thrill or fun of it or to impress their peers. They might take things for granted and become complacent because the task at hand is a cinch and, in their minds, doesn't merit much attention or effort. They might drive or fly aggressively because they're ticked off at someone and need to vent. They might press too hard because of misplaced priorities such as "get-home-itis." These are all misguided motives, attitudes or emotions that can drive incorrect actions and increase risk.

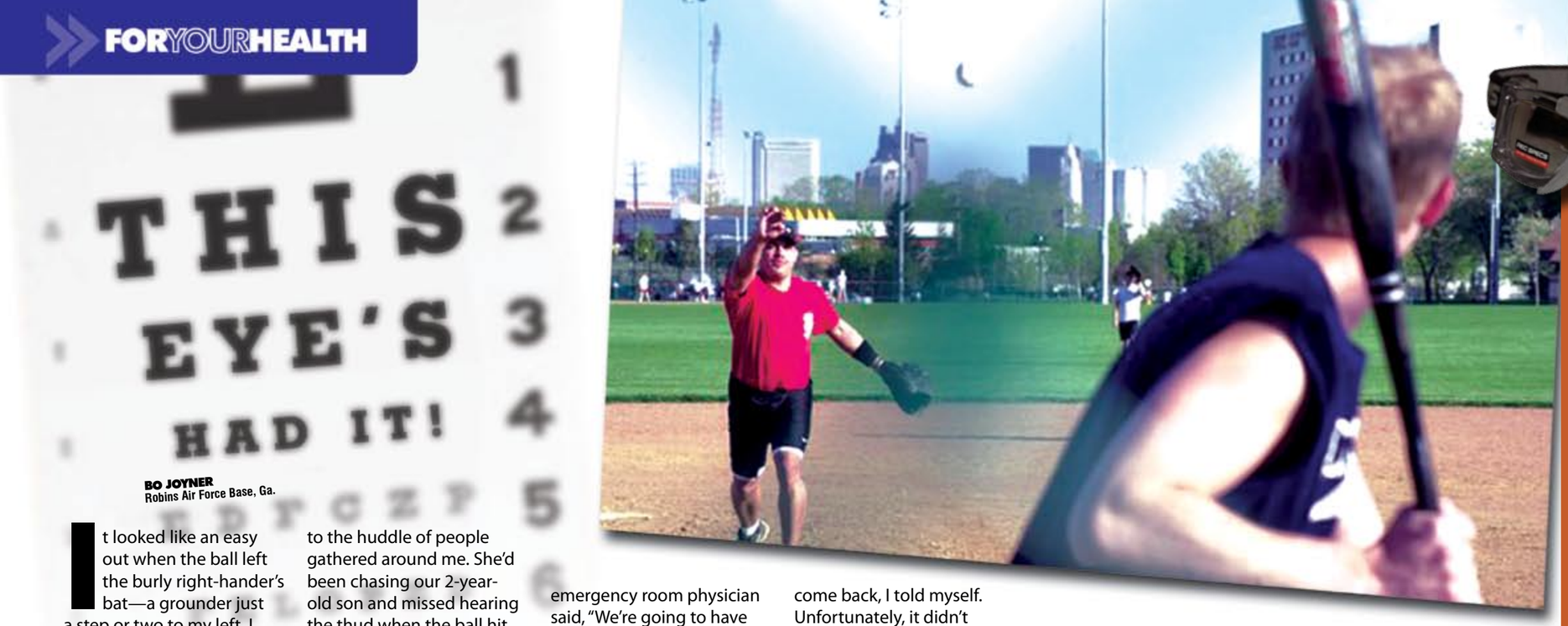
Keeping the proper motivation, along with healthy emotions and good attitudes, is a challenge. The first step is to be aware of your own state of mind and that of others around you. Regularly check your emotional state for anger, frustration or apathy. Monitor yourself and your fellow Soldiers. Phrases like "watch this," "that takes too much time," "command is out of touch and doesn't understand the tactical environment," "no sweat" or "we're pressed for time" are indicators something unhealthy is brewing.

Set clear expectations for your own professional behavior and discuss them with those around you. Decide now the top priorities for your own and others' performance. These priorities must include doing the right thing and staying faithful to what's important. If you're the leader, make sure others know your expectations.

Your actions serve as a model for others whether you're an official leader or not, so be an example. This behavior reinforces doing things the right way and positions you as part of the solution rather than part of the problem. Get involved immediately whenever you see another Soldier displaying indiscipline, overconfidence or complacency. Recognize they prefer doing the things the wrong way and changing their mind is going to require some convincing. However, don't give up; take the time to help them see where they're headed.

Finally, make sure there's a real system of accountability in place. When all else fails, the threat of discipline against Soldiers who willfully make bad choices can help them think twice before doing something stupid.

Human performance can be incredibly stellar or unbelievably bad. When solid ability and good training are multiplied by the proper motivation, you have a powerful combination that produces awesome results. On the other hand, gaps in knowledge, inadequate training for the task and, especially, incorrect motivations and emotions reveal your vulnerability to human error. If you want to understand how human factors affect Soldier performance, just look at our equation because the answer is easy—simply A+S+K * ME.



BO JOYNER
Robins Air Force Base, Ga.

It looked like an easy out when the ball left the burly right-hander's bat—a grounder just a step or two to my left. I shifted my feet and got into position, bending my knees and holding my glove close to the ground before I got in front of the bounding softball. The field's surface wasn't even and I saw the ball take two low hops, so I braced for the ball to hit squarely in the pocket of my trusty infielder's glove. I figured I could scoop it up and nail the runner at first, but I didn't get the chance. Instead, the ball hit another rise in the ground and struck me in the face. That's when the lights went out.

The next thing I remember was my teammates and opponents hovering over me. Someone put a wet rag over my left eye and told everyone, "He's all right. The cut's underneath his eye." A couple of my teammates picked up what was left of my glasses and handed the pieces to my wife, who'd raced from the bleachers to the huddle of people gathered around me. She'd been chasing our 2-year-old son and missed hearing the thud when the ball hit my face and knocked me down. (By the way, "softball" is a gross misnomer. Believe me, there was nothing soft about that ball!)

After I shook most of the cobwebs loose, my wife and a friend helped me into our vehicle and we headed to the emergency room. Now, I've been playing softball since I was old enough to hold a bat and suffered my share of twisted ankles, pulled muscles and "strawberries." This time, though, I could tell my injury was more serious.

I'd been wearing my prescription glasses during the game because I've always had poor eyesight. When I opened my swollen left eye during the examination, however, I couldn't see anything. While a CAT scan showed no broken facial bones or fragments from my glasses in my eye, I wasn't encouraged when the emergency room physician said, "We're going to have to get an ophthalmologist in here to see if we can save your vision."

The ophthalmologist checked me and offered a little more hope. He said, "The front part of your eye is filled with blood (hyphema) right now. When it clears out, your sight might come back completely. However, when the blood clears, it might reveal more damage to the back of your eye."

Although that "however" got to me, I went home thinking positive thoughts. Surely, the hyphema will clear up and my sight will come back, I told myself. Unfortunately, it didn't turn out that way.

When the blood cleared, the doctors could see my lens was ruptured and my retina, although not detached, was severely damaged. I had an hour-and-a-half operation where an ophthalmologist removed the lens and cleaned out the remaining blood. His best prognosis was that with an implant or contact lens I might get most of my peripheral vision back. Nevertheless, because of the retinal damage, I'd never recover my central vision in that eye.

His prognosis was right on the money. Using a contact lens today, I can see things out of the corner of my left eye, but when I try to look straight at something, it's covered by a black cloud. Even so, I've adjusted pretty well to my situation. Thanks to the overlap of my right eye's field of vision, I lost only about 20 percent of my total vision. My job requires me to work at a computer all day, so my right eye now tires more quickly than it used to. Fortunately, I can still drive.

There wasn't much I could've done to prevent that ball from hitting me. I didn't see the little rise in the field that lofted the ball into my face. However, while I couldn't have predicted what happened, I could've protected my eyes. Various models of protective sports eyewear that are shatterproof and can be ground to match your eyewear prescription are available at optometrists' offices. Sure, they're pricey, but that one-time expense is a lot cheaper than surgery. It's better to spend the money protecting your eyes now than to spend it later correcting the damage and still end up, like me, partially blind.

FYI

Prevent Blindness America reports that hospital emergency rooms treat 40,000 sports-related eye injuries every year. Even non-contact sports such as badminton can present inherent dangers to the eyes. Any sport in which balls, racquets or flying objects are present pose potential for eye injury. For more information on sports eyewear, check out the following Web site: http://www.allaboutvision.com/sports/protection/htm.

SEE YOUR GAME

BOB VAN ELSBERG
Editor, *Knowledge*
U.S. Army Combat Readiness Center

Times have changed, and wearing safety glasses no longer earns you the title of "geek" on the court or field. In fact, wearing today's protective eyewear tells other players you take your sport seriously. After all, the better protected you are from injuries, the more aggressively you can play.

Dr. Calvin Denney runs America's largest vision center, Denney Vision, located in Dothan, Ala. He's been helping people both correct and protect their vision since becoming an optometrist in 1958. Here's what Dr. Denney said people should look for in protective eyewear.

"You need a lens that will withstand an impact and not break and shatter into the eyes," he said. The material of choice, he explained, is polycarbonate, a transparent polymer tough enough to take almost any impact. Much lighter than glass, it's scratch resistant and designed to absorb impacts.

Seeing clearly without worrying about disabling eye injuries can be a real plus in sports. So, how do you know the sports eyewear you're considering will really get the job done? To answer that question, the American Society for Testing and Materials has set standards for protective eyewear keyed to specific activities. For example, sports like baseball, racquetball, women's lacrosse and field hockey should conform to ASTM Standard F803. There are different ASTM standards for sports where helmets are worn, some of which are listed below:

- Paintball: ASTM Standard 1776
- Skiing: ASTM Standard 659
- Ice hockey: ASTM Standard F513
- Youth batters and base runners: ASTM Standard F910

It's not just the lens material that's important, however; you also need a frame that can withstand tough impacts. Just like lenses, frames should meet ASTM Standard F803. These frames can take impacts without coming apart or breaking and include a strap to ensure they stay on the wearer's head.

Not everyone who plays sports has perfect eyesight. Denney explained the need for corrective lenses can be met in a number of ways. For example, some sports eyewear contains separate inserts behind the protective lens. Wearers can have prescription lenses made to fit those inserts. With polycarbonate protective eyewear, wearers have other options. If they wear contacts, they can continue to do so safely as long as they're wearing their protective eyewear. If they wear eyeglasses, prescriptions often can be ground into the polycarbonate lens itself.

Good things don't come cheap, and quality protective eyewear can easily cost well over $100. Compared to the cost of an emergency room visit or a lifetime of visual impairment, though, good sports eyewear is a downright bargain.

HAVE A SEAT

Using Child Safety Seats

JERRY WAIBEL
Safety Manager
POV Centralized Accident Investigations
U.S. Army Combat Readiness Center

Hundreds of children are killed or injured every year after being thrown against dashboards or windshields during vehicle accidents. Even a 20-mph collision can send an unrestrained child into such hard, unyielding objects with a 400-pound impact force. The easiest and most effective answer to preventing these type injuries is to use child safety seats, something many states now require by law.

Child safety seats work by keeping children from being thrown about inside a vehicle or, even worse, ejected during a crash. These seats absorb some of the crash impact and also distribute crash forces more evenly over the child's body. There have been documented instances where rescuers pulled infants unharmed from smashed child seats held together only by their fabric. During those accidents, the child seats acted as "cocoons" that protected the precious lives strapped inside them.

As a father of four, it amazes me the government has to impose laws enforcing the care and safety of children in automobiles. It's something we should do automatically for our children's safety. Yet, as I travel I see many adults who don't bother to wear their seat belts, much less ensure their children are restrained properly. You have to wonder what they're thinking, or if they're thinking at all.

By keeping children properly restrained, you solve at least two problems that can arise when kids ride with you. First, if you have an accident, it's easier to maintain immediate post-impact control of your vehicle if you're not trying to catch your children and protect them from flying around inside. Second, unrestrained children sometimes cause accidents by acting up, thinking the driver is too busy to intervene. If the situation gets so out of hand the driver has to respond, there's the danger of becoming distracted and having an accident. My children always ride in child seats for these reasons. I'd rather prevent an accident than try to survive one.

The challenge of keeping kids safe while riding in vehicles has received a lot of attention from the National Safe Kids Campaign, which offers the following child safety seat recommendations:

- Whenever possible, children 2 years old and younger should ride in safety seats secured to the vehicle's backseat. The middle of the backseat is the safest location for a child safety seat.
- Children under 1 year old and weighing less than 20 pounds should ride in a rear-facing seat. If a vehicle such as a standard-cab pickup doesn't have a backseat and the child must ride up front, ensure the passenger air bag is turned off.
- At 1 year old and 20 pounds, children can ride in a forward-facing seat equipped with internal harnesses.
- When a child reaches the manufacturer's height and weight limit of his forward-facing seat, he should ride in a belt-positioning booster seat used in combination with an adult lap and shoulder belt.

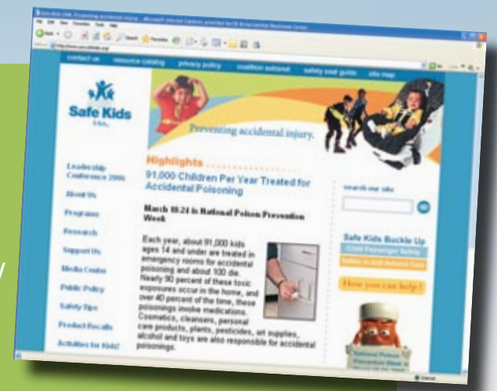
Children are ready for an adult safety belt without a booster when:

- They can sit against the back of the seat and bend their knees over the seat's edge.
- The lap belt makes good contact across their hips.
- The shoulder belt makes good contact across their chest and collarbone.

No matter how carefully we drive, we can't always avoid an accident. However, the one thing we can do is protect our children by ensuring they're restrained in a properly installed child safety seat anytime they're in a moving vehicle. For any parent, the importance of doing this should be a no-brainer.

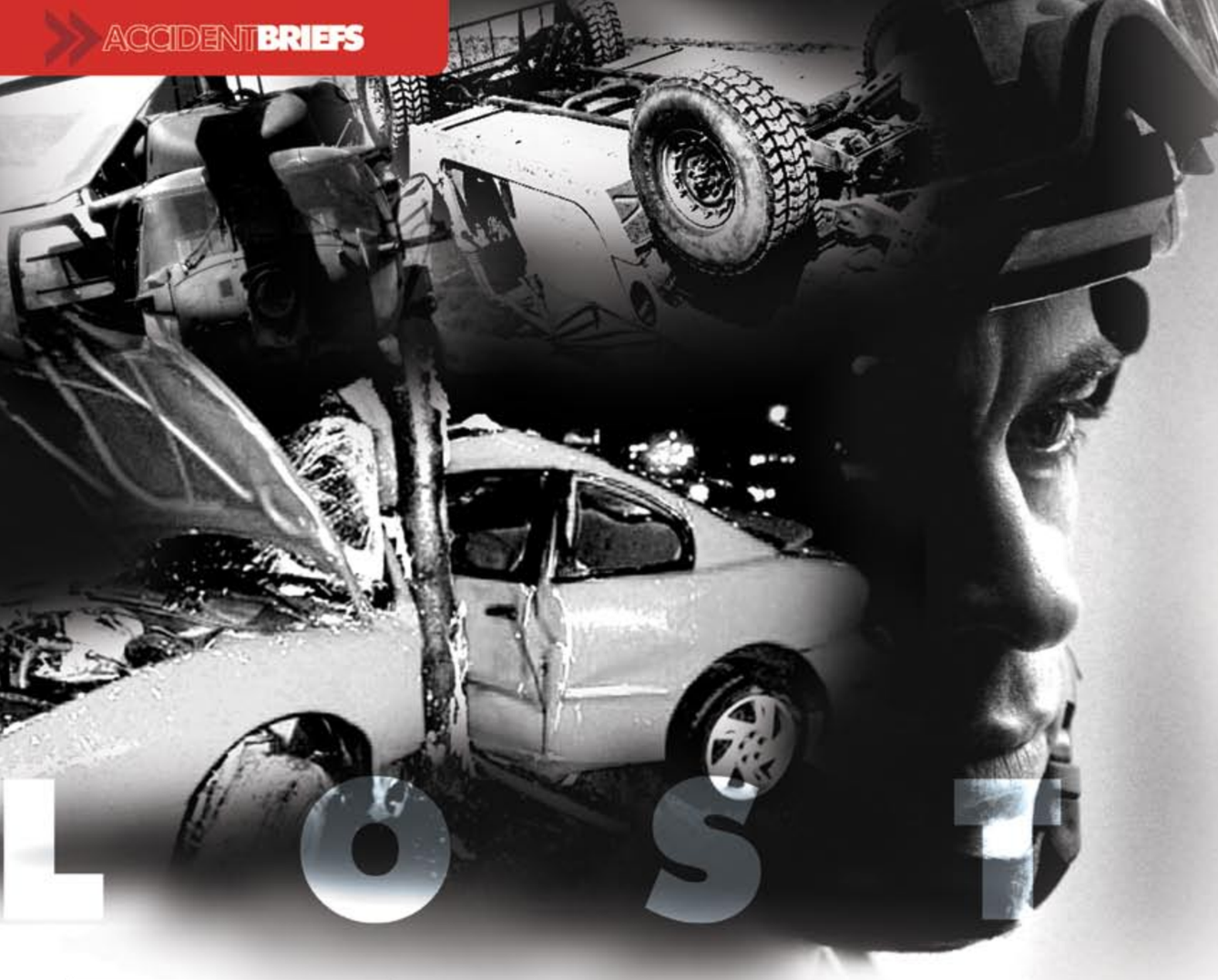
FYI

For more information on child restraint systems, visit the National Safe Kids Campaign Web site at http://www.usa.safekids.org/CPSWeek2006/carseat.html.



DID YOU KNOW?

Car seats for children have been manufactured since 1933. The Bunny Bear Company made several designs of children's car seats, but their purpose wasn't to protect the child in an accident. Instead, these seats confined the children, raised them above the passenger seat and made them more visible to adults in the front seat. The modern child safety seat was invented in England by Jean Ames in 1962.



AVIATION

CH-47

CLASS C D Model

The crew experienced a No. 2 engine transmission over-temp indication. Postflight inspection revealed the cooler fan shaft for the combining transmission gearbox had sheared in flight.

RC-12

CLASS A D Model

While preparing for landing, the crew noticed a landing gear unsafe light indication and executed emergency procedures. Initial contact with the airstrip was uneventful, but the main landing gear eventually collapsed.

UAS

RQ-7B

CLASS B

The aircraft operator received GENERATOR FAIL and GPS FAIL readings while the UAS was in flight. An emergency landing was attempted, but the recovery chute did not deploy. The UAS was destroyed when it struck the ground.

The UAS experienced an INSinDR # FAILURE indication during launch and immediately nosed down to ground impact. The main landing gear separated on contact, and all components suffered major damage.

A Shadow TUAS struck a parked UH-60 during a landing sequence.

GROUND

ACV

CLASS A

A Soldier was killed when his M2A2 Bradley Fighting Vehicle overturned into a body of water. The vehicle was traveling over a bridge when its track slipped off the road surface, causing it to flip into the water. The tank commander drowned in the accident. The vehicle's driver was not injured. The accident occurred in the early morning.

HAVE YOU REHEARSED YOUR ROLLOVER DRILLS?

A Soldier suffered fatal injuries when the towed M1117 Armored Security Vehicle he was riding in overturned. The driver of the towing ASV was changing lanes when it and the towed vehicle rolled over. The gunner in the towed ASV was ejected and fatally injured. The accident occurred in the early morning.

HAVE YOU DONE TRACK MAINTENANCE? NO TRACK, NO BRAKES!

AMV

CLASS A

Three Soldiers were killed after their M1114 HMMWV overturned into a canal during movement operations. Two Soldier passengers drowned and were pronounced dead at the scene. The driver was evacuated to a medical facility where he later died. Seat belt use was not reported. The accident occurred in the late morning.

CLASS B

A Soldier suffered a permanent partial disability when the M1025 she was driving veered out of control, overturned and struck a sand berm. Seat belt use was not reported. The accident occurred in the mid-evening.

ARE YOU CONDUCTING SMOOTH STEERING INPUTS FOR COMBAT-LOADED VEHICLES?

Personnel Injury

CLASS A

A Soldier drowned when the U.S. Marine Corps CH-46E he was riding in crashed into a lake. The Soldier was unaccounted for following passenger egress. The accident occurred in the mid-afternoon.

A Soldier suffered a fatal gunshot wound while on terminal leave. He and a friend were cleaning their weapons to prepare for a hunting trip and drinking. After cleaning and reassembling a .45-caliber pistol, the Soldier pulled back the slide and showed it to his friend. Both pronounced the weapon "clear." The Soldier then released the slide and, for unknown reasons, placed the weapon to the side of his head and pulled the trigger, discharging a round into his brain. He was taken to a medical facility and kept on life support until he died.

DO YOUR SOLDIERS KNOW THE DANGERS OF HORSEPLAYING WITH THEIR WEAPONS?

ARMY AIRCRAFT LOSSES

FY02 to Present

thru March 21, 2007

	Hostile/ Non-hostile
AH-64A/D	11/44
U/MH-60L	9/24
C/MH-47	6/14
OH-58D	8/22
TOTAL	34/104

ARMY GROUND LOSSES

FY07

thru Feb. 2007

	Class A/Fatalities
AMV	9/11
ACV	7/4
PERSONNEL INJURY	16/16
WEAPONS HANDLING	6/6
FIRE/ EXPLOSION	0/0
TOTAL	32/31

LOADED OR UNLOADED?

You've probably heard the two primary rules of weapons handing: Never point a firearm at anything you don't intend to shoot and treat all firearms as if they're loaded. The danger is particularly great with semiautomatic handguns because there might not be any visual cues they're loaded. This is particularly true of older models that lack chamber indicators.

There are a number of scenarios where you can get into trouble. The most obvious is when a loaded magazine is inadvertently reinserted into the grip. Even if the slide is locked back so the chamber can be inspected, a less-alert or intoxicated person might not see the cartridge at the top of the magazine. Releasing the slide forward on what they think is an empty chamber, they have, in fact, loaded the pistol. Another possibility is the magazine is dented or dirty, temporarily preventing the follower from pushing the last cartridge to the top. While the magazine might appear unloaded, pushing it into the handgrip could jolt the follower free and allow any remaining cartridges to move into position for loading. Cycling the slide or releasing it from the locked-open position could chamber a round without the handler ever being aware. That ignorance, coupled with a person pointing a weapon at his or her own head, can quickly lead to a tragedy.

CLASS B

A Soldier's finger was partially amputated when it caught inside the pivot point hinge of an M929 5-ton tailgate. The Soldier had been helping reset the tailgate. Personal protective equipment use was not reported. The accident occurred in the late morning.

DRIVING

POV

CLASS A

A Soldier suffered fatal injuries when he lost control of his POV while attempting to pass another vehicle, flipping his car several times.

DO YOUR SOLDIERS WEAR THEIR SEAT BELTS?

POM

CLASS A

A Soldier was killed when he lost control of his sport bike on a curve. The motorcycle skidded and struck a fence before coming to rest. The Soldier was wearing all required PPE.

HAVE YOU TAKEN A MOTORCYCLE RIDER'S COURSE?

A Soldier suffered fatal injuries when he lost control of his motorcycle on a curve, causing it to hit an oncoming sport utility vehicle. The Soldier was wearing all required PPE but speeding and was thrown from the bike upon impact.

A Soldier suffered partial amputation of both legs when he lost control of his sport bike and hit a guardrail. The Soldier was wearing all required PPE but speeding.

HAVE YOU TALKED WITH YOUR SOLDIERS ABOUT THE DANGERS OF SPEEDING?

POV DRIVING LOSSES FY07

thru Feb. 2007

	Class A accidents/Soldiers killed
CARS	16/19
VANS	1/1
TRUCKS	10/10
MOTORCYCLES	9/8
OTHER*	6/5

*Includes tractor-trailers, unknown POVs and bicycles

43 TOTAL DEATHS

FY06: 42 3 year average: 46

TRiPS FOR YOUR TRIPS!

Soldiers will notice something different about the tool they've come to depend on for assessing risk during POV trips. What was formerly known as ASMIS-2 is now the Travel Risk Planning System, or TRiPS, and it's been adopted across the Department of Defense for use by the Navy, Marines, Coast Guard and Air Force. The name change and expanded reach don't change the tool's value, however. Soldiers will continue to input and receive hazard and risk mitigation information based on their trip specifics, including vehicle type, driver age, destination, seat belt use and more. However, supervisors will have more oversight thanks to a new feature that allows them to view the activity of their subordinates two levels down, thereby expanding leadership engagement and awareness.

TRiPS was implemented in the Army as ASMIS in 2004 and to date, Soldiers have completed more than 1,783,000 assessments with only six fatalities reported during assessed trips. In the year since the Navy released TRiPS, no fatalities have been reported among the nearly 30,000 Sailors registered for assessments. These statistics show fatal POV mishaps might be less likely among service members who use the tool. For more information or to register for TRiPS, visit the U.S. Army Combat Readiness Center's Web site at https://crc.army.mil.

Be an ENGAGED leader

Someone always knows ...
Don't just stand by if that "someone" is you.
ENGAGE - prevent an accident from occurring.

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Be an ENGAGED Leader

ENGAGE **- prevent an accident from occurring.**

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ASMIS-2 reaches across DOD and is now **TRiPS**.
So before you hit the road, use
TRiPS to make it home safe.

TRAVEL RISK TRiPS PLANNING SYSTEM

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KNOWLEDGE

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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FROM THE DASAF

"I BELIEVE there are OTHER PLACES where INFORMAL GROUPS of ENGAGED LEADERS can IMPACT and achieve SUCCESS."

ARMY STRONG AND ACHIEVING SUCCESS

As we endeavor to take ownership and make protection of our force a part of our culture and focus to empower each and every Soldier to engage and make a difference, I think it appropriate to share with you one of our Army's significant successes.

Our goal to develop in all Soldiers an ability to think holistically, looking at where and when they might use their specific skill sets to protect their Team and save lives, is happening. While we're making progress in several areas, let me share with and toss out for your consideration some areas where we, as an Army Strong, are achieving success.

Each of these successes is pertinent to all we do and inherent in a culture of "engaged leadership." Again, these are success stories worth sharing over and over! As you read, please think of other ways we might use this model for engaging with the entire Team.

Getting each and every Soldier to take ownership and assume responsibility for protecting our force is exemplified in the success of the Motorcycle Mentorship Program. Individual MMPs spread throughout our Army have done several things well. First and most significant is the incredible success in driving down motorcycle fatalities. To date, our losses are some 60 percent below those seen in previous years.

Our losses in fiscal 2006 appeared to be a negative trend. However, our leaders and Soldiers quickly realized these unacceptable events must be STOPPED. Through the direct involvement of commands and the further direct engagement of experienced motorcycle riders, our Army stemmed the flow. That in itself is huge.

A look into the "why this happened" is enlightening and brings me to the second success of the MMP. Each regional MMP is essentially the result of Soldiers and/or civilians that perceived a need and established a program to embody "ownership." While the individual MMPs aren't necessarily headed by formal leadership from the post or chain of command, a justifiable case can be made that these informal leaders crafted and achieved a model for best practices in engaged leadership. They've instituted organizations that embody ownership within their formations and made a cultural shift in protecting our force that's indeed a success.

These leaders have achieved a "band of brothers" mentality that's making a difference and saving lives. What's equally enlightening is these successes weren't confined to a particular post, camp or station. In fact, they reflect the same "transformation" our Army has achieved—that we must depend on decentralized operations led by junior leaders.

I believe there are other places where informal groups of engaged leaders can impact and achieve success. FORSCOM has developed some excellent motorcycle best practices of which all riders should be aware. You can find them on the USACRC's MMP Web site at https://crc.army.mil/mmp or FORSCOM's Web site at http://www.forscom.army.mil. Be sure you know these practices and pass them along to your troops so we all can learn what others have to teach. It's all about being a team and making sure we never leave a fallen comrade behind.

William H. Forrester
Brigadier General, USA
Commanding

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Julie Shelley Managing Editor
Bob Van Elsberg Editor
Chris Frazier Editor
Paula Allman Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

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TAKE LEAD!

1SG (RET) MIKE BARKSDALE
Tactical Safety Manager
U.S. Army Combat Readiness Center

Engaged leaders hold themselves and their Soldiers to a high standard both on and off duty. They guide their subordinates and enable them to manage risk and prevent needless loss. Our Army breeds this type of leader and they make us "Army Strong." You won't find these leaders or their Soldiers in the U.S. Army Combat Readiness Center's accident database. Unfortunately, however, there's a small minority of leaders that don't fit the definition of "engaged leader." Let's learn from the mistakes made by the leaders in the following examples and keep the accident arrow turned down.

In our first accident, a Soldier was killed while moving an M2HB .50-caliber machine gun as part of a detail. The NCO in charge of clearing the gun after completion of firing failed to follow the procedure outlined in the technical manual. Although the company commander directed that either the platoon sergeant or platoon leader physically clear their platoon's M2s, neither cleared the weapon involved in the accident. At least two other leaders might have prevented this accident had they directed someone to clear the weapon under their charge.

In another accident, a staff sergeant was in charge of a cadre training event. This NCO instructed the other cadre members to wear the required personal protective equipment while operating watercraft, which is a known and written standard. After reinforcing this directive several times, the NCO totally disregarded his own instruction by not donning the appropriate PPE or properly checking specific equipment on the boat, which subsequently capsized. The NCO drowned.

Sometimes, officers also fail to meet the standard of an engaged leader. One captain, a company commander, often conducted safety briefings and cautioned his Soldiers about the hazards of drinking and driving. He also counseled his Soldiers who rode motorcycles on the Army requirements relating to mandatory training and protective equipment. Tragically, he failed to heed his own advice.

One night, the captain and his wife left their home to enjoy some time together on their new motorcycle. They stopped at a local bar, where the captain met with some friends and started drinking. Leaving his wife at the first bar, the captain got on the motorcycle without his helmet and followed a friend to another bar. After two more hours of drinking, he left his buddies to pick up his wife.

Traveling at a high rate of speed and still not wearing a helmet, he crossed a set of railroad tracks that sent the bike flying more than 60 feet through the air. After striking the ground, the motorcycle flipped 12 to 14 times before crashing into a fence. The captain was dead within the hour. Post-mortem toxicology tests indicated the captain's blood alcohol level was .28, more than three times the legal limit. A truly engaged leader won't allow themselves to fall into this kind of trap.

How do we prevent accidents such as these? The solution might be as simple as leaders being in the right place at the right time, knowing their Soldiers, enforcing standards and making informed decisions at the appropriate level. Taken together, these attributes are an excellent example of engaged and accountable leadership. We understand there are disciplined leaders throughout the Army who don't and won't fall prey to these types of accidents. So stay engaged, hold yourself accountable to the same standard you expect from your Soldiers and continue Leading on the Edge!

FYI

Before the next misson, make sure your Soldiers are prepared and use the Army Readiness Assessment Program. It's a Web-based initiative that provides battalion-level commanders with data on their formation's readiness posture. Check it out today at https://unitready.army.mil/.

THINK WEAPONS SAFETY

MSG (RET) PEGGY ADAMS
Ground Task Force, Deputy
U.S. Army Combat Readiness Center

To fight the negligent discharge problems the Army is currently experiencing, we must change the way Soldiers think about and handle weapons. Both leaders and individual Soldiers have a responsibility to set the example for others and make on-the-spot corrections. Drill home that your Soldiers must THINK weapons safety!

Treat every weapon as if it's loaded.
Handle every weapon with care.
Identify the target before you fire.
Never point the muzzle at anything you don't intend to shoot.
Keep the weapon on safe and your finger off the trigger until you intend to fire.

In many negligent discharges, it's clear the basic fundamentals of weapons handling were ignored. Based on information reported to the U.S. Army Combat Readiness Center, the most prevalent mistakes that lead to negligent discharges are horseplay, improper clearing procedures, incorrect weapon status, failure to keep the weapon on safe and finger off the trigger when there's no intent to fire and lack of muzzle awareness. These mistakes are a result of indiscipline, overconfidence and complacency.

In fiscal 2006, six negligent discharge fatalities were reported in the Army. As of March 1, 2007, there already have been four fatalities—and we aren't even halfway through the year! Three of the four fatalities this fiscal year involved alcohol and privately owned weapons, and all occurred with what the Soldier believed was an unloaded weapon. Two Soldiers intentionally pointed a weapon at their own head and pulled the trigger. Here's a quick look:

- In October 2006, a Soldier was showing his privately owned weapon to a friend. He removed the magazine but didn't clear the weapon, which discharged a round into his head. The Soldier had been drinking alcohol.
- In January 2007, a Soldier had been drinking alcohol with a friend in the barracks. The friend warned the Soldier to stop playing with the weapon and not point it at himself. The Soldier told his friend not to worry because the weapon wasn't loaded. The Soldier then charged the weapon, pointed it at his head and squeezed the trigger, discharging the weapon.
- On the same day as the incident above, another Soldier who also was consuming alcohol was cleaning his POW in preparation for a hunting trip with a friend. He pulled back the slide, showed it to the friend and they pronounced the weapon "clear." The Soldier then released the slide, placed the weapon to the side of his head and pulled the trigger, discharging one round into his brain. He was a sergeant.
- In the most recent incident, two Soldiers were cleaning their M4 rifles in their living area when one of the weapons discharged, killing one of the Soldiers.

All these incidents were preventable. Leaders must enforce the standards for weapons safety so we can keep our Soldiers in the fight. How's your unit doing in this area and what tactics, techniques and procedures do you have in place to prevent negligent discharges? Let us know; we'd love to hear from you! «

» DID YOU KNOW?

To download copies of the Army's new weapons safety posters, visit https://crc.army.mil/Multimedia/detail.asp?iData=53&iCat=687&iChannel=19&nChannel=Multimedia.

CULTURE CLASH

U.S. ARMY COMBAT READINESS CENTER

The Soldier had been a company commander for nearly four months. A National Guardsman called to active duty, he was preparing for drill that weekend. His job was to oversee training given newly enlisted Guardsmen to prepare them for basic training or advanced individual training. It was well into summer and he decided to leave work early that Friday afternoon.

The Soldier and his wife enjoyed riding their new Harley-Davidson. The weather that Friday was perfect, and they got on the bike and headed out about 6 p.m. to visit friends in town. A short while later, the couple met up with a riding buddy and rode to a downtown bar where they spent nearly two hours drinking.

A little before 10 p.m., the Soldier and his buddy rode to another bar; the Soldier's wife stayed behind. The Soldier left the second bar around midnight to pick her up on his way home. However, he got confused as he attempted to retrace the route back to the first bar. Instead of turning onto the street where the bar was located, he turned onto another unfamiliar road.

A pedestrian walking south along this street heard the Soldier's motorcycle approaching from behind. Just ahead was a rise where some old train tracks had been smoothed over with concrete and, on the far side, a steep downgrade that led to an "L" intersection. A 90-degree left turn warning sign, accompanied by a suggested 10-mph sign, alerted motorists to the intersection ahead.

FYI

May is Motorcycle Safety Awareness Month, so before hitting the road, check out the Army Motorcycle Mentorship Program Web site at https://crc.army.mil/mmp/index.asp. Use the site as a resource for finding local riding associations and information on how to be a safer rider.

But in the Soldier's mind there wasn't any intersection. Rolling on the throttle, he accelerated to more than 60 mph as he roared down the road. The pedestrian watched the motorcycle pass, crest the rise and go airborne, flying 66 feet before it landed on the road. Although the Soldier hit both brakes upon landing, the motorcycle plowed into a chain-link gate at a construction site and ripped a 20-foot section of fence from its hinges. The Soldier and motorcycle became entangled in the fence and tumbled end-over-end more than a dozen times.

The pedestrian ran to the crash site and pulled the motorcycle off the Soldier's legs. For several minutes he tried to get a response from the Soldier, who seemed to be choking as blood ran from his mouth and ears. The man then ran to a nearby city jail where he told the desk sergeant about the accident and asked him to call 911. However, in his excitement, the pedestrian failed to provide the accident location before leaving and running back to the crash site. The sergeant called 911 at 12:15 a.m. but, without knowing the Soldier's location, couldn't give directions to emergency personnel.

In the meantime, another rider stopped to try to help the Soldier. Seeing the man running back toward the accident, the rider got on his bike and told him he was going for help. After checking the Soldier and seeing he still wasn't breathing, the pedestrian ran back to the street and tried to flag down several cars. He finally got a driver to stop and call 911 from his cell phone. Now that they had the accident location, local police and fire department personnel were on the scene within four minutes and, shortly afterward, an ambulance arrived. By then it was too late; the Soldier was already dead.

What killed this Soldier?

No helmet: The coroner examining the Soldier found three open skull fractures. These fatal injuries might have been prevented had the Soldier worn a helmet as required by Army Regulation 385-55 and the National Guard's policy on motorcycle safety. The Soldier had previously completed the Motorcycle Safety Foundation's Basic *RiderCourse* and knew why helmets are important.

Impaired by alcohol: According to eyewitnesses, the Soldier drank heavily that night. Toxicology tests revealed the Soldier's blood alcohol concentration was .28. Most adults would be unconscious at that level.

Lost situational awareness: Being drunk, the Soldier was confused about where he was and took a wrong turn. He also failed to notice the caution sign warning of the dangerous intersection.

Speed kills: The motorcycle was traveling about 63 mph when it crested the rise at the old train crossing. This excessive speed kept the Soldier from stopping before hitting the chain-link gate and increased the severity of his head injuries.

> "He supported **MOTORCYCLE SAFETY AT WORK** by providing classes for other Soldiers. **HOWEVER**, safety was neatly compartmentalized into his on-duty time. When he **SHED HIS UNIFORM**, he also **SHED THE MILITARY REGULATIONS** he served under."

Why did he die?

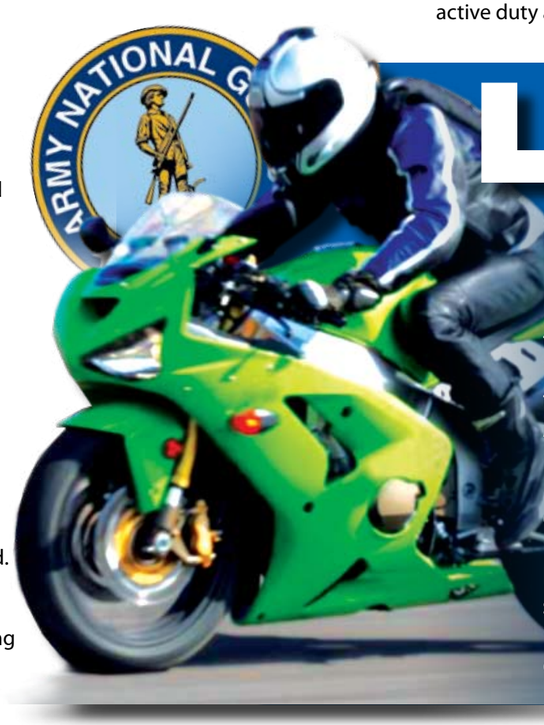
Why did this Soldier choose to be reckless? You can't blame it on alcohol because he was sober when he chose not to wear his helmet and go drinking and riding. The root problem was less what he did than why he did those things.

On duty, this Soldier was an excellent performer. He'd served with distinction in Iraq and was called to active duty at his current assignment because of his proven abilities. He supported motorcycle safety at work by providing classes for other Soldiers. However, safety was neatly compartmentalized into his on-duty time. When he shed his uniform, he also shed the military regulations under which he served. The Army calls such a choice "indiscipline." In the end, it was indiscipline that set in motion the tragic events of that night.

Culture counts

Inside every organization is a culture that defines what's important. Vacant additional duty safety officer and NCO slots, nonexistent safety programs and ignorance of Army safety policies defined the safety culture of this Soldier's organization. And there were other troubling symptoms. Another rider in the unit hadn't taken MSF training, wasn't licensed to ride her motorcycle and refused to wear a helmet. She said she'd buy private insurance if the Army were to start finding riders who weren't wearing their required personal protective equipment not in the line of duty.

These type attitudes don't just happen in a vacuum; they're a reflection of the unit's safety culture. They also demonstrate why culture counts when it comes to the safety of individual Soldiers. How? When organizations adopt a culture of indifference, Soldiers adopt a culture of indiscipline.



LAYING DOWN THE LAW

On Oct. 2, 2006, LTG Clyde Vaughn, Director, Army National Guard, addressed the issue of motorcycle safety in a memorandum sent to the adjutant generals of each ARNG organization. In the memorandum he said:

"Motorcycle accidents are occurring at alarming rates. Safety reports identify reckless driving, horseplay while excessively speeding, driving under the influence, loss of control and colliding with other vehicles. To date, the United States Army sustained a total of 47 casualties due to motorcycle accidents. That is 47 Soldiers no longer able to stand alongside you and answer the call to duty.

"…This unacceptable trend toward death and injury requires leadership intervention. ARNG personnel need motorcycle training and education. It is hereby required … for all personnel operating a motorcycle to complete the Motorcycle Safety Foundation Course.

"…ARNG personnel, regardless of duty status, are required to wear personal protective equipment when operating a motorcycle—even when not required by state law. This is a requirement and a responsibility of your service to the military and the people of the United States. Furthermore, all ARNG personnel, regardless of duty status, must comply with DODI requirements for motorcycle safety.

"…Rider PPE includes: Department of Transportation approved helmet, face shield or impact goggles properly attached to the helmet, sturdy over-the-ankle footwear, long sleeved shirt or jacket, long pants, full fingered gloves or mittens designed for motorcycles and a brightly colored outer garment/vest/riding jacket (day)/retro reflective upper garment (night).

"…We are an organization committed to the safety of our personnel. We represent a Nation that expects and deserves our very best. Even while on a motorcycle, we should exemplify nothing short of loyalty, duty, respect, selfless service, honor, integrity and personal courage. Remember, everywhere you ride you represent this country and this institution. The Army National Guard is always ready, always there and safety is therefore non-negotiable."

Editor's Note: Seven crewmembers survived an accident in which an AH-64A landed on top of their UH-60A aircraft. The two pilots, two crew chiefs and three passengers in the Black Hawk escaped death; however, the two Apache crewmembers were killed and both aircraft were destroyed in a post-crash fire. One of the Black Hawk pilots agreed to share his story of that tragic night. What you'll read comes from the standardization instructor pilot's account he gave only hours after the incident. We're publishing his story here with his permission and approval, and we're grateful he's sharing his lessons learned.

Out of Nowhere

CW4 PAUL KAHLER
Tennessee Army National Guard

Our mission that night was to conduct a night visual meteorological conditions logistics and passenger transport mission while an AH-64A, flying trail, provided armed escort. We were the lead aircraft, a UH-60A, in a flight of two conducting a night formation flight approach to the Forward Arming and Refueling Point while using night vision systems. We approached the runway from the west at a 60-degree angle, flying a heading of approximately 90 degrees. Once we intersected the runway, I turned right and flew a heading of 150 degrees down the runway toward the taxiway leading to the FARP. I decelerated and performed a descending left pedal turn to the taxiway. Our main landing gear was about a foot off the ground and the tail wheel had already touched down when I felt the aircraft being pushed down and to the right.

Bam! Did something just hit us? And then there was an explosion. When I looked out my door, I immediately noticed two things: my rotor blades were gone and an Apache rocket pod was lying on the ground.

Suddenly, there was another explosion and fire on our left. I exited the aircraft and ran about 30 feet from the Black Hawk and looked back. Our aircraft was already on fire. I found one of my crew chiefs, who told me he'd accounted for all our crew and passengers and moved them away from the aircraft, except the other pilot. Then I saw the other pilot beating on his door, trying to get out. I ran back to the aircraft and found him crawling over the center console. I helped him get out and we ran, not looking back.

The aircraft exploded as we were running away. I found the rest of the crew and passengers about 50 yards from the Black Hawk. Of the seven crew and passengers, four were hurt but able to get themselves away from the aircraft. Although firefighters showed up almost immediately, they couldn't do much about the fire with ammunition exploding and 30 mm rounds flying in every direction. I asked if they'd found the Apache; I hoped they were able to taxi or fly away.

I went back to the injured Soldiers and found some were going into shock. We thought one had a broken leg or hip and one a broken arm or shoulder. My crew chief and I started first aid and within minutes ambulances arrived. All crew and passengers were transported to the hospital at the other end of the airfield runway.

I was in the hospital getting checked out when I heard the Apache's tail section had struck our main rotor system from above and neither of the crew survived. The fire had been so big that we didn't realize it was two aircraft burning. I couldn't believe it. This was supposed to be a simple transfer of three passengers and a box of unmanned aerial vehicle parts.

> "I couldn't **BELIEVE IT**. This was supposed to be a **SIMPLE TRANSFER** of **THREE PASSENGERS** and a **BOX** of unmanned aerial vehicle parts."

Lessons learned

There are four things to be learned from this tragedy. First, incorporate mixed formations into readiness level progression, especially for night operations. A mixed formation doesn't have to be dissimilar aircraft; it can be aircrews flying the same aircraft from two different units. Know the capabilities and limitations of the other aircraft in your formation.

Second, brief and practice lost visual contact procedures. Radio discipline is secondary to communication in emergencies. If you lose sight of each other, plan for altitude separation and rally points. Light signals don't work well in urban environments.

Third, practice emergency egress procedures. Our enlisted flight instructor had recently completed the flight instructor course at Fort Rucker, Ala., and was trained extensively in this area. In our pre-mobilization training, we trained emergency egress hard, landing in open fields and rehearsing duties in the event of a crash. Don't forget to consider your actions if ammo is cooking off around your rally point. Move far away from the crash and get low to the ground.

Lastly, ensure you and your aircrews receive combat lifesaver training. This training is critical in combat; I don't know too many people who've deployed and didn't use first aid in some type of situation. Don't do this training for yourself, do it for your Soldiers.

TIME TO BE A CREWMEMBER

U.S. ARMY COMBAT READINESS CENTER

It's an ingrained part of Army culture to teach, coach and mentor new Soldiers. We're taught to take every opportunity to train new warfighters and pass on tactics, techniques and procedures. This is especially true of instructor pilots in Army Aviation, who are taught to maximize the training value in every flight. But when does the instructor hat come off and the crewmember hat go on?

There's a fine line between the two and it depends on the mission. All crewmembers have duties to perform every time an aircraft takes off. Everyone must be an active crewmember first and instructor or trainee second. This lesson was revealed by a recent crash during an AH-64D night aerial gunnery exercise in which both crewmembers were killed and the aircraft destroyed.

What happened?

The crew was well respected within the battalion. Leadership was grooming the IP to become the battalion master gunner. The front seater was a new readiness level 1 pilot on his first aerial gunnery. This crew had flown together often and, during his time in the unit, the copilot-gunner had completed all his RL progression flights with this IP.

All levels of command were closely involved in the crew selection and Composite Risk Management processes, and the gunnery was well thought out and executed. The battalion commander had personally flown the diving rocket engagement with a CW2 front-seat crewmember to validate the safety of the engagement parameters before allowing other crews to conduct the engagement. Despite this risk mitigation, tragedy struck because each crewmember failed to perform their specific tasks as outlined in Aircrew Training Manual TC 1-251.

The crew was on their final engagement for their night table VII when they called the initial point inbound for the engagement. The tower read the script as the targets were brought up. The IP, flying in the backseat as the mission pilot in command, identified the burn barrels used to mark the engagement area at night and then told the CPG to inform the tower they had targets in sight and would call the next phase line. This particular engagement calls for a pilot independent rocket engagement employing the helmet mounted display sight select. The PC instructed the CPG to assist in making adjustments using the target acquisition and designation system.

The PC armed the aircraft at the next phase line. The CPG attempted to use the TADS to acquire the correct target; however, the PC became irritated with the CPG as he attempted to image autotrack multiple targets. The PC reprimanded the CPG for this action and instructed him to use the linear motion compensator to track the target. The PC indicated he had the target and then called the arrival at the next phase line, which was also the start fire line.

The tower cleared the crew for the engagement. The crew, with the PC on the flight controls, initiated a dive to conduct the attack. The crew began the dive at 60 knots airspeed and 1,500 feet altitude. The dive varied between 23 and 28 degrees pitch and reached a maximum airspeed of 150 knots. The CPG called verbal corrections to the PC, indicating the rockets were low and to the left. The PC said the last rocket wouldn't fire and began recovery from the dive.

The PC brought the aircraft's nose up to the horizon before beginning the turn, during which he allowed the angle of bank to reach 80 degrees. While on the controls, the PC directed his attention inside the aircraft to deactivate the rockets and press the ARM/SAFE button to safe the armament system. With his attention focused inside the cockpit and the aircraft in an 80-degree right turn, the nose began to drop, causing the Apache to re-enter a 23-degree dive angle. The CPG also was focused inside the cockpit and directed his attention from the left multipurpose display to the right MPD, where his weapons page was displayed. The CPG then started talking about the rocket that didn't fire and its inventory status.

After completing his tasks inside the aircraft, the PC directed his attention back outside and saw a grove of tall pine trees about 2 to 3 feet in diameter. The aircraft struck the trees about 25 feet above the ground. The aircraft was traveling at 133 knots in a 13-degree nose down attitude and a 33-degree right bank, with a 4,947-foot per minute rate of descent.

Lessons learned

All crewmembers must perform their duties regardless their experience level. According to the AH-64D ATM Task 1422, "Perform Firing Techniques," the crewmember not engaging a weapons system will focus his attention outside the aircraft to assist with obstacle avoidance. The task also states the pilot not on the controls should operate the ARM/SAFE button.

Under the night considerations portion of Task 1422, it's stated that difficulty in determining aircraft altitude and rate of closure and detecting obstacles will increase the aircrew's fatigue level. The crew must use proper scanning techniques to avoid obstacles and prevent spatial disorientation.

In Task 1415, "Perform Diving Flight," the pilot not on the controls will provide adequate warnings to avoid traffic or obstacles detected in the flight path and any deviation from the maneuver parameters. The ATM doesn't excuse a pilot from completing tasks because there's an IP in the cockpit. In addition, the ATM doesn't excuse a PC from adequately distributing the crew workload even though he's an IP as well.

Fly the aircraft! These state-of-the-art aircraft have numerous displays, and pilots can quickly become overwhelmed with information. First and foremost, the pilot on the controls must always remember to fly the aircraft. In this accident, the battalion master gunner emphasized this point when conducting the fire brief. The PC must ensure proper distribution of crew duties throughout the mission to ensure the pilot on the controls doesn't get task saturated.

The PC in this accident could've easily maintained aircraft control and situational awareness if he'd used the three-step safing process described in Task 1422, which states, "The PC will determine the appropriate safe level of the armament systems for the firing method being employed." The critical task for all engagements is maintaining situational awareness and aircraft control. Any one of the three levels below will ensure the weapons system won't fire:

(1) Weapon trigger switch released
(2) Weapon action switch deselected
(3) SAFE/ARM button—SAFE

IPs must ensure copilots perform their respective crew duties, even if it means a degraded level of performance, as long as safety isn't compromised. Instructors tend to pick up duties their students drop, giving the students a false sense of security that lowers their situational awareness and performance. "The IP has it, he'll keep us straight." This line of thinking is dangerous because students sometimes revert to a voice-actuated copilot instead of a functioning crewmember. IPs must be crewmembers first, instructors second. It's a delicate balance that requires good judgment in choosing which role to perform.

Our business is inherently dangerous and even great crews can have a momentary lapse in situational awareness. We must each perform our crew duties to our utmost ability to ensure equitable distribution of workload and safe return after the mission. Engaged leaders are an important part of that crew mix and must take action and stay engaged to train Soldiers to operate safely in very trying conditions. We can change the culture in today's Army given proper planning, attention to detail and the active involvement of the chain of command.

FYI

Knowledge is now available in a new, easy-to-use online version! Check out the magazine Web site at https://crc.army.mil/Knowledge/index.html to find individual articles in easy-print PDF format or download an entire month's issue for even more safety information. You also can subscribe to the magazine through the site and even share your "war stories" with your fellow Soldiers! For more information or to provide feedback on *Knowledge*, e-mail the editor at knowledge@crc.army.mil.

What training can a unit conduct at home station to help reduce accidents and injuries while deployed? Honestly, there are just too many tasks to list, but help is available. The Coalition Forces Land Component Command provides training priorities to units preparing to deploy, including driver training, rollover drills, crew coordination and prevention of heat casualties. Proper training and information, along with identifying and preventing complacency and indiscipline, equips your Soldiers with the tools they need to stay in the fight.

FIGHT AS YOU TRAIN

CW3 DAVID MUEHLEISEN
Ground Task Force
U.S. Army Combat Readiness Center

A driver training program that reinforces good, fundamental driving skills while training in garrison greatly enhances a unit's ability to successfully complete its missions in combat. Driving an M998 or M1025/1026 HMMWV at the Joint Readiness Training Center or National Training Center and then transitioning to an M1114 in combat requires drivers to modify their driving habits. The handling characteristics of the M1114 are vastly different from other HMMWVs. Understanding the impact of this vehicle's increased weight on its braking and steering and adjusting accordingly can reduce accidents and rollovers.

Enforcing the use of seat belts and gunners' restraints also will reduce your unit's risk for fatalities. The risk of dying in a rollover is six times greater for Soldiers not wearing their seat belts in a HMMWV, while 94 percent of Soldiers who used their seat belts survived a rollover incident. Excessive speed and the driver's experience level are factors leaders can monitor and control while conducting operations.

Units that practice rollover drills reap the benefits of that training in disciplined, skilled and competent vehicle crews that react instinctively during a rollover. While deployed, ensure your Soldiers participate in HMMWV Egress Assistance Training. HEAT can increase a Soldier's ability to understand the disorientation involved in a rollover and instill the fundamental skills needed to react and survive if they're ever involved in one. HEAT training also teaches Soldiers the value of wearing seat belts and reinforces the importance of securing loads within the vehicle. Soldiers surveyed after using HEAT devices in Kuwait said the training is as realistic as possible, and about half the Soldiers reported they learned a new skill. Graphic Training Aid 55-03-030 is a comprehensive guide that covers emergency procedures and water egress.

Crew coordination is a combat multiplier in any organization and works for all types of equipment operations. U.S. Army aircrews practice crew coordination and benefit greatly from this concept. Effective crews are made up of assertive crewmembers that continuously provide input to the vehicle commander or team chief as the mission is being developed and conducted.

A key component of crew coordination is the clear understanding of terminology and signals, as well as keeping every crewmember posted on relevant details. Develop a crew coordination program within your unit and make it standard operating procedure. Also, ensure the entire crew participates as a team in mission planning, execution and after-action reviews.

Another area that continues to be a major concern for leaders and Soldiers is heat-related injury. Heat injuries and illnesses pose a significant threat to Army personnel both deployed and at home. Indiscipline and complacency can be deadly when Soldiers don't hydrate before, during and after operations in the extreme heat of the summer months. Those most at risk for heat injury are the youngest and most inexperienced Soldiers, which means leaders should monitor these personnel more closely.

According to the U.S. Army Center for Health Promotion and Preventive Medicine, there were 204 cases of heat stroke and 958 cases of heat exhaustion reported in the Army in 2005. Prepare your team now for the extreme heat they'll encounter in Iraq and Afghanistan. Also, know which of your Soldiers have suffered previous heat-related injuries. USACHPPM reports that in the last five years there has been no clear trend in heat stroke among Soldiers; however, there has been a sharp increase in heat exhaustion over the past three years.

USACHPPM and the U.S. Army Research Institute for Environmental Medicine have several heat injury prevention products available on their Web sites, including posters and pocket guides. Leaders should use all the resources available to them and their Soldiers as we enter the hot summer months. Don't let a heat casualty happen in your formation.

Training Soldiers before deployment to drive equipment responsibly and defensively is an easy way to ensure they're competent operators when the mission requires them to maneuver in combat. Soldiers should be prepared for the unique challenges of the combat environment by training fundamental skills and developing good habits. Leaders must also identify any unsafe acts or habits in garrison so Soldiers don't bring them into combat. There's a lot of free information out there for leaders to pass on to their Soldiers. Take advantage of it and keep your Soldiers in the fight.

For more information on the fundamentals of crew coordination, see the 4th Brigade Combat Team, 4th Infantry Division's Power Point presentation on the Army Knowledge Online site at https://www.us.army.mil/suite/doc/6350417. An AKO username and password is required to access the site.

FYI

The Combined Arms Center-Training recently developed "The Road to Deployment" Web site for commanders as a "one-stop shopping" spot containing requirements for deploying units. The Web site provides FORSCOM and CFLCC training requirements, as well as a number of links to information and capabilities that will help commanders meet those requirements. The site's SIPRNET URL is http://rtd.leavenworth.army.smil.mil.

TOO MUCH OF A GOOD THING

Just as Soldiers can suffer a heat injury by not drinking enough fluids, they also can drink too much. Hyponatremia is a condition where the sodium concentration in human blood is lower than normal. Causes include overhydration, skipping meals or dieting, loss of body salt or misdiagnosis and treatment for dehydration. Those suffering from hyponatremia can exhibit symptoms such as confusion, weakness or nausea and vomiting. If you believe a Soldier is suffering from hyponatremia, help replace salt loss and follow the measures for heat exhaustion. If symptoms persist or become more severe, evacuate the Soldier to a medical facility. To prevent hyponatremia:

- **Follow fluid replacement guidelines**
- **Replace lost salt by consuming meals and sports drinks as directed**
- **Provide snacks or carbohydrate electrolyte beverages during long training events**
- **Don't take dietary supplements**

THE FUTURE IS MFOQA

LTC(R) RICHARD KOUCHERAVY
Chief, Air Task Force
U.S. Army Combat Readiness Center

All Army aviators and leaders should be familiar with Military Flight Operations Quality Assurance, an important futures program that promises to make a significant, positive impact on Army Aviation over the next decade. MFOQA was mandated by the Department of Defense for all services and is rapidly propagating through commercial and civil aviation.

So, what exactly is MFOQA? It's a predictive program that analyzes flight data to enhance operational readiness, training, maintenance and safety (OTMS, and now more commonly known as MOST) achieved through digital data download from aircraft. A fully integrated MFOQA capability will provide diagnostics and prognostics to enhance MOST at company, battalion, brigade and echelons above brigade. MFOQA capabilities are under the broader aircraft data exploitation capability concept, which will exploit the rapid proliferation of aircraft digital source collectors such as maintenance data recorders, flight data recorders, digital cockpit voice recorders and health and usage monitoring systems.

ADEC is an enabler for instituting digital aviation logistics and condition-based maintenance. It also could support the common logistics operating environment protocols and standards for moving aircraft data detailing Army Aviation's needs to collect, store, analyze and act upon such data to support the effectiveness of joint and combined operations. This process involves hardware, software and process changes at the platform, unit and higher echelons (e.g., U.S. Army Combat Readiness Center, U.S. Army Aviation and Missile Command, Program Manager-Aviation Engineering Directorate, etc.) to better leverage digital data currently available and expand the types of data collected from our aircraft.

CBM, also known as predictive maintenance, is the set of maintenance actions taken to prevent or avoid the consequences of functional failure. The Army vision for CBM is to establish enterprise-wide predictive maintenance and anticipatory logistics capability by developing information exchange requirements for the Army integrated logistics architecture and connecting self-reporting/self-diagnosing platforms to the logistics enterprise to improve operational availability, mission capability and combat power.

In practical terms, what does MFOQA entail? First and foremost, MFOQA means that by the end of fiscal 2013 the Army should have a suite of DSCs on all Army aircraft. That suite will be comprised of a sufficient number and type of digital collectors to record aircrew communications, flight data, aircraft performance and, where applicable, digital video. DSCs will also have the capability to record engineering data for use by aircraft and component program and product managers.

Secondly, a system will enable MFOQA to collect and transmit digital aircraft data, although the type and range to be collected and transmitted is yet to be determined. The Army also hasn't yet decided how that data will be transmitted. For example, it's possible to transmit data over a wireless network from the aircraft through the unit into the Army network. However, wireless transmissions, while less labor intensive, are also more limited than aircraft-side downloads in terms of volume of transmitted data and information security. Nonetheless, aviation units will possess the capability to download digital aircraft data for their use and pass into the Army network for other users.

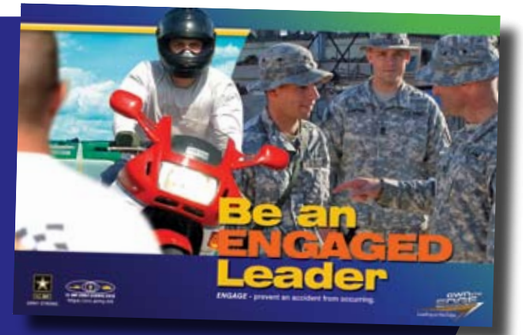
Perhaps most important to commanders, MFOQA will provide the ability to sample and analyze aircraft data at the brigade level and below. That ability will allow commanders and trainers to tailor aircrew training based upon aircrew performance downloaded from aircraft after missions. For example, a commander could, through modeling, review a certain pilot's last five night vision system training flights to determine how the pilot's performance fares against the training standards for NVS flight. In another example, commanders could use data downloaded from flights to assist in the after-action review process or to determine lessons learned from near misses. One very promising capability offered by MFOQA is for trainers to fly and record "gold-standard model" maneuvers and, by review, virtually place every member of the unit in the cockpit with an instructor pilot while he or she is demonstrating a given maneuver to standard.

In the area of safety and accident prevention, the Army is already reaping some of the benefits of MFOQA. AH-64Ds and limited numbers of other aircraft types are by now outfitted with MDRs, HUMS and, in some cases, CVRs. These devices are fielded in concert with crash-survivable memory units that have been of great utility in conducting post-crash forensic analyses of Army Aviation accidents. When these devices have been present on Army aircraft, the USACRC has been successful in helping accident investigators reconstruct portions of the flight to possibly determine accident causes or review aircraft performance factors. MFOQA will further this capability by allowing commanders to be more proactive in preventing accidents, compared to our present limited capability to conduct reactive accident analysis.

The U.S. Army Aviation Warfighting Center is leading the Army effort to determine how the MFOQA and ADEC programs will be developed. The Program Executive Office–Aviation and USACRC, along with the Army Staff and other Army agencies, are working in concert with USAAWC. Through our combined efforts, the Army is currently staffing an MFOQA capability development document. USAAWC will move forward this year to further develop the ADEC program and to obtain a fully staffed and approved initial capabilities document as part of the joint capability integration and development system process.

FYI

It was brought to our attention that the pull-out poster in April's *Knowledge* contained an editing error. We apologize for this mistake, especially to the Soldier in the photo, and we appreciate the feedback from our readers that brought this error to our attention. Your feedback allows us to continually improve our publication to better meet the needs of our Army Team. Keep it coming! Send your comments and recommendations to knowledge@crc.army.mil. Army Safe – Army Strong!



CSA SAFETY AWARDS ANNOUNCED FOR 2006

PAULA ALLMAN
Editor, *Knowledge*
U.S. Army Combat Readiness Center

Congratulations to the winners of this year's Chief of Staff, Army Safety Awards. The Army operates the largest and most comprehensive safety program in the world, and this past year was an active and successful year. Deployments are up and the OPTEMPO is high, yet thanks to the professionalism and quality of Army leaders and Soldiers, missions are being completed safely and to standard. These units are crossing the line of departure and arriving in battle positions on time, meeting all pickup, landing zone and convoy checkpoint times and doing it all safely.

Excellent equipment, solid doctrine and great Composite Risk Management training programs significantly contributed to the accident reduction in fiscal 2006. These units' safety programs were selected as the best in the Army. The Director of Army Safety credits these warfighters' solid leadership, in-rank discipline and mission focus with directly contributing to an unprecedented year in accident prevention.

The winners of this year's CSA Safety Awards include seven recipients whose safety efforts clearly reflect their significant contributions to preserving Army combat readiness:

- CSA Army Headquarters Safety Award: Eighth U.S. Army
- CSA Exceptional Organizational Safety Award, Division: 377th Theater Support Command, Third Army, U.S. Army Central
- CSA Exceptional Organizational Safety Award, Brigade: FIRES Brigade, 4th Infantry Division (Mechanized), FORSCOM
- CSA Exceptional Organizational Safety Award, Battalion: U.S. Army Medical Material Center, Southwest Asia, Third Army, U.S. Army Central
- CSA Exceptional Organizational Safety Award, Garrison: Headquarters Command Battalion, Fort Meade, Md., IMCOM
- CSA Individual Award of Excellence in Safety, Officer: CW2 Faaruwq Muhammad, U.S. Army Medical Material Center, Southwest Asia, Third Army, U.S. Army Central
- CSA Individual Award of Excellence in Safety, NCO/Enlisted: SSG Henry Moye, Headquarters, 1st Battalion, 10th Aviation, 10th Mountain Division, FORSCOM

The awards have been given to the recipients' higher headquarters for presentation. For more information on the CSA Safety Awards, visit the U.S. Army Combat Readiness Center Web site at https://crc.army.mil.

HEAT STROKE: A SURVIVOR'S STORY

TIFFANY HOLLOWAY
Editor, *The Standard*
Fort Detrick, Md.
and
BOB VAN ELSBERG
Editor, *Knowledge*
U.S. Army Combat Readiness Center

Steve Myers walked into his front yard. It was hot, but nothing unusual for July in Georgia. A competitive swimmer, he'd lived in the southeast for years and was used to the heat and humidity, probably more so than others, or so he thought. Suddenly his world began to spin and moments later went black as he fell unconscious to the ground. He'd suffered heat stroke!

A neighbor saw Steve fall and called for help. The ambulance got to his house quickly but as Steve regained consciousness, he panicked and started fighting with the emergency medical technicians.

"I had to be sedated at the scene," he said. "I remember thinking 'I can't breathe, I'm having a heart attack!' I clutched my throat and collapsed."

Fortunately, Steve lived only a mile away from a regional university hospital, where doctors used a cooling blanket and circulated chilled water through his system to lower his 103-degree body temperature. Steve also was suffering from rhabdomyolysis, a condition where his skeletal muscles broke down and were delivered into his bloodstream, clogging his kidneys and liver. This problem caused him to stop breathing; after he was placed on a respirator, Steve ultimately fell into a coma. When he awoke three weeks later, he faced a long, tough battle to recovery.

How could a man who normally acclimated well to hot, humid weather so unexpectedly suffer heat stroke? The answer lies in the days just before his heat injury. Steve, an environmental engineer with the U.S. Army Corps of Engineers Savannah, Ga., District, had been at Fort Benning, Ga., investigating an accidental fatality at a dormitory rehabilitation project. He'd spent much of his time outdoors in the unusually hot weather without ready access to water or shade. The cumulative effects of days of dehydration, exhaustion and hotter-than-normal temperatures set him up for a heat injury.

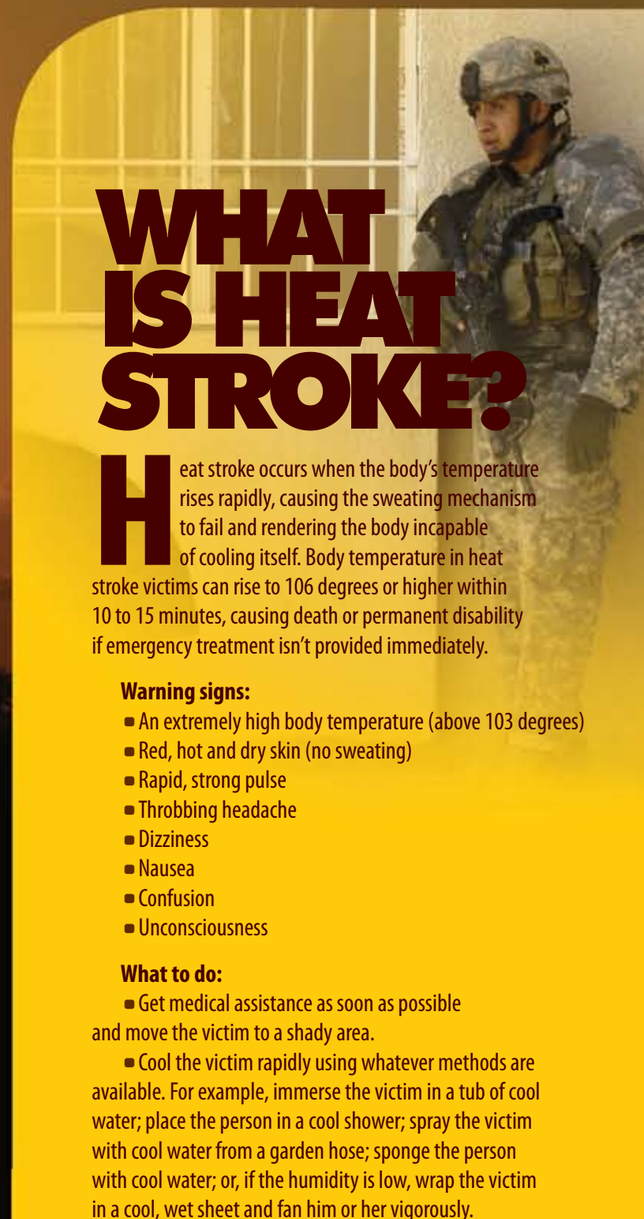
There were other contributing factors as well. At age 40, Steve was less able to handle the heat and heavy workload than when he was younger. Fatigue also played a role. While Steve was hospitalized, doctors found he'd been suffering from a previously undiagnosed sleep disorder. His poor rest and the exhaustion caused by his work made him more vulnerable to heat stroke.

Steve was fortunate to have survived. He spent 42 days in the hospital undergoing physical therapy after he awoke from the coma. It was weeks before he could sit up or walk on his own. Only during his last week in the hospital did Steve's kidneys begin to function again, and he suffered nerve damage that makes walking painful. Still, he's alive and, after months of outpatient rehabilitation, back at his job.

Grateful for having survived, Steve knows Soldiers often face the same dangers during training stateside or when deployed to hot locales such as Iraq. He shares his story to encourage Soldiers to watch closely for the signs of heat injury in themselves and their buddies. Because of what he went through, Steve knows heat injuries can kill or leave victims with permanent health problems, things no Soldier wants to experience.

FYI

For more information on heat injury prevention, visit the U.S. Army Combat Rediness Center Web site at https://crc.army.mil, the U.S. Army Center for Health Promotion and Preventive Medicine Web site at http://chppm-www.apgea.army.mil/heat/ or the U.S. Army Research Institute for Environmental Medicine Web site at http://www.usariem.army.mil/heatinjury.htm.



WHAT IS HEAT STROKE?

Heat stroke occurs when the body's temperature rises rapidly, causing the sweating mechanism to fail and rendering the body incapable of cooling itself. Body temperature in heat stroke victims can rise to 106 degrees or higher within 10 to 15 minutes, causing death or permanent disability if emergency treatment isn't provided immediately.

Warning signs:

- An extremely high body temperature (above 103 degrees)
- Red, hot and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

What to do:

- Get medical assistance as soon as possible and move the victim to a shady area.
- Cool the victim rapidly using whatever methods are available. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or, if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature and continue cooling efforts until body temperature drops to between 101 to 102 degrees.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Don't give the victim fluids to drink.

WET 'N WILD?

Spending a day on the water is a great way to relax and enjoy the outdoors. Both on and off Army installations, there are a number of fun recreational activities on and around water for Soldiers and their families. Unfortunately, these same activities also have their share of danger. However, knowing your limitations and some of the hazards involved will help ensure a nice day in the sun and surf doesn't end in tragedy.

According to the U.S. Coast Guard's 2005 statistics, 491 Americans drowned while boating. Of those, 426—a whopping 87 percent—failed to use a personal floatation device. From fiscal 2004 through Feb. 12, 2007, 30 Soldiers have died from drowning. Nine of those fatalities involved some type of watercraft, and in only one instance was the Soldier wearing a PFD. Had they used PFDs, many of these Soldiers might still be serving in our formations. By promoting the use of Coast Guard-approved PFDs while operating watercraft, we can help prevent boating fatalities.

Taking the time to put on a PFD is obviously a smart decision; however, it could be all for naught if you decide to operate a watercraft under the influence of alcohol or drugs. Coast Guard statistics reveal that a boat operator with a blood alcohol concentration above .10 percent is estimated to be more than 10 times more likely to die in an accident than a sober operator. In addition, watercraft motion, vibration, engine noise, sun, wind and spray all intensify the effects of alcohol and drugs. These environmental stressors can cause fatigue and dramatically affect a watercraft operator's coordination, judgment, vision and reaction time. Soldiers who operate or ride in watercraft must understand the effects of these stressors. Be smart and plan your water activities accordingly.

Most states and the federal government have a BAC limit of .08 percent, and it's illegal to operate a motorboat, canoe, rowboat, personal watercraft or any other vessel under the influence of alcohol. The Coast Guard and local law enforcement agencies cooperate to enforce these stringent state and federal laws. Penalties include large fines, suspension or revocation of boat operator privileges and even jail terms. Drinking alcohol and operating gasoline-fueled equipment proves the old saying "fuel and water don't mix" is true.

Another threat we normally might not consider is operating a watercraft while using prescription or over-the-counter medications. Common medications such as those for blood pressure or allergies might have side effects that can be multiplied by environmental stressors. So, boating under the influence is a factor even for those who don't drink or use illegal drugs. If you're unsure or have questions about your medications, contact your physician.

Educating our Soldiers who participate in water-related activities can help reduce the number of those who drown as a result of a boating or personal watercraft accident. Wearing a PFD can increase the survivability rate of a non-swimmer or a swimmer who suddenly finds himself in open water. Understanding your physical limitations, the effects of environmental stressors, drugs and alcohol and implementing proper controls to mitigate the risks are the keys to a safe day on the water.

For more information on boating safety, visit the International Sail and Power Association Web site at www.safeboating.com, or the U.S. Coast Guard Web site at www.uscg.mil.

According to the U.S. Coast Guard's Boating Safety Web site, about 25 to 35 people die every year as a result of being struck by the propeller and/or propulsion unit of their boat. An additional 200 to 250 people suffer non-fatal injuries from mishaps. When operating a boat with a propeller, follow these simple steps:

- **Look before starting the engine**
- **Never exit or enter from the rear while the engine is running**
- **Educate your passengers on propeller awareness**
- **Take extra care when towing passengers**
- **Never permit riders on the boat's tail**

FYI

Plan on spending the day operating a watercraft? If so, leave the alcohol on shore. Here are some typical ways boating under the influence can affect an operator:

- **Your peripheral vision, night vision, focus and ability to distinguish colors (particularly red and green) diminish.**
- **Your inner ear can be disturbed, making it impossible to distinguish up from down if you fall in the water.**
- **A physical sensation of warmth might make it easier to fall victim to hypothermia.**
- **Your cognitive abilities and judgment deteriorate.**
- **Your balance and coordination are impaired.**
- **Your reaction time decreases.**

SOMETHING FISHY GOING ON

Would you consider fishing a high-risk activity? Would it even register if one of your Soldiers told you they were going fishing this weekend? Tragically, in December 2006, two Soldiers lost their lives while fishing at a local lake. Were they drinking? Nope, alcohol wasn't a factor. Here's what happened: One of the Soldiers was a non-swimmer, and neither wore a personal floatation device. When a storm blew in, the weather conditions drastically changed the water's surface conditions. The Soldiers' small vessel was no longer suitable for the conditions and capsized. Wearing heavy winter clothing and no PFDs, these Soldiers never stood a chance of surviving this tragic event.

- **Leaders should take time to educate Soldiers on safe boating practices, placing a special emphasis on wearing PFDs.**
- **Encourage Soldiers to take a boating safety course before getting on the water.**
- **Leaders must ensure their Soldiers understand the Composite Risk Management process and apply it during off-duty recreational activities.**

CW3 DAVID MUEHLEISEN
Ground Task Force
U.S. Army Combat Readiness Center

Campaign Kicks Off

BOB VAN ELSBERG
Editor, *Knowledge*
U.S. Army Combat Readiness Center

The National Highway Traffic Safety Administration's 2007 "Click It or Ticket" Campaign will run May 21 through June 3. During the campaign, law enforcement personnel will be closely checking drivers and passengers for seat belt use. Although seat belt use is rising as a whole, NHTSA reports nearly 20 percent of Americans still fail to buckle up. Those unbelted drivers and occupants account for more than half of all vehicle fatalities.

Seat belt use within the Army isn't optional. Army Regulation 385-55, *Prevention of Motor Vehicle Accidents*, requires military personnel to wear seat belts whenever they're in a vehicle and wherever they might be driving. Seat belt use is also required by all Department of Defense civilians when they're in duty status on or off post. Also, anyone riding in a DOD-owned or leased vehicle or traveling on a DOD installation must wear their seat belt at all times.

The "three impacts"

Buckling up is more than just obeying the law or Army regulation. Modern vehicles and seat belts are designed to protect you during the three impacts that are part of every collision.

First, there's the impact between your vehicle and the object it collides with. Included in your vehicle's design are crumple zones that allow part of the structure to crush inward to reduce the impact. However, suddenly decelerating from the speed you were going to zero mph in the distance of your crumple zone, perhaps only 3 feet, puts tremendous force on your body. No amount of stiff-arming the steering wheel or dash will keep you from flying forward and being badly injured.

The second impact is between your body and whatever stops it from moving inside your vehicle. If that's a seat belt, you'll likely be left with little more than a nasty bruise. If it's the steering wheel, dash or windshield because you're unbelted, you'll hit them at the same speed your vehicle was traveling. The front of your face, head and chest will become your personal crumple zone.

Finally, there's the impact of your organs slamming into each other or your bones. While these injuries might not be visible on the outside, they can be life-threatening. A severe impact to the chest can tear your aorta, causing you to bleed to death internally. A severe impact to your head can cause disabling or fatal brain injuries.

While there's no way to completely eliminate all impact forces during a collision, seat belts direct that force to the parts of your body that can best handle it: the bones in your hips, shoulders and chest. Beyond that, seat belts keep you inside your car so you're not thrown into traffic or crushed by your own careening vehicle.

You can't always avoid the bad choices others make while driving. However, before you get on the road, you can always make the right decision to buckle up.

FYI

According to the National Highway Traffic Safety Administration, "Traffic crashes are not only a grave public health problem for our nation, but also a significant economic burden. Traffic crashes cost our economy approximately $230 billion in 2000, or 2.3 percent of the U.S. gross domestic product. This translates to an annual average of $820 for every person living in the United States." More information on traffic safety can be found at www.nhtsa.gov.

SAVED BY THE BELT

CW4 (RET) MARK A. MARTIN

It was a sunny April day in Fort Hood, Texas, when a seat belt saved my life. My day had begun way too early with an Army Physical Fitness Test. I'd left the house about 5 a.m. to take the test with my unit, which was undergoing the unit fielding and training program for the OH-58D Kiowa Warrior. After the APFT and a full day of staff meetings and office work, I finally decided it was time to call it a day. I took the same monotonous route home I'd taken for the past several months.

Traffic was moving swiftly and, while I was glad to be off work, I was tired as I drove my wife's Mazda Miata convertible with the top down. I was traveling in the left lane of an undivided four-lane road when a car pulled out from a side street, crossed two lanes of traffic and stopped in front of me. I looked in my right-hand mirror and saw I couldn't change lanes, so I jumped on the brakes—and the car went into a skid. The next thing I remember was hearing the Miata's horn blowing and looking at the air bag drooping from my steering wheel. Some other motorists immediately rushed to help me and the driver I'd hit.

Thanks to the airbag and my seat belt, I was uninjured except for a slightly sprained left wrist. The other driver, however, wasn't so fortunate. She wasn't wearing her seat belt and was seriously injured. Her older-model car also didn't have an air bag.

This kind of unfortunate accident is all too common on today's highways. A moment's inattention or misjudgment can have life-changing consequences. As I learned through this experience, your best countermeasure in an accident is a properly fastened seat belt. I stressed that point many times when I served as my squadron's safety officer. I'm convinced following my own advice that day saved my life.

an electrifying month

FRANK McCLANAHAN
Safety and Occupational Health Manager
U.S. Army Combat Readiness Center

On March 1, 2007, a devastating tornado swept through the city of Enterprise, Ala., killing eight high school students and an elderly city resident. In the days that followed, downed electrical lines posed a deadly hazard in the debris-strewn areas of the city. Rescue workers, power crews and local volunteers, many from the Army's nearby Fort Rucker, responded by going into the area to help the storm's victims. Fortunately, no one was injured or killed by coming into contact with a live downed power line. But not everyone in America is so fortunate.

Each year, approximately 400 people are killed and thousands more injured in electrical accidents. Beyond the human cost, the nearly 140,000 electrical fires that happen annually result in billions of dollars in property damage. Helping prevent those fatalities, injuries and property losses is the reason May has been designated National Electrical Safety Month. The goal, according to Electrical Safety Foundation International, is to promote electrical safety in the home, school and workplace.

Power lines are the single greatest on-the-job electrical hazard, killing an average of 133 workers per year. Contacts by ladders, construction equipment and gardening tools is the leading cause of electrocutions of this type.

In addition to power line hazards, there are a number of other electrical dangers lying in wait for unsuspecting victims. Observing the following safety checks from the Wiregrass Electrical Cooperative of Dothan, Ala., can reduce your potential of becoming an electrical accident victim:

Receptacles. Inspect receptacles for overloads and cracked or missing faceplates. Also, ensure child-proof protective plugs have been inserted into receptacles to prevent injuries to small children.

Service cords. Ensure the service (power) cords for your electrical appliances aren't cracked, frayed or spliced or wrapped with electrical tape. Also be sure they haven't been nailed or stapled to walls or placed under rugs.

Service plugs. Ensure plugs are inserted properly into receptacles and that ground pins (third prong) haven't been removed to make a grounded plug fit a two-pronged receptacle.

Ground fault circuit interrupters. These receptacles protect individuals from shock by breaking the electrical circuit when electrical current attempts to run through the human body to the ground. GFCIs should be installed anywhere damp conditions could exist such as kitchens, bathrooms, garages, crawl spaces, basements and outdoor receptacles. Because they can fail after several years, GFCIs should be replaced with new harmonized GFCIs, which incorporate improved safety features to better protect and alert users when the device malfunctions.

Appliances. If an appliance consistently trips a circuit breaker or blows a fuse when you plug it in or shocks you when you touch it, unplug the appliance and either have it repaired or replaced.

Outdoor equipment. Ensure electric mowers, hedge trimmers, leaf blowers and power tools are never used while it's raining or in wet conditions. Also check any heavy duty power cords you use for outdoor equipment for wear or cracks in the insulation.

Electrical wiring. Don't risk serious injury or death by attempting do-it-yourself home electrical repairs. Always leave electrical wiring jobs to certified electricians.

For more information, visit the EFSI Web site at http://www.esfi.org/home-safety.html or the Wiregrass Electric Cooperative Web site at http://www.wiregrass.coop/mayenergy.html.

OCCUPATIONAL HAZARDS?

More than 5,000 people die each year from injuries suffered on the job. To emphasize the importance of reducing these illnesses and injuries, the North American Occupational Safety and Health Week will be observed May 6 through 12, 2007.

According to the American Society of Safety Engineers, the week has three primary goals to:

- Increase understanding of the benefits gained by investing in occupational health and safety
- Highlight the contributions of safety, health and occupational professionals
- Help reduce workplace injuries and illnesses through encouraging new health, safety and environmental activities

This year's primary focus is on transportation safety, the No. 1 cause of work-related deaths. According to the most recent data provided by the ASSE, 43,433 people died in transportation-related accidents during 2005 and another 2.7 million were injured. The cost of these fatalities and injuries was more than $230 billion. In addition, the 2005 Census of Fatal Occupational Injuries, published by the U.S. Department of Labor, profiled other fatal work-related injuries by type:

Aircraft—147 fatal injuries, a decline of 36 percent from the previous two years

Railroad—84 fatal injuries, an increase from 50 fatalities during 2004

Falls—767 fatal injuries, a 7-percent decline from the series high in 2004. While fatal falls from roofs, ladders, stairs and non-moving vehicles declined, falls on the same level (falling to the floor or against an object) increased.

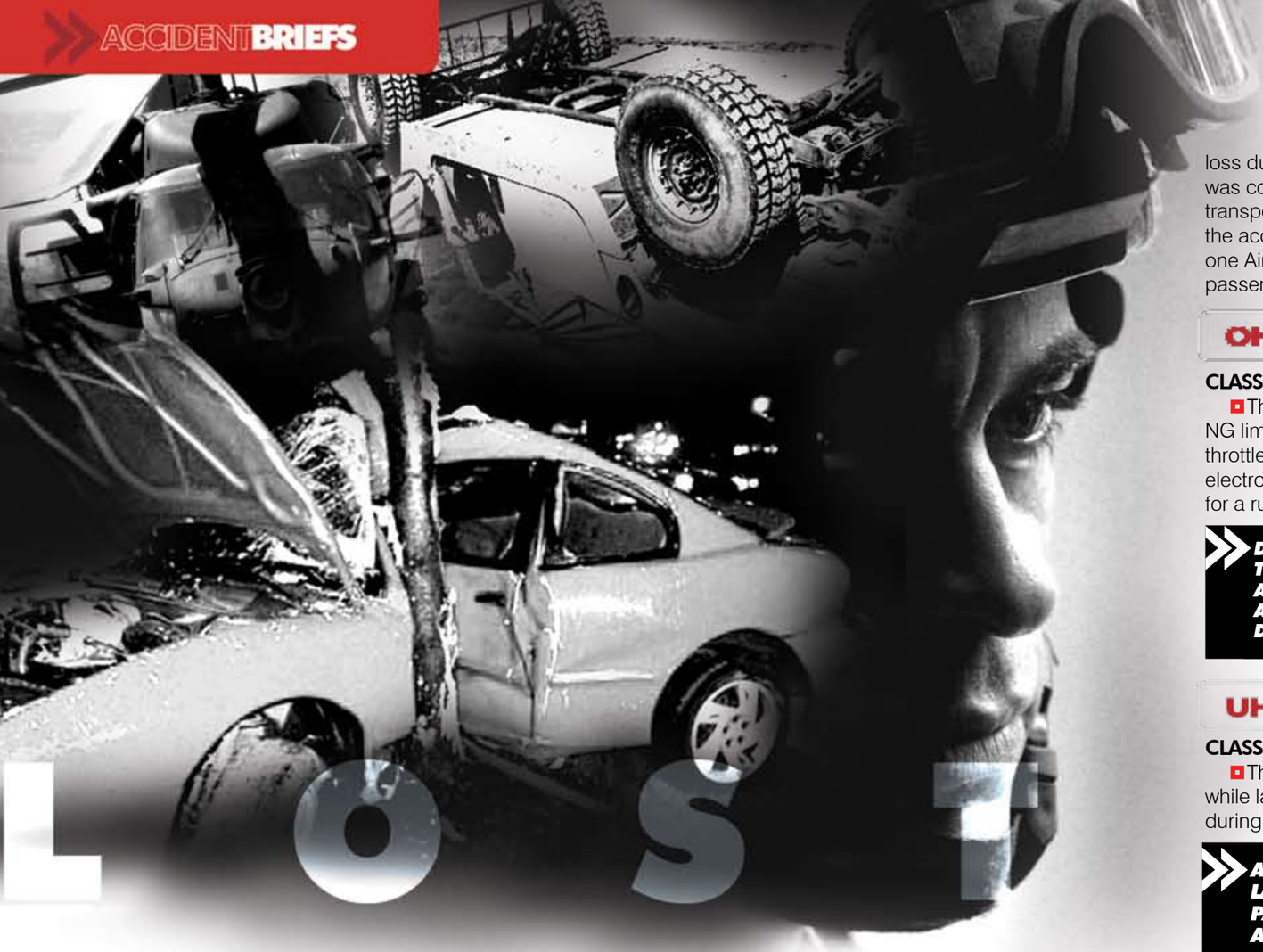
Struck by objects—604 fatal injuries compared to the previous year's 602

Homicides—564 workplace homicides, a slight increase from the previous year's 559

Suicides—177 workplace suicides, a 14-percent decline from 2005 and a series low

Exposure—Fatal work injuries resulting from exposure to harmful substances or environments rose 7 percent in 2005. The most notable increase was the 47 workers who died after exposure to environmental heat compared to 18 fatalities in 2004. Fatalities also rose as more workers lost their lives from inhaling caustic, noxious or allergenic substances.

For additional information on North American Occupational and Safety Health Week or workplace safety, visit the ASSE Web site at http://www.asse.org/newsroom/naosh07/.



AVIATION

AH-64

CLASS C D Model

While performing aircraft shutdown, the instructor pilot inadvertently pushed the No. 2 engine start switch into the ignition override position, resulting in a damaged No. 2 engine air turbine starter.

LEADERS, ARE YOU AWARE THAT ACUTE AND CHRONIC FATIGUE EFFECTS MAY CAUSE MENTAL ERRORS?

ARH-70

CLASS A

During initial test flight, the crew experienced a low fuel pressure warning signal followed by engine failure. The crew executed an autorotation and made ground contact. The aircraft overturned and suffered major damage.

CH-47

CLASS C D Model

The left-side pilot's door separated from the aircraft during a maintenance test flight. The aircraft was straight and level and accelerating from 80 knots to 135 knots at 1,500 feet mean sea level when the incident occurred. The door was retrieved and the aircraft returned to the airfield without further incident. Both doors had been removed to complete a modification to prepare the aircraft for deployment. The door was properly reinstalled and inspected by all required personnel.

MH-47

CLASS A E Model

The aircraft crashed and overturned after a reported power loss during flight. The crew was conducting a passenger transport mission at the time of the accident. Seven Soldiers and one Airman were killed; 14 other passengers survived the crash.

OH-58

CLASS C D(R) Model

The aircraft exceeded NP/NG limitations during a manual throttle (full authority digital electronic control) approach for a run-on landing.

DO AIRCREWS ANTICIPATE THROTTLE AND POWER APPLICATIONS AND ASSOCIATED LAG TIMES DURING A DEGRADED MODE?

UH-1

CLASS B H Model

The aircraft overturned while landing at a confined area during a training iteration.

ARE YOU USING PROPER LANDING TECHNIQUES AND PAYING ATTENTION TO AIRCRAFT LIMITATIONS?

UH-60

CLASS C A Model

The aircraft's tail contacted the ground during landing. Cyclic was applied forward and the nose subsequently contacted the pavement.

CLASS C

The aircraft suffered damage while the crew was performing desert brownout landings for mission execution. Although the aircraft was flown the entire mission without noticeable effects to performance, damage was noted on the trailing edge of all four main rotor blades during the postflight inspection. The ALQ-144 also suffered damage to the screws on top of the aircraft survivability equipment but was still operational. Maintenance replaced all four main rotor blades and the ALQ-144 screws.

RC-12

CLASS C H Model

The crew experienced smoke in the cockpit during flight. The aircraft was landed without incident at an Army airfield. The crewmembers were admitted to a local medical facility for treatment of smoke inhalation.

UAS

RQ-7B

CLASS B

A Shadow TUAS struck a parked UH-60 during a landing sequence.

CLASS C

The aerial vehicle operator experienced rpm fluctuation followed by engine failure and battery voltage drop during return flight. The UAS was landed in accordance with emergency procedures and, although the chute deployed, the vehicle suffered some damage.

The AVO received a generator failure indication during flight. During the recovery/return maneuver, the system experienced an ignition/engine failure and rpm dropped to 0, at which time the recovery chute activated.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru April 11, 2007

	Hostile/ Non-hostile
AH-64A/D	11/45
U/MH-60L	11/24
C/MH-47	6/14
OH-58D	8/22
TOTAL	36/105

ARMY GROUND LOSSES

FY07

thru April 2007

	Class A/Fatalities
AMV	15/16
ACV	11/7
PERSONNEL INJURY	20/19
WEAPONS HANDLING	3/3
FIRE/ EXPLOSION	0/0
TOTAL	46/42

GROUND

ACV

CLASS A (DAMAGE)

A Soldier was operating an M2A2 Bradley Fighting Vehicle over a bridge when the ground gave way, sending the vehicle into a canal. All three crewmembers were able to safely exit the vehicle. The accident occurred in the early morning. (For more information on this accident, see the story "As Good as It Gets" in the March issue of *Knowledge*, or visit our Web site at https://crc.army.mil/knowledge.)

DO YOUR SOLDIERS REHEARSE ROLLOVER DRILLS?

AMV

CLASS A

A Soldier suffered fatal injuries when the M1114 HMMWV she was riding in overturned. The driver of the HMMWV was attempting to negotiate a split in the road at the time of the accident and was not injured during the rollover. The accident occurred in the early evening.

An Army contractor was killed when his privately owned vehicle was struck at an intersection by a Soldier operating a HMMWV. The Soldier was not injured. Seat belt use was not reported. The accident occurred in the early afternoon.

DO YOU IDENTIFY AND BRIEF ROAD HAZARDS DURING MISSION PLANNING?

CLASS B (DAMAGE)

An M1070 Heavy Equipment Transporter and M1000 trailer overturned while hauling an M1 Abrams tank. The load shifted as the HET's driver was negotiating a serpentine barrier, causing the vehicle to roll over. The accident occurred in the early morning.

Personnel Injury

CLASS A

A Soldier choked on unknown food during a football party, became unconscious and went into cardiac arrest. Although the Soldier was rushed to a hospital and placed on life support equipment, she later died.

A Soldier suffered a permanent total disability when she fell in her home. The Soldier slipped on some water that had been tracked in from outside and fell backward, striking the back of her head and neck on a wall. The fall caused a crack in the Soldier's vertebrae, resulting in paralysis below her waist. The accident occurred in the early morning.

A Soldier suffered a possible permanent total disability when he collided with a vehicle while riding his bicycle. The Soldier suffered back and head injuries, and the current prognosis is paralysis from the waist down. Personal protective equipment use was not reported. The accident occurred in the early morning.

CLASS B

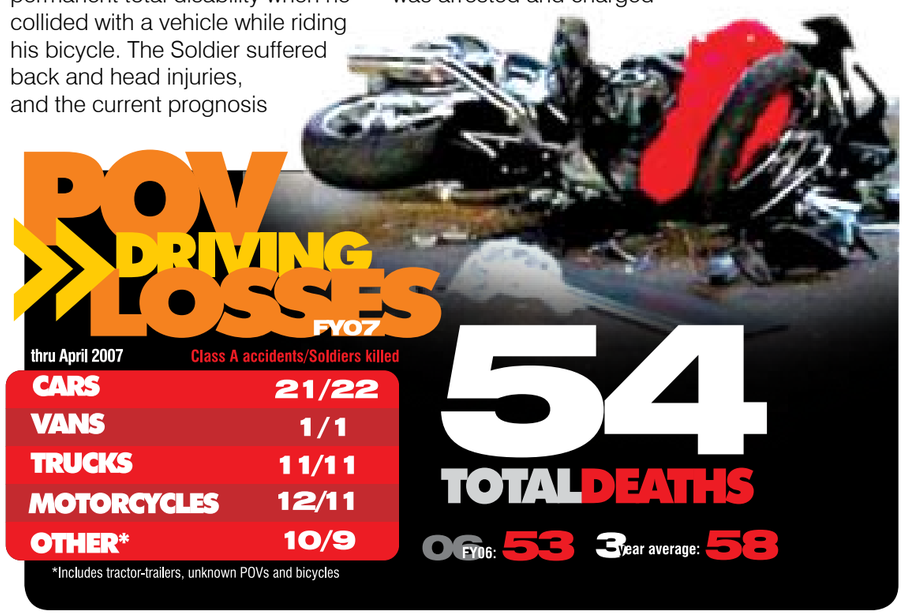
A Soldier suffered a permanent partial disability when his finger was struck by a round from his M9 pistol. The Soldier was firing the weapon when it became jammed and discharged as he was attempting to clear it. The injury required amputation of the Soldier's left pinky finger. The accident occurred in the early afternoon.

ARE YOUR SOLDIERS PRACTICING PROPER CLEARING PROCEDURES?

CLASS C

A Soldier accidentally shot another Soldier in the leg while showing him a pistol. The Soldier with the pistol failed to clear the round from the chamber and the weapon discharged. The injured Soldier was transported to a hospital and treated for his injuries. The offending Soldier was arrested and charged with negligent discharge of a firearm. The accident occurred in the late evening.

A Soldier suffered a leg injury when he stabbed himself while playing with a sword in his barracks. The Soldier was drinking with two women, playing with the sword and talking with his mother on the telephone when the accident happened. The Soldier was hospitalized for 10 days. The accident occurred in the early evening.



DRIVING

POV

CLASS A

A Soldier was in leave status when he was killed in a single-vehicle accident. According to police reports, the Soldier was driving approximately 61 mph in a 45-mph zone when he attempted to round a curve. The Soldier lost control of his vehicle, which ran off the road, rolled over once and struck a tree. The accident occurred at 3:22 a.m., and the road surface was covered with snow and slush. The Soldier was not wearing his seatbelt.

HAVE YOU TOLD YOUR SOLDIERS TO ADJUST THEIR SPEED ACCORDING TO DRIVING CONDITIONS?

A Soldier was a passenger in a POV when the driver lost control of the car, which struck a tree. According to police reports, the driver was traveling about 80 mph in a 55-mph zone and the vehicle overturned several times. Neither the civilian driver nor the Soldier was wearing their seat belts. The accident occurred about 4:30 a.m. The driver died at the scene and the Soldier died four days later at a medical facility.

DO YOUR SOLDIERS KNOW ACCIDENT RISKS RISE BETWEEN THE HOURS OF 2300 AND 0500?

A Soldier was on pass driving on a four-lane divided highway when he was involved in a head-on collision with a wrong-way driver in his lane. Although the Soldier and other driver were wearing their seat belts, both died in the collision. The Soldier had completed an ASMIS-2 automated risk assessment and was not at fault for the crash.

Two Soldiers were killed when their vehicle collided head-on with a civilian fuel tanker. The Soldier driving the vehicle crossed both lanes on his side of the highway and was in the oncoming lanes when he hit the tanker. Seat belt use was not reported. The driver was on restriction because of a recent Article 15 and is thought to have fallen asleep at the wheel. The accident occurred about 5:40 a.m. on a weekend. Alcohol and drug use are also suspected.

CRITICAL DAYS

This year, the Army commences its 101 Critical Days of Summer Safety campaign with a simple yet meaningful slogan, "Never Give Safety a Day Off." Memorial Day through Labor Day marks the critical time when accidents and mishaps pose an increased risk to Soldiers and their families. As the weather turns nice, more vacations and road trips are taken, cookouts are abundant, water sports become a favorite pastime and, unfortunately, safety often becomes the furthest thing from everyone's mind. As Soldiers and their loved ones participate in summer activities, they need to remember to never give safety a day off. Composite Risk Management is a valuable life skill for all activities, whether Soldiers are on- or off-duty. There is no better time than now for commanders and supervisors at all levels to stress the use of CRM during off-duty activities.

Soldiers need to be self-disciplined and avoid taking any unnecessary risks. As always, leaders need to stay engaged and realize that they are accountable for their Soldiers' actions as well as their own.

The U.S. Army Combat Readiness Center stands ready to assist Soldiers and leaders by providing a greater awareness of the hazards surrounding these favorite pastimes and activities. On a weekly basis, starting May 28 and concluding Sept. 3, 2007, the USACRC will produce several multimedia products such as articles, posters and public service announcements. Those PSAs will contain information to assist Soldiers and leaders in doing the right thing and making sound judgments both on- and off-duty. Summertime should be spent having fun with friends and Family—not marred by accidents and injuries.

For questions on the 101 Critical Days of Summer Safety campaign, visit our Web site at https://crc.army.mil

Look out. Be aware.

May is Motorcycle Safety Awareness Month, so remember there are over 33,425 motorcycles currently registered on Army installations. Share the road and the responsibility.

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educated?

don't learn the hard way

Have you completed a motorcycle rider education and training course? Successfully completing rider education and training gives you the basic skills needed to ride safely.

May is Motorcycle Safety Awareness Month

be aware

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THINK WEAPONS SAFETY!

Treat every weapon as if it's loaded.

Handle every weapon with care.

Identify the target before you fire.

Never point the muzzle at anything you don't intend to shoot.

Keep the weapon on safe and your finger off the trigger until you intend to fire.

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KNOWLEDGE

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101 CRITICAL DAYS OF SUMMER

FROM THE DASAF

"ENGAGE with those around you, EDUCATE your Soldiers, and take steps to solidify the 'BAND OF BROTHERS' concept that embraces EVERY MEMBER of our ARMY TEAM."

This past Memorial Day marked the beginning of the Army's 101 Critical Days of Summer safety campaign. The campaign highlights those on- and off-duty actions that historically affect our Army and claim the lives of Soldiers, Civilians and Families in our formations. This campaign reminds us, as Soldiers, our obligation to engage our Team, making a positive difference through briefings, demonstrations and/or discussions.

As we engage as leaders in the 101 Critical Days of Summer messaging, think back to effective messages you've heard. One message I vividly recall was given by then MG Dick Cody, CG, 101st Airborne Division (AASLT). His simple, yet powerful, message delivered to the entire 101st Airborne Division was founded on the statistical analysis that predicted the 101st would experience two Soldier fatalities during the upcoming Memorial Day weekend. As we gathered shoulder to shoulder with some 20,000 of our comrades, MG Cody asked us, "Who in this crowd will we let die?"

My challenge to you and our Army during these 101 Critical Days of Summer is deliver a simple but effective message proclaiming, "I can save my life and that of my comrade." Engage with those around you, educate your Soldiers, and take steps to solidify the "Band of Brothers" concept that embraces every member of our Army team. This powerful concept empowers each member, each leader and each teammate to look out for and protect one another. It encourages them to share insights and ensures the Soldiers beside them will never become a fallen comrade.

While these warming months are indeed a time for outdoor family activities, team-building sporting events with fellow Soldiers and traveling, they are also months when we must be vigilant. Engaged leaders accurately identifying risks make a profound difference between enjoying off-duty activities and becoming statistics in the database.

Remember, engaged leadership at every echelon saves lives, and every member of our Army team makes a difference. Let's not mar off-duty and family activities with unnecessary accidents and injuries – Never Give Safety a Day Off.

Army Safe is Army Strong.

William H. Forrester
Brigadier General, USA
Commanding

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https://crc.army.mil

BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Paula Allman Managing Editor
Bob Van Elsberg Assistant Managing Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

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NEVER GIVE SAFETY A DAY OFF

BOB VAN ELSBERG
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The weather's turning nice and the days are getting longer. It's party time with everything from Frisbees to fast boats getting a summer workout. Good weather and long days make summer a prime time for vacations. With so much to do and enjoy, it's easy to overlook the "gotchas" that can easily sidetrack your summer plans with a hospital visit (or worse!). This year's 101 Critical Days of Summer safety campaign runs from May 28 through Sept. 3, and is themed "Never Give Safety a Day Off." The following suggestions are offered to help make your summer a fun and safe one.

On the road again

It's probably no surprise the greatest opportunity for gotchas is while you're on the road. No rocket science is needed here—it's just a matter of recognizing that with so many others doing the same thing, highways are a "target-rich" environment for gotchas. During last year's 101 Critical Days of Summer Safety, there were 38 fatal vehicle and motorcycle accidents. A look at those numbers provides some interesting insights. While privately owned vehicles accounted for 19 of those accidents, motorcycles accounted for almost as many with 17 fatal crashes. In addition, two Soldiers died while riding all-terrain vehicles. Although far fewer Soldiers ride motorcycles than drive cars or pickups, the high rate of fatalities reflects the findings of the National Highway Traffic Safety Administration. Compared to car drivers, they found motorcyclists were 32 times more likely to die and six times more likely to be injured in a crash. One recent trend is the rising age of motorcycle riders killed in crashes. One reason suggested by Pat Hahn of the Minnesota Motorcycle Safety Center is that these riders are accustomed to the protection they've enjoyed inside automobiles and unaware of how vulnerable they are on a motorcycle.

Looking at these accidents, fatigue, driving under the influence and speeding were frequent contributing factors. The best protection Soldiers have is to plan for a safe trip (see TRiPS online at https://crc.army.mil/trips) and wear seat belts in POVs or helmets and proper personal protective equipment when motorcycling. Also, many of these accidents were caused by others on the road. Following simple defensive driving techniques—like the "two-second following rule"—can protect Soldiers from the mistakes of others.

FYI

For more information on the Army's 101 Critical Days of Summer safety campaign, check out the U.S. Army Combat Readiness Center's Web site at https://crc.army.mil.

> The best **PROTECTION** Soldiers have is to **PLAN** for a safe trip and **WEAR SEAT BELTS** in POVs or **HELMETS** and **PROPER PERSONAL PROTECTIVE EQUIPMENT** when motorcycling.

Keeping summer fun, not fatal

Swimming is an attractive option when temperatures rise. However, five of the seven recreational fatal or permanently disabling accidents last year happened to Soldiers who were swimming or boating. Three of those Soldiers dove into shallow water, broke their necks and will spend the rest of their lives as quadriplegics. One Soldier, who couldn't swim, drowned when he slipped away from a friend teaching him to float and jumped off the diving board into a pool. Another died when he got off a paddleboat he was sharing with two other Soldiers, drifted away and drowned before he could be rescued. The U.S. Lifesaving Association's Web site at http://www.usla.org/PublicInfo/safety.asp offers good tips on water safety.

The two other fatalities involved a Soldier being struck by a vehicle while crossing a major thoroughfare on foot. Also, a young Soldier who was weightlifting at a gym collapsed, stopped breathing and died.

Ouches

There were 115 non-fatal off-duty accidents during last year's 101 Critical Days of Summer safety campaign. More than one-fourth of those accidents involved Soldiers proving the law of gravity still works. Here are a few examples:

- After drinking alcohol, a Soldier jumped from the 5th floor of his billets and suffered multiple injuries.
- A Soldier was attempting to sit on the edge of a barracks roof when he slipped and fell.
- While sleeping on a top bunk, a Soldier rolled off and hit the floor.
- A Soldier fell down his stairs after tripping over the family cat.

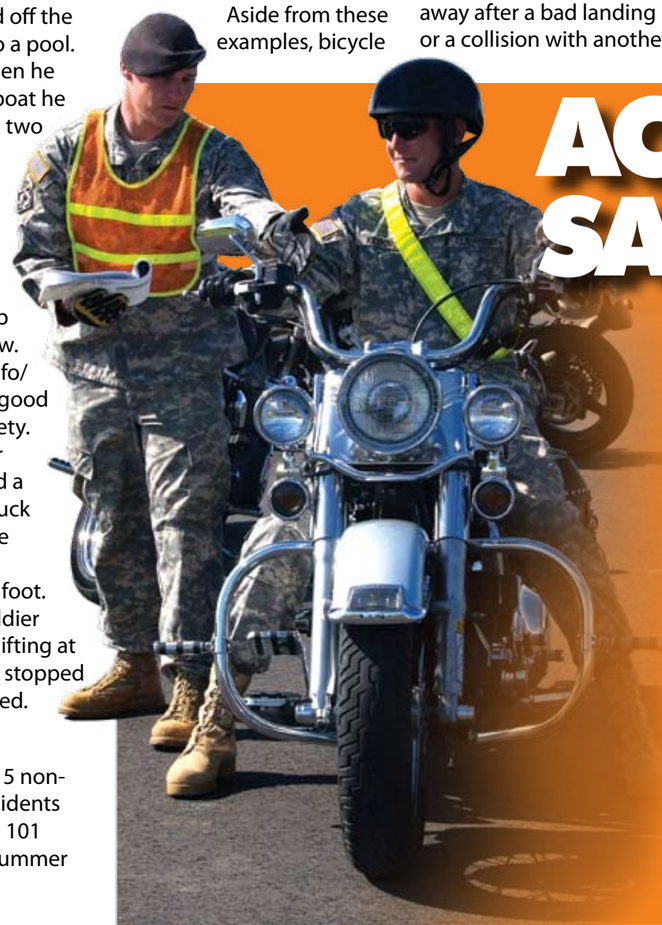
Aside from these examples, bicycle and softball were the top injury producers. For example, several bicycle accidents might have been prevented had riders looked ahead and identified hazards such as potholes, bumps in the road, loose gravel and fallen branches. Basketball is an aggressive game, but getting "air" time is less fun if you have to be carried away after a bad landing or a collision with another player. Also, softballs aren't soft if you inadvertently get nailed by a line drive, and break-away bases beat broken ankles every time.

So what can you do to stay safe while having fun this summer? That's simple, use CRM and think ahead. Plan your road trips so you have plenty of time to get to and from your destination without having to drive fatigued. Also, wearing a seat belt is the one protective measure you can always take; it's your ace-in-the-hole for safety. In addition, alcohol will not improve your skills behind the wheel. If you must hit the road after drinking, make sure you have a responsible, sober designated driver. If enjoying the water is part of your summer plans, make sure you can swim and always wear your life jacket when boating.

Staying safe is mostly using good common sense. And isn't that what the five steps of CRM are about anyway?

- Identify the hazards
- Assess their dangers
- Develop a plan to reduce or eliminate those hazards
- Follow through with your plan
- Evaluate how well your plan worked

For more information on the Army's 101 Critical Days of Summer safety campaign, check out the U.S. Army Combat Readiness Center Web site at https://crc.army.mil.



ACTING SA AND CSA SEND SAFETY MESSAGE TO THE ARMY

For the second consecutive year, Soldier accidental fatalities are on the decline. Nevertheless, the estimated 220 Soldiers we will lose this year to accidents are 220 too many. Moreover, our active and reserve forces will suffer more than a half-million nonbattle injuries—an average of one per Soldier—and our civilian workforce injuries are rising, resulting in personal tragedies and degraded abilities of a valuable component of our Army team. Two-thirds of our major accidents occur off duty; and even for those on duty, poor decisions are at the heart of most incidents. The vast majority of military and civilian mishaps are clearly preventable. It is our obligation to ensure our Soldiers, civilian employees, family members and contractors have a safe, healthy working and living environment.

To best preserve our combat power, our strategy is to fully achieve what we have already begun through implementation of the following:

- Establish a culture where safety is a way of life during training, operations and off duty.
- Build a command climate where preventable loss is unacceptable.
- Ensure leader engagement and accountability for their programs.
- Develop executable safety plans for mission success.

We will institutionalize these tenets through all Army commands, with our ultimate aim to personalize safety for each individual. The lynchpin for our success is the leader, and we expect leaders at all levels to personally engage those they lead. Know your Soldiers and civilian employees. Coach, teach and mentor them.

As we continue to fight terror across the globe, we cannot squander our precious human capital on senseless losses. Through firm resolve in this most vital endeavor, together we will stay Army Strong.

—Mr. Pete Geren assumed his duties as Acting Secretary of the Army March 9, 2007, and will continue serving concurrently as the Under Secretary of the Army. GEN George W. Casey Jr. became the 36th Chief of Staff, United States Army, on April 10, 2007. This was from a message to the Army dated May 9, 2007.

CAN DO VERSUS MUST DO

CPT TRAVIS L. MCINTOSH
E Company, 1st Battalion, 212th Aviation Regiment
Fort Rucker, Ala.

We push to have a "can-do" attitude. Most would agree that when you believe you can accomplish whatever you try, you're much more likely to reach your goals if you have a positive attitude. A positive outlook can energize you. A can-do spirit can supply you with the momentum you need to get through the most challenging and unforeseen circumstances. Your chain of command wants you to have a can-do attitude. However, there is a mature balance between can-do and must-do that we, as leaders, must learn to control.

In our profession, one of the most challenging—and most destructive—habits is the tendency to allow this can-do attitude to persist into a must-do action. As we continue to manage risk across the full spectrum of our mission, the instructor pilots in E Company, 1-212th Aviation Regiment (UH-60 Flight School XXI), share a common slogan, "Is this a *Can Do* or *Must Do* action that I'm about to take?" It is our nature to have a can-do attitude in the military, especially as aviators. However, too much of this approach turns our actions into must-do insistent events, which may result in a driven catastrophic failure. Consider the following definitions:

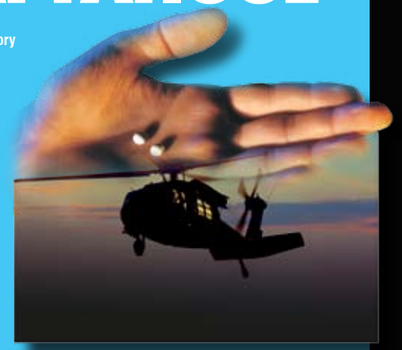
- **Can Do** – An action, in which I'm trained, qualified, equipped and prepared to execute. It will be challenging and most likely require the utmost skill on my part. This action will strongly support the mission and serve to equally benefit the unit, the team and the individuals involved. It requires motivation, preparation and hard work to fit in the can-do category. My command and the policies in place will undoubtedly support the action and any decisions included in its execution.
- **Must Do** – An action when closely looked at upon its completion would be considered unnecessary and driven. I'm allowing a goal, policy or an individual/co-pilot/air traffic controller to influence this action outside the scope of its intended purpose. This action no longer applies to the emplaced control measures; I'm not resourced, I'm rushed and I'm cutting corners to gain success or an advantage; or I feel it necessary and driven from an external influence. I'm forcing an irreversible outcome.

An accident is often categorized as either a random or driven failure of the individual or his equipment. There certainly is parallel meaning to "random vs. driven" and "can do vs. must do." Have you ever rushed a preflight or walk-around inspection? Have you ever increased your airspeed significantly to not miss downtime or launched without checking Notices to Airmen or the MITA/hazards map? Did you skip table talk or not close out the flight records today? These are all examples of when you were the leading witness into a driven failure. Due to something you felt we "must do," a shortcut was made or an action was taken outside the scope of its intended purpose and no longer applied to the emplaced control measures.

The next time you consider placing the aircraft in an unsafe flight profile or even drive your car excessively fast or over a long distance without adequate rest … know that you're only moments away from a driven and catastrophic failure. *Can Do* or *Must Do* … that is the question. «

FIGHTING COMBAT FATIGUE

DR. PATRICIA LEDUC
U.S. Army Aeromedical Research Laboratory
Fort Rucker, Ala.



The U.S. Army Aeromedical Research Laboratory recently conducted research on the usefulness of stimulants, specifically Dexedrine and Modafinil, to counteract fatigue in aviation crews.

USAARL assessed aircrews' flight performance and mood evaluations throughout a 40-hour period without sleep. These sleep loss studies were conducted at USAARL with either single-pilot or two-pilot crews. Volunteer pilots in the single-pilot studies were given twice as much stimulants as pilots who volunteered for the two-pilot crew research. The higher dose is the one currently recommended for use when stimulants are necessary in sustained operation scenarios.

In general, the lower-dose groups reported less tension and irritability. Pilots taking the lower dose of Modafinil tended to show superior results on all flight maneuvers when compared to those pilots given the higher dose. The lower-dose group also reported more energy than the higher-dose group at comparable levels of sleep loss. Pilots given the higher dose of Dexedrine were only better on the hover flight maneuver than the low-dose group, but they reported being more tense and more irritable.

Since it is unlikely the lower doses of the stimulants were behaviorally superior to the higher doses, the most plausible reason for these lack of differences produced by more drug were the psychosocial effects of having another aviator in the next seat. The second crewmember performed the duties of co-pilot, colleague, alertness monitor, etc., and almost surely affected flight performance and mood.

As aircrews typically operate as teams in the real world, more representative studies examining fatigue countermeasures may be needed. These findings show that stimulant medications can assist the warfighter in maintaining acceptable levels of judgment and decision making, as well as crew coordination, when combat requirements dictate long periods of sleep deprivation. They also suggest that smaller doses may be just as effective in two-man crews as higher doses are for single pilots. Clearly, future research will also be needed to examine the resilience and vulnerability of team behavior as a fatigue countermeasure. «

HEAT of the moment

LTC(P) RICHARD KOUCHERAVY
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

Dehydration, lack of acclimatization, blazing temperatures, high humidity and heavy workloads can rapidly lead to heat injuries. Heat cramps or heat exhaustion, if undetected or left untreated, can rapidly lead to heat stroke, which can be fatal. That's a fact I've known since the day I nearly died more than 20 years ago.

I remember the summer of 1985 as the time I graduated the U.S. Military Academy and was commissioned into Army Aviation. I'd driven my air-conditioned 1984 Chevy Camaro to Fort Benning, Ga., after finishing my graduation leave in the Northeast. On the next day, I was running, doing calisthenics and screaming "Airborne!" to all who would listen. On the third day of "Ground Week," I headed out on a four-mile run in the center of a very large PT formation full of highly motivated Airborne "wannabes." I started with them, but I didn't finish. Instead, I made a trip to Martin Army Hospital in a deuce-and-a-half and almost left by way of a hearse.

I remember little of what happened that morning, but friends later told me I simply collapsed mid-stride and knocked over a few other students. I was helped into the back of a deuce-and-a-half truck that was trailing the formation to pick up stragglers. When the PT formation returned to the company area about 7:30 a.m., the students cooled down, were sent to chow and then came back for training at 9 a.m. I was absent from both the cool down and the accountability formations. To this day, I don't know if anyone even attempted to locate me.

About 10 a.m., someone noticed my absence and started looking for me. Prompted by a fellow student who was concerned for this "fallen comrade," at least one trainer joined in the search. When they found me, I was still lying in the back of the deuce-and-a-half, unconscious and with a core body temperature ranging somewhere between 106 and 108 degrees. I was near death and it was only through the quick thinking of my fellow student and one very sharp Army physician's assistant—trained at the Army Special Warfare School—that I was saved from dying right there in the shadows of Fort Benning's famous jump towers.

For the next three-and-a-half weeks, I spent all of my time at Martin Army Hospital, the guest of some very committed Army doctors, nurses and other medical specialists. After the first 10 days, I was taken from the intensive care ward, but only after my temperature stabilized and my memory had returned.

After nearly a month, I left the hospital under my own power. By then, most of my memory had returned. I recall clearly the difficulty I had climbing the stairs to my guest room on post to retrieve my personal gear before heading off on convalescent leave. It was another three or four months before I could participate in a reasonable Army PT program again.

I learned some lessons that summer which I'll share with you. First, leaders must stay engaged and watch Soldiers closely when training in high temperatures. The training unit I was assigned had more than 450 students running in formation, yet I don't recall more than three or four trainers being present—including the Soldier driving the cargo truck. I'm told neither the company commander nor the first sergeant were present for training that morning.

> "I started with them, but I didn't **FINISH**. Instead, I made a trip to **MARTIN ARMY HOSPITAL** in a deuce-and-a-half and almost left by way of a **HEARSE**."

FYI

In the story "What Is Heat Stroke?" in our May issue, we said not to give heat stroke victims fluids to drink. The reason is to prevent victims who are vomiting or slipping in and out of consciousness from inhaling fluids into their lungs. Victims who are alert may be given sips of cool water.

Second, you must allow people time to acclimate if they've not been exposed to high temperatures and humidity. I may have been young and fit, but summers in the South are brutal, especially to someone who hadn't been south of West Point, N.Y., during the previous two years. Because I wasn't acclimated to Fort Benning's nasty summer weather, it might have been wiser for me to have spent a week to 10 days acclimatizing and conducting limited physical training before going at it full speed. If you're a leader, find out which of your new people aren't accustomed to the weather where you're training. Give them time to acclimate and become properly hydrated while gradually working them into physical activities.

Third, keep accountability of those in your care, even if it means frequently conducting head counts and checking on peoples' whereabouts. This is especially critical when doing physical training in hazardous environments. Had I been given immediate medical care, I would have had a minor injury rather than a near-death experience. Instead, I was left alone—injured and unattended—even though my squad leader, fellow students and trainers all knew I'd fallen. They just assumed someone else knew where I was.

The fourth lesson is for leaders to know the symptoms of heat injuries and never underestimate how rapidly heat can turn minor injuries into life-threatening ones.

Fortunately for me, there were a few people present that morning who understood some of these things and I owe them my life. I hope my story will help you, as a leader, understand how vital your responsibilities are when you're training Soldiers in heat that can kill.

A DAY ON THE BAY

CW4 IAN F. MILLS
B Troop, 7th Sqdn., 6th Cav. Regt. (USAR)
Conroe, Texas

This story reveals a close call that occurred during a late-spring day in the Texas coastal estuary known as Christmas Bay.

If you're not familiar with estuary wade-fishing, it's hard to explain the allure of hunting fish on foot. I normally go after "The Big Three"—speckled sea trout, redfish and flounder. What makes this kind of fishing fun is that you never know what you're going to get—except that it will probably have teeth. The rare 3- to 4-foot-long shark will occasionally appear, but usually not until later in the season.

I'd planned ahead for my day on Christmas Bay. I'd assembled my fishing tackle, including my stringer—a long thin rope I'd run between the fishes' gills and mouth to keep them from escaping. I'd also checked the weather, and it was perfect for fishing. A strong early morning tide promised a successful catch.

I got to the bay at 4:30 a.m. It was a couple of hours before sunrise and I needed to hurry to catch the rising tide. The waters were still a bit chilly, so I donned my neoprene waders to help ward off the cold. As I gathered my equipment, I realized the quick-release clasp on my stringer was missing. No problem—I'd improvise by looping the stringer through my belt several times.

I looked at the familiar reference lights across the bay to help guide me as I entered the water. As I did, I began the "bay shuffle"—a technique to keep from stepping on stingrays and getting a tail barb in your leg or foot. I also wore stingray guards on my legs as an extra precaution.

I'd been fishing about three hours when the sun rose and beautifully silhouetted the coastline. My stringer contained several fish and it was time to walk back. I had chosen an indirect route so I'd have a fairly hard bottom for easy walking. I was about 300 yards from the shore and could see my truck in the distance. The high tide had entered the bay and the water was a little over waist deep.

As I was walking, the water behind me suddenly exploded. I turned around and saw the fish on my stringer struggling against something. I immediately grabbed the stringer and began pulling it toward me. BIG mistake! The largest speckled trout was nearly gone—completely bitten off behind the head. A quick check of the water around me revealed I wasn't alone. I counted one … two … three … no—four shark fins circling me!

I struggled to remove the stringer from my belt as I headed for shallower water about 100 yards away. The sharks kept following me and circling as they attacked the fish on my stringer. With each succeeding attack, the tugs got stronger and more aggressive. The largest shark was around 4 feet long—a formidable-sized predator, especially when part of a group. He began testing me as prey, swimming within an arm's length.

DID YOU KNOW?

The International Shark Attack File (ISAF) investigated 96 alleged incidents of shark-human interaction occurring worldwide in 2006. Upon review, 62 of these incidents represented confirmed cases of unprovoked shark attack on humans. Find more facts on shark attacks from the Florida Museum of Natural History Web site at http://www.flmnh.ufl.edu/fish/sharks/.

Using the handle of my fishing rod, I lunged toward him and struck a single blow just behind the gills. His sleek shape slapped the water in front of me as he knocked my hand to one side.

The water where I was headed was about 2 feet deep—shallow enough to protect me from the sharks. To get there, however, I had to swim across a much deeper small-boat channel marked off by metal pipes. Were I to have a chance, I had to get rid of the day's catch. Keeping an eye on my pursuers as best I could, I finally freed myself of the stringer. The sharks closed in and blood surrounded a group of fish that would never make it to my table.

I began swimming across the channel. For the first time I noticed my heart pounding in my chest and the adrenaline in my system. Each stroke brought me closer to safety as the sharks—occupied by their fish-on-a-rope dinner—fell farther behind.

When I got back to the shore and my truck, I inventoried my equipment. Although I'd managed to save my fishing rod, I'd donated several fish, a stringer line, a box of tackle and my lucky fishing hat to the sharks. However, I still had the most important thing—my life—and took away some important lessons learned. I'll share those with you:

- Complacency can injure or kill you by blinding you to hazards. Not realizing how adaptable various species can be, I didn't expect to see any sharks that day. I'd overlooked the first two steps of Composite Risk Management—identifying and assessing the hazards.
- Use the buddy system during off-duty activities. I'd fished alone in this spot on countless occasions. However, it only took getting into trouble once for me to appreciate the value of having someone else to cover my back.
- Check your equipment to ensure you have everything you need and that it's functioning properly. Don't ignore the small stuff because you think it's unimportant. My stringer's missing quick-release clasp became very important when those sharks began using my fish as appetizers while working their way up to the main course—me.
- Contingency planning can help you survive unexpected, dangerous situations. The key, however, is planning before getting into trouble. This is step three of CRM, developing controls and making decisions. The alternative is trying to come up with a plan after trouble starts. This is typically called "panic."

Finally, don't ever quit what you love doing during your free time. Instead, assess the risks before and during your activities and, afterward, think about how well you planned for them. Chances are you've already survived many dangerous situations just executing your combat missions. Why let complacency or indiscipline make you the victim of an avoidable off-duty accident? It goes without saying you have a responsibility to your unit, family and friends to not let that happen.

Enjoy doing the things you love this summer by doing them safely. And if you want to try out wade-fishing, I'll be looking for you on the bay!

CREW COORDINATION EQUALS BATTLEFIELD SUCCESS

SEAN MORRILL
4th Brigade Combat Team, 4th Infantry Division
Fort Hood, Texas

Technological advancements continue to provide today's Soldiers with greater capabilities than ever before. Armor enhancements, ballistic glass and additional mission equipment in Army vehicles all offer extra protection on the battlefield. However, these advancements have come at a price for vehicle crews who've had to cope with restricted outside visibility and altered vehicle handling. As the Army continues to improve and upgrade its combat vehicles, the need for effective crew coordination and communication has become essential for crews to safely complete their missions.

Army Aviation has long used aircrew coordination, a system that improves an aircrew's interaction and efficiency, in safely accomplishing their missions. This time-proven program reduces accidents and improves the effectiveness of crews in both peace and wartime. The good news is this system is easily transferable to Army vehicles and can equally benefit ground crews.

Basic qualities of effective crews

Effective vehicle crews are made up of assertive crewmembers who provide input to the vehicle commander. Every crewmember knows he or she is a part of the team and is willing to help without being asked. The entire crew acts as a team in mission planning, execution and after-action reviews and, with the exception of short-notice missions or high-workload conditions, analyzes information and contributes to decisions.

Vehicle commanders establish an open, professional climate at the beginning of every mission. Effective crews maintain this atmosphere by communicating vital information in a clear, timely manner so conditions, actions and decisions are clearly understood. Finally, effective crews view AARs as learning experiences that can enhance future crew performance.

Some good crews do these things without having a background in crew coordination training. They intuitively know they need to have open communications, provide professional input and work as a team in support of the vehicle commander.

Crew coordination objectives

The aviation crew coordination system has five main objectives that can be observed, sensed and measured. These objectives also can be applied to ground vehicles:

- **Establishing and maintaining team relationships.** Vehicle commanders create an open crew climate and maintain it throughout the mission. Good vehicle commanders use their authority, but don't operate without input from the rest of the crew.
- **Mission planning and rehearsals.** Pre-mission tasks, inspections and checks are completed by the crew. The crew discusses and thinks through contingencies like rollovers, fires, casualties and actions on contact.
- **Establish and maintain workload levels.** Actions are prioritized and workloads distributed equally or in a way that makes the best sense.
- **Exchange mission information.** Crews send information in a clear, timely and complete way.
- **Cross-monitor performance.** Crewmembers mutually cross monitor each other to ensure tasks get done and to enhance crew situational awareness.

Crew coordination elements

The aviation model also defines basic crew coordination elements as things that individuals in a vehicle crew can do to enhance overall crew effectiveness. Explanations and examples of each for vehicle crews are as follows:

- **Communicate positively.** Positive crew communication ensures the message gets through.

FYI

Improved Commander's Corner Tool Available

The Commander's Corner Web site has recently been revised to give leaders at every level a single page providing quick and easy access to vital safety information. The site's goal is to help leaders implement Composite Risk Management processes to help keep their Soldiers in the fight and preserve the combat power of their formations. For more information on Commander's Corner, visit the USACRC Web site at https://crc.army.mil/commanderscorner/ or call 334-255-2381.

- **Direct assistance.** Vehicle crews should direct assistance when they need it.
- **Announce actions.** Announcing actions ensures everyone is aware of what is happening.
- **Offer assistance.** Offering assistance to a crewmember who is especially busy or needs help benefits the whole crew and is something all should be prepared to do without being asked.
- **Acknowledge actions.** Acknowledging actions ensures those taking them know that everyone is aware. A "Roger" callout may be all that is needed and maintains crew situational awareness.
- **Be clear and precise.** Using plain or standardized terms and avoiding slang ensures everyone understands what you're saying. Ambiguous words or phrases like "I have it" or "Right" can have more that one meaning and bring about an incorrect response.
- **Provide vehicle control and hazard advisories.** All crewmembers should be prepared to assist the driver in avoiding road hazards, traffic, canal edges or other things they may not see due to the reduced visibility in up-armored Army Motor Vehicles and Army Combat Vehicles.
- **Coordinate action sequence and timing so crew actions mesh.** Sequencing actions and timing can be critical during weapons engagements, loading of ammunition, turret movements and while maneuvering the vehicle in combat.

Standard crew terminology

Standardized words and phrases, such as those used in radio transmissions, help crews avoid confusion and allow them to react more quickly and efficiently. Using words known by everyone in the crew also prevents them from having to be repeated. If the operator's manuals have a standard callout or term for a piece of equipment, get in the habit of using it, especially if a new crewmember joins the team. If someone doesn't understand what you said, try saying it another way or in clearer terms instead of repeating it multiple times or raising your voice.

Situational awareness

To ensure the whole crew maintains situational awareness, keep an open flow of information. Also, keep chatter or non-relevant conversations to a minimum. Conversations should be limited to mission-focused communications during critical times or events. The vehicle's intercom system should be used to enhance crew communications and checked prior to the mission to ensure it works. Be sure to clarify if what you said is not understood. Likewise, ask other crewmembers if you don't know what was said or is happening.

Crew coordination is more of an art than science and requires continuous practice. Good crews constantly work on improving their coordination and use AARs as a forum for future crew improvement. These combat-proven techniques can help you better accomplish your missions and prevent accidents. Discuss these methods with your crew and practice them on every mission. I think you'll be glad you did.

AND THE AWARD GOES TO...

CW4 JON STURNICK
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The Broken Wing Award recognizes aircrew members who demonstrate a high degree of professional skill while recovering from an in-flight failure or malfunction requiring an emergency landing. Requirements for the award are listed in Army Regulation 672-74, *Army Accident Prevention Awards*. The U.S. Army Combat Readiness Center Commanding General recently approved the following awards.

CW4 JAMES TURNER and CW3 MARC LATIMER
Corpus Christi Army Depot, Corpus Christi, Texas
Oct. 11, 2006
UH-60A

During a maintenance test flight, the crew, CW4 James Turner and CW3 Marc Latimer, experienced simultaneous emergencies of increasing RPMr on the No. 2 engine and decreasing RPMr on the No. 1 engine, torque split, No. 1 engine alternator failure, vertical instrument display system failure and probable failure of the power available spindle on the No. 1 engine power control lever. The crew was challenged with incorrect engine and system indications, but they troubleshot the failures until they were able to execute a safe landing. The pilots utilized experience, crew coordination and skill to diagnose and manipulate the engine PCLs to control an emergency situation not covered in training or the operator's manual to land with power. For approximately three minutes and 20 seconds, they manipulated the PCLs, managed available power and troubleshot their indications through marginal visual flight rules conditions to a safe roll-on landing point. Faced with required immediate action, the pilots safely landed the aircraft, preventing serious injury to crew and a Class A aircraft loss.

CW4 ANDREW ISAAC and 1LT CHRISTIAN O'LEARY
B Company, 1-183rd, 82nd Combat Aviation Brigade, 82nd Airborne Division, Task Force Talon
Dec. 23, 2006
AH-64A

While conducting a border reconnaissance mission along the Afghanistan and Pakistan border in support of Operation Enduring Freedom VII, CW4 Andrew Isaac and 1LT Christian O'Leary were paired with a UH-60L. Crossing mountainous terrain at 9,500 MSL (500 feet AGL), the crew noticed a strong burning smell in both cockpits. Seconds later, the OIL ACCESSORY PSI caution/warning light illuminated, followed by a loud thud from the transmission area. CW4 Isaac, the pilot in command, immediately assessed the situation and determined the aircraft needed to be landed as soon as possible. 1LT O'Leary transmitted emergency landing intentions to their UH-60L sister ship. Simultaneously, CW4 Isaac slowed the aircraft from 110 knots free cruise toward the only suitable landing area in sight. During their descent, the crew's choice for landing changed several times due to heavy snow, slopes and trees in the landing areas. On final approach, the shaft-driven compressor and clamp holding the compressor in place failed, allowing oil to escape the accessory gearbox and burn. The rear cockpit filled with smoke, and CW4 Isaac transferred the controls to his front-seater. 1LT O'Leary adjusted the approach path to a snow-covered streambed surrounded by pine trees 300 meters short of their intended landing area. 1LT O'Leary completed a whiteout landing to a 70-foot by 100-foot landing area with near-zero visibility in his cockpit and zero visibility within the backseat cockpit. CW4 Isaac immediately completed emergency shutdown procedures and the crew exited the aircraft without injury or further damage to their aircraft. The crew estimated the entire event from onset to landing was less than 45 seconds. Faced with required immediate action, the pilots safely landed the aircraft, preventing serious injury to crew and a Class A aircraft loss.

FALCONVIEW: THE FUTURE IS HERE!

CW4 MICHAEL E. CUTHBERT
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

One of the key tasks in preparing for any visual flight rules flight is map preparation. Even with the introduction of global positioning system navigation, map preparation is an essential element in obtaining situational awareness and familiarizing yourself and your crew on where and how a flight is to take place. This can be a daunting task, especially when trying to plot all the possible hazards while, at the same time, transcribing information from one map to another.

Let's take a look at a practical scenario. Imagine you've been given an operations order for a mission requiring four UH-60M assault aircraft and two AH-64D attack aircraft to infiltrate a target in a non-permissive country. The mission requires using the Apaches and other close air support aircraft to soften up the target area before the Black Hawks go in. You're the lead planner for the Black Hawks and must coordinate the mission with the attack and close air support aircraft.

The good news is you've got a new tool to help you plan the key elements of your mission. FalconView can help you plan for every action and threat and give you the greatest chance for success.

What is FalconView?

FalconView is the mapping portion of the Portable Flight Planning Software, the foundation for the Army's Aviation Mission Planning System. FalconView displays various types and scales of maps to include elevation data, aeronautical charts, satellite imagery and geographically referenced overlays.

FalconView also supports a large number of overlay types that can be displayed over any map background. The current overlay set is targeted toward military mission planning users and oriented toward aviators and aviation support personnel. Some of the overlays available are templated threat systems with intervisibility, acquisition and tracking ranges for many anti-aircraft systems, surface danger zones for most aerial-fired weapons systems and munitions, airports, airspace, hazards, manual and electronic chart users update manuals, and a large menu of user-adapted drawings and waypoints selection. Essentially, when a user plans a mission using FalconView, the user's drop-and-drag waypoint data is transferred into a flight data card that calculates times, distances, headings, altitudes, temperatures, ground speeds, aircraft gross weight, hover torque available and required, and even fuel burn rates if the software is set up correctly for the specific aircraft and flight envelope.

So you've received your mission and have your attack planner at your side. You've received the Common Operational Picture data from the S-2 containing all templated threat and enemy positions along with friendly positions. First, you set up the AMPS software with the type aircraft you're flying, using the heaviest and slowest aircraft conditions to set parameters for the calculations that will be done upon completion of your plan, or to check fuel statuses or any other concern you may have during the planning. You also will need to open your weight and balance program with the predicted load, using the heaviest aircraft weight, and then open your performance planning program, using worst-case data input for ambient conditions.

Once you're set up, you can begin the process of route planning. Naturally, you'll select the scale of map that will give you the big picture. Depending on the distances that will be flown, this can be as large as a 1:5,000,000 or as small as a 1:12,500. The map appears with all the Common Operational Picture information that affects the planning of your route graphically presented to you, including borders, airspace, airports, hazards and operational overlays.

You can begin to reverse plan your route by zooming in on the target to one meter resolution imagery. Your target comes up in beautiful resolution and you have a bird's-eye view, north-up photograph with all of your threats depicted in and around the target. You can even see building layouts, trees, wire poles, lights, gun emplacements, armored vehicles and even enemy Soldiers. But more importantly, you can see where you're going to air land or rope your customers!

If this bird's-eye view isn't enough, you can select SkyView, which will allow you to change view angles of imagery in 3D and look at your target from any elevation and from any azimuth. Let's say you have selected a landing zone, but you're not sure if it's big enough for the two aircraft infilling first. You use the range and bearing tool to measure the perimeter of the potential LZ, regardless of the scale map or imagery you're using. Lastly, you want to manually highlight some hazards around the target. Just select your drawing tool and highlight anything from wires to tree stumps. You have virtually completed 80 percent of your ASLT target diagram. Talk about do-it-yourself target analysis!

At this point, you can print the map scale you need with the information you want on the map, including user-modified navigational information blocks. Every crew can have the same map with the same printed information.

It's evident FalconView reduces the workload of planning while adding a level of detail and accuracy required in today's mission sets. FalconView greatly enhances the safe operation of all aircraft involved in both single- and multi-ship operations. It brings all elements of planning together on one map at any scale and streamlines the communication processes.

For more information regarding FalconView, go to https://portal.mission-planning.org or contact the Army's Support Desk at 800-773-7739, Option 7.

DID YOU KNOW?

FalconView was developed by researchers at the Georgia Tech Research Institute located in Atlanta. The majority of FalconView development was accomplished under multiple contracts with various DoD agencies. Learn more about FalconView at www.falconview.org.

THE FIREWORKS DUD

BOB VAN ELSBERG
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

When it comes to fireworks, there's a "boy" hidden inside every man. Never mind how old that "boy" is; there's something about the boom and brightly colored flashes that brings out the 10-year-old in us. When a friend called and said he'd loaded up on fireworks, the 10-year-old inside could hardly wait!

Truth be told, this was to be a holiday family get-together. My friend, Tim, invited my parents and my wife and I over for dinner and what he promised would be a spectacular fireworks display. We'd barely finished dinner before heading for the backyard, where Tim brought out a regular arsenal of Roman candles, bottle rockets and skyrockets. What really got my attention, however, was a large cardboard box honeycombed with tubes. I could only imagine what interesting things would soon be flying out of them. And marvel of marvels—you only had to light one fuse to get the whole thing going!

The box was planned as the evening's "main attraction." Wanting to save it for later, Tim and I started off by firing Roman candles and skyrockets. Looking around, I spotted a 4-foot-long metal pipe on the ground. Years of military experience taught me to recognize the perfect "mortar tube" when I saw it. We stuck one end into the ground and angled the other to miss some nearby trees. We'd light the fuse on a Roman candle or skyrocket, drop it down the pipe and then yell "fire in the hole!" Worked like a charm!

Soon it was time for the main event. We dragged the box into the yard and placed it atop a piece of concrete. Tim struck the match and lit the fuse while I shielded it from the wind. We then backed off several feet and watched.

It was awesome—the "pop-pop-pop" of Roman candles firing colored balls into the air, joined by rockets shooting up and exploding. This went on for several minutes as we waited to see what goodies the box would launch next. Finally, like an overcooked bag of microwave popcorn, the popping quit, only to be replaced by the smell of burnt paper. We gave the box a wide berth for a few minutes—just in case. Smart move. Just as we were about to walk over and pick it up, one side caught fire. I grabbed the garden hose and soaked the box.

With the box dripping all over the concrete slab, Tim and I began policing up the debris—empty fireworks wrappers and cartons. Tim's trash can was full, so we started tossing the stuff on a bonfire Tim had built in a ring in his backyard. It was then I remembered the box. We couldn't just leave it sitting out. The kids might play with it or some animal might chew on it and get poisoned.

I went over and checked the box. I figured whatever hadn't gone off must be a dud. And if it was a dud, it was now so thoroughly soaked it would never go off. At that point, burning the box seemed like the best way to dispose of it. I explained my plan to my dad and a friend of Tim's named Esam. Both were sitting in fold-up chairs next to the fire. Neither was worried. They were as sure as I was that nothing would happen. I carefully set the box on some embers.

Several minutes passed as Tim and I fired off some bottle rockets. I was about to light off another when I heard a series of loud "pops" behind me. I turned just in time to see dad and Esam achieving a "four-G liftoff" from their lawn chairs, backlit by brightly colored flashes. Unfortunately, Esam had been sitting "downrange" from a volley of Roman candles. For a man in his 70s, he was amazingly agile on his feet.

When the Roman candles stopped firing and the smoke cleared, Esam was OK. Dad watched him dancing with the fireballs up close and, like the rest of us, was roaring with laughter. After his heartbeat stabilized, even Esam managed a grin. My guess is he was happy to still be alive. I'd just learned the hard way that when it comes to fireworks, the only "duds" are people who don't handle them properly.

Fortunately, no one was hurt and we all ended up laughing—but it's not always that way. During 2003, four people died from fireworks-related accidents and another 9,300 received emergency room treatment. To stay out of this year's statistics, the U.S. Consumer Product Safety Commission offers the following tips:

- Don't, under any circumstances, allow young children to play with fireworks. Even sparklers burn at very high temperatures and can easily ignite clothing.
- Older children should only be permitted to use fireworks under close adult supervision. Don't allow any running or horseplay.
- Light fireworks outdoors away from houses, dry leaves, grass or flammable materials.
- Keep a bucket of water nearby for emergencies and to pour on dud fireworks.
- Don't handle dud fireworks. Soak them with water and throw them away.
- Be sure other people are out of range before lighting fireworks.
- Never ignite fireworks in a container—especially one made of glass or metal.
- Store fireworks in a dry, cool place. Check instructions for special storage directions.
- Observe local laws.
- Never lean over skyrockets or other flying fireworks as you light them.
- Don't experiment with homemade fireworks.

DID YOU KNOW?

Fireworks originated in China some 2,000 years ago. The most prevalent legend has it that fireworks were discovered or invented by accident by a Chinese cook working in a field kitchen who happened to mix charcoal, sulphur and saltpeter (all commonly found in the kitchen in those days). The mixture burned and when compressed in an enclosure (a bamboo tube), the mixture exploded. More facts on fireworks can be found at http://www.fireworks.com.

CELEBRATE SAFELY! July 4, 2007

ALWAYS REMEMBER

- **Use fireworks and sparklers only outdoors.**
- **Only persons over 12 years of age should handle sparklers of any type.**
- **Fireworks and alcohol do not mix. Have a designated "shooter."**
- **Obey local laws. If fireworks are not legal where you are, don't use them. If drought conditions mean a ban on fireworks, follow the law.**
- **Only use fireworks as intended. Don't try to alter them or combine them.**

Visit http://www.cpsc.gov/cpscpub/pubs/july4/safetip.html for more information on fireworks safety.

TOO MANY MILES

CW3 ALBERTO FRATICELLI
1/6th Cavalry
Camp Eagle, Korea

It was a typical hot summer in Alabama, with clear skies on most days and a combination of heat and humidity even a cool breeze couldn't cut. My wife was flying into the airport at Fort Lauderdale, Fla., for the weekend, but her flight didn't get in until 10 p.m. on a Thursday night. I had to work during the week, but my commander said I could take the trip as long as I requested a weekend pass.

My command approved the pass, so I got on the Internet the day before the trip to find the best route to Fort Lauderdale and check the weather along the way. The weather looked good, so I selected a route and marked it on a road map to carry with me in the car. The boss released me early and I went home, packed a small backpack with my shaving kit and a change of clothes and went out for dinner. I called my wife a little later to verify her arrival time and, after talking for a couple of minutes, we said goodbye and I went to sleep.

The alarm went off the next morning at 6 a.m. I showed, got dressed and checked the car one last time before leaving on the 10-hour drive. The fluid levels were OK and my tires were in good condition and properly inflated. I pulled out of the driveway at 7 a.m.

There was very little traffic, which made the drive a breeze. I stopped for lunch about 11 a.m. and got back on the road about 45 minutes later. Somewhere between noon and 1 p.m., my lunch hit me and I started feeling sleepy. Before I realized it or could even stop myself, I fell asleep as I was driving. I remember waking up and, thankfully, the car was still on the highway. I think I was asleep for only a few seconds, but a few seconds is all it takes to get killed or kill someone else on the highway.

I was surprised I'd fallen asleep but grateful I didn't get into accident. I stopped on the roadside and rested for a few minutes. Despite my close call, I made it to the airport safely, picked up my wife and spent the weekend in Florida. I planned for rest stops during the drive back and made sure we switched drivers when either of us got tired.

So what did I learn from this near miss? Whenever I'm planning a trip now, I always allow for rest stops. In addition, I no longer eat large meals if I'm driving by myself. Most importantly, I learned that assessing the risks before you take off on a long drive is as important as when you take off on a long mission. You might not come back from either one if you don't.

> "Most importantly, I **LEARNED** that **ASSESSING THE RISKS** before you take off on a long drive is as **IMPORTANT** as when you take off on a long mission."

FYI

Want to get a quick online update of your travel weather? Check out The Weather Channel at http://www.weather.com/, or Accuweather at http://home.accuweather.com/ to see if Mother Nature has any nasty plans for your trip.

TRiPS

Try It, You'll Like It!

BOB VAN ELSBERG
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

CW3 Albert Fraticelli took his trip just after ASMIS-1 was released and before it became commonly used. It was later updated to become ASMIS-2 and, most recently, has become the Travel Risk Planning System, better known as "TRiPS," and is now accepted and used by all U.S. military services. The program provides users with a basic map and driving directions, partially completed leave forms and the ability to review construction zone information along their route. The system provides supervisors with an overview of their peoples' plans and a starting point for a discussion with them. You'll be asked a series of questions that will be used to assess the risk level of your trip and provide suggestions, where needed, to lower that level. For example, this editor will be driving 824 miles to visit friends in Texas, but I only get five to six hours of sleep per night. To lower the "Moderate" risk level provided on my assessment, I opted to take our family car so my wife and I could change drivers. TRiPS also recommended that I plan my trip not to exceed nine hours of driving time in any 17-hour period. That lowered the risk assessment to "Low" and improves my chances of having a safer, more enjoyable trip. You, too, can take advantage of TRiPS online at https://crcapps2.crc.army.mil/ako_auth/TRiPS/default.aspx. Taking all the benefits into consideration and the five minutes of your time it takes to complete, why not use TRiPS to ensure your trip will be one the whole family will remember for the right reasons?

THE SCORPION KING

SGT ALEXANDER K. STEWART
216th Engineer Combat Battalion (Heavy)
Department of Geology, University of Cincinnati

As darkness falls upon the desert, one of Iraq's most skilled hunters emerges from its home into the cool night air. In most cases, it will find exactly what it's looking for—usually a small meal or a mate. If you're not careful, however, this predator might set its sights on larger prey. What will you do if you find yourself face to face with the "thick-tailed man killer?"

Scorpions are primal arachnids (eight-legged invertebrates) that have been around for more than 350 million years. They are found from seashores to mountaintops on every continent except Antarctica and are related to spiders, mites, ticks and solifugae (camel spiders). Scorpions are nocturnal predators that leave their burrow for two reasons, either getting a meal or mating, both of which can place them in your path.

The most common of these predators found in Iraq is Androctonus crassicauda, or the thick-tailed man killer. This potentially deadly species of scorpion is dark reddish-brown to black with slender pincers and can reach lengths greater than 4 inches. As its name implies, it can be easily identified by its thick tail, which can be as big around as a pinkie finger.

This species appears more abundant because they are comfortable in human environments and are, therefore, more likely to be seen. They can be found anywhere a Soldier is likely to be—from a hooch to the motor pool—because they will crawl into and under anything to hide from the desert sun. In fact, Soldiers and scorpions have been at odds for a long time. Thousands of years ago, in what is today Iraq, locals placed these scorpions into clay jars and threw them at advancing Roman troops.

Increased chances of interactions are what make this predator responsible for many of the scorpion stings in the Middle East. Two scientific journals report more than 10,000 hospital-attended sting cases from a "black scorpion [probably Acrassicauda]" during one year in Saudi Arabia and Iran. Probably many more are reported or go unreported—perhaps as many as 100,000 stings per year across the Middle East.

For a military unit like mine, which operated in derelict or reconstructed areas, stings did occur. According to our battalion's physician's assistant, 1LT Christopher Vannucci, there were dozens of unknown bites/stings. Three of these were identified as scorpion stings, with feet and hands being the most common sting locations. Although three scorpion cases may seem like an insignificant number, these were only the verified cases.

To minimize your chance of getting stung, it is helpful to understand this scorpion's behaviors. For instance, a night-in-the-life of one of these critters may go something like this:

It's early evening nautical twilight and its time for the thick-tailed man killers to leave their burrows to seek out a mate or a tasty morsel (any insect, spider or even another scorpion). The scorpion will roam close to man-made structures (hooch, house or wall) while it remains dark and will continue until it completes its mission of meal, mate or begin morning nautical twilight, when they will dash for darkness.

These scorpions prefer to seek shelter in the burrow where they spent the previous day, but will go inside a boot or under a rucksack, pallet or other equipment if convenient. Most stings occur when the scorpion is upset from its hiding place. The scorpion will react to protect itself from what it views as a predator, which includes you. The initial sting may produce symptoms such as intense pain and inflammation, numbness, frothing at the mouth, difficulty or inability to breathe with possible muscle spasms and convulsions. According to 1LT Vannucci, the symptoms in his cases were more often reported as throbbing, burning and/or itching.

If you are unfortunate enough to get stung, your battle buddy should carefully kill the scorpion for identification and take you and it directly to the nearest medic/aid station. Some people may be allergic to the scorpion's venom and may enter anaphylactic shock, so it is imperative you immediately seek medical attention.

While I was stationed in Iraq, I completed a rigorous behavioral study using Androctonus crassicauda as my test subject and have a few pointers for commanders and their Soldiers. Essentially, to maintain a fit fighting force, I recommend the following prevention strategies for the thick-tailed man killer:

- Treat these animals with respect and do NOT play with them; they are potentially deadly.
- Always be aware of yourself, your gear and equipment, such as where you put it and how you move it.
- Never go to the latrine or shower barefoot or in shower shoes; wear physical fitness shoes or, even better, boots.
- Remove loose debris and piled stucco or wall materials accumulating at the base of derelict structures.
- Eliminate conditions (like poorly drained sanitary water) that might attract the scorpion's prey (like cockroaches).
- Seal wall cracks or open masonry with caulking or cement—especially at wall bases.
- Screen or weather strip doors, windows and vents.

If the above prevention strategies are not enough, apply one of the following:

- Carefully and quickly dispatch the scorpion with the heel of your boot.
- If an infestation is suspected, have your supply or field-ordering officer purchase a pesticide such as permethrin (Prelude®, Dragnet®) or cypermethrin (Demon®) and apply per instructions to the problem area.

Remember, the desert has been this scorpion's home for millions of years; you're just a visitor. Treat them with the respect they deserve and you'll avoid falling victim to the thick-tailed man killer.

Editor's note: SGT Alexander Stewart was deployed in support of Operation Iraqi Freedom II (Iraq and Kuwait) from December 2003 to May 2005. While stationed in northern Iraq, 50 km north of Samarra, he served as the battalion S-3 (operations) communications chief, historical officer and "Trailblazer," or volunteer route clearance (IED/VBIED) leader. He also spent four months during the summer researching this scorpion species, completing a prey-capture analysis, habitat preference analysis and activity-level analysis.

DID YOU KNOW?

The deserts and highlands of Iraq, Kuwait and Afghanistan are crawling with arachnids such as scorpions, spiders and solpugids, or camel spiders. Three of the deadliest scorpions in the world call Iraq and Kuwait home, and at least three venomous spiders—the black widow, tarantula and yellow sac spider—are found in both countries. Several species of scorpion are native to Afghanistan, as are the black widow, tarantula and camel spider. Soldiers should never handle any of these creatures and always shake out their shoes, bed linens or sleeping bags and clothing to prevent bites. A full-color poster showing the arachnids found in theater can be downloaded off the Army Center for Health Promotion and Preventive Medicine's Web site at http://chppm-www.apgea.army.mil/deployment/arachnidsofiraqandkuwait.pdf.

What price would you pay to go partying? Would you consider paying with your life? Sometimes the price of a good time can be very high.

THE PRICE OF THE PARTY

U.S. ARMY COMBAT READINESS CENTER

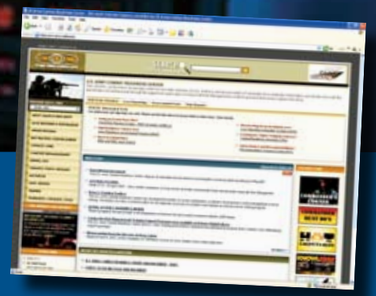
The young NCO was tired as he drove his German sports sedan down the autobahn. He and his three passengers, a couple of junior enlisted Soldiers and the civilian girlfriend of one of them, had partied from just after midnight till about 4 a.m. The Soldiers had to get back in time for the morning PT formation, and the young NCO was pushing hard on the gas pedal. Although the recommended autobahn speed limit was 130 kilometers per hour—or 80 mph—he was doing more than 110 mph. The Soldiers had gotten into a lifestyle of partying well into the morning hours and then rushing back to post for formation.

They'd been on the road for about 20 minutes and had covered 38 of the 61 miles back to post. The young NCO looked ahead, saw a couple of tractor-trailers in his lane and moved to the left to pass them. It had rained lightly earlier that morning and the road was still a bit wet. He flew past the first tractor-trailer and was swiftly overtaking the second. For whatever reason, perhaps because he was tired or, possibly, because his vision was obscured by rainwater swept onto his windshield, he didn't see the left-hand curve ahead. Instead of rounding the curve, the car went straight and struck the tractor-trailer's left-rear drive wheels. The impact spun the car counterclockwise 360 degrees. The car then slammed into the left-rear corner of the trailer. Now jammed beneath the trailer, the car was dragged 100 yards down the road before the truck's driver could stop.

The damage to the car was horrendous. The impact had crushed the car's roof, pushing it rearward and to the left. Despite the roof crushing to within 6 inches of his head restraint, the young NCO survived, opened his door and got out. He then went to the left-rear door and got the young woman out of the car. After trying to talk to the truck driver and taking the girl to the truck's cab to keep warm, the NCO went back to check on the other two Soldiers in his car. Neither showed any signs of life. Both had been sitting on the right side of the car—one in the front seat and one in the backseat—and died when the car's roof was crushed during the accident.

FYI

Looking for information relating to driver's training? Visit the POV Toolbox at the USACRC Web site https://crc.army.mil/ for information on establishing and maintaining an effective driver's training program. The toolbox is a onestop shop for Commanders, leaders, noncommissioned officers and individuals and offers an abundance of driver training resources. Taking care of our Soldiers behind the wheel both on duty and off duty keeps our Army Strong!



Why did this accident happen?

- The driver was overconfident and fatigued and drove beyond his abilities for the conditions. Because of his fatigue and, possibly, his vision being obscured by rainwater swept onto his windshield, he lost situational awareness. Because he didn't recognize he was entering a left-hand curve, he drove straight and collided with the truck.
- The driver was traveling at an excessive speed when he attempted to pass the tractor-trailers. As a result, he lacked the reaction time needed to avoid the collision.
- The driver showed poor discipline by disregarding his leaders' directions regarding his off-duty activities. His pattern of partying until the early morning hours had affected his on-duty performance, and his leaders had directed him to discontinue that behavior.

Recommendations

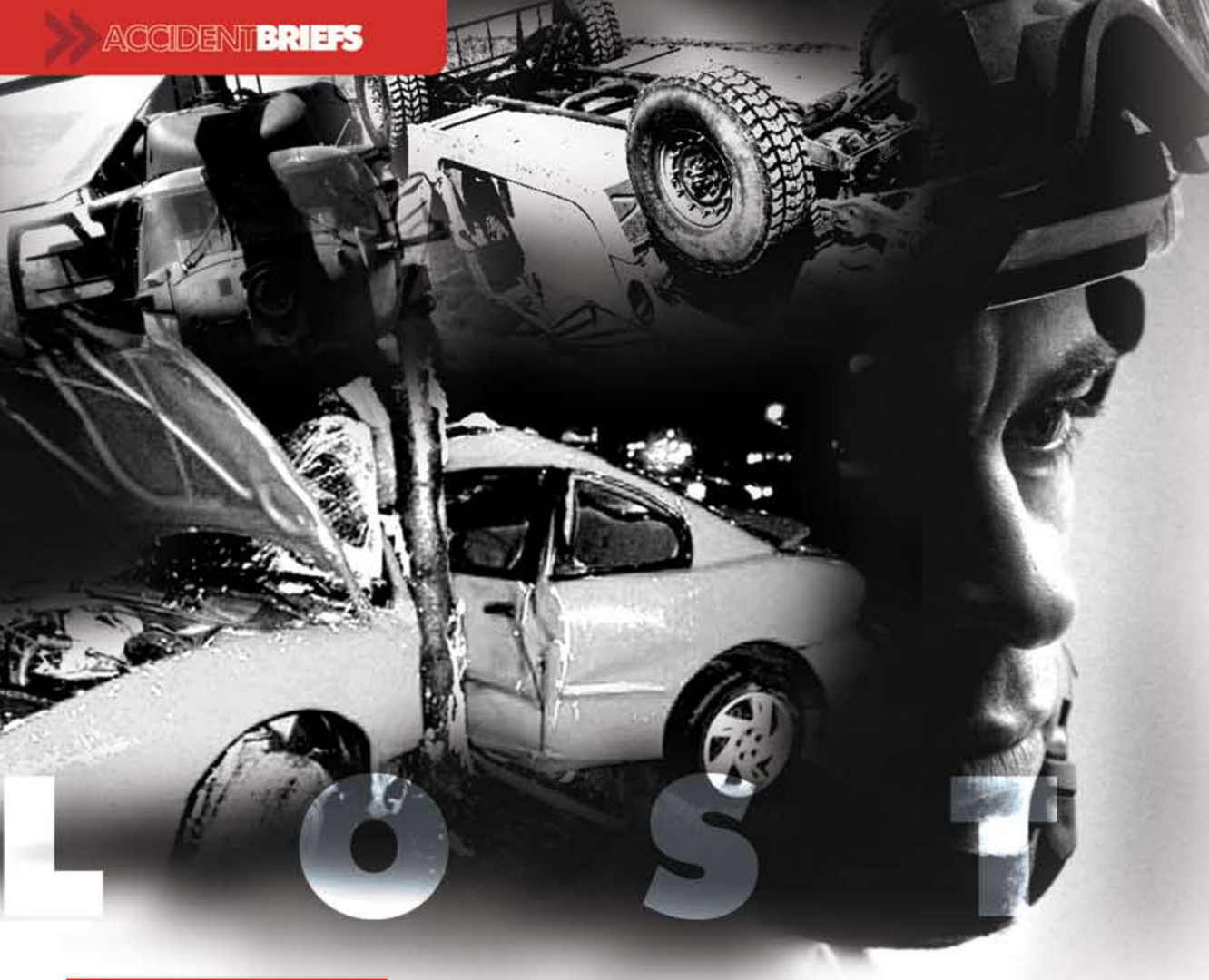
The following recommendations are provided to help prevent future losses:

- Educate Soldiers on the dangers posed by driving at night, fatigued and in bad weather conditions to help them recognize their own driving limitations.
- Educate Soldiers on the dangers of driving at excessive speeds and how such speeds deny them the reaction time needed to avoid an accident.
- Commanders must ensure young NCOs understand their responsibilities as junior leaders and recognize how indiscipline on their part affects the Soldiers they supervise. Commanders must also take action to identify, counsel and follow-up with Soldiers who display high-risk behaviors.

> "A **LEADER'S** responsibility for his Soldiers' safety **DOESN'T STOP** at the end of the duty day or at the front gate. **IT'S A 24/7 MISSION.**"

Concluding thoughts

Losing a Soldier to an off-duty accident reduces unit readiness as much as losing one on duty. Because of that, leaders can't afford to look only at the impact on duty performance caused by a Soldier's unsafe off-duty behavior. A leader's responsibility for his Soldiers' safety doesn't stop at the end of the duty day or at the front gate. It's a 24/7 mission.



AVIATION

MH-47

CLASS C K Model

The No. 2 engine experienced an oil leak during a post-maintenance operational check run-up.

OH-58

CLASS A D(R) Model

A pilot and co-pilot were injured when their aircraft crashed while performing a convoy security mission. The cause of the crash and sequence of events are undetermined at this time. The U.S. Army Combat Readiness Center is investigating the accident.

CLASS C

Aircraft experienced an engine overspeed condition (122 percent for 3 seconds) during FADEC-manual mode operations.

During an aircraft run-up on the ground without any collective applied, the aircraft started to overspeed the engine and rotor system. The pilot immediately reduced the throttle to idle, which remedied the overspeed; however, the FADEC monitor page displayed NP was 124 percent and NR within limits. The aircraft was shut down and maintenance was contacted.

Aircraft experienced an engine overspeed condition during a low-level autorotation.

UH-60

CLASS A A Model

While on a basic combat skills training flight, the pilot attempted to conduct a roll-on landing at a stagefield and subsequently crashed. A Department of Army Civilian was killed in the crash and the remaining three crewmembers suffered non-life-threatening injuries.

CLASS C L Model

The slingload inadvertently separated from the aircraft about 50 meters from the runway during short final for landing.

The main rotor blade of the trail aircraft in a ferry flight of three made contact with the MRB of the second aircraft while ground taxiing to parking. Both aircraft suffered damage.

DO YOU EMPLOY THE PRINCIPLES OF COMPOSITE RISK MANAGEMENT TO ALL MISSIONS?

UAS

RQ-7B

CLASS B

The unmanned aircraft system engine failed on approach to recovery site and impacted the ground, resulting in a total loss.

CLASS C

The aerial vehicle operator experienced engine RPM-droop during flight. The recovery chute was deployed, but the UAS suffered damage on ground contact.

The AVO experienced a FLIGHT SERVO FAIL reading during landing. The aircraft ultimately experienced a subsequent fuel exhaustion ENGINE-FAIL. The recovery chute deployed and the aircraft was recovered with damage.

GROUND

ACV

CLASS A

A Soldier drowned when his M2A3 Bradley Fighting Vehicle flipped into a canal. The Soldier had been driving along the canal when the road gave way and the BFV slipped down an embankment and into the water. The tank commander and gunner escaped without injury.

CLASS A (DAMAGE)

An M2A3 was destroyed when a fire started inside the vehicle. A Soldier attempted to put out the fire with the onboard extinguishing systems, but detonation of onboard ammunition forced him to evacuate.

CLASS B (DAMAGE)

An M2A2 BFV was being recovered via an M88 when a fire started in the M2A2's transmission. The recovery crew was able to extinguish the fire, but not before the vehicle sustained Class B damage.

AMV

CLASS A

Two Soldiers drowned when their M1114 HMMWV overturned. The Soldiers were returning from a trip to the PX when the vehicle slid down an embankment and came to rest upside down in a canal. The driver of the HMMWV was not injured. Seat belt use was not reported.

HAVE YOU REHEARSED YOUR ROLLOVER DRILLS?

Two Soldiers were killed when their HMMWV collided with a privately owned tractor-trailer. After the collision, the

ARMY AIRCRAFT LOSSES

FY02 to Present

thru May 30, 2007

	Hostile/ Non-hostile
AH-64A/D	11/46
U/MH-60A/L	8/24
C/MH-47	6/14
OH-58D	9/22
TOTAL	34/106

ARMY GROUND LOSSES

FY07

thru April 2007

	Class A/Fatalities
AMV	18/17
ACV	13/7
PERSONNEL INJURY	23/22
WEAPONS HANDLING	3/3
FIRE/ EXPLOSION	2/0
TOTAL	54/46

HMMWV ran off the road and down a 30-foot embankment. The driver and a passenger in the HMMWV were fatally injured. A third Soldier who was riding in the vehicle was not injured. Seat belt use was not reported.

CLASS B (DAMAGE)

An F350-model ambulance was damaged when it struck the main rotor system of a parked UH-60 aircraft while driving on an airfield. The driver of the ambulance was not injured.

Personnel Injury

CLASS A

A Soldier suffered fatal injuries when he was struck by a round from his roommate's M4 weapon. The roommate had been cleaning the weapon when it discharged.

ARE YOUR SOLDIERS PRACTICING PROPER WEAPONS HANDLING?

A Soldier was struck and fatally injured by a POV as he was crossing the eastbound lane of an interstate highway. The Soldier, along with two other Soldiers, had crossed the interstate earlier in the evening to go from their hotel to a pub to have dinner, during which all three drank alcohol. As they attempted to return across the interstate to their hotel, one of the Soldiers was struck by a POV. The Soldier was transported to a local medical center, where he later died.

A Soldier was at a party when he fell from the third floor balcony. He was hospitalized with minimal brain activity and placed on life support. His injuries have been determined to represent a permanent total disability.

DO YOUR SOLDIERS UNDERSTAND ALCOHOL IMPAIRS THEIR JUDGMENT?

CLASS B

A Soldier suffered a permanent partial disability while handling foreign munitions. The Soldier was inventorying an Afghan National Army ammunition supply point when he picked up a grenade to demonstrate/describe how it is used. The grenade detonated, amputating the Soldier's right hand.

A Soldier suffered a permanent partial disability when he was shot in the back of the neck with a round from a 9 mm pistol. Another Soldier had been cleaning the weapon and dropped it, causing a round to discharge.

DRIVING

POV

CLASS A

A Soldier was riding as a passenger in a POV that was involved in a single-vehicle accident. As a result, the Soldier suffered paralyzing head, back and shoulder injuries.

WEAR YOUR SEAT BELTS!

A Soldier was speeding around a curve in his SUV when he hit a set of railroad tracks, lost control, struck a culvert and rolled over. The Soldier, who wasn't wearing his seat belt, was ejected from his vehicle and killed.

HAVE YOU TOLD YOUR SOLDIERS SEAT BELTS INCREASE THE ODDS FOR SURVIVAL IN A CRASH BY 80 PERCENT?

A National Guard Soldier was returning from Active Duty Support Work when his SUV overturned into a water-filled ditch. The vehicle came to rest inverted, trapping the Soldier and a passenger. The Soldier drowned.

Two Soldiers were en route to post when the driver lost control of his POV and struck a telephone pole and an embankment. The Soldier who was riding as a passenger suffered a paralyzing spinal injury.

POV DRIVING LOSSES FY07

thru April 2007

	Class A accidents/Soldiers killed
CARS	24/26
VANS	1/1
TRUCKS	13/13
MOTORCYCLES	14/13
OTHER*	11/10

*Includes tractor-trailers, unknown POVs and bicycles

63 TOTAL DEATHS

06 FY06: 53 3 year average: 58

DO YOUR SOLDIERS WEAR THEIR SEAT BELTS?

A Soldier was driving his POV when he lost control and overturned several times. The Soldier was hospitalized and taken off life support the following day. The Soldier was not wearing his seat belt.

Two Soldiers were on an off-ramp when the driver lost control of his vehicle, struck the guardrail and overturned three times. Although both Soldiers were wearing their seat belts, the driver suffered fatal injuries. The passenger was taken to a local medical center and listed in stable condition.

CLASS C

A Soldier was driving under the influence of alcohol and not wearing his seat belt when he collided with a bus. The collision caused serious injuries to the Soldier and his passenger.

POM

CLASS A

A Soldier was thrown from his motorcycle and killed when he moved to the right lane to pass a vehicle and rear-ended a tractor-trailer that was slowing to turn off the road. The Soldier had owned his bike for less than 12 days and was neither licensed nor had taken the required Motorcycle Safety Foundation training.

DO YOU KNOW WHO RIDES IN YOUR UNIT? HAVE YOU MADE SURE THEY'RE TRAINED?

A Soldier was operating his motorcycle on a highway when a vehicle failed to yield right-of-way from a side street and struck the Soldier's motorcycle. The Soldier, who was wearing his helmet and personal protective equipment, suffered fatal injuries.

Two Soldiers were operating their motorcycles when the lead rider entered an intersection and struck a truck that failed to yield right-of-way. Despite wearing his helmet and all PPE, the lead rider was fatally injured. The following rider managed to avoid the truck, but also crashed and suffered minor injuries.

A Soldier was operating his motorcycle over a canal bridge when another vehicle moved into his lane. The Soldier attempted to move to the right to allow more room but lost control, dropped his bike and slid to a stop. The Soldier was transported to a hospital, where he was treated for a broken shoulder. The Soldier was wearing his PPE; however, military police determined from the length of his skid that he was riding at an excessive speed.

BE A LEADER
ENGAGE

Engaged leaders save lives immediately.

U.S. ARMY

ARMY STRONG.

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own the EDGE
Leading on the Edge

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KNOWLEDGE

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U.S. ARMY

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own the EDGE

Leading on the Edge

KNOWLEDGE
OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Paula Allman Managing Editor
Bob Van Elsberg Assistant Managing Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

We welcome your feedback. Please e-mail comments to **knowledge@crc.army.mil**.

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"It takes having the **GUTS** to **TAKE AWAY THE KEYS**, call a taxi or be the **ONE OBSTACLE** that buddies can't get past to **HURT** or even **KILL THEMSELVES**."

WE'RE ALL BATTLE BUDDIES

I've heard it said "information is power," but actually believe there's a better description of power in relation to information. I believe that sharing of information through the transmission of knowledge thus putting intelligence into the hands of folks, who can take corrective action, is power. That is the REAL POWER. So, knowledge is power, if and when, we share. This magazine seeks to share and place power in leaders' hands.

Featuring midyear accident reviews and highlighting accident trends, this issue is a valuable tool showing leaders areas where we need to be particularly concerned in terms of safety and composite risk management. As you read this issue of *Knowledge*, bear in mind there is something you can do about the noticeable trends. Accidents aren't acts of fate—they don't have to happen. They're called accidents because, in most cases, someone could have prevented them. Had a decision been handled differently, there wouldn't have been an accident. However, making the right decision means someone has to get engaged and take action.

But who is that someone? That responsibility lies on several shoulders. For one, it is the responsibility of leadership to set the example. Soldiers note what leaders consider important and respond accordingly. What is the leader saying to his or her subordinates when they have a radar detector sitting on the dash of their car parked in the commander's parking lot? When leaders are sincerely interested in their Soldiers and the dangers that threaten them, Soldiers know "being safe" is more than a slogan. When leaders recognize that the duty day never ends when it comes to being accountable for their Soldiers—we can stop these trends.

The responsibility doesn't end there. From our initial entry training, each Soldier is taught the "battle buddy" theory for a very important reason. Just as Soldiers watch their buddy's back in combat; they must also watch their buddy's back in the seemingly less dangerous situations like driving a car or operating a motorcycle. Did you know that we lose twice as many Soldiers to accidents during off duty as we do during on-duty times? That responsibility begins before the ignition is turned. It begins when one Soldier sees another drinking, knowing he or she will get behind the wheel or astride a motorcycle. It doesn't take rocket science to foresee the consequences. It does, however, take courage—the courage of a battle buddy to get involved. It takes having the guts to take away the keys, call a taxi or be the one obstacle that buddies can't get past to hurt or even kill themselves. An effective battle buddy intercedes prior to the crisis and is not just a willing participant in a dual death tragedy.

When is it not your responsibility and how far must you go to prevent a buddy from being a "fallen comrade?" You should know these answers and suggest this decision is thought through before you are placed in a like described situation. You hear it in the distant echoes of gunfire and the shouts of Soldiers remembered from battles in Iraq and Afghanistan. Your responsibility for your battle buddy never ended there and it doesn't end here, either. The question is do you have the courage to stand up and risk a relationship with a buddy in order to save his or her life?

Our motto is "Army Strong!" "Army" is in the singular because we are one force wherever we are, whether it's in Baghdad, at Fort Bragg or Germany. "Strong" comes from the fact we are united. What touches one of us, touches all of us.

As we increase the support we provide making us all stronger, we are transforming the U.S. Army Combat Readiness Center by adding something that never existed at the Center before July 13, 2007. USACRC now has a Command Sergeant Major. We believe the conversion of the USACRC sergeant major slot to a command sergeant major billet clearly accents the renewed importance and higher expectations our Army Leaders demand of USACRC.

The USACRC welcomes CSM Tod Glidewell, who brings over 25 years of service, leadership and extensive experience having led battalions and a brigade in combat. Additionally, we bid farewell to SGM David Griffith, who worked tirelessly to help transform the Soldiers' mindset in terms of safety and engaged in a committed pursuit of what is best for the Army. This change would not have been possible without Dave's great leadership.

I want you to all know that you make a difference and are important to our Nation. It matters that you return from your next patrol to finish your tour with your buddies. It matters that you come home and enjoy your Family and friends without being lost to a preventable accident. It matters because in this Army Strong, we're all battle buddies—and we're battle buddies all the time. Army Safe is Army Strong!

William H. Forrester
Brigadier General, USA
Commanding

USACRC WELCOMES FIRST COMMAND SERGEANT MAJOR

CHRIS FRAZIER
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The Army continued its commitment to safety transformation July 13 with an assumption of responsibility ceremony for the U.S. Army Combat Readiness Center's first command sergeant major.

Command Sgt. Maj. Tod L. Glidewell took over the senior leadership position in a ceremony at Fort Rucker's U.S. Army Aviation Museum.

Army officials approved the conversion of the sergeant major position to command sergeant major in recognition of the continued safety cultural transformation in our Army.

Transformation is a triad involving leaders, forces and institutions – all of which are critical in achieving the Army Vision, said Brig. Gen. William H. Forrester, Director of Army Safety and commanding general of the USACRC.

"Transformation is far more than an equipment change," Forrester said. "While the changes in our forces and institutions are significant in scope and breadth, they pale when compared to the positive impacts leaders can achieve."

These leaders, Forrester added, must continue the Army's transformation and set the example for their Soldiers. When leaders are genuinely interested in their Soldiers and the dangers that threaten them, Soldiers know "being safe" is more than a slogan, Forrester said.

Glidewell replaces Sgt. Maj. David P. Griffith, who served as the USACRC's sergeant major for the past six years, and brings more than 25 years of service and leadership to his new assignment. He comes to the USACRC from the 101st Airborne Division (Air Assault) at Fort Campbell, Ky., where he served as the 101st Combat Aviation Brigade command sergeant major.

Glidewell said he is proud to be selected as a member of the USACRC team and it's a challenge he won't take lightly.

"The Combat Readiness Center is known throughout the military as an organization composed of experts and professionals that represent the best in their fields—individuals who truly care about protecting our force," Glidewell said.

In Glidewell, Forrester believes the Army has an engaged leader who will influence safety transformation and take it to the next level.

"I believe our Army recognizes engaged leaders make a difference," Forrester said. "… Tod's tremendous combat experiences of leading both battalions and brigades in combat and his reputation throughout the Army are huge."

Glidewell hopes the new position will allow the USACRC to grow beyond the staff perspective in the minds of our Army as warfighters, therefore reemphasizing the Army's leadership message on the importance of safety and protecting the force.

"I believe we can emplace methods and great cultural change that will protect our nation's greatest and most precious resource – the Army Soldier," he said.

Known as the knowledge center for Army accidental loss, the USACRC "operationalizes" safety through the use of composite risk management to more effectively preserve combat power. Forrester said leaders like Griffith, who for six years worked to bring the command sergeant major slot to the USACRC, have helped transform the Soldiers' mindset in terms of safety and the use of CRM.

"His untiring pursuit of what is best for the Army during this transformation has highlighted the value of his position," Forrester said. "This change would not be possible without his great leadership."

Griffith, who has served in the Army for more than 29 years with tenures including assignments in the Republic of Korea and the Federal Republic of Germany, plans to retire.

> "I believe we can **EMPLACE METHODS** and great **CULTURAL CHANGE** that will **PROTECT** our nation's greatest and most precious resource – the **ARMY SOLDIER**."
>
> Command Sgt. Maj. Tod L. Glidewell

HOW ARE WE DOING?

FISCAL 2007 OFF-DUTY MIDYEAR ACCIDENT REVIEW

GLEN DAVIS
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

We're halfway through fiscal 2007, and it's time to assess how the Army is doing in regard to off-duty accidents. Although we're engaged in the Global War on Terrorism, it's vitally important that we continue to monitor our progress and ensure all of us are using composite risk management to prevent accidental losses.

Let's take a quick look at the off-duty accident trends for the first half of fiscal 2007. The U.S. Army Combat Readiness Center database shows accident fatality numbers are going up in privately owned vehicles, particularly in pickup trucks. Most notable is the non-use of seat belts in the most rollover-prone vehicle—the sport-utility vehicle—which has led to a high number of Soldiers being ejected and killed. While overall motorcycle fatality accidents are down, 73 percent of those accidents involved sport bikes. Weekends continue to be the most dangerous time for Soldiers, with more than double the fatal POV accident rate compared to workdays. By a noticeable margin, corporals and specialists (E-4s) are the most at-risk Soldiers for POV and off-duty personnel injury fatalities.

Privately Owned Vehicles

Halfway through fiscal 2007, the Army had 50 fatal POV accidents that claimed the lives of 54 Soldiers—an increase of two fatalities compared to the same period last year. The Soldiers who lost their lives this year include 12 privates, two privates first class, 17 specialists or corporals, 10 sergeants, four staff sergeants, five sergeants first class, two master sergeants, and two warrant officers. The graph to the right shows the losses, proportionally, according to grade.

GRADE	PROPORTION	PERCENT	SOLDIERS KILLED
E1		9.26	5
E2		12.96	7
E3		3.70	2
E4		31.48	17
E5		18.52	10
E6		7.41	4
E7		9.26	5
E8		3.70	2
W1		1.85	1
W2		1.85	1

as of May 31, 2007

Types of Vehicles

When broken down by vehicle type, there were 22 fatalities involving sedans and 11 each involving motorcycles and pickup trucks. Nine Soldiers died in SUVs and one died as a passenger in a van. Compared to last year, fewer Soldiers died in sedans or on motorcycles; however, there was an increase in fatalities involving pickup truck accidents. Overall, the Army experienced an increase of two POV-related fatalities compared to the same period last year.

Holidays, Weekends and Weekdays

Soldiers are significantly more likely to die in POV accidents during weekends and holidays than during weekdays. Of the 54 Soldiers who died during the first half of fiscal 2007, 19 died on weekends (Saturdays and Sundays not connected to holidays), nine died during holidays (including the weekends immediately preceding or following the holiday), and 26 died during workdays. Comparing the average number of hours between fatalities, the Army lost one Soldier every 48 hours during weekends, one every 59 hours during holidays and one every 113 hours during workdays. These results support a recent USACRC study regarding the most common times for POV accidents.

Time of Day

The "dark and early" hours are the most dangerous, with 20 Soldiers dying in POV accidents from 1 a.m. through 5:59 a.m. The worst hour—1 a.m. to 1:59 a.m.—included the deaths of seven Soldiers.

Helmets and Motorcycle Types

While most Soldiers recognize the value of wearing helmets, some still choose not to wear them. Two of the 11 Soldiers killed in motorcycle accidents were not wearing helmets. Additionally, eight of the 11 Soldiers who died on motorcycles were operating sport bikes, as shown in the graph below. The two Soldiers who weren't wearing helmets when they died were operating sport bikes as well.

Seat Belts

Statistics suggest that Soldiers driving the most rollover-prone vehicles are also least likely to wear seat belts. Three of the nine Soldiers killed in SUVs were not wearing seat belts. Two of those three Soldiers who died were ejected from their vehicles. By contrast, statistics support that Soldiers in pickup trucks are most likely to wear seat belts, with only one Soldier of the 11 fatalities driving unbelted. More Soldiers in sedans wore their seat belts than those in SUVs as well. Of the 22 killed in sedans, all but four chose to wear seat belts.

Mistakes and Root Causes

The leading driver or operator mistakes in fatal POV and POM accidents continue to be speeding and abrupt steering control. Other operator errors, such as failing to wear seat belts and helmets, increase the severity of the injury. The leading root causes for these fatal accidents continue to be overconfidence, alcohol, haste and fatigue.

SOLDIER FATALITIES BY VEHICLE TYPE

	Fiscal 2006	Fiscal 2007	Increase/Decrease
Sedan	26	22	-4
Motorcycle	13	11	-2
POV-Other	1	0	-1
Truck	6	11	+5
Jeep/SUV	6	9	+3
Van	0	1	+1
Totals	52	54	+2

as of May 31, 2007

SOLDIERS KILLED BY MOTORCYCLE MODEL/TYPE

Harley Davidson	*CRUISER*
Honda CBR 600	*SPORT*
Kawasaki 650	*SPORT*
Suzuki GSX 1300R	*SPORT*
Suzuki GSXR 600	*SPORT*
Suzuki TL 1000	*SPORT*
Yamaha R1	*SPORT*
Yamaha R6L	*SPORT*
Yamaha WZFR1	*SPORT*
Kawasaki-Unk	*UNK*
Kawasaki-Unk	*UNK*

as of May 31, 2007

"The **LEADING** driver or operator **MISTAKES** in **FATAL POV** and **POM** accidents continue to be **SPEEDING** and **ABRUPT STEERING CONTROL**. Other operator errors, such as **FAILING** to wear **SEAT BELTS** and **HELMETS**, **INCREASE** the **SEVERITY** of the injury."

DID YOU KNOW?

What is the status of overall Army loss?

- Motorcycle fatalities are down **28 percent** from this time last year (29 vs. 40)
- **17 percent** of Soldier **accident** fatalities are due to motorcycles (29 vs. 170)
- **2.7 percent** of **all** Soldier deaths occur in motorcycle accidents (29 vs. 1085)
- Of the 29 motorcycle fatalities reported so far this year:
  - **Only eight** were the result of action by another vehicle
  - **52 percent** involved excessive speed by the motorcycle rider (15 of 29)
  - **Seven of 29** reported improper PPE by the motorcycle rider (24 percent)
  - **69 percent** involved sport bikes (20 of 29), nearly one-third of which were the **1300cc** Suzuki Hayabusa (6 of 20)
  - **24 percent** were senior enlisted (E-8 and above), warrants and officers (seven of 29)
  - **59 percent** were E-6 and above (17 of 29)
  - **Only 12 of 29** (41 percent) were combat arms INF, AR, ARTY, ADA Branch/MOS
  - **Six of 29 (21 percent)** were Medical and Dental Branch/MOS
  - **57 percent** were **30** years of age or older
  - **21 percent** were **40** years of age or older
  - **69 percent** of the fatalities occurred in the **South or Midwest** (20 of 29)

as of July 23, 2007

Off-duty Personnel Injury-Other Accidents

During the first half of fiscal 2007, the Army lost 14 Soldiers in 12 off-duty PI-O accidents, an increase of three compared to the same period last year. The Soldiers killed in these accidents include two privates, two privates first class, four specialists or corporals, one sergeant, one staff sergeant, two sergeants first class, one captain and one colonel. The graph to the right shows the losses, proportionally, according to grade.

While there were no defined peak times for these accidents, seven happened at night and nine happened on weekends. The accident reports cited alcohol as a contributing factor in two of these accidents. The following is a breakdown of these accidents:

Pedestrian

Four Soldiers died when vehicles struck them. A train hit two of the Soldiers and POVs hit the other two. One of the two hit by a POV was crossing an interstate on foot after dark.

Negligent Discharges

Negligent discharges led to the deaths of four Soldiers. Two fatalities happened while Soldiers were cleaning their weapons. A third fatality occurred while a Soldier was showing a firearm to friends. The fourth fatality involved a Soldier handling a loaded weapon.

Water-related Activities

Four Soldiers died during water recreational activities. One Soldier drowned while bodyboarding, two Soldiers failed to return after fishing in a small craft and one Soldier drowned during a commercial scuba dive.

Other

Two Soldiers died performing other off-duty activities. One Soldier was paragliding when he became entangled with a civilian paraglider and fell to his death. The other Soldier choked on food at a private party.

GRADE	PROPORTION	PERCENT	SOLDIERS KILLED
E2		14.29	2
E3		14.29	2
E4		28.57	4
E5		7.14	1
E6		7.14	1
E7		14.29	2
O3		7.14	1
O6		7.14	1

as of May 31, 2007

Summary

By the very nature of your work as a Soldier, you engage in high-risk activities. The Army's goal is to help you mitigate risks—including those you face off duty. When you're off duty, the choice to be safe is in your hands. As you make those decisions, never forget the odds you face if you choose to be a risk taker. To survive, you must beat the odds every time. To die, you only have to fail once. Ask yourself which is better—getting a quick thrill, saving a couple of minutes and avoiding an inconvenience or being alive and physically whole and able to enjoy the rest of your life. It's not a hard decision. Your family, your battle buddies and the Army will be grateful if you make the right choice.

Editor's Note: These statistics are current from the Army Safety Management Information System as of May 31, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of May 31, 2006. Delayed reports and follow-up details on preliminary reports can change the statistics, figures and findings.

WATER SPORTS SAFETY

MARY ANN THOMPSON
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

BE ENGAGED

Leaders should educate and train their Soldiers on the hazards associated with water activities through drown-proofing and swimming classes. Know how to swim, swim only in approved areas and use the buddy system—never swim alone. Ensure your buddy makes it home safely.

Water sports are particularly appealing when temperatures rise. However, as enjoyable as swimming, surfing, scuba diving, fishing and boating are, people still need personal risk management to keep these activities safe. For example, between the beginning of this fiscal year and May 8, 2007, six off-duty Soldiers have drowned—one more than during all of fiscal 2006. Four of those Soldiers were in some type of boat and were not wearing a personal floatation device. Like seat belts, PFDs only help if you have them on before you need them.

How did these four Soldiers end up unexpectedly in the water? Two died when their 12-foot-long johnboat apparently sank while they were fishing on a lake. According to local authorities, the boat was poorly equipped, having only a small trolling motor for power. A storm blew up on the lake late in the afternoon as the Soldiers were preparing to head to shore.

A third Soldier died when the pontoons on his inflatable personal pontoon boat separated while he was fishing on a reservoir. The Soldier attempted to swim back to the pier but drowned. A fourth fatality happened when two Soldiers ignored beach hazard warnings and set out in a two-man kayak. When the kayak capsized, one Soldier drowned when he got caught in a strong current. The other Soldier survived, struggling against the current to make it back to shore.

A quick review of drowning accidents going back to fiscal 2002 shows June, July and October are the months with the greatest number of drowning fatalities. The most frequent hours for these accidents are 1 p.m., 5 p.m. and 9 p.m. Nearly one-third of the Soldiers who died were 20 to 22 years old. Enlisted Soldiers accounted for nearly 90 percent of the fatalities, with high numbers recorded as privates, specialists and sergeants. Contributing factors often included not wearing a PFD, alcohol use and rough water or strong currents. The five states with the greatest number of Army off-duty drowning fatalities were, in order: Texas, Hawaii, Georgia, New York and Washington.

Although drowning ends a Soldier's life, it's not the only danger Soldiers face in the water. Since June 2005, four Soldiers have ended up paralyzed from the neck down after diving headfirst into shallow water. Considering two of these Soldiers were in their early 20s and one was only 30 years old, they will spend most of their lives unable to enjoy many of the simple activities most people take for granted. That is a high price to pay for overlooking a hazard.

Bottom line—enjoy the water, but be smart enough to consider all the risks. Never assume being a good swimmer means you can skip wearing a PFD. Never assume there's no risk because you can't immediately see any. Know the depth of any water before you dive into it, and pay attention to hazard warning signs on beaches.

What Kind of Example?

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

What kind of example do you set for others when making decisions affecting safety? Would you feel good if someone you cared for followed your footsteps?

Friday was a good day for the Soldiers recently assigned to the unit's rear detachment. They were well into spring and the weather was pleasant as they contemplated the three-day weekend. Better yet, the unit would release them early this day—extending their weekend further.

For eight young Soldiers, fun wasn't that far away. It was only an hour drive to a popular coastal resort island, so they agreed to drive there on Sunday. When Sunday afternoon came around, the Soldiers headed out in three cars. Two cars left the post at about 4 p.m. and headed directly to the island. The third car left about 30 minutes later with the Soldiers stopping en route for dinner. It was about 7:30 p.m. when they met their friends in a parking lot on the island.

The Soldiers hung around for about 20 minutes and then decided to return to their barracks. The highway back toward post offered one lane in each direction with occasional short passing zones where the road was widened by an additional lane on the right. These passing zones allowed slower traffic to move out of the way to allow faster vehicles to pass them. The Soldiers were driving one behind the other while following a pickup truck. Deciding to pass the pickup truck, the Soldiers driving the first two cars illegally crossed the double-yellow line and passed the pickup truck. Moments later, the vehicles entered a passing zone, and the pickup truck pulled into the right lane. The road ahead was now open for the Soldier operating the third vehicle to pass the pickup. Seeing his buddies ahead in the right lane, the Soldier accelerated his Chevrolet Camaro to more than 90 mph to catch up.

The Camaro was quick and rapidly caught up to the other Soldiers' cars. Unfortunately, what none of the Soldiers knew was that time and space were running out. Unfamiliar with the road, they didn't realize the passing zone was less than a mile long before all traffic was forced to merge into one lane. The driver of the Camaro was about to overtake his buddies when they were forced to merge left—swerving in front of him and cutting him off. Trying to miss his buddy's car ahead, the Camaro's driver hit his brakes and steered toward the right shoulder. But he turned too sharply, and the car spun out of control in a clockwise motion. The Camaro slid sideways off the road and slammed into a high-voltage utility pole, which hit the driver-side door and tore half-way through the car and immediately killed its 22-year-old driver and his 19-year-old passenger.

The Soldiers in the lead vehicles saw what happened and stopped. One called 911 while the other ran back toward the accident. A volunteer firefighter who'd stopped at the crash warned the Soldier away because the utility pole's power lines were hot and could fall. Although police and emergency medical services reached the scene within minutes, they couldn't approach the car because of the power line danger. When rescuers finally reached the car, they had to cut it open to remove the driver and passenger.

Why did this accident happen? There are several reasons and they involve the actions of not only the driver, but his friends and leaders as well.

> "**LEADERS** must **SET** the right example by **ENGAGING** in their **SOLDIERS' SAFETY**, ensuring they're properly trained and meet **SAFETY STANDARDS**."

First, the Soldier not only exceeded the speed limit, he also drove beyond his ability. The Soldier's lack of discipline behind the wheel was no secret, as recorded in his driving history. Two years before the accident, he'd been cited for driving 106 mph in a 55-mph zone, which led to officials revoking his license. He had his license back for about a month before this fatal crash.

Second, the other Soldiers helped set him up for a fall. Their speeding and illegal passing might have encouraged him to drive recklessly. Tragically, after getting him to race, they cut him off and forced him off the road. The senior Soldier involved that day was driving the lead vehicle. Rather than setting a positive example, he helped set up a younger Soldier to be a "fallen comrade."

Third, although leaders weren't held at fault for this accident, they didn't do all they could have to prevent it. For example, they didn't ensure the Soldier had his vehicle inspected before the long weekend. As a result, no one identified the badly worn left-rear tire on the Soldier's car. The lack of tread on the tire may have hindered the Soldier's ability to regain control of the vehicle when it began to skid. Also, the Soldier didn't receive the unit-sponsored safety orientation within 72 hours of reporting for duty, which is a requirement the unit failed to meet for that Soldier and the others involved in this accident. A look at unit organization revealed that leadership assigned a junior noncommissioned officer as the platoon sergeant. As such, leadership assigned him responsibilities and tasks beyond his experience and capability. Other junior NCOs reporting to the unit performed squad leader duties. Unfamiliar with the commanding general's safety message, they couldn't explain it to their Soldiers.

So what's the fix for these problems? Much of the answer has to do with setting the right example. Leaders must set the right example by engaging in their Soldiers' safety, ensuring they're properly trained and meet safety standards.

"Battle buddies" must set the right example by protecting each other. When Soldiers lead each other to take needless risks, they're not saving a "fallen comrade"—they're creating one.

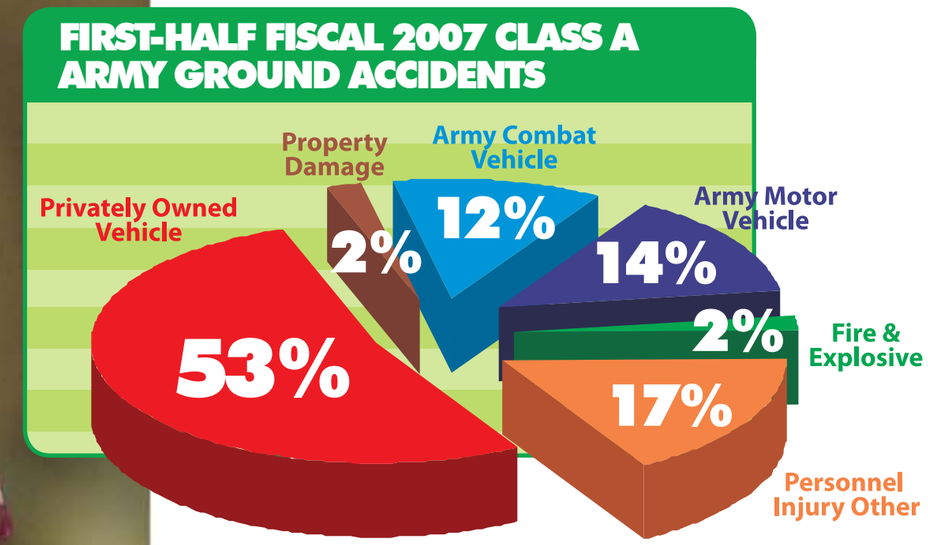
Soldiers must understand that speed limits save lives, and they can make more of an impact by setting the right example by obeying the law. Passengers must be willing to speak up when a driver is acting dangerously. The passenger in this accident was intoxicated and didn't speak up. Unable to help prevent the accident, he became one of its casualties.

Army ground accidents and fatalities as a whole for the first half of fiscal 2007 are down from last year's numbers. While that's certainly great news, there's still plenty of room for improvement, especially in the area of Army Combat Vehicles, where there was a significant increase in accidents and fatalities. Let's look back and see what's taking the lives of our Soldiers and damaging Army equipment so we can learn from these costly lessons and move forward.

HALFWAY THERE IN '07

FISCAL 2007 GROUND MIDYEAR ACCIDENT REVIEW

MARY ANN THOMPSON
U.S. Army Combat Readiness Center
Fort Rucker, Ala.



as of June 1, 2007

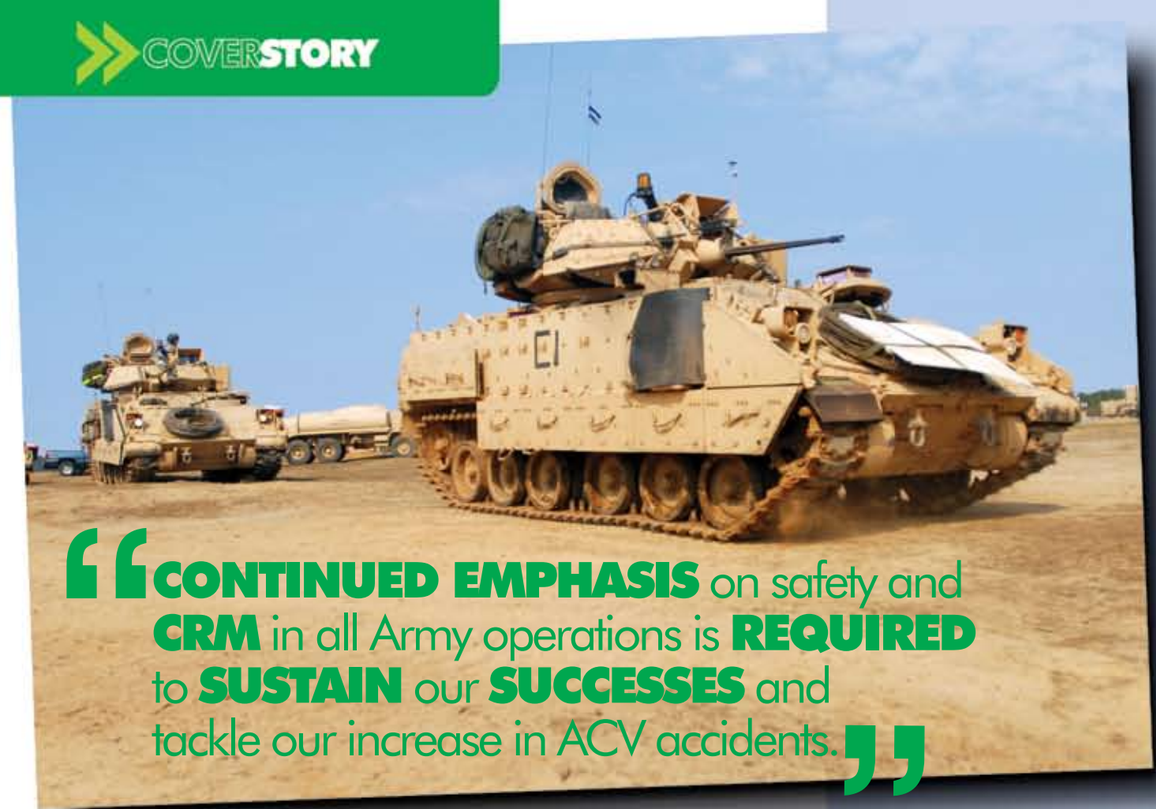
For the first half of fiscal 2007, the Army experienced 103 Class A ground accidents, resulting in 93 Army military fatalities. This is slightly down from the 113 Class A ground accidents and 105 fatalities for the first half of fiscal 2006. As can be seen in the graphic, 55 of the Class A Army ground accidents occurred in privately owned vehicles, 18 were Personnel Injury–Other accidents, 14 were Army Motor Vehicle accidents and 12 were ACV accidents. Of all the Class A accidents, 25 occurred during Operation Iraqi Freedom or Operation Enduring Freedom.

Army fatalities for the first half of fiscal 2007 followed the same pattern as Class A accidents for the same time period. POV accidents accounted for 54 fatalities, PI-O accidents accounted for 17, AMV accidents accounted for 15 and ACV accidents accounted for seven. The chart above is a breakdown of each accident area. The article "How Are We Doing?" on page 5 of this issue discusses POV and off-duty personnel injury accidents during this time frame.

Personnel Injury Other Accidents

The Army had 18 Class A PI-O accidents in the first half of fiscal 2007, resulting in 17 fatalities. This was down from the 23 Class A accidents and 24 fatalities for the first half of fiscal 2006. Of this fiscal year's PI-O accidents, 15 occurred off duty, while three occurred on duty.

The three on-duty PI-O accidents resulted in three fatalities, compared to 12 Class A accidents and 13 fatalities for the same time period last year. This year's on-duty fatalities included a Soldier who was a passenger onboard a U.S. Marine Corps aircraft that crashed into a lake, a Soldier who became ill while participating in a physical training test and a Soldier who was believed to have been killed by friendly fire. Two of these fatalities occurred during OIF/OEF.



"**CONTINUED EMPHASIS** on safety and **CRM** in all Army operations is **REQUIRED** to **SUSTAIN** our **SUCCESSES** and tackle our increase in ACV accidents."

Army Motor Vehicles

During the first half of fiscal 2007, there were 14 Class A AMV accidents, resulting in 15 fatalities. This number is also down from the 24 Class A accidents and 23 fatalities during the same time period in fiscal 2006. Nine of this year's Class A accidents occurred during OIF/OEF, resulting in 13 fatalities.

The majority, 10, of the AMV accidents occurred in tactical vehicles. The HMMWV was once again the most frequently reported accident AMV with six Class A accidents. Accidents in HMMWVs accounted for nine AMV fatalities in fiscal 2007. This was half the number of fatalities for the same time period last year.

Of the fiscal 2007 HMMWV accidents, four occurred during OEF/OIF, resulting in seven fatalities. The M1114 HMMWV accounted for three of the HMMWV accidents and six of the fatalities. Five of the HMMWV accidents involved rollovers, three of which involved the M1114 HMMWV.

Army Combat Vehicles

There were 12 Class A ACV accidents during the first half of fiscal 2007, resulting in seven fatalities. These numbers were up from the five Class A accidents and two fatalities for the same time period last year. The most frequent vehicles involved in this fiscal year's accidents were Bradley Fighting Vehicles with eight. These accidents accounted for three fatalities.

Of the fighting vehicle accidents, three vehicles overturned into canals/water, resulting in two fatalities. In two of these accidents, the ground gave way as the vehicle was operating near the canal. In the other accident, the vehicle's track slipped off the road as it was crossing a bridge.

Another Class A accident occurred when a fighting vehicle struck a tree, which then fell on the Soldier in the turret and caused a spinal fracture and paralysis. In another accident, a Soldier was fatally injured when he was pinned between a stationary fighting vehicle and the one he was ground guiding. The remaining Class A fighting vehicle accidents occurred when the operator of the vehicle, while performing a night patrol, lost control and veered off the road. The vehicle overturned into a ditch, causing Class A damage. Two other fighting vehicle accidents involved vehicle fires. Of this year's ACV accidents, 10 occurred during OIF and accounted for six fatalities.

Explosive and Fire Accidents

Explosive and fire accidents accounted for two Class A accidents during the first half of fiscal 2007. There was one fire and one explosive accident, the same number as for the same time period last year. One U.S. contract employee suffered fatal injuries and two others were seriously injured in this year's explosive accident when a 155 mm round detonated while being stacked at an ammunition supply point. The fire accident occurred when Soldiers were attempting to burn latrine waste and the fire spread out of control and damaged Army equipment.

Conclusion

Review of accident data for the first half of fiscal 2007 shows an overall decrease in Class A accidents and fatalities. Engaged leaders and Soldiers are making a difference. We have reduced the number of AMV and PI-O accidents and fatalities, while explosive and fire accidents held steady.

Although some improvement has been made, there is still a lot of work to be done. Class A ACV accidents have more than doubled since last year, while fatalities in ACV accidents have more than tripled. These accidents most frequently involved Bradley Fighting Vehicles. Leaders and Soldiers should look for ways to increase involvement and integration of composite risk management into ACV operations.

Continued emphasis on safety and CRM in all Army operations is required to sustain our successes and tackle our increase in ACV accidents. The U.S. Army Combat Readiness Center has developed a number of tools that are easy to access and use to help Soldiers and leaders manage risks. Visit the USACRC's Web site at https://crc.army.mil to find these valuable tools that will keep you Army Safe and Army Strong! «

Editor's Note: These statistics are current from the Army Safety Management Information System as of June 1, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of June 1, 2006. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.

WHAT YOU DON'T KNOW CAN HURT YOU

COL JOHN CAMPBELL, D.O.
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

Everyone wants to look good. But what price are you willing to pay for more reps, a higher max on your bench or six-pack abs? In an effort to boost workouts or improve their appearance, some Soldiers are turning to supplements and other performance enhancers. Unfortunately, a lot of these products on the market can be harmful, even deadly. What you don't know CAN hurt you!

You might be surprised at the number of empty cans of supplements found in our Soldiers' trash cans or outside recreation areas. Some of these products might guarantee big gains in your weightlifting routine, while others lure consumers with the promise of quick weight loss or increased energy. Truth be told, many of these "miracle cures" offer nothing but empty promises and maybe a trip to the emergency room.

Generally, manufacturers don't need to register their products with the Food and Drug Administration or get FDA approval before producing or selling dietary supplements. They must, however, ensure the product label information is truthful and not misleading. While this looks good on paper, some advertisements and word of mouth can be misleading and misinforming.

Some dietary supplements marketed for performance enhancement and weight loss, as well as some over-the-counter products such as cold or allergy remedies, can be harmful when ingredients are combined. Some particularly risky combinations include mixing products containing caffeine with products containing ephedra or ephedrine-like substances and aspirin. A number of new "energy" drinks also have potentially harmful substances when used in excess or as the only source of nutrition.

Possible side effects from such combinations include high blood pressure and abnormal heart rhythms. Mixing these substances may also put you at greater risk of becoming a heat casualty because they can cause dehydration. Caffeine-containing substances include guarana, coffee, cocoa, green tea, black tea, oolong tea, cola nut and mate. Ephedrine-like substances include many cold remedies (pseudoephedrine), bitter orange/citrus aurantium (synephrine), country mallow, heartleaf and ma huang. Despite the fact that ephedrine supplements have been banned for sale in the United States, these products are still available internationally and can be purchased illegally stateside.

Reading the labels of all purchased dietary supplements and cold remedies is critical. Soldiers should avoid products such as Lipo 6, Speed Shot, Blaze and Nitro Shot, as they contain significant amounts of caffeine in combination with herbal mixtures. Soldiers also should consider the caffeine content of any foods and beverages they consume in addition to any supplements.

Officials recommended avoiding dietary supplements and other self-care products containing combinations of ephedrine-like compounds, caffeine-containing substances and aspirin. Soldiers also should ensure their healthcare provider is aware of what dietary supplements and other self-care products they are using. Individuals taking these substances should maintain hydration by drinking adequate fluids.

Leaders need to be aware of what their Soldiers are putting into their bodies by staying engaged in all aspects of their on- and off-duty activities. Staying engaged and keeping Soldiers healthy helps keep our Army Strong!

FYI

Visit the Army Knowledge Online "HOOAH Bodies" Web page at https://www.us.army.mil/suite/portal/index.jsp for more information. The site is designed to assist Soldiers with improving their health and performance and provides real-time classes, presentations and dietary supplement alerts. An AKO username and password is required to enter the site. Check out the National Institute of Health's Office of Dietary Supplements at http://dietary-supplements.info.nih.gov/ for additional information.

Heat injuries are a reality the Army must be prepared for and take measures to prevent. Overall, Army members do this very well considering the environmental conditions they face in Iraq and Afghanistan. Temperatures of 130-plus degrees create conditions that are hazardous to everyone exposed to them. The unfortunate part of this story is that the vast majority of the heat-related fatalities occur far from the battlefield. Most happen during training in what should be controlled environments. Five fatalities in the last five years have come during simple land navigation courses—exercises that should be completely controlled by the chain of command.

NAVIGATING THE HEAT

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

At the time this article was written, a U.S. Army Combat Readiness Center accident investigation team was at a major Army installation investigating a heat-related fatality. Unfortunately, the Soldier died the same way several other Soldiers over the last few years have died—trying to complete a record land navigation course. As of June 26, 2007, the investigation into this accident is still ongoing. The details are incomplete, but there is a trend that does not depend on the analysis of this investigation.

> "**FIVE FATALITIES** in the last **FIVE YEARS** have come during simple land navigation courses—exercises that **SHOULD BE COMPLETELY CONTROLLED** by the chain of command."

Since July 2002, the Army has lost four Soldiers, not including the current investigation, to heat injuries during land navigation courses. That's an average of one death per year. The current accident and one earlier this year, along with another in 2005, occurred during the Warrior Leader Course, formerly known as the Primary Leadership Development Course. The other two accidents occurred during training where the Soldier was separated from his parent unit preparing for deployment or an advanced qualification course.

A "for record" land navigation course presents unique risk management challenges that are different from almost every other situation leaders face. By definition, the exercise takes small-unit leaders and the buddy system out of the possible controls available to ensure Soldiers comply with hydration and work-rest cycles. By design, Soldiers are sent out alone with only sporadic contact with others as they move from point to point. The Soldiers, usually very junior noncommissioned officers and officers, are generally highly motivated, unwilling to give up and intent on successfully completing the exercise. This motivation, along with the individual nature of the task, sometimes conspires to lead Soldiers to forget the safety briefing, the Lost Soldier Plan or the hydration plan.

All four of the earlier accidents happened between May and August on installations that are notorious for hot summers. The entries in the database for each heat fatality indicate the heat index, driven by the wet-bulb, was category IV or V. These conditions normally call for limited duty and specific work-rest cycles. For example, if you were to consider a land navigation course to be moderate work (walking between 2.5 and 3.5 mph with a light load), Army guidance calls for a work-rest cycle of 30 minutes of work and 30 minutes of rest each hour under category IV conditions.

Everyone who has ever done a land navigation course knows you can't rest for half the time allowed and still complete the course. Category IV conditions also call for consumption of one quart of water per hour. Soldiers often head out on three- to four-hour exercises with only two quarts of water. So what are we to do? Most organizations go to great lengths to ensure enough water is available, there is a detailed Lost Soldier Plan and leaders rove throughout the training area while the students are on the course. Despite these efforts, we still lose one Soldier each year during these exercises.

The U.S. Army Center for Health Promotion and Preventive Medicine provides some excellent guidance for preventing heat injuries. The CHPPM Web site at chppm-www.apgea.army.mil/heat/ provides everything from Army-level guidance to pocket resources for leaders. Below are some considerations that might help prevent the next "land nav" fatality.

Start early. All four of the Soldiers in the earlier accidents became unaccounted for in the afternoon, when temperatures were at their highest. By starting three hours earlier, the Soldiers could have avoided the category IV or V heat conditions. While programs of instruction and training schedules often seem inflexible, take the time to make the changes.

Thoroughly review the health of your Soldiers. This review should occur on at least two levels. First, before a Soldier goes to a course that will include exposure to heat, his chain of command should thoroughly review each Soldier's medical fitness. They should then inform the cadre at the school of any irregularities that might affect the Soldier's ability to cope with extreme weather conditions. Second, and this is the harder one, Soldiers must not hide medical conditions from the chain of command. Soldiers should inform cadre staff if they're ill, taking medications or have had a prior heat injury. While none of us want to be identified as whiners, if you have a previous heat injury, high blood pressure or any other condition that affects your ability to deal with heat and humidity, tell someone. At least two of these five Soldiers who suffered fatal heat injuries had conditions that put them at higher risk than their contemporaries. The cadres did not know of these conditions.

Acclimate. The CHPPM Web site and Field Manual 21-20, *Physical Fitness Training,* discusses acclimatization for Soldiers, and following the guidance there will help prevent heat injuries. However, don't assume that because a Soldier is assigned to Fort Polk, La., that he's fully acclimatized. A supply sergeant at Fort Polk who does physical training every morning and then spends the day in an air-conditioned supply room is not acclimated. It takes up to two weeks to become acclimated.

Don't depend on the individual. Despite the fact the Soldiers discussed above were at least sergeants and normally would be considered leaders, Soldiers are "lone Soldiers" when they go out alone. Lone Soldiers are prone to individual mistakes and often don't recognize their own limitations as they press to ensure they finish on time and on target. Evaluate your plan to ensure individual mistakes made by Soldiers wearing the insignia of leaders are accounted for.

Leaders in our Army must know how to navigate to lead their units in combat. Basic land navigation is a skill we must ensure leaders have, and the individual "for record" land navigation course is what the Army developed to teach that skill. That being the case, it's up to the leadership that sends Soldiers out onto the course to take every action possible to ensure their safety.

Of course, some people might dismiss this and say, "It's always Cat V in Iraq." For several months each year, that's true. But in Iraq, no Soldier goes out alone. There are always Soldiers ensuring another's safety. On a land navigation course, a Soldier is out there alone. We must shape the situation to ensure a Soldier's individual mistakes don't have catastrophic results.

Although commanders and supervisors are responsible for heat injury prevention, every Soldier can also do his or her part by using the buddy system. Each Soldier should be an extra set of eyes and ears for the supervisors and commanders. All heat injuries—on the battlefield or in a training environment—are preventable, but like everything else, a team effort is always the best way to "navigate the heat."

LET'S CHECK OUR PROGRESS

FISCAL 2007 AVIATION MIDYEAR ACCIDENT REVIEW

CHARISSE LYLE
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The Army continues to deploy many of its Soldiers in high-risk operations, particularly in support of the Global War on Terrorism. This has an effect on the accident reports filtering into the U.S. Army Combat Readiness Center. Therefore, this article will concentrate on a review of only Army Aviation Class A and B accidents.

During the first half of fiscal 2007, Army Aviation experienced 14 Class A and B manned aircraft accidents, a decrease from last year's 27. There were 12 Army Soldiers, one Air Force Airman and one Department of Army Civilian killed in these accidents, which cost more than $44 million. Four of the 14 accidents occurred in the Central Command area of operations, with one in Korea. The majority of these accidents (64 percent, or nine) occurred in CONUS. The chart on page 21 compares the number of accidents and fatalities for each aircraft type involved. Details of these accidents follow.

AH-64 Apache

The Apache community accounted for three accidents during the first half of fiscal 2007: one Class A that resulted in two Army military fatalities and two Class B incidents.

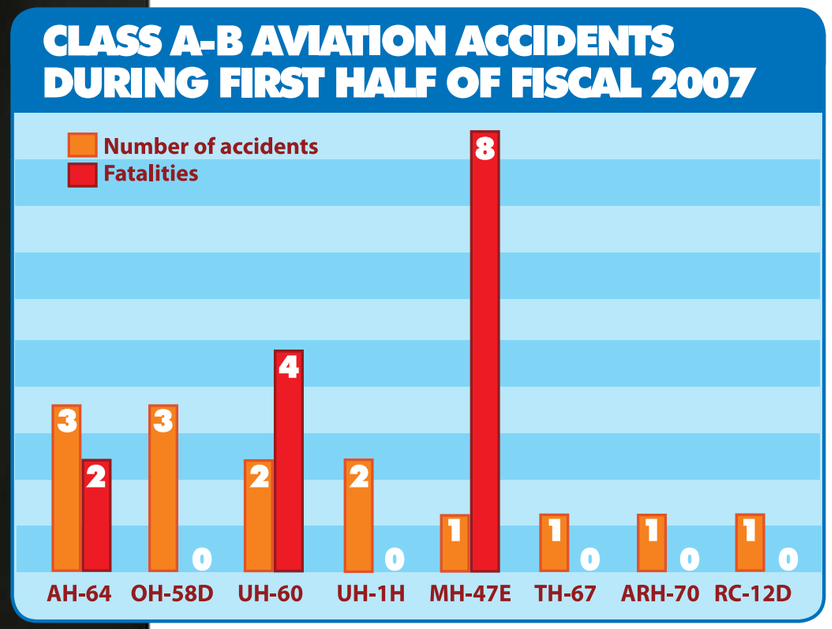
The Class A accident aircraft was Chalk 2 in a flight of two Apaches in Iraq at night. The flight attempted to return to base from the forward arming and refueling point after completing a night combat reconnaissance and security mission. The pilot in command of Chalk 2 asked lead to turn around because of decreasing visibility. The lead aircraft began a left turn and Chalk 2 followed. The Chalk 2 pilot was on the controls and initiated the left turn. About halfway through the turn, the PC asked for and assumed the controls. It is suspected that the PC experienced spatial disorientation during this turn. After relinquishing the controls, the PI never monitored the PC's actions nor alerted him to the rate of descent and bank angles in sufficient time to prevent impact. The aircraft continued to descend in a left turn and impacted the ground, destroying the aircraft and fatally injuring both pilots.

The two Class B accidents involved engine overspeeds, one reportedly as a result of materiel failure and the other as a consequence of maintenance error. Concerning the materiel failure, the crew reportedly received a HIGH ROTOR indication on final approach, followed by a No. 2 engine-out audio indication. Inspection revealed transmission and main rotor system damage. The second accident occurred because a mechanic omitted a step in the engine reinstallation procedure which was not detected by the technical inspector. This subsequently resulted in an overspeed condition during a ground run that could not be arrested by the crew and caused the aircraft to pitch and roll.

OH-58D Kiowa Warrior

The KW community was involved in one Class A with no fatalities and two Class B accidents during this timeframe.

- The lead OH-58D(R) of a Scout weapons team was conducting a night convoy security patrol when they experienced an engine malfunction, descended rapidly and crashed. Both crewmembers sustained major injuries. The PC's delayed response to the engine malfunction, coupled with the lack of assistance from the PI, increased the severity of aircraft damage and injuries.
- An OH-58D(R) broke through the ice during a precautionary landing on a frozen body of water, resulting in structural aircraft damage but no reported injuries.



as of June 5, 2007

- An OH-58D(R) incurred an overtorque condition (a reported NP indication of 140 percent for three seconds) during an out-of-ground effect hover.

UH/MH-60 Black Hawk

During this timeframe, the Black Hawk community was involved in two Class A accidents in CONUS, resulting in four fatalities.

- Three Soldiers were fatally injured when their UH-60 struck the side of a mountain and crashed. The crew was performing single-aircraft visual flight rules night vision goggle currency training when they encountered heavy snow showers mixed with rain. The aircraft descended to 1,100 feet and crashed into a heavily wooded, 45-degree slope. It was concluded that the crew failed to maintain VFR minimum requirements and, after encountering instrument flight rule conditions, failed to properly perform inadvertent instrument meteorological conditions recovery procedures. There was a sense of urgency to complete the flight because one of the pilots would become noncurrent for NVGs in one day.
- While on a basic combat skills training flight, the pilot attempted to conduct a roll-on landing during his first flight in the left seat. The approach was too fast and the aircraft was not properly aligned with the runway. On touchdown, the aircraft landed hard and the main rotor flexed down and struck the tail rotor driveshaft, causing loss of aircraft control. The aircraft was destroyed in the subsequent crash sequence and the Department of the Army Civilian instructor pilot received fatal injuries.

CH/MH-47 Chinook

The Chinook community had one Class A during this timeframe: an MH-47E engine failure in theater. The aircraft was Chalk 3 in a flight of three conducting a night troop movement when it incurred an engine failure. The crew slowed the aircraft, intending to achieve single-engine airspeed. It is suspected they became distracted in the cockpit and allowed the aircraft to slow below sustainable single-engine airspeed. The rotor RPM began to droop and the aircraft fell almost vertically to the ground. The aircraft was destroyed, eight occupants were killed (seven Army and one Air Force) and 14 passengers were injured. The flight had encountered unforecasted, deteriorating weather and was executing IIMC breakup procedures before the engine failure.

UH-1 Huey

The Huey community was involved in one Class A wire strike and one Class B dynamic rollover during touchdown in a confined area.

- The wire strike occurred while on a day personnel movement mission in mountainous terrain. The aircraft was flying about 350 feet above ground level and 60 knots when it struck a set of wires while approaching the crest of a hill. The PC began an autorotative descent with power. As he applied collective at approximately 40 feet, the aircraft yawed right, impacted the side of the hill and came to rest upright. One pilot and one passenger were seriously injured. The crew had been flying below the published minimum safe altitude without using a hazards map.
- During a day single-ship training mission, a UH-1H reportedly overturned upon landing to a confined area during a training iteration.

TH-67 Creek

The TH-67 was involved in one Class B accident. During the termination of a standard autorotation, the aircraft reportedly yawed and landed hard.

ARH-70 Armed Reconnaissance Helicopter

During the initial test flight, the crew experienced a fuel pressure low warning signal, followed by an engine failure. The crew executed an autorotation, but upon ground contact, the aircraft overturned and incurred major damage. There were no reported injuries.

Fixed Wing

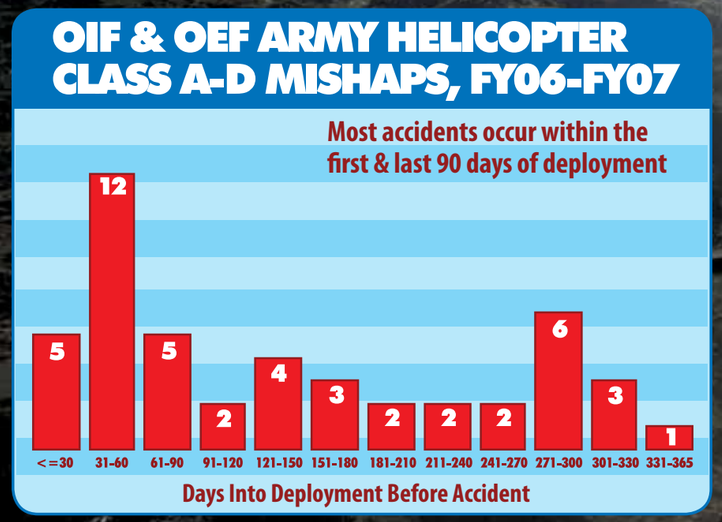
The fixed-wing community experienced one Class A accident involving an RC-12D landing gear failure. While preparing for landing, the crew noticed a landing gear unsafe light indication and executed emergency procedures. Initial contact with the airstrip was uneventful; however, slightly past 1,000 feet, the right main landing gear collapsed. No injuries were reported.

Summary

Statistically, we are doing better this fiscal year than last; however, the loss of any life is a tragic event, whether it occurs while engaging the enemy or as a result of an accident. A breakdown in crew coordination contributed to two of the accidents. In both cases, the pilot not on the controls did not assist the pilot on controls during an in-flight engine failure. There were four reported engine failures, all involving different aircraft. Five lives were lost and two aircraft were destroyed due to IIMC.

Ultimately, accidents seriously impact our ability to fight and win this war on terrorism. The fact that we lost 14 people clearly reinforces that aviation is an inherently dangerous profession where military and civilian personnel willingly put themselves in harm's way every day to protect America's freedom. Engaged leadership, good composite risk management practices and better aircrew coordination can have a positive effect on reducing aviation accident rates. Army Safe is Army Strong!

Editor's note: These statistics are current from the USACRC database as of June 5, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of June 5, 2006. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.



NO MARGIN FOR ERROR

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

The technological advances in the cockpit of today's aircraft place great demands on crewmembers. The volume of information bombarding the senses during night combat operations can be overwhelming. Add to this the volume of information an actual in-flight emergency can impose, and the crew can quickly fall behind the aircraft.

During an Operation Iraqi Freedom combat mission, the lead aircraft was one of two OH-58D(R) aircraft providing convoy security support. Approximately 3.2 hours into a four-hour mission, the lead aircraft experienced a catastrophic internal engine component failure. The trail aircraft, located about one kilometer to the left rear, observed under night vision goggles what appeared to be flashes of red light, which they believed was the anti-collision light of the lead aircraft.

In reality, the flashes were coming from the lead aircraft's malfunctioning engine. As the engine RPM began to decrease, the full authority digital electronic control system attempted to maintain and increase the RPM back to its normal operational range. Several surges of turbine gas temperature were generated due to the increase of fuel supplied to the combustion section at the onset of the malfunction. The air mission commander, flying trail and approximately 100 feet higher than the accident crew, attempted to contact the lead aircraft to determine why they had changed their lighting configuration. Receiving no response, they then watched the lead aircraft descend rapidly to the ground.

Electronic source collection data indicated the aircraft decelerated at approximately 130 feet above ground level and the nose pitch attitude reached 33 degrees. The aircraft initially contacted the tail stinger, causing the main gear to impact in a near-level, nose-down attitude. The left skid tube assembly and the M-296 .50-caliber weapon system dug into the soft ground, compressed and spun the aircraft to the left about 170 degrees. The main fuel tank ripped from the airframe as it broke open. The vertical fin assembly and the tail rotor gearbox assembly separated from the aircraft as the tailboom folded along the left side. The cockpit airbag system deployed and the right side lateral airbag was collapsed by fuselage wreckage debris during the crash sequence. The aircrew living space was compromised and the cockpit dashboard collapsed onto the crew, crushing the pilot in command's left leg.

Lessons learned

A timely and correct response to an engine malfunction in the OH-58D is critical to aircrew survival. The airspeed and altitude of the lead aircraft at the onset of the malfunction was 98 knots indicated airspeed and 325 feet AGL, which put the accident aircraft in the "safe area" in accordance with Figure 9-2 of Technical Manual 1-1520-248-10, Height Velocity Diagram. The warning on the height velocity chart states "collective delays used to establish this chart varied from no delay to a maximum of 1.0 seconds, which is significantly less than the two-second delays normally used to establish height velocity diagrams." The engine lost self-sustaining speed in five seconds (gas producer speed dropped below 55 percent +/-3 percent) from the onset of the malfunction. The engine data indicated a flameout at four seconds. The PC, in the right seat, did not change collective position for six seconds following onset of the malfunction, which caused the main rotor speed to decrease rapidly from 101 percent to 58 percent during that delay. The accident investigation board suspects the crew was confused by the conflicting low rotor warning indications while TGT kept climbing to maximum. Rotor available at impact was 50 percent NR with an approximate rate of descent of 3,000 feet per minute.

Since there is no compatible synthetic flight training system for the OH-58D, it is imperative that aviators practice Aircrew Training Manual Task 1074, Respond to Engine Failure at Cruise Flight, as often as possible. This task must be trained and evaluated while using NVGs and the maneuver must be performed as a power recovery before 200 feet AGL and a termination with power 3- to 5-feet AGL to develop an instinctive response to in-flight engine malfunctions. Aviators need to practice good aircrew coordination techniques during emergency procedures training to ensure all members perform their duties properly during an actual in-flight emergency.

GUARDING CITIZEN SOLDIERS WHO RIDE

CW5 MAX DRY
North Carolina Army National Guard

North Carolina offers some spectacular opportunities for motorcyclists who want to feel the road and enjoy breathtaking scenery. Few roads can match the "Tail of the Dragon" at Deal's Gap, N.C. But the 11 miles of U.S. Highway 129, punctuated by 318 twists and turns, can bite along with many other roads when motorcyclists are unwary.

Many of the state's 158,000 registered riders also serve in the North Carolina National Guard. For some of them, May 2005 wasn't a good month. A disturbing increase in motorcycle accidents caught the attention of state Guard safety leaders. Seeing a negative trend, they decided to come up with a positive answer.

Under the leadership of LTC John Mullinax, Army National Guard state safety manager, and Senior Master Sgt. Allen McGaha, Air National Guard state safety NCO, the North Carolina National Guard decided to train 10 Motorcycle Safety Foundation-certified Rider Coaches. Guardsmen from both the Army and Air National Guard attended a two-week training course at facilities in Badin, N.C. The training included both classroom training and hands-on riding experience. Each guardsman completing the MSF Basic Rider Course also learned to teach the course and, in the process, earned their Rider Coach certification. Beyond training Rider Coaches, the Guard also scheduled MSF Experienced Rider Course classes for guardsmen who wanted to expand their riding skills.

According to LTC Mullinax, these courses have made the North Carolina National Guard's safety program the most proactive safety program in the state. He added that attendance has been high, with Soldiers and Airmen expressing positive feedback. The training, in cooperation with the North Carolina Highway Patrol and the North Carolina Motorcycle Safety Education Program, allows riders to earn the waiver needed for a motorcycle endorsement on their licenses. Additionally, guardsmen who complete the Experienced Rider Course can use their certification card to register their motorcycles on military posts. As another plus, they're also given a highly visible riding vest that meets the standards of all military installations.

The training is provided at no cost to guardsmen to encourage their participation. Classes are taught at four locations throughout the state, with the maximum class size being 12 students. The classes are popular and typically fill up quickly.

LTC Mullinax said concerned leaders can help reverse the upward trend in motorcycle accidents by taking a positive approach and supporting MSF training and mentorship programs. He said the state Guard's goal is to ensure its Soldiers and Airmen safely enjoy riding for many years to come. For more information on the MSF Basic *RiderCourse*SM, e-mail knowledge@crc.army.mil.

KNOWLEDGE IS THE SUM OF ALL OUR EXPERIENCES!

PAULA ALLMAN
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

History repeatedly proves that lessons learned through personal experiences and eyewitness accounts provide a wealth of mishap prevention information. Unfortunately, most of this information remains unknown, except to those directly involved in the accidents. To enhance our knowledge and yours, tell us your personal experiences and the things you've seen or heard that taught you some valuable safety lessons. Anything that has helped you can help others—provided you share the knowledge.

We also encourage you to send photographs that can enhance or clarify what you saw, heard or experienced. Please e-mail them, along with your story, to knowledge@crc.army.mil. You'll receive full credit for anything we publish unless you specify that you'd like to remain anonymous. Additionally, include appropriate contact information such as your e-mail address and telephone number so we can contact you if necessary to clarify any facts.

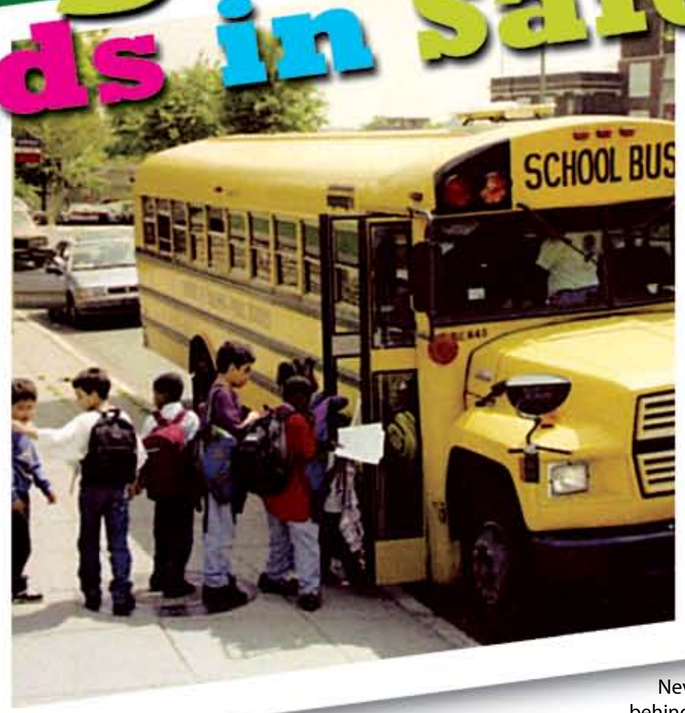
We look forward to hearing from you soon!

CRM TRAINING DEADLINE APPROACHING

The Secretary of the Army and Chief of Staff, Army, Safety and Occupational Health Objectives for fiscal 2007, dated Oct. 13, 2006, require all Soldiers and Army Civilian employees to complete the Composite Risk Management Basic Course. Soldiers and Army civilians must do so no later than Sept. 30, 2007. The CRM Civilian Basic Course is one of several courses identified by the Director of Army Safety that will satisfy this training requirement. Though Army civilians support Soldiers, that support is hindered when they are injured or killed while participating in high-risk or unsafe activities. The CRM Civilian Basic Course teaches Army civilians how to identify hazards and mitigate risks whether they're on or off duty. The CRM Civilian Basic Course is now available through the Combat Readiness University Web site. The course takes about one hour to complete; however, viewing supplemental information (links, rollovers, etc.) and server speed can extend the course completion time. Visit https://safetylms.army.mil/courses/c1946/eoc.asp to access the CRM Civilian Basic Course through the Combat Readiness University Web site. Army Safe is Army Strong!

"Schooling" Your Kids in Safety

FRANK McCLANAHAN
U.S. Army Combat Readiness Center
Fort Rucker, Ala.



As summer draws to an end, children are beginning to switch their focus from swimming, camping and other fun outdoor recreational activities to heading back to school.

While some children will be enrolled in school for the first time, other "veterans" will be looking forward to progressing to the next grade and all the new challenges, teachers and friends that come with it. This is also a crucial time for parents to think about the well-being of their children and develop strategies to get them back and forth to school safely each day. The following are some tips to make your children's trips to and from school safe whether they walk, bicycle, ride the school bus or travel by automobile.

Walking

Children should never walk by themselves. We are frequently bombarded with media accounts of attacks or abductions of children by predators. Because of that, it's particularly important to walk with your child or, when you decide they're old enough and mature enough to safely do so, allow them to travel with friends. Instruct your child to stay away from parks, vacant lots and other places where they might become isolated and an easy target for a predator.

Carefully research the route your child will travel to school, looking for well-trained adult crossing guards at each intersection. The route should be the most direct one from home to school. Make sure your child understands the importance of obeying all traffic signals and following the instructions of the crossing guards.

Instruct your child to avoid strangers and never accept rides or engage in conversation with people unknown to your family.

Ensure your child wears brightly colored clothing to help motorists see them.

Bicycling

The majority of rules regarding walking also apply to children who ride their bikes to school. Always ensure your child always wears a bicycle helmet that meets U.S. Consumer Product Safety Commission, Snell, American National Standards Institute or American Society for Testing and Materials safety standards.

Make sure your child's clothing is appropriate for biking. Avoid ill-fitting clothing that can become tangled in spokes or pedals or inhibit the child's movement while riding.

Riding the bus

Ensure your child arrives at the bus stop early and instruct them not to play in the street while waiting for the bus to arrive.

Your child should understand the importance of waiting for the bus to come to a complete stop before approaching the street. Also, warn them to watch for other vehicles near the bus stop.

Once aboard, children should remain seated at all times and keep their head and arms inside the bus. When exiting, they should use the handrail to avoid falling.

Wait for a signal from the bus driver before crossing the street. Walk at least 10 steps away from the front of the bus so the driver can see you.

Never cross the street or play behind the school bus.

After getting off the bus, move immediately onto the sidewalk and out of traffic. If there is no sidewalk, try to stay as far to the side of the road as possible.

Traveling by automobile

All occupants should have their seat belts securely fastened. Small children should be secured in a car seat that is appropriate for their age and size.

Drivers should be careful around children who are walking or riding bicycles to school and comply with the posted speed limit within school zones. Remember that children often engage in horseplay and can sometimes run into the road, unaware of the vehicles around them.

Another important consideration is protecting children who will be by themselves when they arrive at home each day. Typically referred to as "latchkey kids," the most important ground rules parents need to establish for these children are:

Establish a check-in time. Once a child arrives home each afternoon, the first thing they should do is phone a parent and let them know they're at home and everything is OK.

Security. Children should be instructed to keep doors shut and locked at all times. They should also be given clear guidelines of what they can and can't do. For example, children should not try to use the stove, as they can be burned or start a fire.

A final consideration is for those children wearing backpacks to school. Recent studies show that backpacks are often overloaded, causing an unnatural compression of the spine as the child compensates for the weight by bending forward or walking with an arched back. This can result in injuries that can last a lifetime. A solution is to limit items in the backpack to only those necessary for class work. Additionally, items placed in the backpack should be evenly distributed, and the backpack should be equipped with features such as padded straps. Some backpacks are now equipped with wheels and towing handles for convenience.

School should be a fun and exciting time for children; following these precautions will help make it a safe time, as well.

WHEN TROUBLE HAPPENS

BOB VAN ELSBERG
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

I'd been driving all day. I started in the morning in San Antonio, Texas, and was planning to spend the night in Gulfport, Miss. As timing would have it, I hit Baton Rouge, La., during the afternoon rush hour. While Interstate 12 eastbound was still moving at a pretty good clip, traffic was definitely jammed together.

Ahead of me in the fast lane was a tractor-trailer running parallel to another big rig in the right lane. I felt like a running back with two huge offensive linemen blocking for me. If there was any trouble ahead, they'd get to it first. As long as I kept a two-second or longer following distance, I felt safe from anything ahead.

I was keeping my distance and watching the road when I saw something absolutely incredible. A short distance ahead, a man ran across the westbound lanes, crossed the concrete median and stepped into the emergency breakdown lane on my side of the median. I assumed he'd see us approaching him on his right and wait until we passed before trying to cross. I was wrong! Without so much as glancing, he stepped in front of the semi-trailer I was following. The driver hit his brakes and swerved toward the median while the truck driver in the right lane braked and swerved toward the right-hand shoulder. I pushed on my brakes firmly but gradually, allowing the drivers behind to slow down without rear-ending each other. As I looked ahead, I fully expected to see the man's body tumbling from beneath the semi.

Amazingly, both truck drivers missed him and he made it across both lanes in one piece. I was stunned by what I'd just seen. Who in their right mind would do something so suicidal?

This reminded me how quickly and unexpectedly trouble can happen. People can do the most unpredictable things that you can't possibly plan for if you tried.

So what can you do? The answer is to drive defensively. Ask yourself, "What is the worst possible thing that can happen?" and "Do I have a plan for that?" You can't always predict what others will do, but you can drive so you've got options if the worst happens. Here is a selection of safety tips to help drivers avoid the unpredictable:

- Scan the road ahead for potential dangers. Watch for brake lights or people suddenly swerving or changing lanes. The sooner you spot a problem, the more time you have to react.
- Be aware of traffic. Use your mirrors to keep track of vehicles around you.

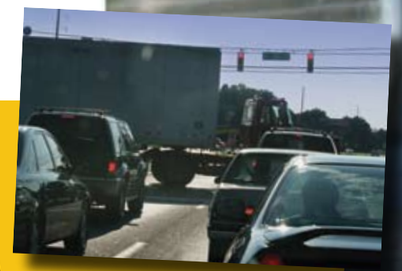
Keep a two- to three-second following distance behind vehicles so you'll have room to stop during emergencies. This is especially true of big trucks. Not only do they block your vision, a blown truck tire can send a chunk of rubber hurtling through your windshield.

- Avoid large packs of traffic. They are particularly dangerous because they're typically caused by impatient drivers tailgating one another.
- See and be seen. Keep your windows clean, especially at night. If you don't have daytime running lights, use your headlights so others can better notice you.
- Hang up and drive. Studies show it's dangerous to concentrate on doing two things at once.
- Signal well in advance before changing lanes and look before pulling over.
- Don't drive too fast or too slow. Pick a speed where you can stay with traffic while keeping an open space around you as an escape route.
- Warn drivers behind you by turning on your hazard warning lights if you have to suddenly stop or slow down on the highway.
- Don't drive alongside big trucks longer than necessary. If the driver unexpectedly moves into your lane, you can be without an escape route.
- If you're being tailgated, either change lanes or pull over and let the tailgater pass.
- Never drive over an object in the road that can safely be avoided. A plastic bag or cardboard box can conceal more dangerous items.
- Watch for other drivers talking on cell phones and understand their driving skills may be impaired.
- Avoid banged up "clunkers"—the collection of dents may reflect the owner's driving history.
- Watch the movements of other vehicles on the highway. If a car is weaving or speeding up and slowing down, the driver may be intoxicated or distracted. Avoid these vehicles.

> "YOU CAN'T always PREDICT what others will do, but you can drive so YOU'VE GOT OPTIONS if the worst happens."

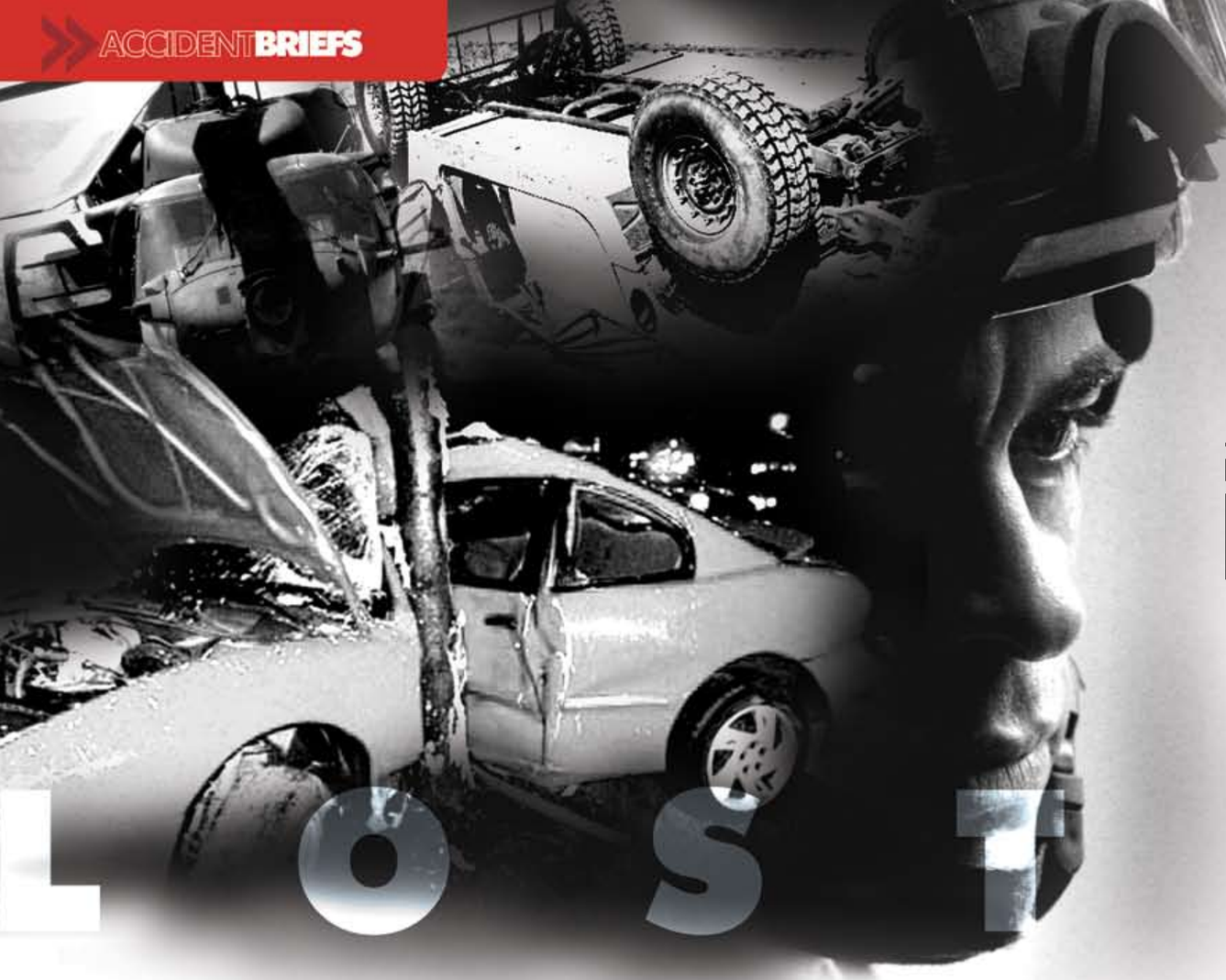
A final question

Did you see composite risk management mentioned in this article? It's there. It's important to understand not all hazards are immediate and obvious. Some risks can only be anticipated and imagined. Still, that doesn't mean they're any less real. Defensive driving buys you time to identify, assess and control unpredictable hazards. When all else fails, it can be your ace-in-the-hole when trouble happens on the road.



FYI

Visit the ROADTRIP AMERICA Web site at www.roadtripamerica.com/DefensiveDriving/Drive-Safe-With-Uncle-Bob.htm for additional defensive driving tips.



AVIATION

AH-64

CLASS A D Model

The aircraft experienced separation of the tail rotor assembly during flight, resulting in Class A damage to the aircraft. The crew maneuvered the aircraft back to the forward operating base.

CLASS C

The aircraft descended to ground impact during a night crew combat training flight. The crew was transitioning to night vision goggles following a TADS/FLIR FAIL indication and a series of electrical anomalies.

MH-60

CLASS C L Model

The aircraft's main rotor blades contacted the ALQ-144 during a roll-on landing, resulting in damage to all four blades.

OH-58

CLASS A D(R) Model

The crew was in their second iteration of day, live-fire gunnery training when the aircraft impacted the ground while making a low-altitude turn. The aircraft was destroyed and both crewmembers suffered major injuries.

CLASS C

The aircraft incurred an NP overspeed condition (117.82 percent for 1.8 seconds) during manual FADEC operation.

UH-60

CLASS C A Model

The forward left cabin window separated in flight. Inspection revealed damage to all four tail rotor blades.

CLASS C

The MRB made contact with the tail rotor driveshaft cover and ALQ-144.

CLASS B L Model

The aircraft contacted a tree during a passenger-orientation flight, resulting in damage to the main rotor system and right side of the fuselage. No injuries were reported.

DO WE ALLOW OURSELVES TO BECOME COMPLACENT OR OVERCONFIDENT JUST BECAUSE IT'S A "LOW RISK" MISSION?

CLASS B

The crew conducted an emergency landing after they felt vibrations coming from the rotor system. Inspection revealed damage to the tail rotor and tail rotor gearbox.

UAS

RQ-7B

CLASS B

The unmanned aircraft system failed to respond to control input during flight. Attempts to deploy the chute failed and the system entered the water.

CLASS C

The UAS's RPM dropped rapidly to 4,000 with fluctuations, in which the aerial vehicle operator was unsuccessful in getting the UAS to respond. As a result, the chute opened and the UAS crash landed.

GROUND

ACV

CLASS A

Two Soldiers were injured when the M1126 Stryker they were riding in struck a tree and overturned. The driver of the vehicle was attempting to avoid contact with another Stryker when the accident occurred.

CLASS A (DAMAGE)

An M2A3 Bradley Fighting Vehicle caught fire and was damaged.

AMV

CLASS A

A Soldier was killed and another Soldier was injured when the M1075 they were riding in overturned. The Soldiers were transporting barriers when the driver lost control while making a turn.

CLASS A (DAMAGE)

An M198 howitzer was destroyed and an M1083 LMTV was damaged when the commercial Heavy Equipment Transporters carrying them ran into each other and a post-crash fire ensued.

CLASS B

A Soldier suffered a permanent partial disability when he was struck by a HEMTT. The Soldier was ground guiding the vehicle into the motor pool when the front tire struck his foot, causing him to fall. The HEMTT then moved forward over the Soldier.

CLASS B

Three Soldiers were injured when the non-tactical vehicle they were riding in overturned. Two of the Soldiers were thrown from the vehicle, while the driver was trapped inside.

CLASS B (DAMAGE)

An M1114 HMMWV and its onboard equipment were damaged when the vehicle caught fire during a convoy mission.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru July 25, 2007

	Hostile/ Non-hostile
AH-64A/D	11/47
U/MH-60A/L	9/26
C/MH-47	7/14
OH-58D	11/24
TOTAL	38/111

ARMY GROUND LOSSES

FY07

thru June 2007

	Class A/Fatalities
AMV	21/19
ACV	13/7
PERSONNEL INJURY includes weapons handling accidents	42/41
FIRE/ EXPLOSION	2/0
PROPERTY DAMAGE	2/0
TOTAL	80/67

WEAR YOUR SEAT BELTS!

A Soldier was driving his pickup truck home on a Saturday night when he crossed the centerline and struck four oncoming vehicles. His vehicle then ran off the road into a parking lot and overturned. The Soldier, who was not wearing his seat belt, was partially ejected and died from his injuries.

IN AN ACCIDENT, DO YOU REALLY THINK YOU CAN ESCAPE INJURY WITHOUT WEARING A SEAT BELT?

DRIVING

POV

CLASS A

A Soldier was on leave driving a sport-utility vehicle with two passengers when it overturned at a Y-intersection and went down an embankment. None of the occupants were wearing seat belts. All three were ejected during the accident, resulting in the Soldier and one of the passengers suffering fatal injuries. Police reports stated alcohol was a factor in the crash.

CLASS A

A Soldier was operating a borrowed all-terrain vehicle at an estimated 40 mph in a 15-mph zone when he apparently lost control and was thrown into several trees. Although he wore a helmet, it was not properly fastened and came off during the crash. The Soldier died of head injuries.

CLASS A

A Soldier was driving a sport-utility vehicle with three passengers when it went off the road and overturned several times. None of the occupants were wearing seat belts and all were ejected during the crash. The Soldier and two passengers died from their injuries. According to police reports, alcohol was a factor in the crash.

CLASS A

A Soldier with a passenger was traveling more than 100 mph while street racing when the other vehicle cut in front of him. The Soldier lost control of his vehicle, crossed the centerline and collided with two oncoming vehicles. Both the Soldier and passenger were killed in the accident. The other vehicle fled the accident scene.

CLASS A

A Soldier with two other Soldiers riding as passengers was driving back to base when he ran off the road and struck a steel utility pole. The driver survived the accident, but both passengers were killed. Seat belt use was not reported; however, alcohol use was reported as a factor in this fatal crash.

POM

CLASS A

A Soldier was operating his motorcycle at high speed when he attempted to turn right onto another road and struck a vehicle head on. Although the Soldier had Motorcycle Safety Foundation training and was wearing the appropriate personal protective equipment, including a Department of Transportation-approved helmet, he suffered a permanent total disability injury.

CLASS A

A Soldier was intoxicated and operating his motorcycle at high speed when he failed to negotiate a turn and struck a curb and median barrier. The Soldier was thrown from his bike and died from head injuries. Though the Soldier had completed the MSF's Experienced *RiderCourse*℠, he did not wear the helmet he had with him.

SOLDIERS KNOW TO WEAR HELMETS IN COMBAT; SO, WHY DON'T THEY WEAR ONE ON A MOTORCYCLE?

POV DRIVING LOSSES FY07

thru June 2007

	Class A accidents/Soldiers killed
CARS	28/31
SUV/ JEEPS	12/12
TRUCKS	15/12
MOTORCYCLES	23/21
OTHER*	3/3

*Includes: vans and ATVs

79 TOTAL DEATHS

06 FY06: 87 3 year average: 93

CLASS B

A Soldier accelerated, pulled a wheelie and passed several vehicles after a traffic light turned green. A pickup truck in the oncoming lane turned in front of the motorcycle, which struck the pickup's front passenger-side bumper and brush guard. The Soldier was thrown from his motorcycle and suffered a broken arm and an amputated left foot.

Personnel Injury

CLASS A

A Soldier drowned after falling into a river while on combat patrol. A second Soldier who also fell in the river was able to swim to safety. Both Soldiers were wearing full combat gear.

CLASS A

A Soldier suffered fatal injuries when he was struck by 5.56 mm rounds while participating in a dismounted convoy live-fire training exercise.

CLASS A

A Soldier died after collapsing during part of his Army Physical Fitness Test.

CLASS A

A Soldier died after receiving an electric shock. The Soldier was emplacing barriers when the crane he was operating touched a live overhead power wire.

CLASS A

A Soldier and his son were canoeing in a creek in fast-moving water when they left the canoe to swim ashore to avoid a waterfall. The Soldier did not reach the shore and died after going over the waterfall.

CLASS A

A Soldier was walking down a roadway at night when he was struck and killed by a taxi.

CLASS B

A Soldier suffered a permanent partial disability when an artillery simulator went off in his hand as he attempted to throw it. The Soldier lost all the fingers on his right hand down to the second knuckle and part of his thumb.

CLASS B

A Soldier suffered a permanent partial disability when he dropped a tow-bar on his hand, trapping his finger between the bar and a HMMWV bed. As a result, the Soldier's finger was degloved and later amputated.

CLASS B

A Soldier suffered a permanent partial disability when he accidentally discharged a round from his weapon into his toe.

CLASS B

A Soldier suffered a permanent partial disability while opening the loader's hatch on an M1A1. The Soldier placed his right hand on the lower right side of the hatch, catching his finger between the hatch and the latch.

ALWAYS
ENGAGED
YOUR JOB AS A SOLDIER AND LEADER NEVER ENDS. TAKE CARE OF YOURSELF AND TAKE CARE OF EACH OTHER ON AND OFF DUTY.
IF YOU DON'T, WHO WILL?
ARMY SAFE IS ARMY STRONG
U.S. ARMY
ARMY STRONG.
U.S. ARMY COMBAT READINESS CENTER
https://crc.army.mil
own the EDGE
Leading on the Edge

UNDER THE WEATHER?

BEFORE

- Know risks and danger signs
- Develop plans for what to do
- Assemble a disaster supplies kit
- Volunteer to help others
- Conduct rehearsals

DURING

- Put your plans into action
- Help others
- Follow advice and guidance of officials in charge of the event

AFTER

- Repair damaged property
- Take steps to prevent or reduce future loss
- Restock your emergency supplies

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https://crc.army.mil

101 Critical Days of SUMMER
28 May - 3 Sept 2007
Never Give Safety A Day Off

CHECK YOURSELF

OR SOMEONE ELSE WILL

STAY IN CONTROL.
IF YOU PLAN TO DRINK,
DESIGNATE A NON-DRINKING DRIVER.

ARMY SAFE IS ARMY STRONG

U.S. ARMY
ARMY STRONG.

U.S. ARMY COMBAT READINESS CENTER
https://crc.army.mil

101 Critical Days of SUMMER
28 May - 3 Sept 2007

Never Give Safety A Day Off

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KNOWLEDGE

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U.S. ARMY

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own the EDGE

Leading on the Edge

KNOWLEDGE
OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
Kelly Widener Director of Strategic Communications

Paula Allman Managing Editor
Bob Van Elsberg Assistant Managing Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design

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"It takes having the **GUTS** to **TAKE AWAY THE KEYS**, call a taxi or be the **ONE OBSTACLE** that buddies can't get past to **HURT** or even **KILL THEMSELVES**."

WE'RE ALL BATTLE BUDDIES

I've heard it said "information is power," but actually believe there's a better description of power in relation to information. I believe that sharing of information through the transmission of knowledge thus putting intelligence into the hands of folks, who can take corrective action, is power. That is the REAL POWER. So, knowledge is power, if and when, we share. This magazine seeks to share and place power in leaders' hands.

Featuring midyear accident reviews and highlighting accident trends, this issue is a valuable tool showing leaders areas where we need to be particularly concerned in terms of safety and composite risk management. As you read this issue of *Knowledge*, bear in mind there is something you can do about the noticeable trends. Accidents aren't acts of fate—they don't have to happen. They're called accidents because, in most cases, someone could have prevented them. Had a decision been handled differently, there wouldn't have been an accident. However, making the right decision means someone has to get engaged and take action.

But who is that someone? That responsibility lies on several shoulders. For one, it is the responsibility of leadership to set the example. Soldiers note what leaders consider important and respond accordingly. What is the leader saying to his or her subordinates when they have a radar detector sitting on the dash of their car parked in the commander's parking lot? When leaders are sincerely interested in their Soldiers and the dangers that threaten them, Soldiers know "being safe" is more than a slogan. When leaders recognize that the duty day never ends when it comes to being accountable for their Soldiers—we can stop these trends.

The responsibility doesn't end there. From our initial entry training, each Soldier is taught the "battle buddy" theory for a very important reason. Just as Soldiers watch their buddy's back in combat; they must also watch their buddy's back in the seemingly less dangerous situations like driving a car or operating a motorcycle. Did you know that we lose twice as many Soldiers to accidents during off duty as we do during on-duty times? That responsibility begins before the ignition is turned. It begins when one Soldier sees another drinking, knowing he or she will get behind the wheel or astride a motorcycle. It doesn't take rocket science to foresee the consequences. It does, however, take courage—the courage of a battle buddy to get involved. It takes having the guts to take away the keys, call a taxi or be the one obstacle that buddies can't get past to hurt or even kill themselves. An effective battle buddy intercedes prior to the crisis and is not just a willing participant in a dual death tragedy.

When is it not your responsibility and how far must you go to prevent a buddy from being a "fallen comrade?" You should know these answers and suggest this decision is thought through before you are placed in a like described situation. You hear it in the distant echoes of gunfire and the shouts of Soldiers remembered from battles in Iraq and Afghanistan. Your responsibility for your battle buddy never ended there and it doesn't end here, either. The question is do you have the courage to stand up and risk a relationship with a buddy in order to save his or her life?

Our motto is "Army Strong!" "Army" is in the singular because we are one force wherever we are, whether it's in Baghdad, at Fort Bragg or Germany. "Strong" comes from the fact we are united. What touches one of us, touches all of us.

As we increase the support we provide making us all stronger, we are transforming the U.S. Army Combat Readiness Center by adding something that never existed at the Center before July 13, 2007. USACRC now has a Command Sergeant Major. We believe the conversion of the USACRC sergeant major slot to a command sergeant major billet clearly accents the renewed importance and higher expectations our Army Leaders demand of USACRC.

The USACRC welcomes CSM Tod Glidewell, who brings over 25 years of service, leadership and extensive experience having led battalions and a brigade in combat. Additionally, we bid farewell to SGM David Griffith, who worked tirelessly to help transform the Soldiers' mindset in terms of safety and engaged in a committed pursuit of what is best for the Army. This change would not have been possible without Dave's great leadership.

I want you to all know that you make a difference and are important to our Nation. It matters that you return from your next patrol to finish your tour with your buddies. It matters that you come home and enjoy your Family and friends without being lost to a preventable accident. It matters because in this Army Strong, we're all battle buddies—and we're battle buddies all the time. Army Safe is Army Strong!

William H. Forrester
Brigadier General, USA
Commanding

USACRC WELCOMES FIRST COMMAND SERGEANT MAJOR

CHRIS FRAZIER
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The Army continued its commitment to safety transformation July 13 with an assumption of responsibility ceremony for the U.S. Army Combat Readiness Center's first command sergeant major.

Command Sgt. Maj. Tod L. Glidewell took over the senior leadership position in a ceremony at Fort Rucker's U.S. Army Aviation Museum.

Army officials approved the conversion of the sergeant major position to command sergeant major in recognition of the continued safety cultural transformation in our Army.

Transformation is a triad involving leaders, forces and institutions – all of which are critical in achieving the Army Vision, said Brig. Gen. William H. Forrester, Director of Army Safety and commanding general of the USACRC.

"Transformation is far more than an equipment change," Forrester said. "While the changes in our forces and institutions are significant in scope and breadth, they pale when compared to the positive impacts leaders can achieve."

These leaders, Forrester added, must continue the Army's transformation and set the example for their Soldiers. When leaders are genuinely interested in their Soldiers and the dangers that threaten them, Soldiers know "being safe" is more than a slogan, Forrester said.

Glidewell replaces Sgt. Maj. David P. Griffith, who served as the USACRC's sergeant major for the past six years, and brings more than 25 years of service and leadership to his new assignment. He comes to the USACRC from the 101st Airborne Division (Air Assault) at Fort Campbell, Ky., where he served as the 101st Combat Aviation Brigade command sergeant major.

Glidewell said he is proud to be selected as a member of the USACRC team and it's a challenge he won't take lightly.

"The Combat Readiness Center is known throughout the military as an organization composed of experts and professionals that represent the best in their fields—individuals who truly care about protecting our force," Glidewell said.

In Glidewell, Forrester believes the Army has an engaged leader who will influence safety transformation and take it to the next level.

"I believe our Army recognizes engaged leaders make a difference," Forrester said. "… Tod's tremendous combat experiences of leading both battalions and brigades in combat and his reputation throughout the Army are huge."

Glidewell hopes the new position will allow the USACRC to grow beyond the staff perspective in the minds of our Army as warfighters, therefore reemphasizing the Army's leadership message on the importance of safety and protecting the force.

"I believe we can emplace methods and great cultural change that will protect our nation's greatest and most precious resource – the Army Soldier," he said.

Known as the knowledge center for Army accidental loss, the USACRC "operationalizes" safety through the use of composite risk management to more effectively preserve combat power. Forrester said leaders like Griffith, who for six years worked to bring the command sergeant major slot to the USACRC, have helped transform the Soldiers' mindset in terms of safety and the use of CRM.

"His untiring pursuit of what is best for the Army during this transformation has highlighted the value of his position," Forrester said. "This change would not be possible without his great leadership."

Griffith, who has served in the Army for more than 29 years with tenures including assignments in the Republic of Korea and the Federal Republic of Germany, plans to retire.

> "I believe we can **EMPLACE METHODS** and great **CULTURAL CHANGE** that will **PROTECT** our nation's greatest and most precious resource – the **ARMY SOLDIER**."
>
> Command Sgt. Maj. Tod L. Glidewell

HOW ARE WE DOING?

FISCAL 2007 OFF-DUTY MIDYEAR ACCIDENT REVIEW

GLEN DAVIS
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

We're halfway through fiscal 2007, and it's time to assess how the Army is doing in regard to off-duty accidents. Although we're engaged in the Global War on Terrorism, it's vitally important that we continue to monitor our progress and ensure all of us are using composite risk management to prevent accidental losses.

Let's take a quick look at the off-duty accident trends for the first half of fiscal 2007. The U.S. Army Combat Readiness Center database shows accident fatality numbers are going up in privately owned vehicles, particularly in pickup trucks. Most notable is the non-use of seat belts in the most rollover-prone vehicle—the sport-utility vehicle—which has led to a high number of Soldiers being ejected and killed. While overall motorcycle fatality accidents are down, 73 percent of those accidents involved sport bikes. Weekends continue to be the most dangerous time for Soldiers, with more than double the fatal POV accident rate compared to workdays. By a noticeable margin, corporals and specialists (E-4s) are the most at-risk Soldiers for POV and off-duty personnel injury fatalities.

Privately Owned Vehicles

Halfway through fiscal 2007, the Army had 50 fatal POV accidents that claimed the lives of 54 Soldiers—an increase of two fatalities compared to the same period last year. The Soldiers who lost their lives this year include 12 privates, two privates first class, 17 specialists or corporals, 10 sergeants, four staff sergeants, five sergeants first class, two master sergeants, and two warrant officers. The graph to the right shows the losses, proportionally, according to grade.

GRADE	PROPORTION	PERCENT	SOLDIERS KILLED
E1		9.26	5
E2		12.96	7
E3		3.70	2
E4		31.48	17
E5		18.52	10
E6		7.41	4
E7		9.26	5
E8		3.70	2
W1		1.85	1
W2		1.85	1

as of May 31, 2007

Types of Vehicles

When broken down by vehicle type, there were 22 fatalities involving sedans and 11 each involving motorcycles and pickup trucks. Nine Soldiers died in SUVs and one died as a passenger in a van. Compared to last year, fewer Soldiers died in sedans or on motorcycles; however, there was an increase in fatalities involving pickup truck accidents. Overall, the Army experienced an increase of two POV-related fatalities compared to the same period last year.

Holidays, Weekends and Weekdays

Soldiers are significantly more likely to die in POV accidents during weekends and holidays than during weekdays. Of the 54 Soldiers who died during the first half of fiscal 2007, 19 died on weekends (Saturdays and Sundays not connected to holidays), nine died during holidays (including the weekends immediately preceding or following the holiday), and 26 died during workdays. Comparing the average number of hours between fatalities, the Army lost one Soldier every 48 hours during weekends, one every 59 hours during holidays and one every 113 hours during workdays. These results support a recent USACRC study regarding the most common times for POV accidents.

Time of Day

The "dark and early" hours are the most dangerous, with 20 Soldiers dying in POV accidents from 1 a.m. through 5:59 a.m. The worst hour—1 a.m. to 1:59 a.m.—included the deaths of seven Soldiers.

Helmets and Motorcycle Types

While most Soldiers recognize the value of wearing helmets, some still choose not to wear them. Two of the 11 Soldiers killed in motorcycle accidents were not wearing helmets. Additionally, eight of the 11 Soldiers who died on motorcycles were operating sport bikes, as shown in the graph below. The two Soldiers who weren't wearing helmets when they died were operating sport bikes as well.

Seat Belts

Statistics suggest that Soldiers driving the most rollover-prone vehicles are also least likely to wear seat belts. Three of the nine Soldiers killed in SUVs were not wearing seat belts. Two of those three Soldiers who died were ejected from their vehicles. By contrast, statistics support that Soldiers in pickup trucks are most likely to wear seat belts, with only one Soldier of the 11 fatalities driving unbelted. More Soldiers in sedans wore their seat belts than those in SUVs as well. Of the 22 killed in sedans, all but four chose to wear seat belts.

Mistakes and Root Causes

The leading driver or operator mistakes in fatal POV and POM accidents continue to be speeding and abrupt steering control. Other operator errors, such as failing to wear seat belts and helmets, increase the severity of the injury. The leading root causes for these fatal accidents continue to be overconfidence, alcohol, haste and fatigue.

SOLDIER FATALITIES BY VEHICLE TYPE

	Fiscal 2006	Fiscal 2007	Increase/Decrease
Sedan	26	22	-4
Motorcycle	13	11	-2
POV-Other	1	0	-1
Truck	6	11	+5
Jeep/SUV	6	9	+3
Van	0	1	+1
Totals	52	54	+2

as of May 31, 2007

SOLDIERS KILLED BY MOTORCYCLE MODEL/TYPE

Harley Davidson	*CRUISER*
Honda CBR 600	*SPORT*
Kawasaki 650	*SPORT*
Suzuki GSX 1300R	*SPORT*
Suzuki GSXR 600	*SPORT*
Suzuki TL 1000	*SPORT*
Yamaha R1	*SPORT*
Yamaha R6L	*SPORT*
Yamaha WZFR1	*SPORT*
Kawasaki-Unk	*UNK*
Kawasaki-Unk	*UNK*

as of May 31, 2007

"The **LEADING** driver or operator **MISTAKES** in **FATAL POV** and **POM** accidents continue to be **SPEEDING** and **ABRUPT STEERING CONTROL**. Other operator errors, such as **FAILING** to wear **SEAT BELTS** and **HELMETS**, **INCREASE** the **SEVERITY** of the injury."

DID YOU KNOW?

What is the status of overall Army loss?

- Motorcycle fatalities are down **28 percent** from this time last year (29 vs. 40)
- **17 percent** of Soldier **accident** fatalities are due to motorcycles (29 vs. 170)
- **2.7 percent** of **all** Soldier deaths occur in motorcycle accidents (29 vs. 1085)
- Of the 29 motorcycle fatalities reported so far this year:
  - **Only eight** were the result of action by another vehicle
  - **52 percent** involved excessive speed by the motorcycle rider (15 of 29)
  - **Seven of 29** reported improper PPE by the motorcycle rider (24 percent)
  - **69 percent** involved sport bikes (20 of 29), nearly one-third of which were the **1300cc** Suzuki Hayabusa (6 of 20)
  - **24 percent** were senior enlisted (E-8 and above), warrants and officers (seven of 29)
  - **59 percent** were E-6 and above (17 of 29)
  - **Only 12 of 29** (41 percent) were combat arms INF, AR, ARTY, ADA Branch/MOS
  - **Six of 29 (21 percent)** were Medical and Dental Branch/MOS
  - **57 percent** were **30** years of age or older
  - **21 percent** were **40** years of age or older
  - **69 percent** of the fatalities occurred in the **South or Midwest** (20 of 29)

as of July 23, 2007

Off-duty Personnel Injury-Other Accidents

During the first half of fiscal 2007, the Army lost 14 Soldiers in 12 off-duty PI-O accidents, an increase of three compared to the same period last year. The Soldiers killed in these accidents include two privates, two privates first class, four specialists or corporals, one sergeant, one staff sergeant, two sergeants first class, one captain and one colonel. The graph to the right shows the losses, proportionally, according to grade.

While there were no defined peak times for these accidents, seven happened at night and nine happened on weekends. The accident reports cited alcohol as a contributing factor in two of these accidents. The following is a breakdown of these accidents:

Pedestrian

Four Soldiers died when vehicles struck them. A train hit two of the Soldiers and POVs hit the other two. One of the two hit by a POV was crossing an interstate on foot after dark.

Negligent Discharges

Negligent discharges led to the deaths of four Soldiers. Two fatalities happened while Soldiers were cleaning their weapons. A third fatality occurred while a Soldier was showing a firearm to friends. The fourth fatality involved a Soldier handling a loaded weapon.

Water-related Activities

Four Soldiers died during water recreational activities. One Soldier drowned while bodyboarding, two Soldiers failed to return after fishing in a small craft and one Soldier drowned during a commercial scuba dive.

Other

Two Soldiers died performing other off-duty activities. One Soldier was paragliding when he became entangled with a civilian paraglider and fell to his death. The other Soldier choked on food at a private party.

GRADE	PROPORTION	PERCENT	SOLDIERS KILLED
E2		14.29	2
E3		14.29	2
E4		28.57	4
E5		7.14	1
E6		7.14	1
E7		14.29	2
O3		7.14	1
O6		7.14	1

as of May 31, 2007

Summary

By the very nature of your work as a Soldier, you engage in high-risk activities. The Army's goal is to help you mitigate risks—including those you face off duty. When you're off duty, the choice to be safe is in your hands. As you make those decisions, never forget the odds you face if you choose to be a risk taker. To survive, you must beat the odds every time. To die, you only have to fail once. Ask yourself which is better—getting a quick thrill, saving a couple of minutes and avoiding an inconvenience or being alive and physically whole and able to enjoy the rest of your life. It's not a hard decision. Your family, your battle buddies and the Army will be grateful if you make the right choice.

Editor's Note: These statistics are current from the Army Safety Management Information System as of May 31, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of May 31, 2006. Delayed reports and follow-up details on preliminary reports can change the statistics, figures and findings.

WATER SPORTS SAFETY

MARY ANN THOMPSON
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

BE ENGAGED

Leaders should educate and train their Soldiers on the hazards associated with water activities through drown-proofing and swimming classes. Know how to swim, swim only in approved areas and use the buddy system—never swim alone. Ensure your buddy makes it home safely.

Water sports are particularly appealing when temperatures rise. However, as enjoyable as swimming, surfing, scuba diving, fishing and boating are, people still need personal risk management to keep these activities safe. For example, between the beginning of this fiscal year and May 8, 2007, six off-duty Soldiers have drowned—one more than during all of fiscal 2006. Four of those Soldiers were in some type of boat and were not wearing a personal floatation device. Like seat belts, PFDs only help if you have them on before you need them.

How did these four Soldiers end up unexpectedly in the water? Two died when their 12-foot-long johnboat apparently sank while they were fishing on a lake. According to local authorities, the boat was poorly equipped, having only a small trolling motor for power. A storm blew up on the lake late in the afternoon as the Soldiers were preparing to head to shore.

A third Soldier died when the pontoons on his inflatable personal pontoon boat separated while he was fishing on a reservoir. The Soldier attempted to swim back to the pier but drowned. A fourth fatality happened when two Soldiers ignored beach hazard warnings and set out in a two-man kayak. When the kayak capsized, one Soldier drowned when he got caught in a strong current. The other Soldier survived, struggling against the current to make it back to shore.

A quick review of drowning accidents going back to fiscal 2002 shows June, July and October are the months with the greatest number of drowning fatalities. The most frequent hours for these accidents are 1 p.m., 5 p.m. and 9 p.m. Nearly one-third of the Soldiers who died were 20 to 22 years old. Enlisted Soldiers accounted for nearly 90 percent of the fatalities, with high numbers recorded as privates, specialists and sergeants. Contributing factors often included not wearing a PFD, alcohol use and rough water or strong currents. The five states with the greatest number of Army off-duty drowning fatalities were, in order: Texas, Hawaii, Georgia, New York and Washington.

Although drowning ends a Soldier's life, it's not the only danger Soldiers face in the water. Since June 2005, four Soldiers have ended up paralyzed from the neck down after diving headfirst into shallow water. Considering two of these Soldiers were in their early 20s and one was only 30 years old, they will spend most of their lives unable to enjoy many of the simple activities most people take for granted. That is a high price to pay for overlooking a hazard.

Bottom line—enjoy the water, but be smart enough to consider all the risks. Never assume being a good swimmer means you can skip wearing a PFD. Never assume there's no risk because you can't immediately see any. Know the depth of any water before you dive into it, and pay attention to hazard warning signs on beaches.

What Kind of Example?

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

What kind of example do you set for others when making decisions affecting safety? Would you feel good if someone you cared for followed your footsteps?

Friday was a good day for the Soldiers recently assigned to the unit's rear detachment. They were well into spring and the weather was pleasant as they contemplated the three-day weekend. Better yet, the unit would release them early this day—extending their weekend further.

For eight young Soldiers, fun wasn't that far away. It was only an hour drive to a popular coastal resort island, so they agreed to drive there on Sunday. When Sunday afternoon came around, the Soldiers headed out in three cars. Two cars left the post at about 4 p.m. and headed directly to the island. The third car left about 30 minutes later with the Soldiers stopping en route for dinner. It was about 7:30 p.m. when they met their friends in a parking lot on the island.

The Soldiers hung around for about 20 minutes and then decided to return to their barracks. The highway back toward post offered one lane in each direction with occasional short passing zones where the road was widened by an additional lane on the right. These passing zones allowed slower traffic to move out of the way to allow faster vehicles to pass them. The Soldiers were driving one behind the other while following a pickup truck. Deciding to pass the pickup truck, the Soldiers driving the first two cars illegally crossed the double-yellow line and passed the pickup truck. Moments later, the vehicles entered a passing zone, and the pickup truck pulled into the right lane. The road ahead was now open for the Soldier operating the third vehicle to pass the pickup. Seeing his buddies ahead in the right lane, the Soldier accelerated his Chevrolet Camaro to more than 90 mph to catch up.

The Camaro was quick and rapidly caught up to the other Soldiers' cars. Unfortunately, what none of the Soldiers knew was that time and space were running out. Unfamiliar with the road, they didn't realize the passing zone was less than a mile long before all traffic was forced to merge into one lane. The driver of the Camaro was about to overtake his buddies when they were forced to merge left—swerving in front of him and cutting him off. Trying to miss his buddy's car ahead, the Camaro's driver hit his brakes and steered toward the right shoulder. But he turned too sharply, and the car spun out of control in a clockwise motion. The Camaro slid sideways off the road and slammed into a high-voltage utility pole, which hit the driver-side door and tore half-way through the car and immediately killed its 22-year-old driver and his 19-year-old passenger.

The Soldiers in the lead vehicles saw what happened and stopped. One called 911 while the other ran back toward the accident. A volunteer firefighter who'd stopped at the crash warned the Soldier away because the utility pole's power lines were hot and could fall. Although police and emergency medical services reached the scene within minutes, they couldn't approach the car because of the power line danger. When rescuers finally reached the car, they had to cut it open to remove the driver and passenger.

Why did this accident happen? There are several reasons and they involve the actions of not only the driver, but his friends and leaders as well.

> "**LEADERS** must **SET** the right example by **ENGAGING** in their **SOLDIERS' SAFETY**, ensuring they're properly trained and meet **SAFETY STANDARDS**."

First, the Soldier not only exceeded the speed limit, he also drove beyond his ability. The Soldier's lack of discipline behind the wheel was no secret, as recorded in his driving history. Two years before the accident, he'd been cited for driving 106 mph in a 55-mph zone, which led to officials revoking his license. He had his license back for about a month before this fatal crash.

Second, the other Soldiers helped set him up for a fall. Their speeding and illegal passing might have encouraged him to drive recklessly. Tragically, after getting him to race, they cut him off and forced him off the road. The senior Soldier involved that day was driving the lead vehicle. Rather than setting a positive example, he helped set up a younger Soldier to be a "fallen comrade."

Third, although leaders weren't held at fault for this accident, they didn't do all they could have to prevent it. For example, they didn't ensure the Soldier had his vehicle inspected before the long weekend. As a result, no one identified the badly worn left-rear tire on the Soldier's car. The lack of tread on the tire may have hindered the Soldier's ability to regain control of the vehicle when it began to skid. Also, the Soldier didn't receive the unit-sponsored safety orientation within 72 hours of reporting for duty, which is a requirement the unit failed to meet for that Soldier and the others involved in this accident. A look at unit organization revealed that leadership assigned a junior noncommissioned officer as the platoon sergeant. As such, leadership assigned him responsibilities and tasks beyond his experience and capability. Other junior NCOs reporting to the unit performed squad leader duties. Unfamiliar with the commanding general's safety message, they couldn't explain it to their Soldiers.

So what's the fix for these problems? Much of the answer has to do with setting the right example. Leaders must set the right example by engaging in their Soldiers' safety, ensuring they're properly trained and meet safety standards.

"Battle buddies" must set the right example by protecting each other. When Soldiers lead each other to take needless risks, they're not saving a "fallen comrade"—they're creating one.

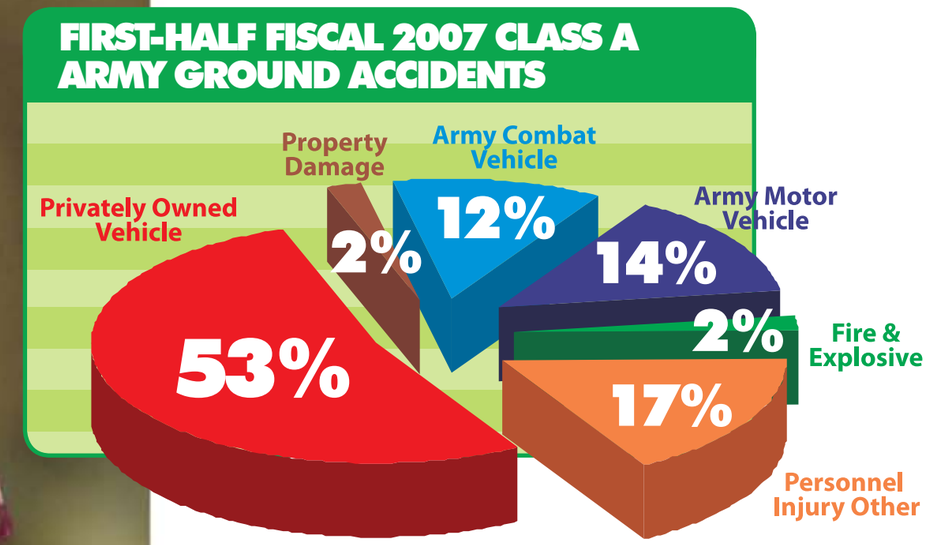
Soldiers must understand that speed limits save lives, and they can make more of an impact by setting the right example by obeying the law. Passengers must be willing to speak up when a driver is acting dangerously. The passenger in this accident was intoxicated and didn't speak up. Unable to help prevent the accident, he became one of its casualties.

Army ground accidents and fatalities as a whole for the first half of fiscal 2007 are down from last year's numbers. While that's certainly great news, there's still plenty of room for improvement, especially in the area of Army Combat Vehicles, where there was a significant increase in accidents and fatalities. Let's look back and see what's taking the lives of our Soldiers and damaging Army equipment so we can learn from these costly lessons and move forward.

HALFWAY THERE IN '07

FISCAL 2007 GROUND MIDYEAR ACCIDENT REVIEW

MARY ANN THOMPSON
U.S. Army Combat Readiness Center
Fort Rucker, Ala.



as of June 1, 2007

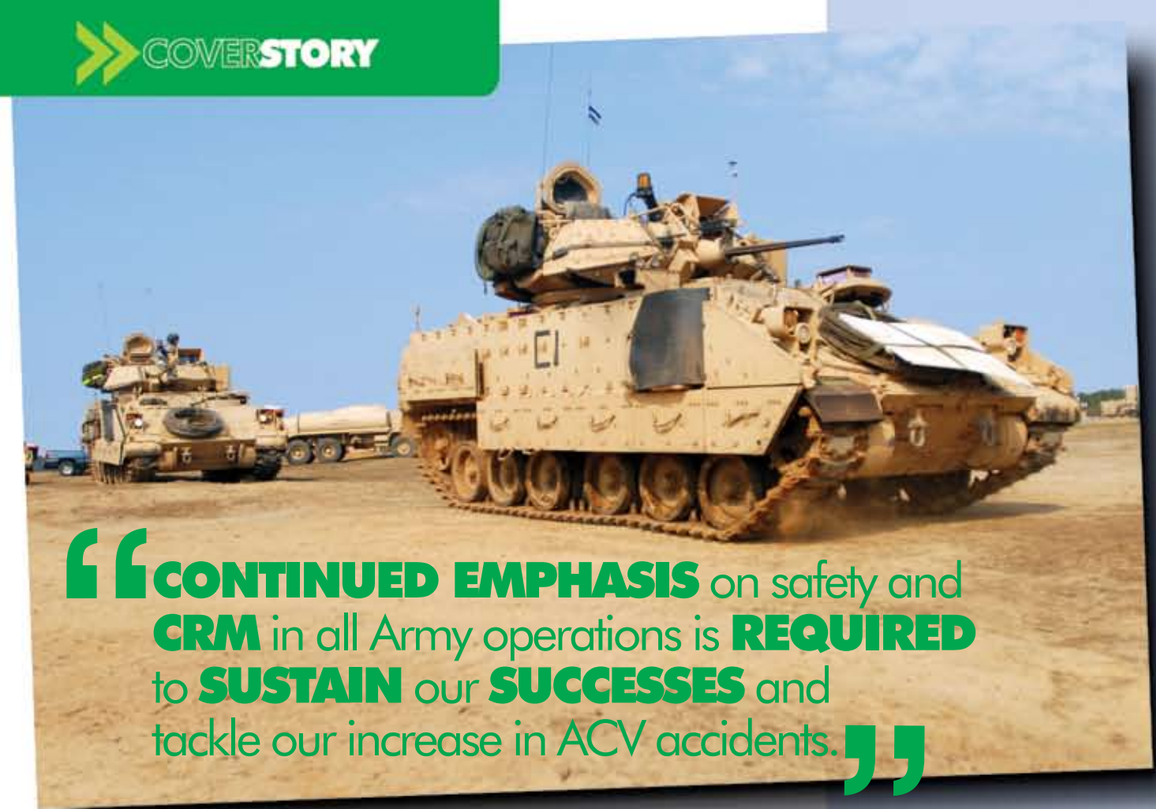
For the first half of fiscal 2007, the Army experienced 103 Class A ground accidents, resulting in 93 Army military fatalities. This is slightly down from the 113 Class A ground accidents and 105 fatalities for the first half of fiscal 2006. As can be seen in the graphic, 55 of the Class A Army ground accidents occurred in privately owned vehicles, 18 were Personnel Injury–Other accidents, 14 were Army Motor Vehicle accidents and 12 were ACV accidents. Of all the Class A accidents, 25 occurred during Operation Iraqi Freedom or Operation Enduring Freedom.

Army fatalities for the first half of fiscal 2007 followed the same pattern as Class A accidents for the same time period. POV accidents accounted for 54 fatalities, PI-O accidents accounted for 17, AMV accidents accounted for 15 and ACV accidents accounted for seven. The chart above is a breakdown of each accident area. The article "How Are We Doing?" on page 5 of this issue discusses POV and off-duty personnel injury accidents during this time frame.

Personnel Injury Other Accidents

The Army had 18 Class A PI-O accidents in the first half of fiscal 2007, resulting in 17 fatalities. This was down from the 23 Class A accidents and 24 fatalities for the first half of fiscal 2006. Of this fiscal year's PI-O accidents, 15 occurred off duty, while three occurred on duty.

The three on-duty PI-O accidents resulted in three fatalities, compared to 12 Class A accidents and 13 fatalities for the same time period last year. This year's on-duty fatalities included a Soldier who was a passenger onboard a U.S. Marine Corps aircraft that crashed into a lake, a Soldier who became ill while participating in a physical training test and a Soldier who was believed to have been killed by friendly fire. Two of these fatalities occurred during OIF/OEF.



"**CONTINUED EMPHASIS** on safety and **CRM** in all Army operations is **REQUIRED** to **SUSTAIN** our **SUCCESSES** and tackle our increase in ACV accidents."

Army Motor Vehicles

During the first half of fiscal 2007, there were 14 Class A AMV accidents, resulting in 15 fatalities. This number is also down from the 24 Class A accidents and 23 fatalities during the same time period in fiscal 2006. Nine of this year's Class A accidents occurred during OIF/OEF, resulting in 13 fatalities.

The majority, 10, of the AMV accidents occurred in tactical vehicles. The HMMWV was once again the most frequently reported accident AMV with six Class A accidents. Accidents in HMMWVs accounted for nine AMV fatalities in fiscal 2007. This was half the number of fatalities for the same time period last year.

Of the fiscal 2007 HMMWV accidents, four occurred during OEF/OIF, resulting in seven fatalities. The M1114 HMMWV accounted for three of the HMMWV accidents and six of the fatalities. Five of the HMMWV accidents involved rollovers, three of which involved the M1114 HMMWV.

Army Combat Vehicles

There were 12 Class A ACV accidents during the first half of fiscal 2007, resulting in seven fatalities. These numbers were up from the five Class A accidents and two fatalities for the same time period last year. The most frequent vehicles involved in this fiscal year's accidents were Bradley Fighting Vehicles with eight. These accidents accounted for three fatalities.

Of the fighting vehicle accidents, three vehicles overturned into canals/water, resulting in two fatalities. In two of these accidents, the ground gave way as the vehicle was operating near the canal. In the other accident, the vehicle's track slipped off the road as it was crossing a bridge.

Another Class A accident occurred when a fighting vehicle struck a tree, which then fell on the Soldier in the turret and caused a spinal fracture and paralysis. In another accident, a Soldier was fatally injured when he was pinned between a stationary fighting vehicle and the one he was ground guiding. The remaining Class A fighting vehicle accidents occurred when the operator of the vehicle, while performing a night patrol, lost control and veered off the road. The vehicle overturned into a ditch, causing Class A damage. Two other fighting vehicle accidents involved vehicle fires. Of this year's ACV accidents, 10 occurred during OIF and accounted for six fatalities.

Explosive and Fire Accidents

Explosive and fire accidents accounted for two Class A accidents during the first half of fiscal 2007. There was one fire and one explosive accident, the same number as for the same time period last year. One U.S. contract employee suffered fatal injuries and two others were seriously injured in this year's explosive accident when a 155 mm round detonated while being stacked at an ammunition supply point. The fire accident occurred when Soldiers were attempting to burn latrine waste and the fire spread out of control and damaged Army equipment.

Conclusion

Review of accident data for the first half of fiscal 2007 shows an overall decrease in Class A accidents and fatalities. Engaged leaders and Soldiers are making a difference. We have reduced the number of AMV and PI-O accidents and fatalities, while explosive and fire accidents held steady.

Although some improvement has been made, there is still a lot of work to be done. Class A ACV accidents have more than doubled since last year, while fatalities in ACV accidents have more than tripled. These accidents most frequently involved Bradley Fighting Vehicles. Leaders and Soldiers should look for ways to increase involvement and integration of composite risk management into ACV operations.

Continued emphasis on safety and CRM in all Army operations is required to sustain our successes and tackle our increase in ACV accidents. The U.S. Army Combat Readiness Center has developed a number of tools that are easy to access and use to help Soldiers and leaders manage risks. Visit the USACRC's Web site at https://crc.army.mil to find these valuable tools that will keep you Army Safe and Army Strong! «

Editor's Note: These statistics are current from the Army Safety Management Information System as of June 1, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of June 1, 2006. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.

WHAT YOU DON'T KNOW CAN HURT YOU

COL JOHN CAMPBELL, D.O.
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

Everyone wants to look good. But what price are you willing to pay for more reps, a higher max on your bench or six-pack abs? In an effort to boost workouts or improve their appearance, some Soldiers are turning to supplements and other performance enhancers. Unfortunately, a lot of these products on the market can be harmful, even deadly. What you don't know CAN hurt you!

You might be surprised at the number of empty cans of supplements found in our Soldiers' trash cans or outside recreation areas. Some of these products might guarantee big gains in your weightlifting routine, while others lure consumers with the promise of quick weight loss or increased energy. Truth be told, many of these "miracle cures" offer nothing but empty promises and maybe a trip to the emergency room.

Generally, manufacturers don't need to register their products with the Food and Drug Administration or get FDA approval before producing or selling dietary supplements. They must, however, ensure the product label information is truthful and not misleading. While this looks good on paper, some advertisements and word of mouth can be misleading and misinforming.

Some dietary supplements marketed for performance enhancement and weight loss, as well as some over-the-counter products such as cold or allergy remedies, can be harmful when ingredients are combined. Some particularly risky combinations include mixing products containing caffeine with products containing ephedra or ephedrine-like substances and aspirin. A number of new "energy" drinks also have potentially harmful substances when used in excess or as the only source of nutrition.

Possible side effects from such combinations include high blood pressure and abnormal heart rhythms. Mixing these substances may also put you at greater risk of becoming a heat casualty because they can cause dehydration. Caffeine-containing substances include guarana, coffee, cocoa, green tea, black tea, oolong tea, cola nut and mate. Ephedrine-like substances include many cold remedies (pseudoephedrine), bitter orange/citrus aurantium (synephrine), country mallow, heartleaf and ma huang. Despite the fact that ephedrine supplements have been banned for sale in the United States, these products are still available internationally and can be purchased illegally stateside.

Reading the labels of all purchased dietary supplements and cold remedies is critical. Soldiers should avoid products such as Lipo 6, Speed Shot, Blaze and Nitro Shot, as they contain significant amounts of caffeine in combination with herbal mixtures. Soldiers also should consider the caffeine content of any foods and beverages they consume in addition to any supplements.

Officials recommended avoiding dietary supplements and other self-care products containing combinations of ephedrine-like compounds, caffeine-containing substances and aspirin. Soldiers also should ensure their healthcare provider is aware of what dietary supplements and other self-care products they are using. Individuals taking these substances should maintain hydration by drinking adequate fluids.

Leaders need to be aware of what their Soldiers are putting into their bodies by staying engaged in all aspects of their on- and off-duty activities. Staying engaged and keeping Soldiers healthy helps keep our Army Strong!

FYI

Visit the Army Knowledge Online "HOOAH Bodies" Web page at https://www.us.army.mil/suite/portal/index.jsp for more information. The site is designed to assist Soldiers with improving their health and performance and provides real-time classes, presentations and dietary supplement alerts. An AKO username and password is required to enter the site. Check out the National Institute of Health's Office of Dietary Supplements at http://dietary-supplements.info.nih.gov/ for additional information.

Heat injuries are a reality the Army must be prepared for and take measures to prevent. Overall, Army members do this very well considering the environmental conditions they face in Iraq and Afghanistan. Temperatures of 130-plus degrees create conditions that are hazardous to everyone exposed to them. The unfortunate part of this story is that the vast majority of the heat-related fatalities occur far from the battlefield. Most happen during training in what should be controlled environments. Five fatalities in the last five years have come during simple land navigation courses—exercises that should be completely controlled by the chain of command.

NAVIGATING THE HEAT

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

At the time this article was written, a U.S. Army Combat Readiness Center accident investigation team was at a major Army installation investigating a heat-related fatality. Unfortunately, the Soldier died the same way several other Soldiers over the last few years have died—trying to complete a record land navigation course. As of June 26, 2007, the investigation into this accident is still ongoing. The details are incomplete, but there is a trend that does not depend on the analysis of this investigation.

> "**FIVE FATALITIES** in the last **FIVE YEARS** have come during simple land navigation courses—exercises that **SHOULD BE COMPLETELY CONTROLLED** by the chain of command."

Since July 2002, the Army has lost four Soldiers, not including the current investigation, to heat injuries during land navigation courses. That's an average of one death per year. The current accident and one earlier this year, along with another in 2005, occurred during the Warrior Leader Course, formerly known as the Primary Leadership Development Course. The other two accidents occurred during training where the Soldier was separated from his parent unit preparing for deployment or an advanced qualification course.

A "for record" land navigation course presents unique risk management challenges that are different from almost every other situation leaders face. By definition, the exercise takes small-unit leaders and the buddy system out of the possible controls available to ensure Soldiers comply with hydration and work-rest cycles. By design, Soldiers are sent out alone with only sporadic contact with others as they move from point to point. The Soldiers, usually very junior noncommissioned officers and officers, are generally highly motivated, unwilling to give up and intent on successfully completing the exercise. This motivation, along with the individual nature of the task, sometimes conspires to lead Soldiers to forget the safety briefing, the Lost Soldier Plan or the hydration plan.

All four of the earlier accidents happened between May and August on installations that are notorious for hot summers. The entries in the database for each heat fatality indicate the heat index, driven by the wet-bulb, was category IV or V. These conditions normally call for limited duty and specific work-rest cycles. For example, if you were to consider a land navigation course to be moderate work (walking between 2.5 and 3.5 mph with a light load), Army guidance calls for a work-rest cycle of 30 minutes of work and 30 minutes of rest each hour under category IV conditions.

Everyone who has ever done a land navigation course knows you can't rest for half the time allowed and still complete the course. Category IV conditions also call for consumption of one quart of water per hour. Soldiers often head out on three- to four-hour exercises with only two quarts of water. So what are we to do? Most organizations go to great lengths to ensure enough water is available, there is a detailed Lost Soldier Plan and leaders rove throughout the training area while the students are on the course. Despite these efforts, we still lose one Soldier each year during these exercises.

The U.S. Army Center for Health Promotion and Preventive Medicine provides some excellent guidance for preventing heat injuries. The CHPPM Web site at chppm-www.apgea.army.mil/heat/ provides everything from Army-level guidance to pocket resources for leaders. Below are some considerations that might help prevent the next "land nav" fatality.

Start early. All four of the Soldiers in the earlier accidents became unaccounted for in the afternoon, when temperatures were at their highest. By starting three hours earlier, the Soldiers could have avoided the category IV or V heat conditions. While programs of instruction and training schedules often seem inflexible, take the time to make the changes.

Thoroughly review the health of your Soldiers. This review should occur on at least two levels. First, before a Soldier goes to a course that will include exposure to heat, his chain of command should thoroughly review each Soldier's medical fitness. They should then inform the cadre at the school of any irregularities that might affect the Soldier's ability to cope with extreme weather conditions. Second, and this is the harder one, Soldiers must not hide medical conditions from the chain of command. Soldiers should inform cadre staff if they're ill, taking medications or have had a prior heat injury. While none of us want to be identified as whiners, if you have a previous heat injury, high blood pressure or any other condition that affects your ability to deal with heat and humidity, tell someone. At least two of these five Soldiers who suffered fatal heat injuries had conditions that put them at higher risk than their contemporaries. The cadres did not know of these conditions.

Acclimate. The CHPPM Web site and Field Manual 21-20, *Physical Fitness Training,* discusses acclimatization for Soldiers, and following the guidance there will help prevent heat injuries. However, don't assume that because a Soldier is assigned to Fort Polk, La., that he's fully acclimatized. A supply sergeant at Fort Polk who does physical training every morning and then spends the day in an air-conditioned supply room is not acclimated. It takes up to two weeks to become acclimated.

Don't depend on the individual. Despite the fact the Soldiers discussed above were at least sergeants and normally would be considered leaders, Soldiers are "lone Soldiers" when they go out alone. Lone Soldiers are prone to individual mistakes and often don't recognize their own limitations as they press to ensure they finish on time and on target. Evaluate your plan to ensure individual mistakes made by Soldiers wearing the insignia of leaders are accounted for.

Leaders in our Army must know how to navigate to lead their units in combat. Basic land navigation is a skill we must ensure leaders have, and the individual "for record" land navigation course is what the Army developed to teach that skill. That being the case, it's up to the leadership that sends Soldiers out onto the course to take every action possible to ensure their safety.

Of course, some people might dismiss this and say, "It's always Cat V in Iraq." For several months each year, that's true. But in Iraq, no Soldier goes out alone. There are always Soldiers ensuring another's safety. On a land navigation course, a Soldier is out there alone. We must shape the situation to ensure a Soldier's individual mistakes don't have catastrophic results.

Although commanders and supervisors are responsible for heat injury prevention, every Soldier can also do his or her part by using the buddy system. Each Soldier should be an extra set of eyes and ears for the supervisors and commanders. All heat injuries—on the battlefield or in a training environment—are preventable, but like everything else, a team effort is always the best way to "navigate the heat."

LET'S CHECK OUR PROGRESS

FISCAL 2007 AVIATION MIDYEAR ACCIDENT REVIEW

CHARISSE LYLE
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

The Army continues to deploy many of its Soldiers in high-risk operations, particularly in support of the Global War on Terrorism. This has an effect on the accident reports filtering into the U.S. Army Combat Readiness Center. Therefore, this article will concentrate on a review of only Army Aviation Class A and B accidents.

During the first half of fiscal 2007, Army Aviation experienced 14 Class A and B manned aircraft accidents, a decrease from last year's 27. There were 12 Army Soldiers, one Air Force Airman and one Department of Army Civilian killed in these accidents, which cost more than $44 million. Four of the 14 accidents occurred in the Central Command area of operations, with one in Korea. The majority of these accidents (64 percent, or nine) occurred in CONUS. The chart on page 21 compares the number of accidents and fatalities for each aircraft type involved. Details of these accidents follow.

AH-64 Apache

The Apache community accounted for three accidents during the first half of fiscal 2007: one Class A that resulted in two Army military fatalities and two Class B incidents.

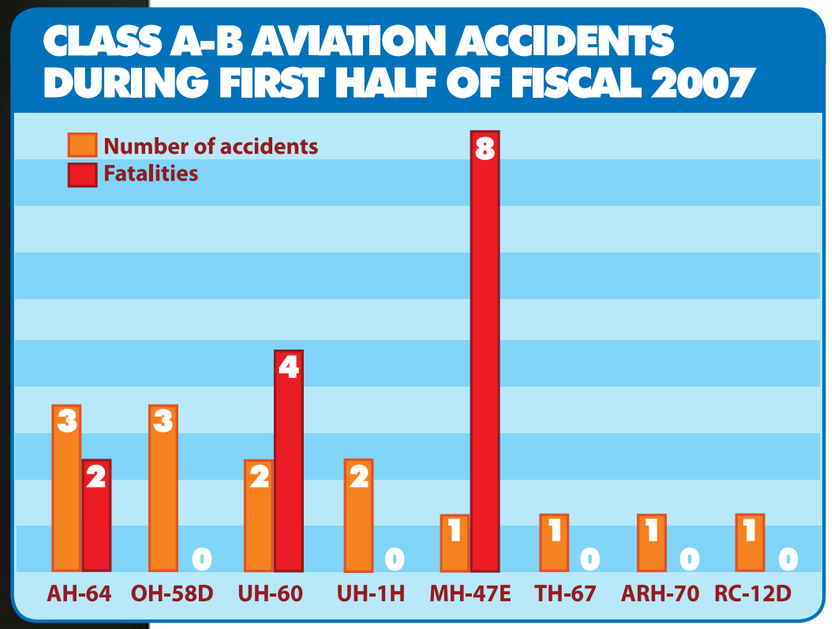
The Class A accident aircraft was Chalk 2 in a flight of two Apaches in Iraq at night. The flight attempted to return to base from the forward arming and refueling point after completing a night combat reconnaissance and security mission. The pilot in command of Chalk 2 asked lead to turn around because of decreasing visibility. The lead aircraft began a left turn and Chalk 2 followed. The Chalk 2 pilot was on the controls and initiated the left turn. About halfway through the turn, the PC asked for and assumed the controls. It is suspected that the PC experienced spatial disorientation during this turn. After relinquishing the controls, the PI never monitored the PC's actions nor alerted him to the rate of descent and bank angles in sufficient time to prevent impact. The aircraft continued to descend in a left turn and impacted the ground, destroying the aircraft and fatally injuring both pilots.

The two Class B accidents involved engine overspeeds, one reportedly as a result of materiel failure and the other as a consequence of maintenance error. Concerning the materiel failure, the crew reportedly received a HIGH ROTOR indication on final approach, followed by a No. 2 engine-out audio indication. Inspection revealed transmission and main rotor system damage. The second accident occurred because a mechanic omitted a step in the engine reinstallation procedure which was not detected by the technical inspector. This subsequently resulted in an overspeed condition during a ground run that could not be arrested by the crew and caused the aircraft to pitch and roll.

OH-58D Kiowa Warrior

The KW community was involved in one Class A with no fatalities and two Class B accidents during this timeframe.

- The lead OH-58D(R) of a Scout weapons team was conducting a night convoy security patrol when they experienced an engine malfunction, descended rapidly and crashed. Both crewmembers sustained major injuries. The PC's delayed response to the engine malfunction, coupled with the lack of assistance from the PI, increased the severity of aircraft damage and injuries.
- An OH-58D(R) broke through the ice during a precautionary landing on a frozen body of water, resulting in structural aircraft damage but no reported injuries.



as of June 5, 2007

- An OH-58D(R) incurred an overtorque condition (a reported NP indication of 140 percent for three seconds) during an out-of-ground effect hover.

UH/MH-60 Black Hawk

During this timeframe, the Black Hawk community was involved in two Class A accidents in CONUS, resulting in four fatalities.

- Three Soldiers were fatally injured when their UH-60 struck the side of a mountain and crashed. The crew was performing single-aircraft visual flight rules night vision goggle currency training when they encountered heavy snow showers mixed with rain. The aircraft descended to 1,100 feet and crashed into a heavily wooded, 45-degree slope. It was concluded that the crew failed to maintain VFR minimum requirements and, after encountering instrument flight rule conditions, failed to properly perform inadvertent instrument meteorological conditions recovery procedures. There was a sense of urgency to complete the flight because one of the pilots would become noncurrent for NVGs in one day.
- While on a basic combat skills training flight, the pilot attempted to conduct a roll-on landing during his first flight in the left seat. The approach was too fast and the aircraft was not properly aligned with the runway. On touchdown, the aircraft landed hard and the main rotor flexed down and struck the tail rotor driveshaft, causing loss of aircraft control. The aircraft was destroyed in the subsequent crash sequence and the Department of the Army Civilian instructor pilot received fatal injuries.

CH/MH-47 Chinook

The Chinook community had one Class A during this timeframe: an MH-47E engine failure in theater. The aircraft was Chalk 3 in a flight of three conducting a night troop movement when it incurred an engine failure. The crew slowed the aircraft, intending to achieve single-engine airspeed. It is suspected they became distracted in the cockpit and allowed the aircraft to slow below sustainable single-engine airspeed. The rotor RPM began to droop and the aircraft fell almost vertically to the ground. The aircraft was destroyed, eight occupants were killed (seven Army and one Air Force) and 14 passengers were injured. The flight had encountered unforecasted, deteriorating weather and was executing IIMC breakup procedures before the engine failure.

UH-1 Huey

The Huey community was involved in one Class A wire strike and one Class B dynamic rollover during touchdown in a confined area.

- The wire strike occurred while on a day personnel movement mission in mountainous terrain. The aircraft was flying about 350 feet above ground level and 60 knots when it struck a set of wires while approaching the crest of a hill. The PC began an autorotative descent with power. As he applied collective at approximately 40 feet, the aircraft yawed right, impacted the side of the hill and came to rest upright. One pilot and one passenger were seriously injured. The crew had been flying below the published minimum safe altitude without using a hazards map.
- During a day single-ship training mission, a UH-1H reportedly overturned upon landing to a confined area during a training iteration.

TH-67 Creek

The TH-67 was involved in one Class B accident. During the termination of a standard autorotation, the aircraft reportedly yawed and landed hard.

ARH-70 Armed Reconnaissance Helicopter

During the initial test flight, the crew experienced a fuel pressure low warning signal, followed by an engine failure. The crew executed an autorotation, but upon ground contact, the aircraft overturned and incurred major damage. There were no reported injuries.

Fixed Wing

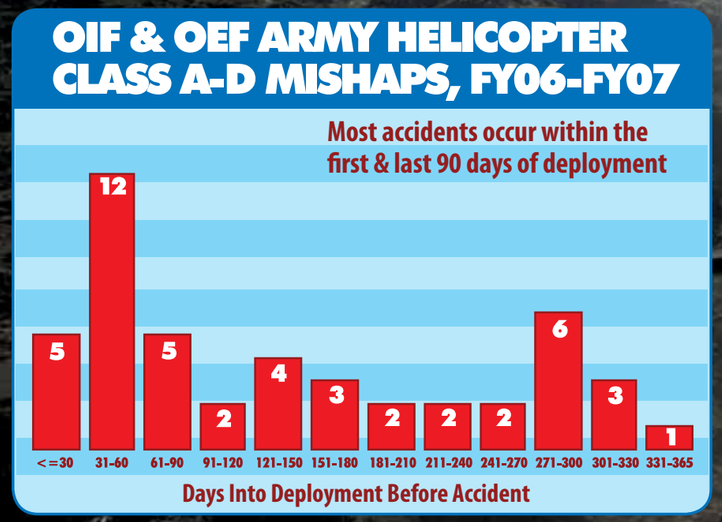
The fixed-wing community experienced one Class A accident involving an RC-12D landing gear failure. While preparing for landing, the crew noticed a landing gear unsafe light indication and executed emergency procedures. Initial contact with the airstrip was uneventful; however, slightly past 1,000 feet, the right main landing gear collapsed. No injuries were reported.

Summary

Statistically, we are doing better this fiscal year than last; however, the loss of any life is a tragic event, whether it occurs while engaging the enemy or as a result of an accident. A breakdown in crew coordination contributed to two of the accidents. In both cases, the pilot not on the controls did not assist the pilot on controls during an in-flight engine failure. There were four reported engine failures, all involving different aircraft. Five lives were lost and two aircraft were destroyed due to IIMC.

Ultimately, accidents seriously impact our ability to fight and win this war on terrorism. The fact that we lost 14 people clearly reinforces that aviation is an inherently dangerous profession where military and civilian personnel willingly put themselves in harm's way every day to protect America's freedom. Engaged leadership, good composite risk management practices and better aircrew coordination can have a positive effect on reducing aviation accident rates. Army Safe is Army Strong!

Editor's note: These statistics are current from the USACRC database as of June 5, 2007. The fiscal 2006 statistics describe the 1st and 2nd quarter accidents reported as of June 5, 2006. Delayed reports and follow-up details on preliminary reports could change the statistics, figures and findings.



NO MARGIN FOR ERROR

U.S. ARMY COMBAT READINESS CENTER
Fort Rucker, Ala.

The technological advances in the cockpit of today's aircraft place great demands on crewmembers. The volume of information bombarding the senses during night combat operations can be overwhelming. Add to this the volume of information an actual in-flight emergency can impose, and the crew can quickly fall behind the aircraft.

During an Operation Iraqi Freedom combat mission, the lead aircraft was one of two OH-58D(R) aircraft providing convoy security support. Approximately 3.2 hours into a four-hour mission, the lead aircraft experienced a catastrophic internal engine component failure. The trail aircraft, located about one kilometer to the left rear, observed under night vision goggles what appeared to be flashes of red light, which they believed was the anti-collision light of the lead aircraft.

In reality, the flashes were coming from the lead aircraft's malfunctioning engine. As the engine RPM began to decrease, the full authority digital electronic control system attempted to maintain and increase the RPM back to its normal operational range. Several surges of turbine gas temperature were generated due to the increase of fuel supplied to the combustion section at the onset of the malfunction. The air mission commander, flying trail and approximately 100 feet higher than the accident crew, attempted to contact the lead aircraft to determine why they had changed their lighting configuration. Receiving no response, they then watched the lead aircraft descend rapidly to the ground.

Electronic source collection data indicated the aircraft decelerated at approximately 130 feet above ground level and the nose pitch attitude reached 33 degrees. The aircraft initially contacted the tail stinger, causing the main gear to impact in a near-level, nose-down attitude. The left skid tube assembly and the M-296 .50-caliber weapon system dug into the soft ground, compressed and spun the aircraft to the left about 170 degrees. The main fuel tank ripped from the airframe as it broke open. The vertical fin assembly and the tail rotor gearbox assembly separated from the aircraft as the tailboom folded along the left side. The cockpit airbag system deployed and the right side lateral airbag was collapsed by fuselage wreckage debris during the crash sequence. The aircrew living space was compromised and the cockpit dashboard collapsed onto the crew, crushing the pilot in command's left leg.

Lessons learned

A timely and correct response to an engine malfunction in the OH-58D is critical to aircrew survival. The airspeed and altitude of the lead aircraft at the onset of the malfunction was 98 knots indicated airspeed and 325 feet AGL, which put the accident aircraft in the "safe area" in accordance with Figure 9-2 of Technical Manual 1-1520-248-10, Height Velocity Diagram. The warning on the height velocity chart states "collective delays used to establish this chart varied from no delay to a maximum of 1.0 seconds, which is significantly less than the two-second delays normally used to establish height velocity diagrams." The engine lost self-sustaining speed in five seconds (gas producer speed dropped below 55 percent +/-3 percent) from the onset of the malfunction. The engine data indicated a flameout at four seconds. The PC, in the right seat, did not change collective position for six seconds following onset of the malfunction, which caused the main rotor speed to decrease rapidly from 101 percent to 58 percent during that delay. The accident investigation board suspects the crew was confused by the conflicting low rotor warning indications while TGT kept climbing to maximum. Rotor available at impact was 50 percent NR with an approximate rate of descent of 3,000 feet per minute.

Since there is no compatible synthetic flight training system for the OH-58D, it is imperative that aviators practice Aircrew Training Manual Task 1074, Respond to Engine Failure at Cruise Flight, as often as possible. This task must be trained and evaluated while using NVGs and the maneuver must be performed as a power recovery before 200 feet AGL and a termination with power 3- to 5-feet AGL to develop an instinctive response to in-flight engine malfunctions. Aviators need to practice good aircrew coordination techniques during emergency procedures training to ensure all members perform their duties properly during an actual in-flight emergency.

GUARDING CITIZEN SOLDIERS WHO RIDE

CW5 MAX DRY
North Carolina Army National Guard

North Carolina offers some spectacular opportunities for motorcyclists who want to feel the road and enjoy breathtaking scenery. Few roads can match the "Tail of the Dragon" at Deal's Gap, N.C. But the 11 miles of U.S. Highway 129, punctuated by 318 twists and turns, can bite along with many other roads when motorcyclists are unwary.

Many of the state's 158,000 registered riders also serve in the North Carolina National Guard. For some of them, May 2005 wasn't a good month. A disturbing increase in motorcycle accidents caught the attention of state Guard safety leaders. Seeing a negative trend, they decided to come up with a positive answer.

Under the leadership of LTC John Mullinax, Army National Guard state safety manager, and Senior Master Sgt. Allen McGaha, Air National Guard state safety NCO, the North Carolina National Guard decided to train 10 Motorcycle Safety Foundation-certified Rider Coaches. Guardsmen from both the Army and Air National Guard attended a two-week training course at facilities in Badin, N.C. The training included both classroom training and hands-on riding experience. Each guardsman completing the MSF Basic Rider Course also learned to teach the course and, in the process, earned their Rider Coach certification. Beyond training Rider Coaches, the Guard also scheduled MSF Experienced Rider Course classes for guardsmen who wanted to expand their riding skills.

According to LTC Mullinax, these courses have made the North Carolina National Guard's safety program the most proactive safety program in the state. He added that attendance has been high, with Soldiers and Airmen expressing positive feedback. The training, in cooperation with the North Carolina Highway Patrol and the North Carolina Motorcycle Safety Education Program, allows riders to earn the waiver needed for a motorcycle endorsement on their licenses. Additionally, guardsmen who complete the Experienced Rider Course can use their certification card to register their motorcycles on military posts. As another plus, they're also given a highly visible riding vest that meets the standards of all military installations.

The training is provided at no cost to guardsmen to encourage their participation. Classes are taught at four locations throughout the state, with the maximum class size being 12 students. The classes are popular and typically fill up quickly.

LTC Mullinax said concerned leaders can help reverse the upward trend in motorcycle accidents by taking a positive approach and supporting MSF training and mentorship programs. He said the state Guard's goal is to ensure its Soldiers and Airmen safely enjoy riding for many years to come. For more information on the MSF Basic *RiderCourse*SM, e-mail knowledge@crc.army.mil.

KNOWLEDGE IS THE SUM OF ALL OUR EXPERIENCES!

PAULA ALLMAN
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

History repeatedly proves that lessons learned through personal experiences and eyewitness accounts provide a wealth of mishap prevention information. Unfortunately, most of this information remains unknown, except to those directly involved in the accidents. To enhance our knowledge and yours, tell us your personal experiences and the things you've seen or heard that taught you some valuable safety lessons. Anything that has helped you can help others—provided you share the knowledge.

We also encourage you to send photographs that can enhance or clarify what you saw, heard or experienced. Please e-mail them, along with your story, to knowledge@crc.army.mil. You'll receive full credit for anything we publish unless you specify that you'd like to remain anonymous. Additionally, include appropriate contact information such as your e-mail address and telephone number so we can contact you if necessary to clarify any facts.

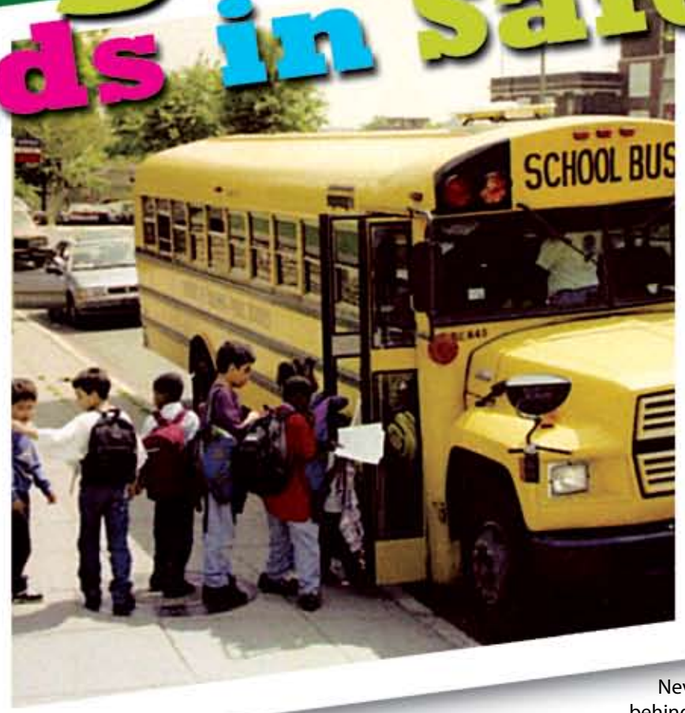
We look forward to hearing from you soon!

CRM TRAINING DEADLINE APPROACHING

The Secretary of the Army and Chief of Staff, Army, Safety and Occupational Health Objectives for fiscal 2007, dated Oct. 13, 2006, require all Soldiers and Army Civilian employees to complete the Composite Risk Management Basic Course. Soldiers and Army civilians must do so no later than Sept. 30, 2007. The CRM Civilian Basic Course is one of several courses identified by the Director of Army Safety that will satisfy this training requirement. Though Army civilians support Soldiers, that support is hindered when they are injured or killed while participating in high-risk or unsafe activities. The CRM Civilian Basic Course teaches Army civilians how to identify hazards and mitigate risks whether they're on or off duty. The CRM Civilian Basic Course is now available through the Combat Readiness University Web site. The course takes about one hour to complete; however, viewing supplemental information (links, rollovers, etc.) and server speed can extend the course completion time. Visit https://safetylms.army.mil/courses/c1946/eoc.asp to access the CRM Civilian Basic Course through the Combat Readiness University Web site. Army Safe is Army Strong!

"Schooling" Your Kids in Safety

FRANK McCLANAHAN
U.S. Army Combat Readiness Center
Fort Rucker, Ala.



As summer draws to an end, children are beginning to switch their focus from swimming, camping and other fun outdoor recreational activities to heading back to school.

While some children will be enrolled in school for the first time, other "veterans" will be looking forward to progressing to the next grade and all the new challenges, teachers and friends that come with it. This is also a crucial time for parents to think about the well-being of their children and develop strategies to get them back and forth to school safely each day. The following are some tips to make your children's trips to and from school safe whether they walk, bicycle, ride the school bus or travel by automobile.

Walking

Children should never walk by themselves. We are frequently bombarded with media accounts of attacks or abductions of children by predators. Because of that, it's particularly important to walk with your child or, when you decide they're old enough and mature enough to safely do so, allow them to travel with friends. Instruct your child to stay away from parks, vacant lots and other places where they might become isolated and an easy target for a predator.

Carefully research the route your child will travel to school, looking for well-trained adult crossing guards at each intersection. The route should be the most direct one from home to school. Make sure your child understands the importance of obeying all traffic signals and following the instructions of the crossing guards.

Instruct your child to avoid strangers and never accept rides or engage in conversation with people unknown to your family.

Ensure your child wears brightly colored clothing to help motorists see them.

Bicycling

The majority of rules regarding walking also apply to children who ride their bikes to school. Always ensure your child always wears a bicycle helmet that meets U.S. Consumer Product Safety Commission, Snell, American National Standards Institute or American Society for Testing and Materials safety standards.

Make sure your child's clothing is appropriate for biking. Avoid ill-fitting clothing that can become tangled in spokes or pedals or inhibit the child's movement while riding.

Riding the bus

Ensure your child arrives at the bus stop early and instruct them not to play in the street while waiting for the bus to arrive.

Your child should understand the importance of waiting for the bus to come to a complete stop before approaching the street. Also, warn them to watch for other vehicles near the bus stop.

Once aboard, children should remain seated at all times and keep their head and arms inside the bus. When exiting, they should use the handrail to avoid falling.

Wait for a signal from the bus driver before crossing the street. Walk at least 10 steps away from the front of the bus so the driver can see you.

Never cross the street or play behind the school bus.

After getting off the bus, move immediately onto the sidewalk and out of traffic. If there is no sidewalk, try to stay as far to the side of the road as possible.

Traveling by automobile

All occupants should have their seat belts securely fastened. Small children should be secured in a car seat that is appropriate for their age and size.

Drivers should be careful around children who are walking or riding bicycles to school and comply with the posted speed limit within school zones. Remember that children often engage in horseplay and can sometimes run into the road, unaware of the vehicles around them.

Another important consideration is protecting children who will be by themselves when they arrive at home each day. Typically referred to as "latchkey kids," the most important ground rules parents need to establish for these children are:

Establish a check-in time. Once a child arrives home each afternoon, the first thing they should do is phone a parent and let them know they're at home and everything is OK.

Security. Children should be instructed to keep doors shut and locked at all times. They should also be given clear guidelines of what they can and can't do. For example, children should not try to use the stove, as they can be burned or start a fire.

A final consideration is for those children wearing backpacks to school. Recent studies show that backpacks are often overloaded, causing an unnatural compression of the spine as the child compensates for the weight by bending forward or walking with an arched back. This can result in injuries that can last a lifetime. A solution is to limit items in the backpack to only those necessary for class work. Additionally, items placed in the backpack should be evenly distributed, and the backpack should be equipped with features such as padded straps. Some backpacks are now equipped with wheels and towing handles for convenience.

School should be a fun and exciting time for children; following these precautions will help make it a safe time, as well.

WHEN TROUBLE HAPPENS

BOB VAN ELSBERG
U.S. Army Combat Readiness Center
Fort Rucker, Ala.

I'd been driving all day. I started in the morning in San Antonio, Texas, and was planning to spend the night in Gulfport, Miss. As timing would have it, I hit Baton Rouge, La., during the afternoon rush hour. While Interstate 12 eastbound was still moving at a pretty good clip, traffic was definitely jammed together.

Ahead of me in the fast lane was a tractor-trailer running parallel to another big rig in the right lane. I felt like a running back with two huge offensive linemen blocking for me. If there was any trouble ahead, they'd get to it first. As long as I kept a two-second or longer following distance, I felt safe from anything ahead.

I was keeping my distance and watching the road when I saw something absolutely incredible. A short distance ahead, a man ran across the westbound lanes, crossed the concrete median and stepped into the emergency breakdown lane on my side of the median. I assumed he'd see us approaching him on his right and wait until we passed before trying to cross. I was wrong! Without so much as glancing, he stepped in front of the semi-trailer I was following. The driver hit his brakes and swerved toward the median while the truck driver in the right lane braked and swerved toward the right-hand shoulder. I pushed on my brakes firmly but gradually, allowing the drivers behind to slow down without rear-ending each other. As I looked ahead, I fully expected to see the man's body tumbling from beneath the semi.

Amazingly, both truck drivers missed him and he made it across both lanes in one piece. I was stunned by what I'd just seen. Who in their right mind would do something so suicidal?

This reminded me how quickly and unexpectedly trouble can happen. People can do the most unpredictable things that you can't possibly plan for if you tried.

So what can you do? The answer is to drive defensively. Ask yourself, "What is the worst possible thing that can happen?" and "Do I have a plan for that?" You can't always predict what others will do, but you can drive so you've got options if the worst happens. Here is a selection of safety tips to help drivers avoid the unpredictable:

- Scan the road ahead for potential dangers. Watch for brake lights or people suddenly swerving or changing lanes. The sooner you spot a problem, the more time you have to react.
- Be aware of traffic. Use your mirrors to keep track of vehicles around you.

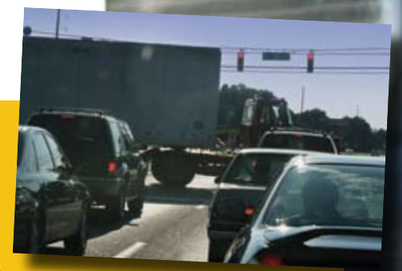
Keep a two- to three-second following distance behind vehicles so you'll have room to stop during emergencies. This is especially true of big trucks. Not only do they block your vision, a blown truck tire can send a chunk of rubber hurtling through your windshield.

- Avoid large packs of traffic. They are particularly dangerous because they're typically caused by impatient drivers tailgating one another.
- See and be seen. Keep your windows clean, especially at night. If you don't have daytime running lights, use your headlights so others can better notice you.
- Hang up and drive. Studies show it's dangerous to concentrate on doing two things at once.
- Signal well in advance before changing lanes and look before pulling over.
- Don't drive too fast or too slow. Pick a speed where you can stay with traffic while keeping an open space around you as an escape route.
- Warn drivers behind you by turning on your hazard warning lights if you have to suddenly stop or slow down on the highway.
- Don't drive alongside big trucks longer than necessary. If the driver unexpectedly moves into your lane, you can be without an escape route.
- If you're being tailgated, either change lanes or pull over and let the tailgater pass.
- Never drive over an object in the road that can safely be avoided. A plastic bag or cardboard box can conceal more dangerous items.
- Watch for other drivers talking on cell phones and understand their driving skills may be impaired.
- Avoid banged up "clunkers"—the collection of dents may reflect the owner's driving history.
- Watch the movements of other vehicles on the highway. If a car is weaving or speeding up and slowing down, the driver may be intoxicated or distracted. Avoid these vehicles.

> "YOU CAN'T always PREDICT what others will do, but you can drive so YOU'VE GOT OPTIONS if the worst happens."

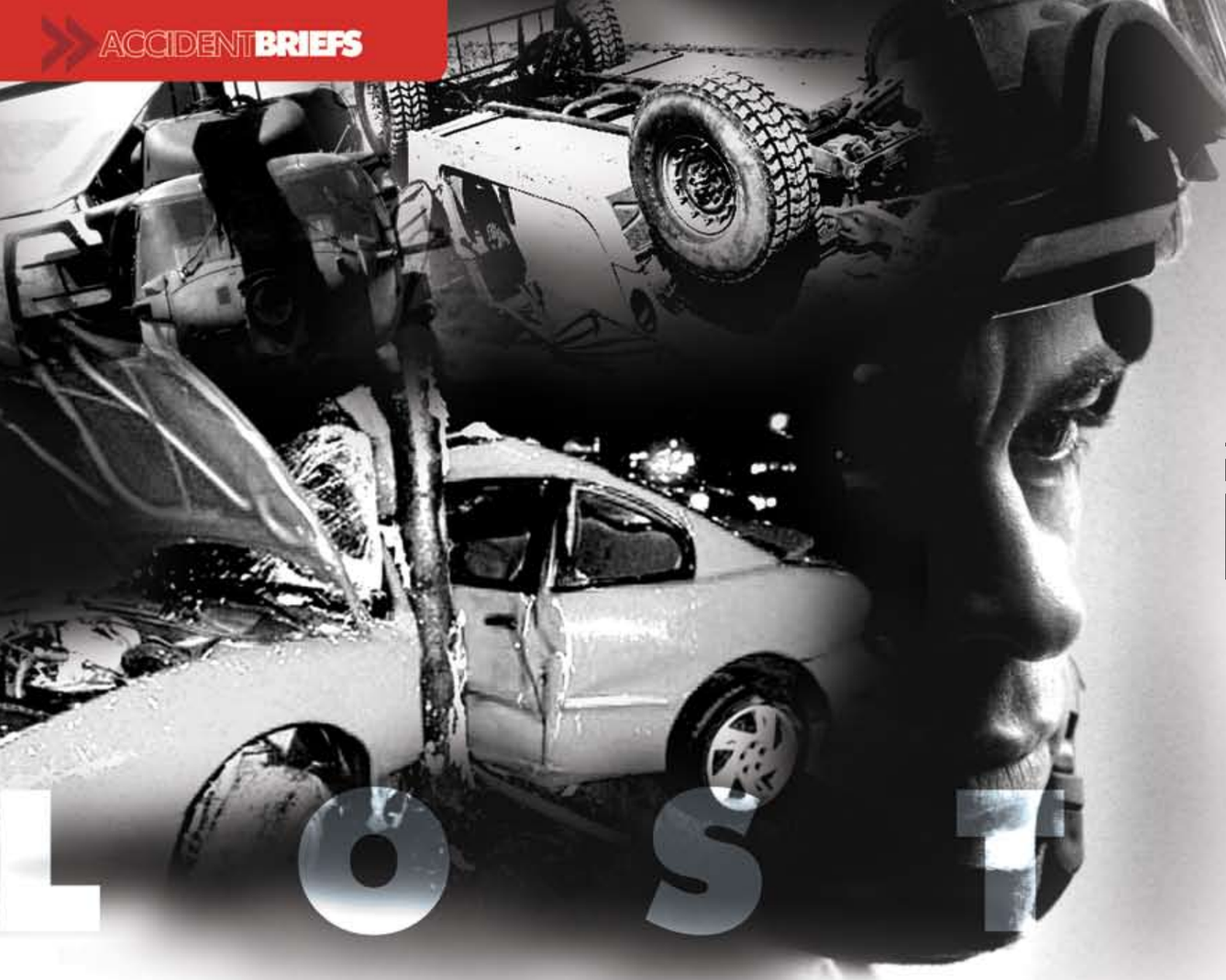
A final question

Did you see composite risk management mentioned in this article? It's there. It's important to understand not all hazards are immediate and obvious. Some risks can only be anticipated and imagined. Still, that doesn't mean they're any less real. Defensive driving buys you time to identify, assess and control unpredictable hazards. When all else fails, it can be your ace-in-the-hole when trouble happens on the road.



FYI

Visit the ROADTRIP AMERICA Web site at www.roadtripamerica.com/DefensiveDriving/Drive-Safe-With-Uncle-Bob.htm for additional defensive driving tips.



AVIATION

AH-64

CLASS A D Model

The aircraft experienced separation of the tail rotor assembly during flight, resulting in Class A damage to the aircraft. The crew maneuvered the aircraft back to the forward operating base.

CLASS C

The aircraft descended to ground impact during a night crew combat training flight. The crew was transitioning to night vision goggles following a TADS/FLIR FAIL indication and a series of electrical anomalies.

MH-60

CLASS C L Model

The aircraft's main rotor blades contacted the ALQ-144 during a roll-on landing, resulting in damage to all four blades.

OH-58

CLASS A D(R) Model

The crew was in their second iteration of day, live-fire gunnery training when the aircraft impacted the ground while making a low-altitude turn. The aircraft was destroyed and both crewmembers suffered major injuries.

CLASS C

The aircraft incurred an NP overspeed condition (117.82 percent for 1.8 seconds) during manual FADEC operation.

UH-60

CLASS C A Model

The forward left cabin window separated in flight. Inspection revealed damage to all four tail rotor blades.

CLASS C

The MRB made contact with the tail rotor driveshaft cover and ALQ-144.

CLASS B L Model

The aircraft contacted a tree during a passenger-orientation flight, resulting in damage to the main rotor system and right side of the fuselage. No injuries were reported.

DO WE ALLOW OURSELVES TO BECOME COMPLACENT OR OVERCONFIDENT JUST BECAUSE IT'S A "LOW RISK" MISSION?

CLASS B

The crew conducted an emergency landing after they felt vibrations coming from the rotor system. Inspection revealed damage to the tail rotor and tail rotor gearbox.

UAS

RQ-7B

CLASS B

The unmanned aircraft system failed to respond to control input during flight. Attempts to deploy the chute failed and the system entered the water.

CLASS C

The UAS's RPM dropped rapidly to 4,000 with fluctuations, in which the aerial vehicle operator was unsuccessful in getting the UAS to respond. As a result, the chute opened and the UAS crash landed.

GROUND

ACV

CLASS A

Two Soldiers were injured when the M1126 Stryker they were riding in struck a tree and overturned. The driver of the vehicle was attempting to avoid contact with another Stryker when the accident occurred.

CLASS A (DAMAGE)

An M2A3 Bradley Fighting Vehicle caught fire and was damaged.

AMV

CLASS A

A Soldier was killed and another Soldier was injured when the M1075 they were riding in overturned. The Soldiers were transporting barriers when the driver lost control while making a turn.

CLASS A (DAMAGE)

An M198 howitzer was destroyed and an M1083 LMTV was damaged when the commercial Heavy Equipment Transporters carrying them ran into each other and a post-crash fire ensued.

CLASS B

A Soldier suffered a permanent partial disability when he was struck by a HEMTT. The Soldier was ground guiding the vehicle into the motor pool when the front tire struck his foot, causing him to fall. The HEMTT then moved forward over the Soldier.

CLASS B

Three Soldiers were injured when the non-tactical vehicle they were riding in overturned. Two of the Soldiers were thrown from the vehicle, while the driver was trapped inside.

CLASS B (DAMAGE)

An M1114 HMMWV and its onboard equipment were damaged when the vehicle caught fire during a convoy mission.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru July 25, 2007

	Hostile/ Non-hostile
AH-64A/D	11/47
U/MH-60A/L	9/26
C/MH-47	7/14
OH-58D	11/24
TOTAL	38/111

ARMY GROUND LOSSES

FY07

thru June 2007

	Class A/Fatalities
AMV	21/19
ACV	13/7
PERSONNEL INJURY includes weapons handling accidents	42/41
FIRE/ EXPLOSION	2/0
PROPERTY DAMAGE	2/0
TOTAL	80/67

WEAR YOUR SEAT BELTS!

A Soldier was driving his pickup truck home on a Saturday night when he crossed the centerline and struck four oncoming vehicles. His vehicle then ran off the road into a parking lot and overturned. The Soldier, who was not wearing his seat belt, was partially ejected and died from his injuries.

IN AN ACCIDENT, DO YOU REALLY THINK YOU CAN ESCAPE INJURY WITHOUT WEARING A SEAT BELT?

DRIVING

POV

CLASS A

A Soldier was on leave driving a sport-utility vehicle with two passengers when it overturned at a Y-intersection and went down an embankment. None of the occupants were wearing seat belts. All three were ejected during the accident, resulting in the Soldier and one of the passengers suffering fatal injuries. Police reports stated alcohol was a factor in the crash.

CLASS A

A Soldier was operating a borrowed all-terrain vehicle at an estimated 40 mph in a 15-mph zone when he apparently lost control and was thrown into several trees. Although he wore a helmet, it was not properly fastened and came off during the crash. The Soldier died of head injuries.

CLASS A

A Soldier was driving a sport-utility vehicle with three passengers when it went off the road and overturned several times. None of the occupants were wearing seat belts and all were ejected during the crash. The Soldier and two passengers died from their injuries. According to police reports, alcohol was a factor in the crash.

CLASS A

A Soldier with a passenger was traveling more than 100 mph while street racing when the other vehicle cut in front of him. The Soldier lost control of his vehicle, crossed the centerline and collided with two oncoming vehicles. Both the Soldier and passenger were killed in the accident. The other vehicle fled the accident scene.

CLASS A

A Soldier with two other Soldiers riding as passengers was driving back to base when he ran off the road and struck a steel utility pole. The driver survived the accident, but both passengers were killed. Seat belt use was not reported; however, alcohol use was reported as a factor in this fatal crash.

POM

CLASS A

A Soldier was operating his motorcycle at high speed when he attempted to turn right onto another road and struck a vehicle head on. Although the Soldier had Motorcycle Safety Foundation training and was wearing the appropriate personal protective equipment, including a Department of Transportation-approved helmet, he suffered a permanent total disability injury.

CLASS A

A Soldier was intoxicated and operating his motorcycle at high speed when he failed to negotiate a turn and struck a curb and median barrier. The Soldier was thrown from his bike and died from head injuries. Though the Soldier had completed the MSF's Experienced *RiderCourse*℠, he did not wear the helmet he had with him.

SOLDIERS KNOW TO WEAR HELMETS IN COMBAT; SO, WHY DON'T THEY WEAR ONE ON A MOTORCYCLE?

POV DRIVING LOSSES FY07

thru June 2007

	Class A accidents/Soldiers killed
CARS	28/31
SUV/ JEEPS	12/12
TRUCKS	15/12
MOTORCYCLES	23/21
OTHER*	3/3

*Includes: vans and ATVs

79 TOTAL DEATHS

06 FY06: 87 3 year average: 93

CLASS B

A Soldier accelerated, pulled a wheelie and passed several vehicles after a traffic light turned green. A pickup truck in the oncoming lane turned in front of the motorcycle, which struck the pickup's front passenger-side bumper and brush guard. The Soldier was thrown from his motorcycle and suffered a broken arm and an amputated left foot.

Personnel Injury

CLASS A

A Soldier drowned after falling into a river while on combat patrol. A second Soldier who also fell in the river was able to swim to safety. Both Soldiers were wearing full combat gear.

CLASS A

A Soldier suffered fatal injuries when he was struck by 5.56 mm rounds while participating in a dismounted convoy live-fire training exercise.

CLASS A

A Soldier died after collapsing during part of his Army Physical Fitness Test.

CLASS A

A Soldier died after receiving an electric shock. The Soldier was emplacing barriers when the crane he was operating touched a live overhead power wire.

CLASS A

A Soldier and his son were canoeing in a creek in fast-moving water when they left the canoe to swim ashore to avoid a waterfall. The Soldier did not reach the shore and died after going over the waterfall.

CLASS A

A Soldier was walking down a roadway at night when he was struck and killed by a taxi.

CLASS B

A Soldier suffered a permanent partial disability when an artillery simulator went off in his hand as he attempted to throw it. The Soldier lost all the fingers on his right hand down to the second knuckle and part of his thumb.

CLASS B

A Soldier suffered a permanent partial disability when he dropped a tow-bar on his hand, trapping his finger between the bar and a HMMWV bed. As a result, the Soldier's finger was degloved and later amputated.

CLASS B

A Soldier suffered a permanent partial disability when he accidentally discharged a round from his weapon into his toe.

CLASS B

A Soldier suffered a permanent partial disability while opening the loader's hatch on an M1A1. The Soldier placed his right hand on the lower right side of the hatch, catching his finger between the hatch and the latch.

ALWAYS
ENGAGED
YOUR JOB AS A SOLDIER AND LEADER NEVER ENDS. TAKE CARE OF YOURSELF AND TAKE CARE OF EACH OTHER ON AND OFF DUTY.
IF YOU DON'T, WHO WILL?
ARMY SAFE IS ARMY STRONG
U.S. ARMY
ARMY STRONG.
U.S. ARMY COMBAT READINESS CENTER
https://crc.army.mil
own the EDGE
Leading on the Edge

UNDER THE WEATHER?

BEFORE

- Know risks and danger signs
- Develop plans for what to do
- Assemble a disaster supplies kit
- Volunteer to help others
- Conduct rehearsals

DURING

- Put your plans into action
- Help others
- Follow advice and guidance of officials in charge of the event

AFTER

- Repair damaged property
- Take steps to prevent or reduce future loss
- Restock your emergency supplies

U.S. ARMY
ARMY STRONG.

U.S. ARMY COMBAT READINESS CENTER
https://crc.army.mil

101 Critical Days of SUMMER
28 May - 3 Sept 2007
Never Give Safety A Day Off

CHECK YOURSELF

OR SOMEONE ELSE WILL

STAY IN CONTROL.
IF YOU PLAN TO DRINK,
DESIGNATE A NON-DRINKING DRIVER.

ARMY SAFE IS ARMY STRONG

U.S. ARMY
ARMY STRONG.

U.S. ARMY COMBAT READINESS CENTER
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101 Critical Days of SUMMER
28 May - 3 Sept 2007

Never Give Safety A Day Off

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KNOWLEDGE

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HAVING A SUCCESSFUL SAFETY PROGRAM

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Combat Edge

KNOWLEDGE

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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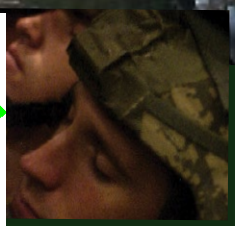
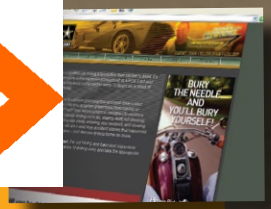
Plus: pull-out posters





LEADERS STAY EN

Leaders, please accept my sincere thanks, as you achieved great strides in reducing accidental losses in our Army for fiscal 2007. While this is indeed a good news story, projections tell us we will lose more than 200 Soldiers by the end of this fiscal year. Additionally, the number of lost work hours due to injuries and illnesses, including our civilian work force, is expected to cost the Army $180 million for fiscal 2007. These losses are our most precious resources—loss of combat power, losses to our formations and losses to our Families.

U.S. ARMY COMBAT READINESS CENTER

https://crc.army.mil

BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
CSM Tod Glidewell Command Sergeant Major

Kelly Widener Director of Strategic Communications

Paula Allman Managing Editor
Bob Van Elsberg Assistant Managing Editor
Taylor Barbaree Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design
Kami Lisenby Graphic Design

We welcome your feedback. Please e-mail comments to **knowledge@crc.army.mil**.

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> "YOU STEPPED UP and ENGAGED Soldiers, and you continue PROACTIVE EFFORTS in shifting the ARMY'S SAFETY CULTURE."

NGAGED

You stepped up and engaged Soldiers, and you continue proactive efforts in shifting the Army's safety culture. We see our culture of "Never Leaving a Fallen Comrade," regardless of where or how our comrades fall, showing positive momentum. We acknowledge this positive trend as a direct reflection of leaders at all echelons engaging and making a difference. Our shift in safety culture, highlighting teamwork, buddy systems and a "Band of Brothers," remains dependent on leaders maintaining high vigilance regardless of whether on or off duty, deployed or at home station. Where leader engagement is constant and vigilant in deployed locations, losses are down; however, once back at home, it appears leaders tend to disengage with their Soldiers, resulting in increased losses.

Recently, the Chief of Staff, Army, and the Secretary of the Army directed our continued aggressive stance in safety programs for fiscal 2008. Each command strives to identify their loss areas, develop their plans of action, address the safety climate and culture, and endeavor to create systems that measure successes, ensuring our programs and plans are meeting our intent and are adaptable to the changing environment of our Army. To meet fiscal 2008's reduction goal of a 20-percent decrease in fatalities, these objectives require aggressive and committed Soldiers and leaders fully engaged and integrating available resources.

Teammates, we have challenges ahead. The Army owns programs, tools and initiatives available for your commands and formations to leverage. There is no reason to start from scratch; use those resources and adapt them to fit your units. The Army Safety Office and the U.S. Army Combat Readiness/ Safety Center are ready to assist you.

Army Safe is Army Strong!

William H. Forrester
Brigadier General, USA
Commanding

"We can't just **REACT TO ACCIDENTS**; we must become **PROACTIVE** to **PREVENT THEM.**"

MOVE LEFT OF THE BOOM

As I travel speaking to civic or military organizations, I am often asked about Soldiering. It has been my experience during my 26-plus years in this great profession that "Soldiering" has not changed; however, the value placed on individual Soldiers has.

I see this in the focus we put on today's Army safety culture. Compared to when I entered the Army in 1981, safety has become a very recognizable part of the Army's landscape. This is a dramatic difference—one for which you are to be commended!

As General Forrester has already indicated in this magazine, you are making great strides in reducing accidental losses. In fact, our current figures for fiscal 2007 show a four percent reduction compared to the same time last year. This is good news and worth sharing; but there is still plenty of work to be done.

While on-duty safety is important to us as Soldiers, we must remember that safety should be equally as important off duty. With the media's high interest in our combat missions abroad, I receive many questions regarding the dangers Soldiers face. People seem surprised when I inform them that we handle combat hazards well, often only to come home and lose Soldiers to needless accidents. I explain to them that Soldiers in a hostile environment are being constantly reminded of the dangers where they work, eat and sleep. In combat, Soldiers have battle buddies watching over them like guardian angels every time they exit the entry control point.

However, when we come home and ground our Outer Tactical Vest, it's easy to assume the hazards are gone and become less safety-conscious. To prevent that, we, as leaders, must engage our Soldiers, reminding them to be alert for hazards just as they were in combat. Doing that, however, means we have to set the example. As a leader, ask yourself if you spent enough time planning for safety before exiting the gate at your home station to perform a mission.

While you have doubtless read about many of the tragic, fatal accidents involving Soldiers, in my role as the USACRC Command Sergeant Major, I live with these tragedies on a daily basis. When I hear about the death of a Soldier, my first thought is about their loved ones who are left behind. Then I ask myself, "What can WE, as engaged leaders, do better to prevent this from occurring in our ranks again?"

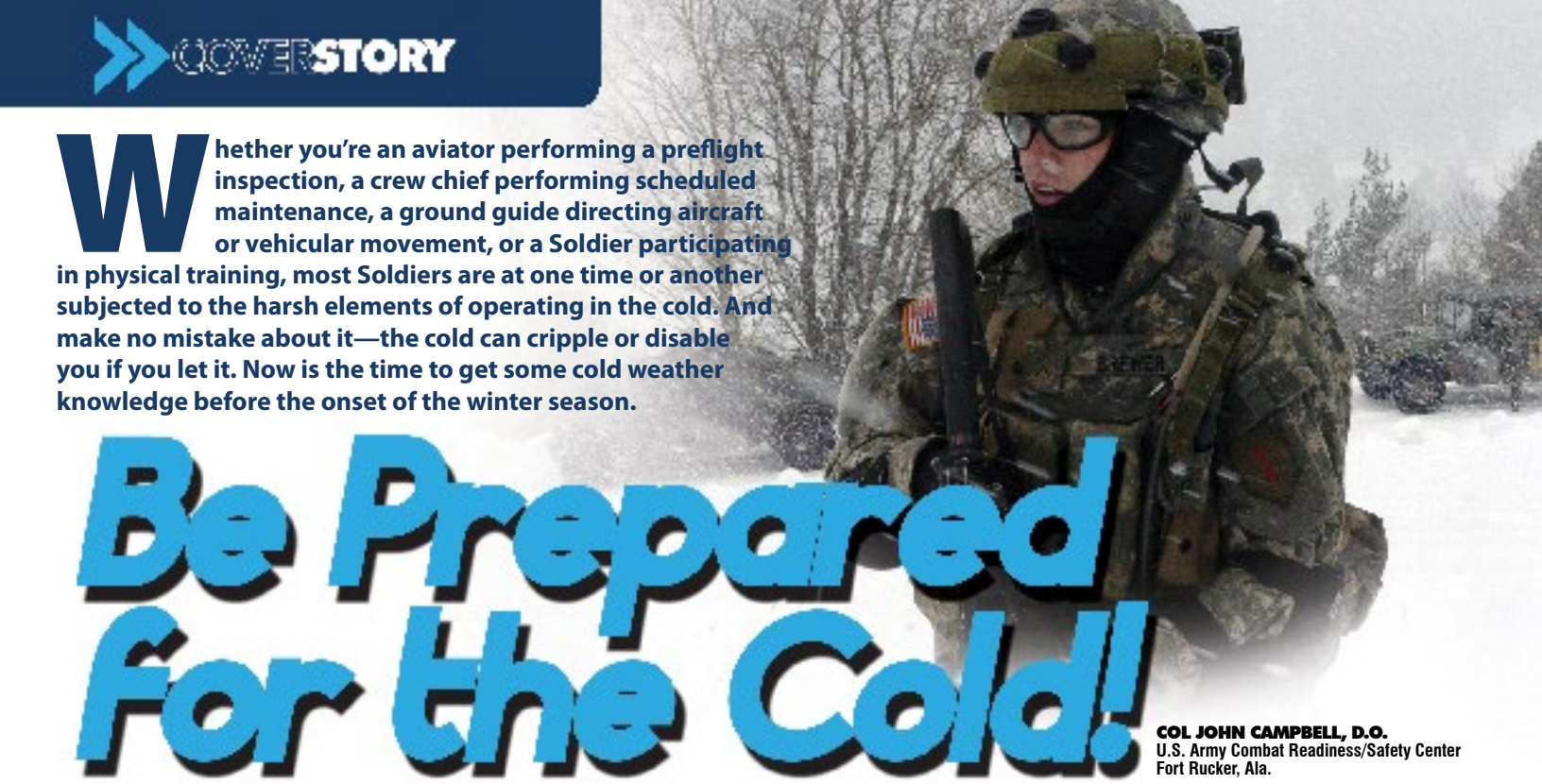
The answer is simple—we must move "left of the boom" on accidents. We can't just react to accidents; we must become proactive to prevent them. That's a challenge every Soldier, regardless of rank, must accept if we are to beat an enemy that stalks us just as relentlessly on the streets of Boston as he does in Baghdad.

During fiscal 2008, the Chief of Staff, Army, and the Secretary of the Army assigned us the goal of reducing fatal accidents by 20 percent. The only way we can attain that goal is to exit the gate each day with same safety mentality we had in theater.

To aid you with this endeavor, I encourage you to work closely with your safety professionals and to visit our Web site at https://crc.army.mil. There are some helpful tools there. Remember, safety is a vital part of the environment in which we successfully accomplish our missions—not just a reaction or afterthought.

Army Safe is Army Strong!

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center



Whether you're an aviator performing a preflight inspection, a crew chief performing scheduled maintenance, a ground guide directing aircraft or vehicular movement, or a Soldier participating in physical training, most Soldiers are at one time or another subjected to the harsh elements of operating in the cold. And make no mistake about it—the cold can cripple or disable you if you let it. Now is the time to get some cold weather knowledge before the onset of the winter season.

Be Prepared for the Cold!

COL JOHN CAMPBELL, D.O.
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Cold injury prevention

So, how do you prepare? One of the most basic elements of wintertime mission planning is ensuring all Soldiers know how to prevent, detect and give first aid for cold-weather injuries (see Cold Injury Prevention chart on pages 6 and 7).

The most important thing is plan for the cold. Planning factors include using composite risk management and making sure you have accurate weather information for the area and time of the mission, being particularly aware of rain, snow and winds. Knowing the weather hazards will allow for more informed and effective mission planning. You can't change the weather, but you can be prepared for it.

Wet conditions and wind chill greatly increase the chance of injury. Pay particular attention to Soldiers manning forward arming and refueling points. Not only are they exposed to cold, but also wet conditions (like rain or snow and increased wind chill from rotor wash). In addition, they are handling cold metal objects that could freeze to the skin. Remember petroleum, oil and lubricant products remain liquid at below-freezing temperatures. Aircrews and Soldiers flying with doors, ramps or windows open are also susceptible to the same hazards and need to be cautious, especially if they are exposed to rotor wash.

Good nutrition is essential because it provides the body with fuel to produce heat. The number of calories needed to maintain normal bodily function generally increases to 4,500 as the weather gets colder. Soldiers should have plenty of hot chow and warm beverages available.

We must not forget one of the most important aspects of the battle against cold injury—hydration. Leaders can help their Soldiers stay hydrated by providing them with liquids they'll actually drink. During cold operations, one usually doesn't feel thirsty, so it's imperative for leaders to keep Soldiers drinking. Water is best; however, sports drinks also are acceptable if available. Sodas, coffee, tea or other caffeine drinks won't help. A good rule of thumb to determine if your body is getting enough fluids is if your urine is pale yellow.

Another important individual preventive measure is the proper wear of cold-weather clothing. Soldiers frequently get cold injuries simply because they aren't dressed properly; dressing in layers with the proper approved clothing is best. To cope with lower temperatures, many crewmembers don their winter long

DID YOU KNOW?

During cold weather, static electricity can create serious problems in flight and on the ground—particularly during refueling and rearming operations.

Static electricity can be generated in many ways, from brushing snow and ice from an aircraft to dragging steel grounding cables over the snow. During refueling and rearming operations, it is extremely important to ground the aircraft properly. In addition, personnel must always remember to touch a properly grounded surface to discharge static charges that have built up in their bodies, as well as wear the appropriate clothing and PPE (helmets, gloves, goggles).

As a further precaution during refueling operations, fuel nozzles should be fully inserted into the aircraft filler neck at all times.

johns. A word of caution to all—long underwear for flight crews should be compatible with your wool or cotton Nomex® flight suit and gloves—polypro can burn or melt. If you're involved in a post-crash fire, wearing nylon insulated undergarments can be a matter of life and death. Nylon melts below the Nomex® flight suit melting point, which will result in burns. Wearing nylon glove inserts with Nomex® gloves can result in severe burns. Officials do not recommend wearing nylon inserts with the Nomex® flight gloves. Wool or cotton socks are a must for the properly dressed aviator because they do not burn as rapidly as the nylon type. Headgear is extremely important because the body can lose large amounts of heat through the head. It's also important to protect the hands and fingers by wearing the proper gloves. Aviators, your Nomex® gloves are designed to protect you from fires; they are not designed for extreme cold and will do little to protect your hands when wet.

Use of Air Force cold weather flight suits with the nylon liner is also prohibited. Aviators have been injured in fires when the lining has melted to the skin.

Soldiering is a physically demanding job, and intense physical exertion results in a loss of body heat through perspiration. Cold weather clothing should be worn loose and in layers to allow for insulation by air trapped between the layers. It's important to keep clothing clean and dry. Dirt, POL or water can increase the rate of heat loss by reducing the insulation ability of the clothes through evaporation. It's also important to keep clothing repaired—a broken zipper cannot keep the cold out.

Proper wear of boots is important. Because the feet get wet from sweat, this is a prime condition that can lead to trench foot. Socks should be changed frequently and boots rotated. Make sure boots are allowed to dry by a heat source at night because sweat can freeze.

Other factors influencing cold injuries

- **Previous cold injuries:** Soldiers with previous cold injuries are more susceptible to having another. It is extremely important to identify these Soldiers and for first-line supervisors to monitor them closely.
- **Tobacco:** Nicotine, regardless if it comes from a cigarette, snuff, pipe, cigar or patch, causes blood vessels to constrict. This is particularly dangerous in the hands and feet and can lead to, or worsen, a cold injury.
- **Alcohol and caffeine:** These can lead to increased urination and dehydration.
- **Meals:** If you skip meals, the first thing the body does is slow the metabolism. Slower metabolism means less heat production and more chance of cold injury.
- **Activity:** Huddling up and not moving is the wrong thing to do. The more you move, the more heat you produce. Decreased activity decreases the time it takes to get an injury.
- **Buddy system:** The buddy system is a great way to help prevent injuries if Soldiers are trained to know what to look for.
- **Self-checks:** A simple self-check is to pinch the fingernails and watch how

COLD INJURY P

- **Immersion foot:** This is caused by continued exposure to wet, cold conditions. The surprising factor is it doesn't have to be freezing cold; immersion foot can occur at temperatures up to 60 F if the exposure lasts as long as 12 hours. Of course, if the temperature is lower, it can occur sooner. Symptoms include cold, numb feet that may have shooting pains, as well as redness, swelling and bleeding, particularly involving the toes.

  + **First Aid:** The most important step is to re-warm and dry the feet. Expose the feet to warm air and/or gently wrap in dry blankets or towels. Do not massage, rub or use salves or ointments on the feet. Do not expose the feet to extreme heat; if the feet are numb, the victim may get burned and not realize it. If you suspect trench foot, get medical help immediately.

- **Chilblain:** This is a condition caused by exposure of bare skin to continued temperatures ranging from 20 to 60 F, depending on an individual's acclimatization. Symptoms of chilblain include tender, hot-feeling, red and itching skin mainly on exposed areas like the cheeks, ears and fingers. Feet, however, also may be affected.

  + **First Aid:** Warm the Soldier's affected body part with direct body heat, or move the Soldier to a warm area. Do not massage the area, rub with snow or ice or apply salves or ointments. Do not expose the area to any intense heat. If the Soldier does not improve, seek medical help.

- **Frostbite:** This is a very common and potentially dangerous injury. The body is mainly water, and water freezes at 32 F. Frostbite occurs when the body cannot maintain sufficient internal heat in certain parts and the water in cells freezes. Areas that are most often affected are those areas exposed or where blood flow can be decreased such as fingers, toes, ears and other facial parts. Exposure to bare skin on metal, extremely cool POL, wind chill and tight clothing, particularly boots, can make the problem worse.

> All **COLD WEATHER** injuries are preventable! Prevention, early detection and immediate evacuation are the **RESPONSIBILITY** of **LEADERS AT ALL LEVELS**, as well as the **INDIVIDUAL SOLDIER**.

fast they return to red. The slower the red returns, the higher the potential for an injury to the fingers or toes.

More information on cold weather injuries can be found in Field Manual 21-10, *Field Hygiene and Sanitation*, FM 21-11, *First Aid for Soldiers*, and Technical Note No. 02-2, *Sustaining Health and Performance in Cold Weather Operations*. For more prevention tips, visit the U.S. Army Center for Health Promotion and Preventive Medicine's Web site at http://chppm-www.apgea.army.mil. USACHPPM and the U.S. Army Research Institute for Environmental Medicine have also developed materials that include valuable cold injury prevention products, including useful posters, videos and pocket guides. To obtain these products, visit the USACHPPM Web site at http://chppm-www.apgea.army.mil/HIOCWI/.

Conclusion

All cold weather injuries are preventable! Prevention, early detection and immediate evacuation are the responsibility of leaders at all levels, as well as the individual Soldier. Use CRM to keep your Soldiers from becoming a statistic. Battling the cold is like battling any other enemy—mission success happens only through planning and training. Leaders are accountable for the protection of their Soldiers. By staying engaged in all they do during cold weather operations, leaders will help Soldiers stay warm and Army Strong!

REVENTION

Symptoms include numbness or tingling in the affected part; blisters, swelling or tenderness; body parts that feel dull or wooden; and pale, yellowish or waxy-looking skin—gray in dark-skinned Soldiers.

+ **First Aid:** Frostbite is a medical emergency and the victim should be evacuated as soon as possible. If not treated properly, frostbite can lead to gangrene and amputation. Before evacuation, move the Soldier to a warm area and the part affected must be warmed with direct body heat or warm air. Do not warm with hot water or expose the part to intense heat. Do not massage or rub with snow or ice or use salves and ointments on the affected area. Do not allow the part to thaw and then refreeze.

- **Hypothermia:** This is a serious medical emergency. Hypothermia is caused by severe body heat loss due to prolonged cold exposure. Immersion in water can make hypothermia worse or come on more quickly because the water increases heat loss. Symptoms include lack of shivering and what has been described as "the Umbles"—stumbles, mumbles, fumbles and grumbles—all of which are signs of mental slowing and lack of coordination. Hypothermia can progress to unconsciousness, irregular breathing and heartbeat and, eventually, death.

+ **First Aid:** If you find a Soldier in the early stages of hypothermia, start warming the Soldier immediately. If his clothes are wet, remove them. Loosen any restrictive clothes. Wrap the victim in dry blankets or a sleeping bag. Another person can get into the sleeping bag as an additional heat source. Get medical help immediately.

If the Soldier is unconscious, cold to the touch and appears to have no pulse or breathing, don't assume the Soldier is dead! Normal body temperature is 98.6 F. When body temperature gets down to 90 F, it tries to save energy and heat by trying to "hibernate." It also decreases blood flow to the Soldier's arms and legs, and his pulse and breathing become shallow. A Soldier may appear dead and his heart rate and breathing so low that untrained personnel miss it. Medics have resuscitated people with body temperatures as low as 82 F. Get the Soldier to a medical facility as soon as possible!

Working in cold weather is a fact of life for Soldiers. At some point, nearly every Soldier will be shivering in a tent somewhere in the world. And, as surely as winter comes, Soldiers will choose to heat their tents by means of a space heater, stove or other heating device.

No Seco to Spare

CHRIS FRAZIER
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Heat on a cold winter night provides many advantages for Soldiers. One major benefit is that Soldiers will lose less body heat and conserve more energy while sleeping, potentially improving their performance during the next day.

Despite the advantages inherent with the use of heating devices, fire and carbon monoxide poisoning create unique hazards to Soldiers in tents and other enclosed areas. Fire can engulf a tent in 10 seconds and destroy it in 60 seconds, giving Soldiers very little time to react. Likewise, carbon monoxide is odorless, colorless and tasteless and can quickly kill Soldiers while they are sleeping, as was the case in a previous accident where two Soldiers died while sleeping in their tent.

While commercial off-the-shelf heaters and stoves may seem to be a good solution for heating problems in the field, leaders must ensure Soldiers receive proper training before using a piece of COTS equipment. For example, locally procured COTS heaters that are unflued or unvented (i.e., no smokestack) vent exhaust fumes, including carbon monoxide, directly into living spaces. In addition, none of the COTS heaters meets Army requirements for field environments. On the other hand, the designs of standard military heaters include testing for specific military operation and vent combustion fumes to the outside to prevent the build up of deadly gasses.

To keep Soldiers warm and safe this winter and in all cold weather environments, follow these tips:

- Operate all heaters and stoves in accordance with the applicable technical manual.
- In the event of a tent fire or suspected presence of carbon monoxide, the first and most important task is to evacuate the tent. Testing demonstrates that tent fires can completely engulf the tent in as little as one minute.
- A Soldier should be on fire guard any time a heater is running.
- Do not wear wet clothing while sleeping in sleeping bags in an effort to dry them.
- Do not pile combustible materials such as grass and pine needles on the tent floor for insulation, as they can catch flame easily.
- Place stoves in sandboxes when using them in tents with wooden floors.
- Always use the specified type of fuel for the heater or stove you are using.
- Clean and thoroughly inspect each heating device and all its components in accordance with the appropriate technical manual before storage and use. Pay special attention to check for leaking valves, holes in gas cans and proper assembly.
- Secure stovepipe opening covers with tie tapes so the covers will not contact the stovepipe.
- Use enough stovepipe sections so one complete section is above the highest point of the tent. Ensure stovepipe sections are vertical and do not contact any part of the tent.
- Be sure to leave enough air space between the tent wall and the heater or stove. If

Soldiers place heating devices too close to the tent wall, they might ignite the tent.

- To prevent explosions any time the stove goes out, wait until the burner cools before relighting.
- Do not store fuel inside a tent warmed by fire. The fuel can for the heater must be located outside the tent as far from the tent as the fuel hose allows.
- Turn off the heater before exchanging the fuel can.
- Do not smoke or drop cigarette butts around combustible materials or go to sleep with a lantern or candle burning.
- Do not open a stove or heater while it is still hot, even after a flame-up has subsided. Fresh air will feed a fire and reignite it.
- Use the proper fire extinguisher. Never use water to put out a fire.
- Do not remove a hot stove or heater from the tent; hot surfaces can contact tent flaps and set them aflame.
- Even in extreme cold, do not operate heaters at full capacity. An overheated stovepipe could ignite the tent, and high temperatures can warp grates and damage other components.
- Provide sufficient ventilation for fresh air to enter the tent at all times.
- Ensure fire extinguishers are available in every tent that has a stove or heater.
- Have a fire plan ready and rehearsed!
- Ensure emergency agencies such as fire departments and paramedics have access to all structures using heaters and other flame sources.
- Do not leave stoves or heaters unattended. As fuel levels decline, pressure drops and the drip valve must be readjusted to maintain the proper flame.
- When lighting a heater or stove, always turn your face away from the chamber door. If a flash occurs, it will most likely happen when the fuel first ignites.
- Keep stoves clean, but always practice safety when doing so! The practice of hitting a stovepipe and pouring in a little water to clean out soot is extremely dangerous; throwing blanks into a burning stove to clean out carbon buildup in the stovepipe is even worse.
- Do not touch heater or stove metal parts when temperatures are below freezing without protective gloves. Skin may freeze upon contact and tear from the flesh.
- Use caution when handling sharp-edged pipes to avoid cuts.

In any dangerous situation, the first response is to save Soldiers' lives. In a tent fire, there are no seconds to spare. ■

Article compiled from the Center for Army Lessons Learned Web site, http://call.army.mil, and the October 2002 issue of PS magazine.

FYI

Approved and tested Army personnel heaters include:

- **H-45 space heater (NSN 4520-01-329-3451):** The H-45 replaces the old potbelly M-1941. The H-45 will heat general purpose and TEMPER tents and burns liquid and solid fuels.

- **Arctic space heater (NSN 4520-01-444-2375):** The Artic heater replaces the gasoline-burning M-1950 Yukon heater and is a lightweight, portable heater for five- and 10-man arctic tents. The Arctic heater burns liquid and solid fuels.

- **Small space heater (NSN 4520-01-478-9207):** The small space heater is ideal for use in smaller tents such as the four-man Soldier/crew tent. It burns liquid fuel and has a built-in tank, precluding the need for an external fuel can and stand.

- **Thermoelectric fan (NSN 4520-01-457-2790):** The thermoelectric fan is a compact, self-powered unit that fits on top of any military tent heater. The fan uses some of the heat to turn the fan blades, which circulates heated air, improves comfort and saves fuel.

- **Convective space heater** (NSN 4520-01-431-8927): The convective space heater provides forced hot air for tents and shelters. This heater generates its own power and recharges its battery.

Keep It On The Road

CHRIS FRAZIER
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

This year, just about everyone will have a run-in with Old Man Winter. And just as you wouldn't head outside without first preparing for the elements, vehicles also need attention before expecting them to perform in less than favorable conditions. However, by doing a little Preventive Maintenance Checks and Services, you should be able keep your vehicle where it belongs—on the road.

How well a vehicle responds to cold weather conditions is usually up to the operator. Whether you're driving a privately owned vehicle or a government vehicle, a little PMCS goes a long way. Failing to properly service your vehicle could leave you stranded or, even worse, in a life-threatening situation. By using the checklist below, you can prepare your vehicle for the upcoming cold winter months. (If you're driving a military vehicle, follow the maintenance checklist provided by your motor pool).

- Check radiator hoses for leaks and cracks and ensure clamps are tight. Replace cracked or brittle hoses.
- Check the antifreeze level and ensure it is rated for temperatures at least 30 below zero.
- Check headlights, taillights, parking lights and turn signals, as well as interior lights such as map or dome lights. Ensure headlights are properly aligned. Adding extra weight to the trunk to increase traction may affect headlight alignment.
- Check the battery to ensure proper fluid levels, connections are tight and cables and cable ends are not corroded. If the engine turns over slowly, have the battery checked for serviceability by a qualified mechanic.
- Check the oil and oil filter. Use an oil weight recommended for extreme temperatures.
- Check tires for adequate tread and correct inflation and ensure all tires are the same size and type. Do not mix radial and conventional tires. All-season radials will provide some degree of traction; however, tires with snow tread are better. Studded snow tires are best but have limited use and should be used only when the road is packed with snow or ice.
- Check the heater and defroster for proper working order.
- Check wiper blades. Wipers designed for winter use help prevent them from icing.
- Check the windshield washer to ensure the washer motor is working and the nozzles are properly aligned.
- Check the exhaust system for leaks. Any evidence of fumes may indicate carbon monoxide is present. Replace a faulty exhaust or tighten to stop leaking.
- Check the engine thermostat to ensure it's working properly.
- Check the radio, as it can be used to receive information about road conditions and travel advisories. If your car is not equipped with a radio, use a portable radio.

For optimal performance, vehicles should have a tune up for winter. Doing so will aid in easier starting. Extreme cold temperatures will cause your car to start harder, thus wearing down your battery.

> "For **OPTIMAL** performance, **VEHICLES** should have a **TUNE UP** for winter."

It's also a good idea to carry some survival items in your vehicle. Some items that might come in handy should you become stranded include a shovel, traction mats, flashlight, tow chain or strap, tool kit, first aid kit, flares, dry sand, tire chains, sleeping bags or blankets, ice scraper, candles and matches.

Periodically recheck your vehicle to ensure it is properly maintained. If you're mechanically challenged, have a qualified mechanic complete the work that is beyond your abilities. When traveling in extreme conditions, you may have to depend on your vehicle for survival. Don't let your negligence be the reason it lets you down.

Editor's note: This story was compiled from information provided by the Public Safety Business Center, Fort Bragg, N.C.

THE SILEN

FRANK MCCLANAHAN
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

The children ran into the living room to kiss their parents good night. They had already eaten and taken their baths. Now they were ready for bed. Mom and dad are also tired from the day's activities and are not far behind. Unfortunately, no one in this family realizes they are saying good night to each other for the last time. Tragically, this is their eternal sleep. Death does not come at the hand of an intruder or the flames and smoke of a fire, but by an equally deadly and silent killer – carbon monoxide.

This is a familiar scenario every year as the weather cools down. Because of a faulty home heating system, a family dies in their sleep—victims of carbon monoxide poisoning.

What is CO?

Carbon monoxide is a poisonous, colorless, odorless and tasteless gas. It is produced as a result of the incomplete burning of natural gas and other carbon-containing materials such as kerosene, oil, propane, coal, gasoline and wood. At high concentration levels, CO can kill an individual in minutes. When breathed into the body, CO enters the blood and deprives the heart, brain and other vital organs of oxygen.

What are the signs?

Low levels of CO can result in shortness of breath, mild headaches and nausea. These symptoms are often confused with food poisoning, influenza and other illnesses. At moderate

NT DEATH

levels, individuals exposed to CO may experience tightness across the chest, severe headaches, dizziness, drowsiness and nausea. Prolonged or high exposures may result in vomiting, confusion, muscle weakness and collapse. While the effects of CO vary from person to person, people with heart or lung disease, elevated CO blood levels (smokers), the elderly, young children and fetuses are the most susceptible.

> "When **BREATHED** into the body, **CO ENTERS** the blood and **DEPRIVES** the heart, brain and other **VITAL ORGANS** of **OXYGEN**."

What can you do?

To reduce the chances of CO poisoning, take the following precautions:

- Have your fuel-burning appliances such as furnaces, water heaters, ranges, ovens, dryers, space heaters, fireplaces and wood stoves inspected and serviced by a trained professional before the onset of cooler temperatures.
- Purchase appliances that vent fumes to the outside of your home. Have those appliances installed and maintained by professionals. Ensure you read, understand and follow the safety precautions for each of these appliances.
- Never sleep in a room with an unvented fuel-burning space heater.
- Never use a gas oven to heat your home—even for a short period of time.
- Never idle your vehicle inside your garage—even if you have the door opened. Doing so can allow CO to build up and enter your home. Also, be sure not to operate other devices powered by combustion engines such as generators, chain saws, lawn mowers, etc., in an enclosed space.

Treating an exposure

According to the Environmental Protection Agency's Web site, people who experience CO poisoning symptoms should take the following steps:

- Get fresh air immediately. Open all doors and windows to allow for ventilation, turn off the combustion appliance or device and leave your house.
- Go to an emergency room for treatment. Tell the attending physician you believe you are a victim of CO poisoning. The physician can verify any CO poisoning by a blood test.

About those CO detectors

The EPA advises against being lulled into a false sense of security because you have installed a CO detector, as they are not considered as reliable as smoke detectors. According to the EPA, while various types of laboratory-tested detectors are available on the market today, they should never be considered as a replacement for properly using and maintaining fuel-burning appliances. If you decide to purchase a CO detector, use resources such as the American Gas Association or *Consumer Reports* to make an informed decision and be sure to look for the Underwriters Laboratories certification when you buy. For more information, visit the EPA Web site at http://www.epa.gov or the Occupational Safety and Health Administration Web site at http://www.osha.gov. ■

SUAS AIRCREW TR

ALFRED RICE
The Joint Staff
Washington, D.C.

The RQ-11 Raven Small Unmanned Aircraft System is a tremendous asset over the battlefield. However, the Raven SUAS occasionally suffers from loss of link, sporadic signal interference, loss of communication feed or loss of live video link. When this happens, the Raven should come back home because the system is programmed to return to rally. However, due to interference, that's not always the case. Lost aircraft degrade combat power, and missions to recover them can interrupt combat operations, drain critical resources and expose Soldiers to additional risk.

Raven operators have two tactics, techniques and procedures to reduce the incidence of link loss: key their global positioning system before flight and replace the GPS batteries quarterly. The biggest key to other link loss conditions are vigilance and situational awareness. Operators should monitor their signal strength and video for any degradation, as continued flight in a degraded mode can adversely affect the operator's ability to recover the aircraft. In addition, reacting to the situation in an untimely manner can also result in loss of aircraft.

Before flight, operators should ensure rally waypoint coordinates and altitudes are correctly loaded. Additionally, operators should ensure the tail boom is fully seated to reduce the chance of a weak radio signal. Operators also should make sure the magnetic compass and altimeter are calibrated and operating properly to aid in dead reckoning in case of GPS loss. Finally, operators should ensure air vehicles and ground control station/ground control unit batteries are fully charged. If a battery swap is required, it's important that the fully charged battery is connected and the voltage is increasing before disconnecting the low battery.

Operators should set up the GCS/GCU in a location that will afford the best line of sight for the entire mission. Operators should ensure higher headquarters has coordinated SUAS operations so there is only one operator on any given channel.

If loss of link of any type is encountered, follow the proper emergency procedures for the link that is lost. Also, ensure all pertinent data (video, screen capture and mission data) are captured for investigation and recovery operations. Sometimes all the UAS requires is to command a climb. Refer to Aviation Safety Action Message RQ-11-07-ASAM-01, DTG 082030Z MAR 07. This ASAM includes a required addendum available at https://asmprd.redstone.army.mil.

Operators should understand the wind limitations, know how to determine when there are high winds and ensure those winds don't exceed the limitations listed in the operator's manual during the mission. If the operator is unable to maintain safe control of the aircraft or winds exceed the limitation, the operator should bring the air vehicle home and land.

Master trainers should emphasize operators use proper Raven emergency procedures, site survey/setup, principles of line of site and troubleshooting procedures. The minimum crew to operate a SUAS is one TRADOC-approved school trained operator and an untrained

FOD PREVENTIO

CHRIS TRUMBLE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Foreign object damage is a constant hazard to Army aircrew members and one that can increase the likelihood of accidents, possibly resulting in aircraft damage, injuries and/or fatalities.

Foreign object debris is created from an endless variety of sources, including dropped parts, tools, trash, deteriorating pavement and other extraneous material that could interfere with aircraft operations. Army Aviation is greatly concerned about this matter. The U.S. Army Combat Readiness/Safety Center Air Task Force recently conducted research on all FOD incidents from fiscal 2002 through 2006. The analysis showed 87 aircraft were damaged, of which:

- 41 were located in CONUS.
- 51 were H-60 type.
- 30 instances were a result of debris blown up from the ground.
- 20 were inside the engine from an unknown source.
- 17 were due to tools or maintenance materials left in the aircraft.
- 67 accidents resulted from failure to keep areas clean or account for materials.

We determined FOD costs have increased two-and-

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> "Lost aircraft **DEGRADE** combat power, and missions to **RECOVER** them can **INTERRUPT** combat operations, drain critical resources and **EXPOSE SOLDIERS** to additional **RISK**."

assistant. It is strongly recommended both operators are qualified and current to ensure the safe operation of the Raven.

Training Circular 1-611, *Small Unmanned Aircraft System Aircrew Training Manual*, outlines the SUAS aircrew training program. The key to a successful training program is the master trainer. The MT is the commander's designated representative for SUAS operations. He manages the overall aircrew training program and ensures operators are trained to standard, records are in order and operator currency is maintained.

ON

a-half to three times during the previous two years. From fiscal 2002 to 2004, FOD costs were approximately $1 million per year. In 2005, FOD costs increased to about $3 million, and in 2006, $2.5 million.

What is the reason for all these incidents? Human factors appear to be the primary root cause. Maintenance personnel are not accounting for tools, parts or debris created during maintenance operations. Some reports indicate Soldiers are not properly maintaining landing zones. We need to remind aircrews to conduct FOD walks and secure all materials on the flight line. All aircraft components must be secured and/or stowed properly.

We have developed two tools to assist aviation units with their FOD prevention programs. First, a FOD management audit tool template that Soldiers can modify to reflect a unit's unique circumstances and use to check their FOD prevention programs. Second, there is a Microsoft Office Excel®-based hazard-tracking system template that Soldiers can modify to reflect a unit's needs and track FOD hazards. Soldiers can also use the hazard-tracking template to track FOD trends within their units.

The templates aren't mandatory for your unit's use; however, they are available to assist you. Consider these tools a 90-percent starting solution, and tailor them to your unique situation. If the template's information is not applicable to your unit, delete it. Likewise, if you need to add information or expand it, you are encouraged to do so. For more information on the FOD study and unit FOD prevention management, go to the USACRC Air Task Force Web page resources area (https://crcapps2.crc.army.mil/atf/resources.asp). Soldiers need an Army Knowledge Online account to enter the area.

Most FOD accidents are preventable. It's true that occasionally a materiel failure results in an engine ingesting parts of the aircraft, but far more often someone, somewhere simply did something or failed to do something and FOD was the result. Everybody in the unit must be on the lookout and take responsibility for removing hazards that can cause FOD. FOD is everybody's business.

Riding Safely Into

STEVE KURTIAK
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

One of the most beautiful times of the year to ride is during the fall as the colors reach their full brilliance. However, despite the season's beauty, fall can be an especially dangerous time for riders. With days getting shorter and temperatures falling, motorcyclists need to adjust their riding techniques accordingly.

See and be seen

As the days shorten, you'll be spending more time riding in the dark. While you'll be able to enjoy some beautiful sunrises and sunsets as you ride to and from work, you'll also have to deal with the sun's glare. That glare, especially when the sun is low on the horizon, can make it hard for drivers to see you or you to see the road. You have probably experienced this many times in a car. Despite leaning your head back, pulling down the sun visor and wearing your sunglasses, you're still partially blinded by the glare.

This problem can be worse for motorcyclists. Even if your helmet has a visor or tinted shield to reduce the glare, you'll still have problems seeing oncoming traffic. If you can't reduce the glare, you'll have to hold your head so you can see the road while trying to keep the sun out of your eyes. This usually means riding with your head in an awkward, tucked position.

To be seen, you need to position yourself in your lane where you'll be as visible as possible to oncoming traffic. This is particularly important when approaching intersections, where the bottom-line rule is to ALWAYS assume someone will pull out in front of you. You need to prepare yourself for that by adjusting your speed accordingly, being ready to maneuver quickly and always leaving yourself a way out. While these tips apply year round, they're especially important in the fall when the sun's glare makes it harder for others to see you during sunrise and sunset.

Slip-sliding away

Falling leaves present their own hazards. Wet leaves reduce traction and can make riding to work or taking weekend trips on twisty, two-lane roads more dangerous. Smart riders adjust their speed going into curves and look well ahead to choose the best line to avoid any wet, slick leaves. As temperatures drop, smart riders will be on the lookout for ice in shaded curves, where the lack of sunlight has kept the ice from melting. Whether you ride in the Smoky Mountains, Cascade Mountains, Adirondacks or the foothills of the Alps, it's up to you to be aware of the road conditions before you ride. Every morning, I check the weather, dress accordingly and mentally prepare myself before starting my motorcycle.

Speaking of dressing for the ride, there's nothing worse than having cold hands and feet. Not only is being cold uncomfortable, it can impair your ability to control your motorcycle. Whenever my hands begin to feel a slight chill, I begin adding layers of clothing. I put my summer gloves away and wear my

Fall

winter set without the liner. When my hands start feeling cold again, I add the liners and I'm good until the spring. I do the same thing with my jacket and pants. Because my boots provide excellent protection from the elements, I just wear thicker socks in the late fall and early winter.

The cold not only affects your body, it can also affect your ability to make good decisions. A friend with many years' riding experience crashed during an early winter morning when he failed to recognize slippery road conditions ahead of him on an exit ramp. Being cold, he was less alert to dangers and didn't spot the spilled diesel fuel until it was too late to avoid it. Luckily for him, he was wearing the appropriate personal protective gear and only suffered a broken left arm and some ruffled pride. Regardless your level of riding experience, being cold and not having your head in the game can bite you.

When the riding season ends, you'll definitely want to protect your motorcycle by properly winterizing and storing it. Some of you will put up your bikes in November, so now is the time to start thinking about the proper storage techniques. Your owner's manual, coupled with the T-CLOCS (Tires, Controls, Lights, Oil, Chassis and Stand) inspection checklist, will guide you through the proper steps. For easy reference, here are some tips to help your bike survive its winter hibernation:

- Change the oil.
- Fill the fuel tank and add fuel stabilizer.
- Properly inflate the tires.
- Wash and wax the painted and chromed surfaces.
- Follow the instructions in your owner's manual to disconnect and remove the battery.
- Plug the exhaust and air cleaner openings to keep out any critters.
- Make sure you conspicuously mark any plugs you install so you don't embarrass yourself in the spring with a motorcycle that won't start.
- Use a cover that will breathe, such as light canvas, to protect your motorcycle. A plastic cover can create condensation and cause rust.
- Attach a check sheet to the throttle or make a note in your owner's manual to remind you of what you did when you stored your motorcycle.

> "Wet **LEAVES** reduce traction and can **MAKE RIDING** to work or taking weekend **TRIPS** on twisty, two-lane roads more **DANGEROUS**."

Winter—and the snowplow that buried your driveway with two hour's worth of snow to shovel—will soon be gone. By following the steps in your owner's manual, T-CLOCS checklist and the check sheet you made, you'll save money on maintenance costs and get on the road quicker in the spring.

Live to ride and ride safe!

Train & Sleep As Y

1LT ERIK JOHNSON
Indiana Army National Guard

Unit commanders and their subordinate leaders naturally want to prepare Soldiers to a combat proficiency as near as possible to that of the combat veteran. This can be accomplished only through rigorous, realistic combat training. As part of that training, leadership must address one of the great challenges to small unit success in a combat zone—sleep.

In combat, as well as in combat training, the directions leaders give should be simple, clear and complete. However, they must recognize that if Soldiers are tired, they might have to repeat those directions and double-check to ensure Soldiers follow their instructions. At the same time, leaders will also eventually require sleep, and they must take time for rest too.

We can hardly expect another "Christmas truce" in contemporary warfare, and we can't call a "timeout" with an enemy. Unfortunately, the reality of modern warfare is its characteristic 24-hour cycle. Enemies can attack at any moment, day or night. Therefore, Soldiers must be on guard every waking moment. After a while, this becomes exhausting. And once exhausted, Soldiers become more vulnerable to enemy actions.

As a leader, be especially attuned to Soldiers who show an inability to concentrate, perform complex operations, understand instructions or clearly remember events. These Soldiers could very well be sleep deprived. While no Soldier in combat can expect a normal sleep schedule, there are limits to what the body can tolerate over a prolonged period.

Consider the human need for sleep in all training and combat plans. Encourage sleeping when the opportunity arises. Severe problems develop after several days if Soldiers cannot get at least four hours of sleep every day. But even this is a much abbreviated sleep plan and cannot be effectively sustained for weeks on end.

The best countermeasure to an abbreviated sleep plan is taking naps at every opportunity, even for brief periods. Remember, falling asleep quickly and waking up quickly and alert—necessary components of Soldiering in combat—are skills that will improve with practice. So, by all means, practice them!

But the commander's responsibility to develop a sleep plan remains. Battle conditions

You Fight

will impose constraints on any ideal notion of a sleep plan. However, the commander can make this job easier if he integrates one critical concept into his training scheme: a rigorous program of company-level cross-training.

The commander will find making a reasonable sleep plan is easier if he has cross-trained his subordinates. This technique may be resisted by those Soldiers disdainful of other specialties, uninterested in any other work but their own or too lazy to want to learn anything new. However, this resistance must be overcome.

Keep this in mind: many units may never have enough members to fully staff two or three shifts for every duty position. Therefore, a need exists to have enough people cross-trained to allow the primary duty Soldier to sleep while the secondarily trained (read cross-trained) Soldier performs the job in his absence.

This technique of sleep management will also serve to make productive use of the down time Soldiers may experience when their primary section is not working. To explain, once the Soldier of a certain section has been cross-trained to a secondary section, his NCO can coordinate with another NCO in the Soldier's secondary section to gainfully employ him during a spate of down time. As rare a circumstance as this might be in a combat zone, leaders should address the issue proactively. Therefore, the NCO in-country should seek to take advantage of this downtime, especially when the other section has a Soldier needing relief. But, again, without cross-training, this system of sleep management is less effective than it might otherwise be.

Thinking and reasoning abilities suffer in the Soldier who is deprived of sleep. In the wrong situation, this deprivation could cause catastrophic damage to a unit in the field. Therefore, leaders must take actions in training and combat to reduce the rate of decline in their Soldiers' combat proficiency due to sleep loss. Always ensure Soldiers get as much sleep as the tactical situation permits. When preparing for combat operations, remember to train—and sleep—as you fight. ■

TRAINING ABOVE AND BEYOND

BRUCE WILLIAMS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

The mission of today's Army National Guard and Army Reserve safety officers requires safety training above and beyond the norm. Safety officers are routinely deployed with their units and are being tasked with increasingly greater safety responsibilities. As safety advisers to their commanders, additional duty safety officers must have the prerequisite safety knowledge to enhance the unit's accident prevention initiatives and facilitate the integration of composite risk management needs.

To help fulfill those needs, 21 Guardsmen and Reservists recently participated in the Ground Safety Officer Course at the U.S. Army Combat Readiness/Safety Center. The students were the first to graduate from the class.

The Ground Safety Officer Course produces the skills necessary to establish mission-focused, safety-qualified additional duty safety officers and safety NCOs for the ARNG and USAR. The course curriculum includes training in CRM, explosives safety management, accident investigation and reporting, range safety and OSHA 501. Upon completion of training, ARNG and USAR students receive an Additional Duty Skill Identifier.

The training is available as a six-week resident course or two-year phased training. Students must complete a series of prerequisite online courses before attending the six-week resident training. The training encompasses four phases that must be completed over a two-year period. The first and third phases are online prerequisite courses. The second and fourth phases consist of 13 days of resident training.

For more information regarding ground safety officer training, contact the Ground Safety Officer Course, U.S. Army Combat Readiness/Safety Center at (334) 255-0247 or DSN 558-0247. To apply for the Ground Safety Officer Course, U.S. Army Reserve personnel should contact the USAR Safety Office at (404) 464-8841, while U.S. Army Reserve National Guard personnel should contact the ARNG Safety Office at (703) 607-7349 or DSN 327-7349.

Inside the

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.

In the Iraq and Afghanistan combat theaters, our units are faced with missions so challenging that success might seem impossible. Yet the great leaders and Soldiers of our Army step up and meet these missions every day. Leaders pour out their best to ensure they identify every risk, account for every contingency and address every possible enemy action in the planning, while Soldiers do their best to ensure they are vigilant, alert and represent all that is right about our Army.

Wire

In the safety community, and especially at the U.S. Army Combat Readiness/Safety Center, we have come to believe most units seem to do the hard things well. However, the easy things—the low-risk missions, the things that happen inside the wire—seem to lead us to disaster. Outside the wire, when all our senses are alert, there isn't a force that can defeat us. But inside the wire, where the risks and threats are low, we let our guard down. We accept the routine and don't apply the principles of composite risk management to the everyday things that jump up and bite us in ways that we don't expect.

The bottom line is that when a unit focuses on a mission with all the leadership and brain power available, the mission goes as planned, the risks are minimized and success is achieved. Unfortunately, recent accidents indicate that when the mission is more routine—when it's the same thing, different day, or when everyone takes for granted that everything will be fine—tragedy strikes and we lose Soldiers from our formations. A recent accident inside a forward operating base is the perfect example.

The accident sequence

A transportation company was given the challenge of transporting concrete barriers to a strategically important location to erect a barrier between hostile factions of the populace. Every time the trucks left the FOB, they faced the challenges of improvised explosive devices, small arms fire, rocket-propelled grenades and car bombs. The chain of command identified these risks and used all of its resources to ensure mission accomplishment. They did it well and pushed mission accomplishment to the limit. Unfortunately, in the preparation for these missions each day outside the wire, they failed to see the risks that they faced inside the wire.

In order to prepare the unit for success on the missions outside the wire, the barriers had to be loaded and the trucks prepositioned for the nightly mission to deliver them to the engineers who would emplace them. Because the unit was focused on the mission outside the wire, limited resources were assigned to the daily preparation. A single NCO was assigned to supervise the preparation and loading of up to 20 vehicles for movement. The 20-plus privates and specialists he was challenged to supervise were all young,

eager and willing, but they lacked the experience to execute the missions without appropriate supervision. Their training was limited and their driving experience was often limited to Advanced Individual Training and a few turns around the FOB. The two Soldiers involved in this particular accident arrived in theater as individual replacements and had been in the unit for less than three weeks. They were motivated and wanted to accomplish the mission, but they were not experienced enough to recognize the risks associated with the daily routine.

The Palletized Loading System truck and trailer being used by the unit were only capable of carrying two barriers—one on the truck and one on the trailer, according to the manuals. The chain of command made a decision to carry two on each and overload the vehicles by 6,000 pounds to accomplish the mission. While this decision was supportable based on mission assessment, the young Soldiers who drove the vehicles inside the FOB did not realize the changes to the handling characteristics of the truck. This led to the driver not anticipating the altered stopping and cornering characteristics of the vehicle. As he was driving, he failed to negotiate a 45-degree turn and the vehicle overturned.

The driver and assistant driver demonstrated individual indiscipline by driving too fast for the conditions and exceeding the posted speed limit. They also failed to wear the advanced seat belts provided in the vehicle. As a result, when the vehicle overturned, the assistant driver was ejected and crushed to death as it rolled over him. The question leaders have to address is what allowed these Soldiers' indiscipline to lead to this accident?

Why the accident happened

The chain of command placed so much emphasis on the mission outside the wire that they failed to apply CRM to the preparation for the mission inside the FOB. A single NCO was required to oversee not only the Preventive Maintenance Checks and Services of the 20 vehicles by 20 young Soldiers, but the loading and positioning of the vehicles for the night crew who would drive the vehicles to the mission location. He was faced with a challenge beyond his

> The chain of command **PLACED** so much **EMPHASIS** on the mission **OUTSIDE** the wire that they **failed** to **APPLY CRM** to the preparation for the mission **INSIDE THE FOB**.

control. Eventually, single vehicles with two young Soldiers in the cab were moving around the FOB, fully loaded and without supervision. One of them became involved in an accident. The chain of command did not put the controls in place to ensure that the young, eager Soldiers of the unit were able to accomplish the mission without exceeding their limitations.

Using the tools for success

How do we avoid this situation and the potential loss? We must address the low-risk, routine mission the same way we evaluate what we perceive to be high-risk missions. We must apply the same concepts of CRM to the preparation as to the mission. Leaders must ask, "Where is the most likely point of failure? Do my subordinate leaders have the tools and the span of control that will lead to success? Am I putting too much emphasis on the tactical risk and not enough on the accidental risk?"

The challenges our units face are significant. The combat environment our Soldiers work in every day presents challenges no prior force has ever faced. Leaders must address the risks associated with the missions outside the wire to ensure mission accomplishment—our future depends on it. Leaders must also remember that what happens inside the wire presents its own challenges that must be addressed to prevent unnecessary loss to our force. Army Safe is Army Strong!

WOUNDED WARRIORS

As in past wars, Soldiers returning from combat today are subject to suffering both physically and psychologically from the rigors of battle. The emotionally jarring experiences of war can lead to Post Traumatic Stress Disorder, while the physically jarring experiences of battle can lead to mild Traumatic Brain Injury. Recognizing the cost to Soldiers, their Families and the service, the Army recently launched an online program to help identify the symptoms of PTSD and mild TBI. Available on the Army Knowledge Online Website at www.us.army.mil, the program provides two versions—one for leaders to use while training their Soldiers and a separate version for use by family readiness groups.

Symptoms common to PTSD and TBI include difficulty concentrating, memory problems and irritability. Symptoms specific to TBI include headaches, dizziness and balance problems. Soldiers suffering PTSD may also experience nightmares and increasing anxiety.

In the past, Soldiers were often reluctant to seek help for these problems for fear it would damage their careers. Consequently, not getting help sometimes led to the problems worsening. The AKO online training is a step in reshaping the Army's culture to encourage Soldiers to get the help they need, according to COL Elspeth Ritchie, a psychiatry consultant to the Surgeon General of the Army.

Healing wounded warriors is another way for the Army to invest in its most important resource—Soldiers.

ASO Shares Secrets of Succ

CW5 Mark Grapin, a Kentucky National Guardsman, has been awarded the Director of Army Safety Composite Risk Management and the James H. McClellan Aviation Safety awards for his work as the brigade aviation safety officer for the 63rd Aviation Group, Udairi Army Airfield, Kuwait.

Grapin has lived his state's motto, "United We Stand, Divided We Fall," through the challenges of the conflict in the Middle East. Although assigned as the brigade ASO for the 63rd Aviation Group, Grapin touched more than those wearing Army green. Reaching across service lines to his partners in the Coalition Forces Land Component Command, he took responsibility for aviation safety at the airfield, group and theater level. He also expanded safety concerns to include ground accidents and even those off-duty accidents that touch Soldiers and their Families. The 27-year veteran aviator sees his role to protect Soldiers as complementing his commander's efforts. As a safety officer, he believes in asking the tough question of "how to fight safe" and understanding fighting safe is important to fighting smart.

There were many issues to overcome as Grapin worked at Udairi with his Air Force, Marine, Navy and Coast Guard counterparts. Part of the challenge was language—trying to understand the buzz words used by each service. Finding a common mode of communication linking safety personnel between the service branches was critical. Fortunately, the Army already had a built-in answer. The Army's Aviation Safety Officer e-mail list server reached across service boundaries to get safety specialists talking to each other and sharing ideas. The list provided an ideal "meeting place" where Grapin developed contacts and working relationships even before he arrived in Kuwait.

Grapin's approach worked and he became the hub between the services after arriving in Udairi. Because Army tours in theater are longer than those of the other services, it made sense a Soldier could offer better continuity to the joint

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PAULA ALLMAN
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

service safety programs there. Grapin accepted that challenge, supporting CFLCC safety efforts by authoring five theater-level, inter-service safety and standardization publications. Additionally, he helped develop ground safety and even off-duty programs. Recognizing that accident reporting is essential to recognizing trends, he worked to improve the process so lessons learned wouldn't be lost.

Fundamental to his success, he explained, was having commanders clearly define their missions and share that information across service lines as safety plans were being developed. For example, an artillery unit could safely conduct a fire mission just as an Air Force fighter unit could safely execute a ground attack mission. However, if both missions occurred at the same time over the same target, what were individually low-risk events would be extremely dangerous. Grapin understood the light illuminating risks had to have a "purple" tint.

"Connectivity"—finding out where U.S. forces were operating and developing effective

COL Benjamin F. Adams III (left), 63rd Theater Aviation Brigade Commander, presents CW5 Mark Grapin the DASAF Composite Risk Management Award at the annual state aviation safety and standardization stand-down in Frankfort, Ky.

GEN Richard A. Cody, Vice Chief of Staff, Army, presents CW5 Mark Grapin the James H. McClellan Aviation Safety Award at the 2007 AAAA Annual Convention in Atlanta. Pictured above are (from left): BG (Ret) Thomas J. Konitzer, BG William H. Forrester, Cody, Grapin, MG Virgil L. Packett II and CW5 Randall Gant. (Photo Credit: AAPI Photo by Rene Bidez)

communication—was essential. As multi-service operations were planned, liaison officers used e-mails to keep everyone on the same sheet of music.

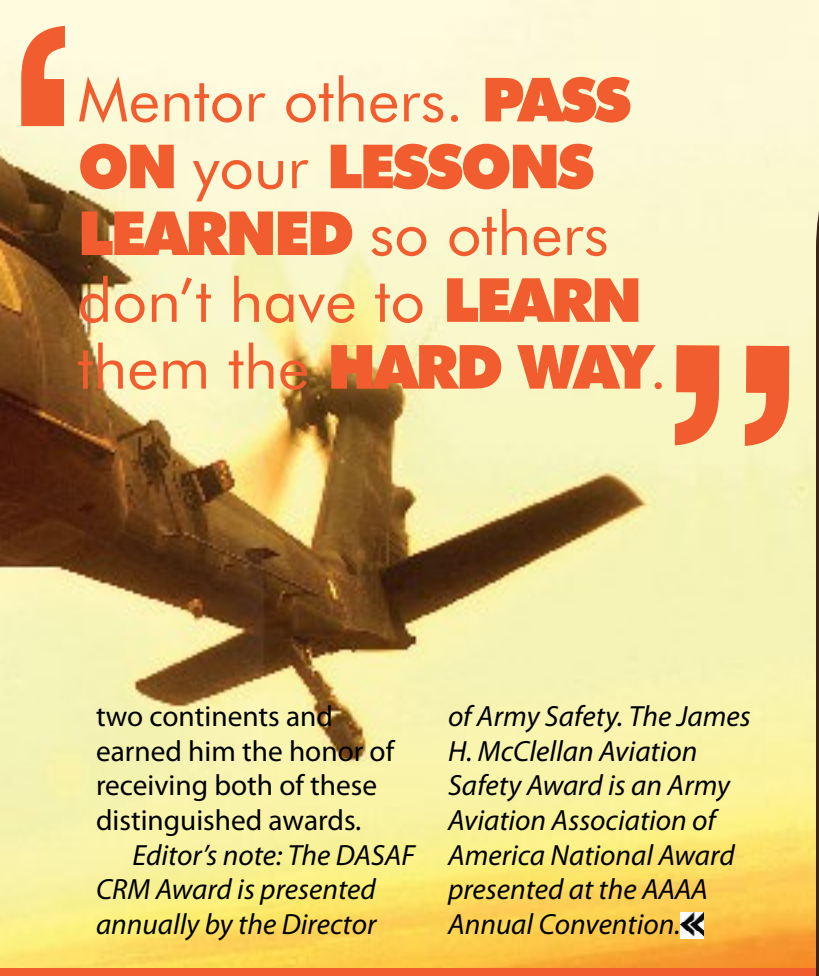
Grapin took the Army's CRM principles and blended them across service lines to overspread the battlefield. Doing so enhanced not only the safety posture of Army Aviation in the U.S. Central Command area of responsibility, but also that of other service flight safety programs in theater. His demonstrated vision, leadership and technical skills shaped safety doctrine at various complex levels spanning

TIPS FOR SUCCESS

CW5 MARK W. GRAPIN
Kentucky Army National Guard

Because being successful with safety programs is no accident, CW5 Mark Grapin offers the following suggestions to help make those programs effective:

- **Walk around.** Do you know what's in the hazardous materials locker or hanging in the ALSE lockers? Could you complete your Semiannual Aviation Accident Prevention Checklist with confidence without ever leaving your desk? Be active in your organization to head off operational hazard reports.
- **Mentor others.** Pass on your lessons learned so others don't have to learn them the hard way.
- **Standardize your programs.** This will lift rocks out of the rucksacks of every operations officer, commander and safety officer in the echelons below you.
- **Go for a ride.** Take a ride with the new and old drivers to see if they wear their seat belts, reach for their identification cards and dim their lights before going through the entry control point. If the old guys do it right, it sets a model for the news kids in the command.
- **Make some noise when you catch someone being safe.** Put a bunch of CW5 coins in your pocket and keep some DA Forms 1119-1, *United States Army Certificate of Achievement in Safety*, in your wallet. Pass them out when appropriate—but don't cheapen them.
- **Make some things "sergeant's" business.** Not everything has to hit the HAZLOG. Let senior NCOs do their jobs, correcting errant safety behavior at their discretion and in their manner.
- **Record the reward.** Find the master driver trainer and get that entry on the DA Form 348. Sit down in front of the individual aircrew training folder and record the safety award on the 7122. Get good at filling out DA Forms 638. Nothing beats hanging a driver's badge on a kid who's been busting his butt tugging aircraft across a flightline for a year without so much as scraping the green paint.
- **Get the 0-6 to sign some awards.** The full-bird's signature is worth five points at a promotion board.
- **Make your files magnificent.** The better you are at managing safety files, the easier the ARMS will go—which will make things easier for the standards and maintenance guys, along with the training manager in the S3 shop. A safe program is standardized, and a standardized program is safe.
- **Hit a home run.** Look up what it takes to earn a meritorious service medal in your job and do it. Always have another home run project on the back burner, ready to pull up at a moment's notice, and keep working on it.
- **Love safety.** If you don't love safety, do something excellent by getting out of it.
- **Have the courage of your convictions.** Stand your ground, but don't push other people away or be disrespectful.



two continents and earned him the honor of receiving both of these distinguished awards.

Editor's note: The DASAF CRM Award is presented annually by the Director of Army Safety. The James H. McClellan Aviation Safety Award is an Army Aviation Association of America National Award presented at the AAAA Annual Convention.

- **It's OK to cry at funerals.** Remember what the sting of those tears feels like.
- **Shake the hand of a greasy mechanic.** Tell him how much you appreciate what he's doing. Tell your Safety NCOs you see them as a partner in your effort. Respect the contractor and civilian supporting you.
- **Carry a 3-by-5 card in your pocket or wallet.** On one side, have bullets for a hip-pocket safety briefing you'd like to give. On the other side, have a prayer or blessing jotted down from your favorite scripture—maybe something from Isaiah or I or II Corinthians. You never know when you'll need one or the other side of that card.
- **Learn how to type and spell.** Your credibility is your stock in trade. If you can't get the "e" in the right place in "safety," why would anyone want to hear what you have to say about it?
- **Don't make up answers.** The same response you gave as an "E-onederful" when you didn't know anything works just as well when you're a CW5 on the theater commander's staff. Say, "I don't know, sir, but I know where I can find out. Will you give me a moment to get that?"
- **Put it back better than you found it.** That not only goes for the vehicle you just drove, it goes for the pubs on your office shelf and the SOP you were supposed to update.
- **Don't throw sand in staff meetings.** Sometimes you may need to throw a dart—you'll know when it's the right place and time. Carefully pick your battles as you wage your war.
- **Train WHILE you fight.** Letting your "Fort Living Room" safety skills go to seed while you're in the "shooting gallery" will get you killed after you come back.

WATCHES AND RINGS

CW5 MARK W. GRAPIN
Kentucky Army National Guard

Wearing watches, rings or other jewelry while onboard aircraft is asking to leave a piece of yourself behind.

During a recent preflight inspection, a UH-60 aircrew member hooked his wedding band on the rain gutter above the pilot's door after retrieving the Pitot tube cover. This thin piece of aircraft sheet metal found its way between the crewmember's ring and finger—even though he was wearing gloves. The crewmember's finger was no match for the full weight of the rest of his body!

Recommendations

1. **Maintainers.** Empty or zip pockets and remove all watches, rings and necklaces before conducting any work on aircraft. A metal watch face or band, necklace or dog tags might provide a conduit for electrical circuitry and could leave you with a nasty wrist or neck burn—and a grounded aircraft.
2. **Quality Control Inspectors and Line Supervisors.** Spot check your Soldiers for compliance during any maintenance on the flight line or hangar floor with the "no exception" policy to remove all jewelry all the time!
3. **Aircrews.** Follow the same guidance as maintainers. Clearly, gloves are no help in shielding your fingers from this hazard. Consider the practice of keeping your wedding band laced inside your watch band, and remove it before starting your preflight. Should you have to perform an emergency egress of the aircraft, every part of you should make it out safely!

Adapted from 07-005 Kentucky ARNG Safety Alert dated May 17, 2007.

The delicate skin structure of your hand is simply no match for your full body weight. Remember to remove all jewelry before boarding the aircraft.

TRiPS

It's Online for You!

DEREK KOVACSY
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

The Travel Risk Planning System, better known as TRiPS, is an online automated risk assessment tool specifically designed for personnel using their privately owned vehicles or motorcycles during pass, leave or TDY.

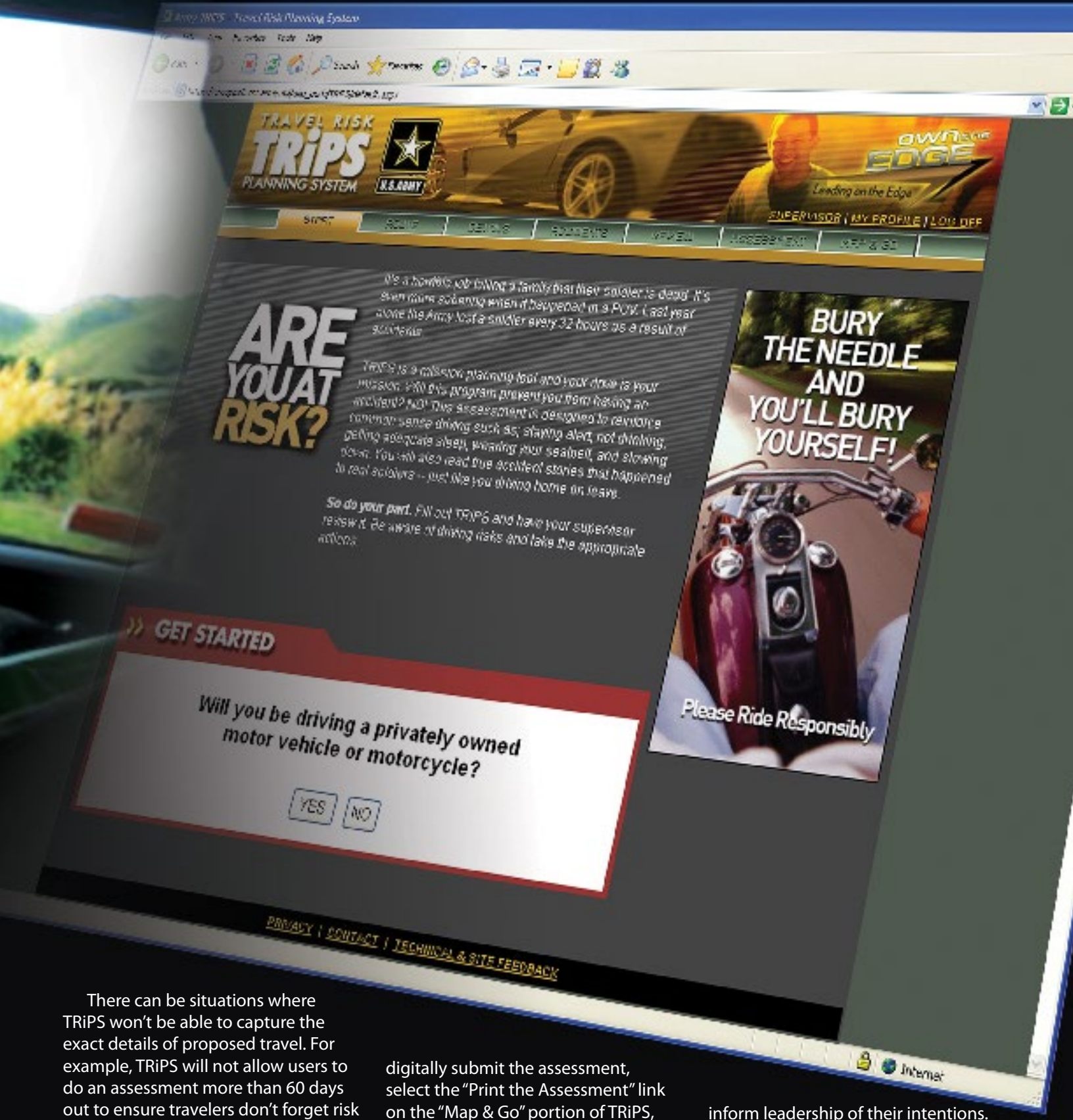
For fiscal 2006, Army personnel using TRiPS (formerly known as ASMIS-2) were 2.5 times less likely to have been involved in a fatal POV accident. Since the beginning of fiscal 2007, Army personnel have completed more than 598,500 Army TRiPS POV assessments. Because TRiPS has been effective in reducing Army fatalities, it has been adopted by all the military services.

The key to the program's success is the way it involves leaders with their Soldiers' pass, leave or TDY travel plans. The TRiPS program not only provides leaders with important information about their Soldiers' travel plans, it provides recommended actions to reduce hazards and also calculates the trip's overall risk. Armed with vital facts, leaders may then elect to approve or disapprove the online assessment. Taking into account the current high operating tempo, TRiPS provides leaders the information they need to draw intelligent conclusions and make valuable recommendations before approving a Soldier's request for leave or absence. This leader-to-subordinate interaction, fostered by TRiPS, is crucial to the tool's success.

How does TRiPS work? Users provide risk-related information, including the type of vehicle they are using, departure time, distance to travel, driver's age, driving courses attended and seat belt use. Other information includes vehicle safety inspections, driver rest prior to travel, driver medication or alcohol use, checking weather forecasts, whether the driving will be during day or night, the type of road traveling on and planned rest stops. TRiPS also advises the user to be cautious when towing a trailer because a trailer affects the handling characteristics of the tow vehicle.

> "The **INTENT** of TRiPS is to **INVOLVE LEADERS** in their Soldier's **TRAVEL PLANS** and give them an **EFFECTIVE TOOL** to **PROTECT** the Army's most valuable asset—**IT'S PEOPLE**."

Based upon the selected parameters, TRiPS provides accident summaries reflecting similar travel information, a calculated risk level for the trip and recommendations to reduce hazards. Those recommendations may include being aware of the effect medications have on drivers and informing the chain of command of those effects, checking the weather before traveling and taking precautions for driving at night or on two-lane roads. In addition, to prevent driver fatigue, the assessment may suggest periodic rest stops or sharing driving responsibilities. Users perform a final risk calculation based on the mitigation measures taken, and then the tool provides them with driving directions and a map. TRiPS enables users to electronically submit their assessments to their supervisors and also fill out a partially completed leave form.



There can be situations where TRiPS won't be able to capture the exact details of proposed travel. For example, TRiPS will not allow users to do an assessment more than 60 days out to ensure travelers don't forget risk reduction measures before traveling. However, TRiPS can be flexible. For example, Soldiers separating from the Army may need to complete a TRiPS assessment more than 60 days before their separation to have their leave approved. In such instances, Soldiers simply need to complete an assessment for a similar timeframe, digitally submit the assessment, select the "Print the Assessment" link on the "Map & Go" portion of TRiPS, and then write in the changes and reasons for the deviation. Soldiers should clearly address this with their supervisors and complete a new, more accurate assessment closer to their actual travel date. Also, to avoid driver fatigue, additional drivers should complete a separate assessment for the same trip and inform leadership of their intentions.

TRiPS is not intended to replace the supervisor's role in approving leaves, nor should it become a check-the-block system to provide a paper trail after an accident. The intent of TRiPS is to involve leaders in their Soldier's travel plans and give them an effective tool to protect the Army's most valuable asset—it's people. ■

TOSSING THE

The player looks to his left and sees a teammate in the clear. With a flick of the wrist, he tosses the Frisbee to his teammate, who deftly snatches it from the air. The receiver looks for an open teammate as opposing team members try to block him and any receivers downfield. He can't carry the Frisbee; he can only advance it by tossing it to a teammate. The pressure is on. With only 10 seconds to advance the Frisbee before having to turn over possession, he's got to act quickly. At the far end of the field is the goal. To win, his team must get the Frisbee to a receiver inside the end zone.

Ultimate Frisbee is the game of choice for many students attending the Aviation Captains' Career Course at Fort Rucker, Ala., and it's also gaining popularity at other installations and colleges nationwide. A combination of soccer, basketball and American football, it's a welcome relief for students spending several weeks learning the Military Decision Making Process and doing computer exercises. However, relief can turn into several weeks of pain if a player suffers a pulled hamstring or torn anterior cruciate ligament. The secret to avoiding injuries is preparing yourself for the rigors of this game the same way you'd prepare equipment for deployment.

Conditioning and preparation

About 75 percent of Ultimate Frisbee injuries involve muscle damage, according to a University of Wisconsin health study published in SafetyLit℠, a safety-related Web site at http://www.safeftylit.org provided by San Diego State University. The most common injuries, strained hamstrings, quadriceps, groins and calves, can be prevented through proper preparation. Many of the injuries we see occur near the start of the course, so it's important to be in good physical condition before playing Ultimate Frisbee. The game requires speed, agility and endurance because you have to run patterns, make cuts to get open and jump higher than your opponent to get the disc. So, if you have weak ankles or knee problems, prepare yourself by wearing a sturdy brace or high-top cleats for support. I strongly recommend a good set of football or soccer cleats. Running shoes, unfortunately, don't provide the traction you need to keep from sliding and tearing muscles in your lower extremities.

Another great way to prevent injuries is good pre-game preparation. One of the first things to consider is the weather. If it's hot and humid, like most mornings at Fort Rucker, your preparation

ULTIMATE FRISBEE

MAJ RICHARD ARNOLD
1st Battalion, 1-145th Aviation Regiment
Fort Rucker, Ala.

FYI

The "Ultimate" Pre-game Warm-up

- Take two laps around the playing field at a comfortable pace. Mix in some cuts, jogging backward and karaoke steps.
- Spend 10 minutes stretching out, working from your upper to lowe extremities. Spend extra time on the hamstrings, groin and calf musc
- Spend five minutes throwing the disc with a team member. Start wi short throws and gradually increase the distance. Make sure you pract different types of throws, including the forehand, flick and hammer.

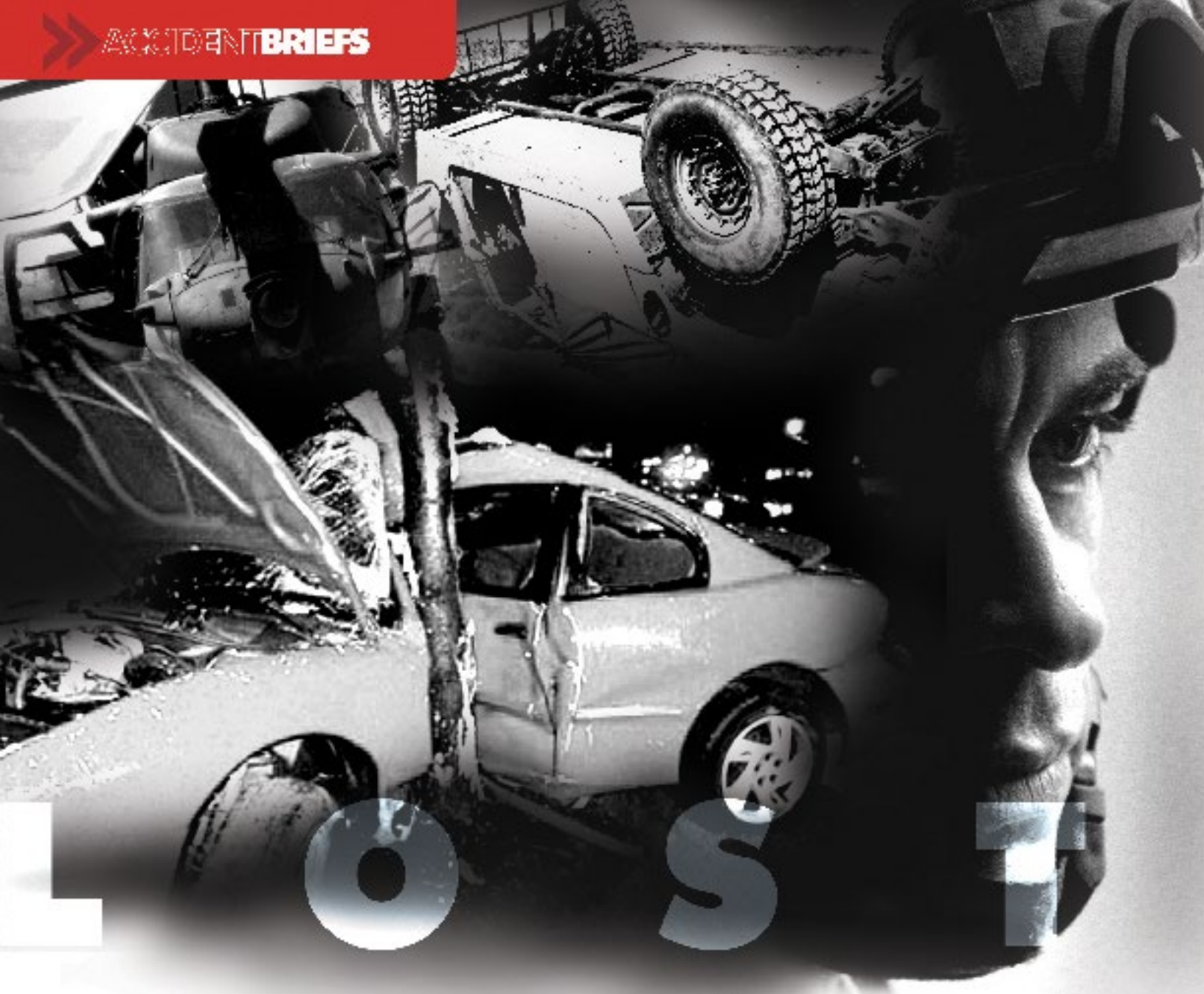
begins the day before. Obviously, you want to drink plenty of fluids to ensure proper hydration and eat a decent carbohydrate and sodium-balanced meal. Also, don't forget foods rich in potassium can help prevent cramps. On cold days, not only are hydration and diet crucial, it's important to raise your heart rate and spend more time stretching. Cold muscles are more vulnerable to tearing, so make sure you warm up thoroughly. Prepare your upper body by spending at least five minutes practicing the different Frisbee throws, which will loosen your shoulder, arm and wrist muscles. Baseball and football players almost always loosen up in this fashion.

A little CRM, please

The other injuries I've seen were caused by accidents. Just as conditioning helps prevent muscle injuries, composite risk management helps prevent accidents and the injuries they cause. For example, I'm not the youngest and most coordinated Ultimate Frisbee player, so I refrain from diving to make a play for the disc. I identified and assessed the hazards and made the decision to play the game within my limits. Also, if a teammate or opponent tends to play recklessly, I try to stay out of their "sphere of influence." I'd rather spend my time on the field having fun than on the sidelines nursing a twisted ankle.

With the proper preparation, Ultimate Frisbee can be a safe and great workout. Just remember to prepare yourself by being in shape, having the proper equipment and warming up according to the weather conditions. Also, know your limits and avoid lunatics. Applying these simple principles to Ultimate Frisbee will keep you in the game and out of your troop medical clinic.

For more information on Ultimate Frisbee, check out the following Web site: http://www.whatisultimate.com/.



AVIATION

AH-64

CLASS A A Model

The aircraft was ground taxiing when it entered an uncommanded left turn. The crew retarded power levers, but the main rotor blades flexed down and contacted and damaged the canopy, tail boom and pilot night vision system.

CLASS B

The aircraft sustained damage after contacting electrical tower support wires during flight.

CH-47

CLASS C D Model

Upon returning from a daytime readiness level progression training flight, the aircrew was in the process of engine(s) shutdown. The pilot inadvertently retarded both engine control levers beyond ground position. The instructor pilot realized the ECLs went beyond ground and advanced them slightly forward to properly seat them in the ground position. The aircrew noticed the power turbine inlet temperature on the No. 1 engine had risen to 1,000 C for two to three seconds and the PTIT on the No. 2 engine had risen to 1,150 C for 18 seconds. The aircraft was shut down and the No. 2 engine was replaced.

ARE YOU FOLLOWING THE REQUIRED PROCEDURES DETAILED IN THE AIRCRAFT OPERATOR'S MANUAL AND CHECKLIST?

UH-1

CLASS A H Model

The flight crew of a UH-1H was flying up a draw in the mountains at 60 knots and 350 above ground level when the aircraft struck a high set of wires and crashed. The aircraft was destroyed and two personnel received serious injuries and seven personnel received minor injuries.

UH-60

CLASS A — A Model

During ground taxi, the aircraft's main rotor blades struck a stationary hoist.

CLASS C

The aircrew inadvertently released the sling load (Bambi bucket) during flight.

DO YOU HAVE A CHECKS-AND-BALANCES SYSTEM OF PERFORMING TASKS WITH ANOTHER PERSON DOUBLE-CHECKING FOR VERIFICATION?

CLASS C — L Model

While descending from 8,000 feet mean sea level, Chalk 1 in a flight of two felt a bump in the flight controls and vibrations throughout the airframe. The pilot in command assessed that the aircraft was flyable and flew to the nearest forward operating base without further incident. A thorough inspection was performed, revealing damage to one main rotor blade, two tail rotor blades, the vertical fin and horizontal stabilator. The left-side APU door on the aircraft was missing.

UAS

RQ-7A

CLASS C

The aerial vehicle operator lost link with the system while under the Tactical Automated Landing System, resulting in the UAS crashing.

RQ-7B

CLASS B

The UAS crashed shortly after takeoff, resulting in a total loss.

CLASS C

The UAS descended shortly after takeoff, landing 100 feet from the launch site. Damage was reported to the payload and landing gear.

CLASS C

The UAS experienced an in-flight engine failure. The parachute was deployed and the UAS crashed into an open field.

RQ-5A

CLASS A

The UAS lost GPS link with th ground control station and crashe resulting in significant damage.

CLASS B

The UAS descended and hit the ground when the crew lost link. The UAS landing gear was torn from the vehicle.

RQ-11

CLASS C

The AVO lost signal with the Raven. Search efforts were unsuccessful.

CLASS C

The UAS descended followin a battery failure, resulting in a tota loss.

CLASS C

The UAS lost GPS link and crashed, resulting in a total loss.

GROUND

ACV

CLASS B

A Soldier suffered a permane partial disability after an M1A1 struck him.

CLASS B

Two M2A3 Bradley Fighting Vehicles sustained engine and electronics damage when they became stuck while attempting to cross a creek.

AMV

CLASS A

A Soldier died from injuries after she was pinned between an M985A2 HEMTT and a trailer while ground guiding.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru August 22, 2007

Hostile/ Non-hostile

AH-64A/D	12/55
U/MH-60A/L	9/26
C/MH-47	7/16
OH-58D	11/24
TOTAL	39/121

ARMY GROUND LOSSES

FY07

thru July 2007

Class A/Fatalities

AMV	22/20
ACV	13/7
PERSONNEL INJURY includes weapons handling accidents	46/44
FIRE/ EXPLOSION	2/0
PROPERTY DAMAGE	1/0
TOTAL	84/71

CLASS B

Three Soldiers were injured when the light medium tactical vehicle they were riding in overturned when the driver swerved to avoid cattle in the road. Seat belt use was not reported.

DOES YOUR DRIVER'S TRAINING PROGRAM INCLUDE HANDS-ON TRAINING FOR REACTING TO A HAZARD OR EMERGENCY?

CLASS A

A Soldier was killed when the 5-yard front loader he was operating contacted an unmarked natural gas line, causing an explosion.

DRIVING

POV

CLASS A

A Soldier was a passenger in a Pontiac Grand Am when it overturned on an interstate highway. The Soldier, who was sitting in the right-rear seat, was not wearing his seat belt and was ejected and killed.

CLASS B

A Soldier's left arm was crushed when it was trapped beneath his car during a vehicle rollover accident.

POM

CLASS A

A Soldier was killed on his Suzuki GSX-R1000 sport bike when he entered the driveway to his residence and struck the side of the garage door. The Soldier had attended Motorcycle Safety Foundation training, was properly licensed and was wearing his helmet and personal protective equipment.

CLASS A

A Soldier was riding with a motorcycle club and operating his Kawasaki ZX-12R above the posted speed limit when he lost control, crashed and suffered fatal injuries. The Soldier was wearing his helmet and PPE.

CLASS A

A Soldier was operating his BMW R1200 touring motorcycle on an interstate highway when he struck a car that pulled onto the interstate from the emergency lane. The Soldier who was thrown from his bike and later died at a hospital, was a certified MSF course instructor and was wearing his helmet and protective eyewear.

CLASS A

A Soldier was operating a friend's Kawasaki ZX-6R sport bike when he lost control in a curve, went into a ditch and struck a barbed wire fence. The Soldier, who had a DUI-restricted license and wasn't wearing his helmet or PPE, died.

CLASS A

A Soldier was operating on his Suzuki GSX-R1000 sport bike when he crested a hill and struck an oncoming vehicle. The Soldier completed MSF training and was wearing his helmet. Speed was a factor.

CLASS A

A Soldier stopped his Suzuki Hayabusa GSX1300R sport bike at an intersection and then rapidly accelerated after the light changed. The Soldier was killed when he attempted to move to the inside lane and collided with another vehicle. The Soldier was wearing his helmet and PPE.

CLASS A

A Soldier was operating a Suzuki Hayabusa GSX1300 sport bike when he lost control in a turn, struck a sign and was killed. He was wearing his PPE.

CLASS B

A Soldier was operating his Yamaha R6 sport bike when he was struck from behind by another vehicle and catapulted into the vehicle's windshield. The impact injured the Soldier's right foot, which had to be amputated.

PERSONNEL INJURY

CLASS A

A Soldier died while participating in the Warrior Leader Course-sponsored Land Navigation Course. The Soldier's death was determined to be heat related.

POV DRIVING LOSSES FY07

Class A accidents/Soldiers killed

CARS	31/34
SUV/ JEEPS	15/12
TRUCKS	14/13
MOTORCYCLES	32/30
OTHER*	3/3

TOTAL DEATHS

FY06 99 y 104

WEAR YOUR SEAT BELTS!

A Soldier was killed when the Mitsubishi Eclipse he was driving on a rural road crashed for unknown reasons. Seat belt use was not reported.

WHAT DOES YOUR HEAT INJURY PREVENTION PLAN LOOK LIKE? HAVE YOU IDENTIFIED YOUR AT-RISK SOLDIERS AND PUT CONTROLS IN PLACE?

CLASS A

A Soldier died while participating in the land navigation exam portion of the WLC. The Soldier failed to report upon conclusion of the exercise. His body was located during search efforts. The Soldier's death was determined to be heat related.

CLASS A

A Soldier was participating in Combat Divers Qualification Course training when he submerged for unknown reasons. He was pulled from the water and transported to a medical center where he later died.

CLASS A

Three Soldiers were fishing at 1:30 a.m. when their canoe capsized. Two of the Soldiers were able to make it to shore. The third Soldier became fatigued and drowned. His body was found later. All three Soldiers had been drinking and none were wearing their personal floatation devices.

CLASS A

A Soldier, a civilian and another Soldier were in a rented rowboat when he stood up, lost his balance and fell overboard. The other Soldier attempted to reach him; however, the Soldier submerged. Although PFDs were available, the Soldiers did not wear them. Alcohol was reported as a contributing factor.

CLASS A

A Soldier jumped headfirst into the water and struck his head. Although other Soldiers immediately got him out of the water, he was unresponsive. The Soldier was medically evacuated to a local facility, where he was pronounced dead.

CLASS A

A Soldier and eight other Soldiers rented a pontoon boat and docked it at a public lake. When the Soldier failed to arrive back at the boat at the designated time, water patrol officers searched and found his body at another location on the lake. Alcohol was reported as a contributing factor.

CLASS A

A Soldier jumped from a rock ledge into a river and was unable to get out of the water. Although other Soldiers who were also swimming at the site attempted to rescue him, the Soldier was caught by the undercurrent and drowned. Installation officials where the Soldiers were assigned had placed the swimming site off-limits.

CLASS A

A Soldier died from a head injury he received when a bicyclist knocked him down while he was jogging.

CLASS B

Six Soldiers were admitted for treatment for heat-related injuries they suffered while participating in a battalion-level 12-mile road march. Fifty Soldiers were reported to have suffered heat-related injuries during the march.

CLASS B

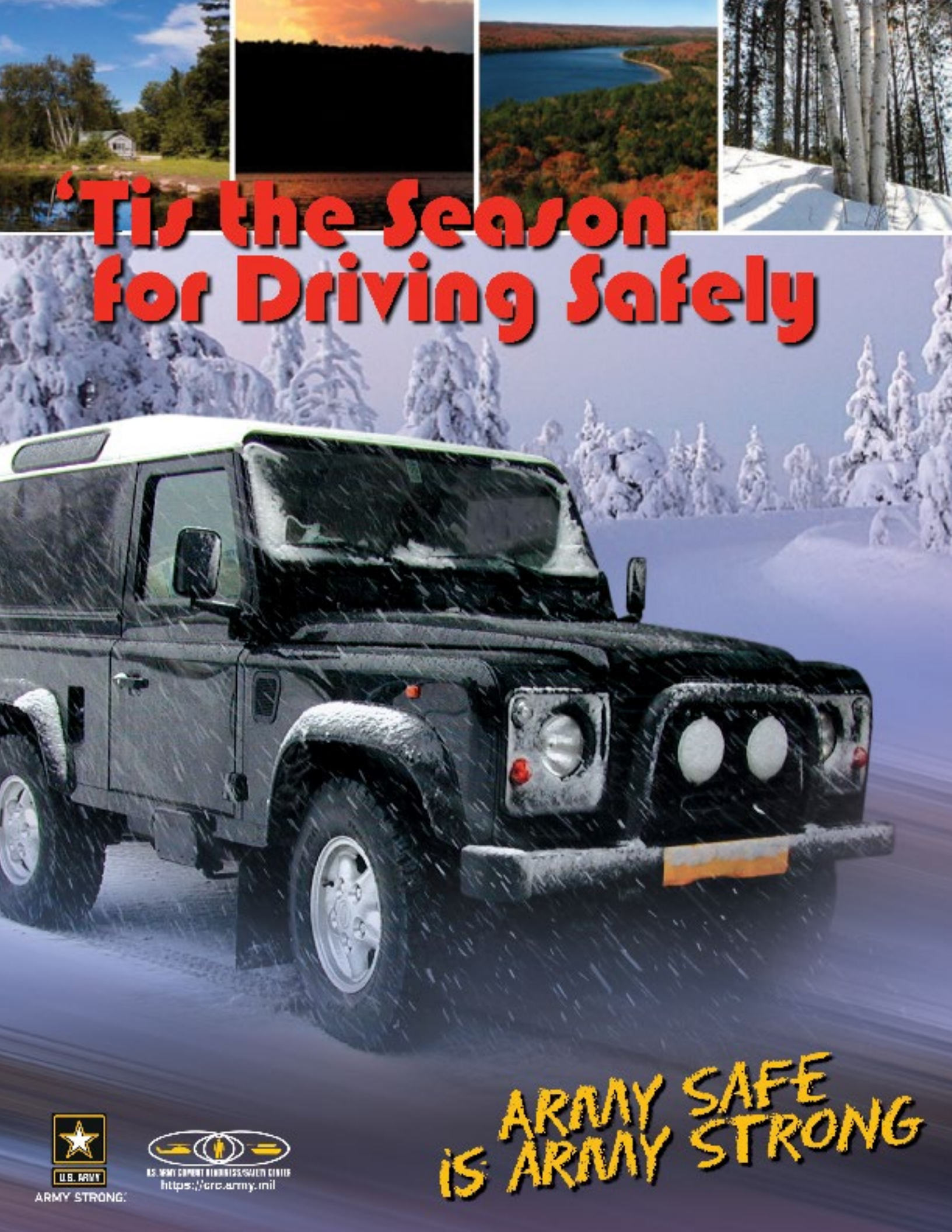
The tip of a Soldier's pinkie finger was amputated while guiding a stringer (a panel of portable bridge) into place with his hands.

CLASS B

A Soldier suffered a permanent partial disability when his privately owned .45-caliber weapon fell out of its holster and discharged a round into his finger. The finger was later amputated.

CLASS B

A Soldier slammed a HMMWV door on his finger, resulting in the amputation of his pinkie to the first knuckle.


'Tis the Season
for Driving Safely
ARMY SAFE
is ARMY STRONG
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Practice will protect your crew

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own the EDGE
Leading on the Edge

KNOWLEDGE
OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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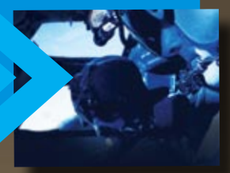

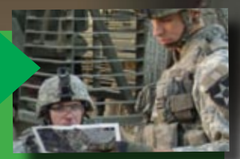

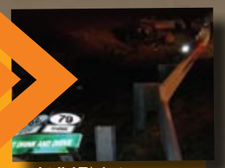

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BG William H. Forrester Commander/Director of Army Safety
COL George Bilafer Deputy Commander
CSM Tod Glidewell Command Sergeant Major

Kelly Widener Director of Strategic Communications

Paula Allman Managing Editor
Bob Van Elsberg Assistant Managing Editor
Taylor Barbaree Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design
Kami Lisenby Graphic Design

We welcome your feedback. Please e-mail comments to **knowledge@crc.army.mil**.

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FROM THE DASAF

"Not only is it **BETTER** to **SAY SOMETHING** at the **TIME** when you can **EFFECT** a **POSITIVE CHANGE**, but it is your **RESPONSIBILITY**."

EFFECTIVE CREW COORDINATION: BUILDING THE TEAM

Here we are in October, revisiting the topic of crew coordination, which we addressed in the February 2007 *Knowledge* under the context of mission preparation. This issue of the magazine further validates the relevance of the subject and goes a step beyond with firsthand accounts of "been there, done that and lived to tell about it." As you read through the articles like the ones from the AH-64D crew on pages 8 through 13, you will pick up on elements of crew coordination that probably seem second nature to you. However, ask yourself if you practice what you were taught, starting with mission preparation, through the after action report and then all the way home.

The numbers speak for themselves. Between fiscal 2003 and August 22, 2007, crew coordination errors contributed to 41 of our 122 aviation accidents. That's far too many when you consider that, in its simplest form, crew coordination is just an extension of the teamwork concept you learned on Day 1 in the Army. From there, you start adding more battle buddies, vehicles and/or aircraft into the mix. Each factor adds another level of complexity that forces you to distribute the workload, ensure positive and accurate information flow and rely on crew drills and standing operating procedures to make the mission happen safely and successfully.

Along the way, though, you will inevitably realize that keeping the environment open and professional will make all these steps come together a lot more easily. Engaged leaders create the climate that makes that possible and can also foster simultaneous mentorship. Effective crews are comprised of assertive, knowledgeable crewmembers who, regardless of rank, provide timely input to the vehicle or flight commander in order to help all members understand the conditions, actions and decisions. Accident investigators often find that one of the shortcomings in crew coordination is "excessive professional courtesy" based on either the individual's rank or perceived experience level. Not only is it better to say something at the time when you can effect a positive change, but it is your responsibility.

And your accountability for what did or did not happen extends through the AAR. I firmly believe that constructive feedback allows the individual and crew to improve. It also allows the leadership to better develop tools and training to ensure future success. I like to think successful AARs incorporate brutally honest feedback.

Now how does that translate over to your off-duty activities? Just think about it. Every time you drive with another person and ask them to look for traffic so you can turn, or you have someone read a map so you can focus on driving, you are essentially employing crew coordination.

My goal is that you take what you learned from these articles, your prior training and experiences and apply that combined know-how to ensure effective crew coordination always has a place with your team. Not only will it make a difference in the success of our future missions, it will ensure that **Army Safe is Army Strong!**

William H. Forrester
Brigadier General, USA
Commanding

THE KEY TO SUCCESSFUL MISSIONS

"NEXT to the individual SOLDIER, most leaders would CONTEND that COMMUNICATION is the essential KEY to MISSION SUCCESS in any situation."

Effective crew coordination is the key to successful mission accomplishment.

In my role as Command Sergeant Major of the U.S. Army Combat Readiness/Safety Center, I am afforded many opportunities to interact with Active, Reserve and National Guard Soldiers who comprise our great Army. During my visits with them, I am able to gain insight on just how diverse we are as a warfighting entity. And, while we are diverse in how we accomplish our daily missions, those visits usually include the sharing of our common experiences while operating a vehicle or aircraft.

As crews operate their equipment, they are required to communicate; thus we have crew coordination. Crew coordination is a very familiar term in aviation and armor circles. For years, it has been used to bring a group of individuals together to maneuver a multimillion dollar system and deliver personnel or firepower upon an objective at a decisive moment.

Effective crew coordination cannot be underestimated as a proven safety measure. Next to the individual Soldier, most leaders would contend that communication is the essential key to mission success in any situation. Through effective two-way communication, leaders can maintain situational awareness on the battlefield, enabling them to recognize the threat their unit faces and the best way to defeat it.

In our business, the ability to communicate effectively, whether through verbal or nonverbal means, is essential to mission accomplishment. Of the two, we are more familiar with verbal; but only through active listening and years of experience is it mastered. Nonverbal communication, another necessity of our profession, is usually dictated by our inability to communicate directly during a situation. This is most commonly due to distance, noise or by choice to maintain the element of surprise. That is the part of nonverbal communication we generally understand. Less understood and even more important to the leader is the ability to read body language and interpret what it means. The ability to read body language and ask the right questions when you sense something wrong could save a Soldier or members of their crew. This fight requires everyone's head in the game when outside the wire.

Coupled with the information provided and keeping safety in mind, the Army is going to great measures to ensure Soldiers at all levels are trained on crew coordination prior to mobilization and deployment. The safe completion of a mission is the only method to gauge and measure our success. That said, we all know that without crew coordination, disaster awaits. There are plenty of statistics showing what happens when crew coordination and communication breaks down.

This leads me to discuss what happens at our home stations. For the most part, we would all agree that we're successful when we deploy and fight. Now, how do we transition that success as we return to home station? A team's ability to pass and receive verbal and nonverbal communication in a concise matter is just as important in a non-deployed environment.

In closing, I issue a challenge to each of you to transition your combat team and crew coordination and communications skills back to garrison. You wouldn't leave them laying there without a fight, so don't do it here either.

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center

ARMY SUPERIOR UNIT AWARD PRESENTED

GEN Richard A. Cody, vice chief of staff of the Army, presented the Army Superior Unit award to the U.S. Army Combat Readiness/Safety Center on Sept. 19, during the Senior Safety Professional Development Symposium at Fort Rucker, Ala. The USACRC received this recognition from the Secretary of the Army for outstanding meritorious performance from Aug. 17, 2006, through June 15, 2007, as a unit, in a difficult and challenging mission. This presentation marks the first time the Army Superior Unit award has been presented to an organization with the USACRC's unique safety mission.

The USACRC is the knowledge center for accidental loss in the Army. The organization actively collects all accident information, conducts detailed analysis and provides worldwide communication of Army safety efforts.

Pictured from left to right are SGM David Griffith, previous USACRC sergeant major; CSM Tod Glidewell, USACRC command sergeant major; GEN Cody; and BG Bill Forrester, USACRC commanding general.

TEAMWORK

AIRCREW COORDINATION

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.

Aircrew coordination, cockpit resource management, cockpit coordination, cockpit communication management … all these terms refer to the same basic principles of ensuring the sum of the members of an aircraft crew is greater than the individuals themselves. The Army has spent many years developing programs to help aircrews perfect aircrew coordination to prevent accidents and preserve some of the most valuable resources in our Army—the aircraft and, more importantly, the crews who fly them.

FYI

Leader's Corner Tool Available

The Leader's Corner Web site has recently been revised to give leaders at every level a single page providing quick and easy access to vital safety information. The site's goal is to help leaders implement composite risk management processes to help keep their Soldiers in the fight and preserve the combat power of their formations. For more information on Leader's Corner, visit the USACRC Web site at https://crc.army.mil/leaderscorner/ or call 334-255-2381.

We don't know how many accidents these programs have prevented. That's one of the hard parts of the safety business; you can't really tell how many accidents are avoided. We do occasionally get stories from a flight crew like the one highlighted on pages 8 through 13 in this issue of *Knowledge*. The flight crew had complete loss of all tail rotor components in an AH-64D and lived to tell the story. Having listened to the cockpit audio from the maintenance data recorder, I can assure you those two Army Aviators did the rest of us proud throughout the 15 minutes between the onset of the emergency and the safe landing back at their home base. Most of all, they communicated, backed each other up and worked together to get the aircraft on the ground.

Unfortunately, all the efforts put into aircrew coordination training development and the hours put into training aviators at the U.S. Army Aviation Warfighting Center will not prevent crew coordination-related accidents from occuring. Just this fiscal year, the Army has had six crew coordination-related Class A accidents. Some have been similar to the accidents we've seen for years. Either both pilots were focused inside the cockpit at a critical moment, or the crew was overconfident in the pilot in command's ability to take care of the situation and stopped coordinating. Crews encountering inadvertent instrument meteorological conditions and failing to communicate is another recurring scenario that has led to accidents this year.

Two of these incidents involving crew coordination failures resulted in catastrophic accidents. Aircrew interviews and digital recordings gave us indications that the crews encountered what any aviator would consider worst-case scenarios—engine failures. This placed the crews in extremely difficult situations. In one case, an engine failure in a single-engine aircraft, and in another, a single-engine failure in a multiengine aircraft that was too heavily loaded to maintain altitude. The challenges these crews faced just to minimize the damage were significant; however, evidence indicates that the severity of the accident might have been lessened if the crews had better coordinated their efforts.

In the first case, two pilots in an OH-58D aircraft experienced an engine failure at terrain flight altitude. All of you who fly Kiowa Warriors know there is no good place for an engine failure. With limited reaction time at low altitudes, engine failures can't get much worse, and in this case, the pilot on the controls hesitated to respond to the failure. The digital collector indicates he misdiagnosed the failure and didn't lower the collective for more than four seconds. Interviews suggest the pilot not on the controls sensed what was happening but said nothing and simply prepared to "ride it in." Again, this was going to be an accident from the time the engine failed, but the crew's injuries might have been less severe if the pilot not on the controls had assisted the pilot on the controls.

In the second case, a multiengine helicopter flying IMC experienced an engine failure. The crew initially responded well to the incident by crew coordinating their immediate action steps. The pilot on the controls announced an airspeed that would have maintained the minimum rate of decent, made their emergency radio call and adjusted the flight controls to achieve that airspeed. Then something went wrong; neither pilot noticed the airspeed continued to drop until the maximum torque available was reached on the good engine and it no longer had the required power to maintain rotor speed. The circumstances indicate the crew failed to properly divide the duties in the cockpit. The pilot on the controls failed to maintain the briefed airspeed and the pilot not on the controls failed to cross-monitor his performance, thereby resulting in loss of aircraft control and the subsequent crash.

Both of these incidents put aircrews in situations that none of us would ever want to encounter and would likely overtask even the best aviator. However, every aviator must realize that coordination between aircrew members, especially in emergency situations, is critical to minimizing the severity of an accident.

> "**CREWS** encountering **INADVERTENT** instrument meteorological conditions and **FAILING TO COMMUNICATE** is another recurring scenario that has **LED** to **ACCIDENTS** this year."

What can your unit do?

- Ensure all aircrew members are trained and evaluated on the most current Aircrew Coordination Training - Enhanced programs available for your aircraft. For updates, call the USAAWC's Directorate of Training and Doctrine at (334) 255-9680.
- Conduct crew and passenger briefings religiously and meticulously using a leader-approved checklist as part of a standing operating procedure. Brief the actions and responsibilities of all aircrew members beforehand, so if an emergency does occur, there is a plan in place instead of trying to "make it up as you go."
- Ensure team rehearsals are conducted BEFORE mission execution with emphasis on crew coordination, duties and responsibilities. Plan for the worst scenario, especially if the aircraft is "hot and heavy" or the weather is marginal.
- Emphasize to aircrews the importance of continuing to "fly the aircraft," asking for assistance, offering assistance and continuing to communicate, especially when things start to go bad.
- Conduct after-action reviews or debriefs after the mission and discuss crew coordination successes and deficiencies and how to improve.

BE READY FOR ANYTHING

CW3 JESSIE SCRUGGS
Arizona Army National Guard

Recently, two crewmembers survived a catastrophic accident when they skillfully landed their AH-64D after it lost all tail rotor components. In the following pages, you'll read the first-person accounts of both crewmembers written only hours after the incident. We are publishing their stories here with their permission and approval, and we're grateful to them for sharing their experience.

When our unit was preparing for deployment to Afghanistan, our standardization pilot prioritized our threats: the environment, the aircraft and the enemy. We were close to the halfway point of our unit's deployment and had already dealt with the threat from the mountains and the Taliban. Today, it was the aircraft's turn.

The mission

The day's mission was to provide an AH-64D escort for a UH-60 that was flying to selected forward operating bases to pick up wounded enemy prisoners of war and bring them to our location, FOB Salerno. It was a quiet Sunday morning. The weather was great, and I was teamed up with a strong pilot in the front seat. I was in the backseat serving as the pilot in command. We anticipated an enjoyable flight.

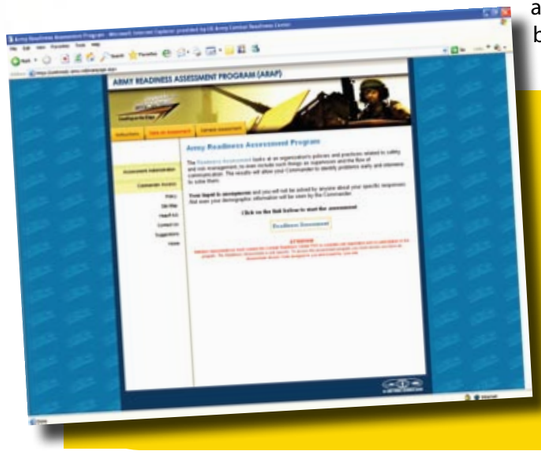
We'd executed our mission and our flight of two aircraft was headed back to FOB Salerno. We were Chalk 2 behind the Dustoff, and my front seater was on the controls. About 15 miles from the FOB, the aircraft experienced a loud "banging" sound and lurched upward about 10 feet. Initially, I thought we had passed through a pocket of moderate to severe turbulence, or had taken a hit with a rocket propelled grenade. The aircraft settled back into flight with the nose about 20 degrees to the right and tucked down about 10 to 15 degrees. I asked the pilot to "hold what she had" while I looked at the instruments. There were no warning, caution or advisory lights illuminated in the cockpit. All indications were normal, except the left pedal went to the floor without any aircraft response.

We transferred the controls and I asked the Dustoff bird to circle back and take a look at our tail rotor. We knew we had a tail rotor malfunction, but we didn't know the extent of it. Dustoff called us with news no helicopter pilot wants to hear, "Butcher 23, it looks like your tail rotor is totally gone and half of your stabilator is missing."

Our actions

Our initial reaction was to continue to fly the aircraft to an area where a roll-on landing could be executed. We had a couple of things going for us. The first thing was we had about 300 feet of altitude and 120 knots airspeed. We had also just cleared the last major mountain pass between us and a runway. The aircraft was flying fine. With the nose to the right and tucked down, the attitude was unusual but manageable. We cleared the mountains and entered the "bowl" leading to FOB Salerno. We backed up our actions with the checklist, using a loss of tail rotor thrust with continued flight being possible. The change in the center of gravity was very noticeable because there was only an inch or so aft cyclic available while in level flight. The only step in the checklist we debated was whether to jettison the rocket pods. We made the decision not to jettison because we were able to continue flying and were over a populated area. Looking back, the decision to not jettison the rocket pods proved one of the best decisions we made. How the pods helped us will be explained later in this story. We called the tower and declared an emergency and our intent to perform a roll-on landing.

We maintained our airspeed until reaching the gravel runway at Salerno. The plan was to get the aircraft 5 to 10 feet above the runway while maintaining a



FYI

Have you measured your formation's safety climate through the Army Readiness Assessment Program? It's a Web-based initiative that provides battalion-level commanders with data on their formation's safety climate. Check it out today at https://unitready.army.mil/.

90-knot airspeed as we conducted a roll-on landing. The front seater would operate the power levers to maintain directional control and I would focus solely on flying the aircraft.

On the initial approach, I couldn't get the aircraft's nose where I thought it needed to be to safely accomplish a roll-on landing. As a traditional guardsman, I work as a full-time pilot for a governmental agency and have attended annual refresher courses that go into extensive detail on tail rotor malfunctions. The most important thing stressed during the training was to fly the aircraft and not accept a less than ideal landing situation unless absolutely necessary. By the time I was happy with directional control, we had eaten up about half of the short, gravel runway and didn't have enough room for a safe landing. With the aircraft still in a stable flight profile, I made the decision to go around. I knew the go-around wouldn't be a pleasant experience, but it would be controllable.

On the second attempt, we had all the information we needed to conduct a safe roll-on landing. We knew how the aircraft was going to react to ground effect with 90-plus knots of airspeed. More importantly, we knew at what airspeed and power setting the nose was going to align with the runway. Having this information, we refined our plans. I now knew the speed we had to be at when we came over the approach end of the runway.

We executed the go-around without incident, making a wide, easy turn to the right and accepting the nose-right and tucked attitude. We lined up on final and executed a shallow approach to a roll-on landing. The nose was tracking slightly to the right at 5 feet above the runway and airspeed was about 85 knots. I then asked the PI to start retarding the power levers. As she did, the nose came around to the left and lined up with the runway and the aircraft touched down normally.

In my mind, this should've been the end of the emergency procedure. In reality, this is where it got exciting. The aircraft touchdown couldn't have been nicer—straight on the center line and controlled. What would give us the right airspeed, rate of descent and, most importantly, keep us properly aligned in our lane. While we were looking pretty good on lane alignment, we were going to land long if we committed to the approach on our first attempt. Since you only get one chance, it's best to set yourself up for success. We were still flying, so we didn't need to rush the landing. We made the decision to do a go-around.

The go-around was the worst part of the flight. Up to that point, the flight had been basically straight and level. We now had added two right turns to the day's excitement, maintaining our airspeed and rehearsing the landing on the downwind leg. The aircraft rolled left as we made wide right-hand turns and we were once again on an extended final for Runway 90. As we began our approach, things were lined up nicely for a landing well within the first third of the runway. We were coming in fast, maintaining the EP's minimum of 90 KTAS until 10 to 20 feet above touchdown. As we neared the ground, the aircraft lost lane alignment and began turning right. We pulled the power levers back and heard a "Rotor RPM low" warning.

We landed hot—somewhere between 80 and 90 KTAS—perfectly aligned in our lane. Once on the ground, we applied full aft cyclic in an attempt to slow the aircraft. We veered off to the right again, so we pulled the power levers back to the idle stop and then completely off. The aircraft then veered left about 30 degrees, heading toward a ditch on the runway edge. The only way we could control the aircraft heading was to apply counter pressure on the brakes—which seemed to have little effect as we barreled toward the ditch. The thought ran through my head, "We have just landed this thing and now we're going to roll it over in a ditch!" We hit the ditch and rolled left, but then corrected back upright and to the right. The aircraft then leaned right, but corrected back to a nice upright position. The rocket pods we'd decided not to jettison had kept us from rolling over—potentially saving our lives. The ride of a lifetime ended just short of a fixed-wing aircraft parked off the runway's edge.

> "**DUSTOFF** called us with **NEWS** no helicopter pilot wants to **HEAR**, 'Butcher 23, it looks like your **TAIL ROTOR** is **TOTALLY GONE** and **HALF** of your **STABILATOR IS MISSING**.'"

FROM THE FRONT SEAT

CPT WENDY REED
Arizona Army National Guard

May 31, 2007, started like any other day on Quick Reaction Force duty. We had just completed preflighting our aircraft when the call came in. It was a nine line MEDEVAC chase for an urgent pickup of wounded enemy prisoners of war. This was just another day of escorting MEDEVAC birds across Afghanistan.

We were off the ground in less than 10 minutes. It was a 45-minute flight to the forward operating base holding the EPW patient. We made our way through mountain passes to the patient's location without incident. We had just picked up our first patient when we received a second nine line for an additional EPW at a FOB about 30 minutes from our home base. Not a problem. We swung by and picked up the second patient and headed home.

We were 12 nautical miles from FOB Salerno, descending out of the mountains and into the Khowst bowl. Our airspeed was at a typical AH-64D "sprint"—somewhere between 120 and 130 knots true airspeed. We were following our MEDEVAC brothers when we heard a loud "WHAM" and the aircraft yawed hard right and began slipping left. It initially felt as though we had hit severe turbulence, but the aircraft attitude didn't correct itself, despite the application of full left pedal. It was a dead giveaway that we had a tail rotor malfunction of some kind. The pilot in command calmly told me, "Hold what you got, the aircraft is still flying."

We called the MEDEVAC bird and asked them to take a look at our tail and find out what was going on back there. Knowing we had a tail rotor malfunction to contend with, we pulled out the checklist and began reading through the emergency procedures for "Loss of Tail Rotor Thrust in Cruise Flight—Continued Flight Possible."

The MEDEVAC UH-60 reported the unthinkable—the tail rotor was completely missing, as well as half our horizontal stabilator. This wasn't exactly what we wanted to hear; however, it didn't change the fact we had to deal with the following EPs.

1. Airspeed: A minimum of 90 KTAS (until 10 to 20 feet above touchdown). Not a problem, we were maintaining about 100 to 110 KTAS without descending. We could make it back to FOB Salerno as long as we held what we had.

2. Wing Stores: Jettison as appropriate. Did we want to jettison? No—there wasn't any need for discussion. Once again, we decided to hold what we had because it was working for us. Everything was controlled at this point; punching off our left and/or right rocket pods was an unknown. The aircraft's right yaw was uncomfortable, but controllable.

3. Power Levers: Retard as necessary (5 to 10 feet above touchdown). The backseater would remain on the controls throughout the approach while the front seater assisted by manipulating the power levers. As we neared 5 to 10 feet above ground during our approach, the aircraft started turning right, so we began pulling back the power levers as necessary to maintain lane alignment.

The odds were against us, but neither of us said anything. We locked our shoulder harnesses and lowered the seat in the front cockpit, knowing the main rotor had a tendency to violate the front seater's head space during a crash sequence.

We approached FOB Salerno on an extended final for Runway 90. As we made our approach, we experimented with the power settings to determine which one

> "The **THOUGHT RAN** through my head, 'We have just **LANDED** this thing and now we're going to **ROLL IT** over in a **DITCH**!'"

I hadn't worked into the directional control equation was the gravel on the runway. After touchdown, the aircraft started veering to the right side of the runway. I applied aft and left cyclic and pressed on the left brake. When I did, the left tire slid in the gravel while the torque in the rotor system seemed to aggravate the situation. We were getting ready to run off the edge of the runway when I asked the PI to pull the power levers off. My thought was to eliminate the remaining torque and reduce the risks of a post-crash fire. The aircraft came back to the center of the runway and then headed for a deep ditch off the runway's left side. I applied full aft and right cyclic and stood on the right brake. I remember looking up through the canopy and counting the blades as they slowly came around. The rotor had already bled to nothing. The right main tire slid in the gravel and caught just enough traction to minimize our angle as we entered the 2-foot-deep drainage ditch bordering the runway. As the aircraft veered into the ditch, the left main gear struck the ditch's left bank. This impact, combined with about a 35-knot forward speed, caused the aircraft to rock to the left. Here is where the decision to keep the rocket pods paid dividends. The left-side pod contacted the ground and kept the aircraft upright. The aircraft then slid to the right through the muddy ditch and hit the ditch's right bank. The aircraft rocked to the right and, this time, the right rocket pod kept us upright. We then settled back onto the main gear as the aircraft rolled through the ditch and onto the parking apron near the end of the runway. When the aircraft stopped we were upright, the rotor blades had stopped and the helicopter and aircrew were both still in one piece. We were happily greeted by the fire department and the personnel who came out to watch the show.

Lessons learned

- **Always fly the aircraft.** It seems like a simple statement, but in more than one instance, I've seen crewmembers stop flying and become passengers. We milked every bit of power, airspeed, altitude and rotor out of this aircraft before coming to a safe stop.
- **Know the aircraft's capabilities.** Also know what to expect if the worst happens. I was thankful this wasn't the first time I had executed a go-around with an aircraft in an unusual attitude. My training gave me the confidence to fly the aircraft and make a safe landing.
- **Remain calm and professional.** Our aircrew didn't panic and worked very well together throughout the incident. If you have an emergency and are still able to fly, take advantage of the time to formulate a course of action and then brief it to your crew. With most catastrophic failures, you only get one chance to safely land the aircraft. Knowing that, why rush and accept a landing plan that is less than ideal based on the situation?

I hope sharing our experience will help someone in the future. I'm also grateful the U.S. Army Combat Readiness Center is using this experience to promote necessary changes in the way we train our new aviators. The aircraft we fly are the safest in the world. Our training is outstanding; however, there is always room for improvement. I don't view our job as unnecessarily dangerous because we receive excellent training on our equipment. However, our job can be unforgiving. Take the time now to prepare for whatever Army Aviation throws at you. Tomorrow, you may be the guy who thinks he's got the environment and the enemy beat … only to hear a loud "bang." Be ready! «

AND THE AWARD GOES TO …

CW4 ROBERT ROEBUCK
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

The Broken Wing Award recognizes aircrew members who demonstrate a high degree of professional skill while recovering from an in-flight failure or malfunction requiring an emergency landing. The U.S. Army Combat Readiness/Safety Center commanding general recently approved the following award:

CW3 JESSIE P. SCRUGGS and CPT WENDY REED
FOB Salerno, Afghanistan
Arizona Army National Guard
AH-64D

On May 31, 2007, at approximately 0825, CW3 Jessie P. Scruggs, the pilot in command, and CPT Wendy Reed, co-pilot gunner, were conducting a MEDEVAC escort mission in support of Operation Enduring Freedom. The flight of two aircraft was returning to Forward Operating Base Salerno, Afghanistan, after picking up two patients. Without any prior indication or warning, the crew felt and heard a loud bang from the rear of the aircraft. The aircraft immediately yawed 15 to 20 degrees to the right with a 5-degree tuck of the nose. The CPG was on the controls and applied full left pedal, but without results. The CPG leveled the aircraft at 300 feet above ground level while the PC assessed the situation.

The PC called the MEDEVAC aircraft and asked them to check for any visible damage to the aircraft. When the MEDEVAC aircraft maneuvered to the rear of the AH-64D, they confirmed the entire tail rotor had separated from the aircraft and severed the stabilator in half.

The PC took the flight controls and initiated a roll-on landing attempt at approximately 100 knots. While on short final, the PC determined the lane alignment and approach attitude were inadequate, forcing the pilots to execute a go around. On the second attempt, the CPG manipulated the power levers while the PC flew the aircraft. Neither crewmember lost their focus and touched down at approximately 95 knots. The power levers were retarded to the off position and lateral control of the aircraft was lost due to rotor decay. Control and stopping was accomplished by the use of differential toe braking. The aircraft drifted to the left into a ditch and rolled left until the left rocket pod contacted the ground. The aircraft then rolled to the right until the right rocket pod contacted the ground, keeping the Apache upright. During the entire landing sequence, the PC controlled the aircraft using only the brakes. Braking efficiency was further complicated because the runway surface was composed of small gravel and dirt. The aircraft came to rest with less than 200 feet of useable runway remaining.

A successful outcome was achieved only through the use of exemplary crew coordination techniques and emergency procedures. The PC and CPG maintained a perfect crew coordination relationship throughout this incident. Both crewmembers showed mature, level-headed airmanship. Faced with an emergency requiring immediate action, the pilots safely landed the aircraft, preventing serious injury to themselves and a Class A aircraft loss. For this, both crewmembers are awarded the Army Broken Wing Award. Congratulations!

For more information on the requirements for safety awards, check out the Army Accident Prevention Award Supplemental Guidelines dated June 5, 2007, on the USACRC Web site. «

Across the fleet, we're seeing advances in aircraft technology. These advances are designed to give the aircrew pertinent and timely information about the operation of their aircraft. The downside is our aircrews are spending more time "inside" the aircraft. The ACT-E program will assist our commanders, their standardization instructor pilots and safety officers to ensure the commander's intent is communicated efficiently to every rated and non-rated unit crewmember.

ACT-E UPDATE

AIRCREW COORDINATION TRAINING - ENHANCED

CW5 DOUGLAS B. BROWN
Directorate of Training and Doctrine
U.S. Army Aviation Warfighting Center
Fort Rucker, Ala.

What is ACT-E?

Aircrew Coordination Training - Enhanced is a modernized version of the Aircrew Coordination Training course that uses multimedia vignettes in conjunction with an instructor to promote free and open discussion. The vignettes are taken from actual accidents, incidents and trends. ACT-E is designed as a set of principles, attitudes, procedures and techniques that enable our aviators and crews to operate more effectively and safely. It's a vital element of composite risk management within our combat formations.

The intent of ACT-E is to build an effective team, not create robots. Unfortunately, the accident data trends from the U.S. Army Combat Readiness Center are startling:

- 239 Class A and B accidents from fiscal 2002 to 2007
  - 54 percent of these accidents were attributed to crew communication errors
  - 11 percent were attributed to task saturation or failure to prioritize actions, sequencing and timing
- Failure to plan and mentally rehearse mission events and responsibilities
- Since 1993, 79 percent of the Army's Class A and B accidents have resulted from human error; 71 percent have been attributed to the failure of a single individual

The top six failures are:

- Failure of the pilot on the controls to properly direct assistance from other crewmembers
- Failure of a crewmember to announce a decision or action that affected the ability of other crewmembers to properly perform their duties
- Failure of a crewmember to communicate positively (verbally and nonverbally)
- Failure of the pilot in command to assign crew responsibilities properly before and during the mission
- Failure of the pilot not on the controls or other crewmembers to provide information that was needed or had been requested previously by the pilot on the controls
- Failure of the pilot on the controls to execute flight actions in the proper sequence with actions of other crewmembers.

Who does ACT-E apply to?

ACT-E training applies to ALL active duty, Reserve Component, Department of Army Civilian and contractor rated and non-rated crewmembers operating as part of an Army aircrew, regardless of FAC level. ACT-E also applies to all operators, supervisors and instructors/trainers of unmanned aircraft systems.

What are the requirements of ACT-E?

Crewmembers qualified under previous ACT policies and directives are not required to complete the new ACT-E Qualification Core Course. As new aviators progress through flight school, they are taught the core course. All others are required to complete the qualification course. Crewmembers who transfer from other services or enter the Army under the Civilian Acquired Skills Program must complete the ACT-E Qualification Core Course.

All aircrew members must complete the Aircraft Sustainment lesson for the airframe they operate before progressing to Readiness Level-1. Presently, there is not a stand-alone module for non-rated crewmembers. Non-rated crewmembers will complete the same modules as the rated crewmembers, and it's recommended they accomplish this training together.

Crewmembers will complete the applicable ACT-E sustainment lesson every 12 months. Initial completion of the ACT-E course counts toward the annual requirement. Upon transition to ACT-E, units will only use new ACT-E courseware.

Who can conduct ACT-E training?

Anyone who has completed the ACT train-the-trainer course can conduct the ACT-E training. The ACT-E course has been designed to use an instructor or facilitator to promote discussion and open dialogue. The Directorate of Evaluation and Standardization has provided this training through numerous mobile training teams. The ACT-E train-the-trainer course is now available online.

How do I access the sustainment lessons?

Due to the sensitivity of the material presented, these lessons are only available through Army Knowledge Online. You must have an AKO login and password to access the ACT-E lessons. Instructions for accessing the lessons can be found at https://rucker-dtac.army.mil. Access to the ACT-E lessons is restricted to personnel approved by the brigade commander and verified by the ACT-E course manager.

What if my unit is forward deployed without NIPR net?

Currently, the DES team is the only unit that has a hard copy on CD-ROM. They have been conducting ACT-E training in conjunction with their unit assistance visits. We are currently working on a nonrestrictive means of distributing the lessons to the field while still protecting the information.

What aircraft sustainment modules are available on ALMS?

The AH-64D, OH-58D, UH-60, CH-47, C-12 and UAS sustainment lessons and the core qualification courses are available on the ALMS. Since it is impracticable to develop a lesson for each airframe in the Army's inventory, units should use the module most closely related to their aircraft. (For example: for units equipped with AH-64A, use the AH-64D; for UC-35 units, use the C-12 lesson.) A new series of sustainment lessons will be published periodically so updated trends can be provided for your use.

What is the future of ACT-E?

The Directorate of Training and Doctrine team is actively soliciting input from the field, accident/incident data from the USACRC and observations from the DES team. A review of Training Circular 1-210, *Aircrew Training Program Commander's Guide to Individual, Crew, and Collective Training*, is currently underway and will reflect clarifications from the Aviation Branch Chief with respect to aircrew coordination training. If you know of a trend that needs to be discussed or you would like to see in a future sustainment lesson, contact DOTD at DSN 558-9680 or 334-255-9680. Your input is needed to improve this training program and ensure it meets the needs of our field commanders and their formations.

> "**ACT-E TRAINING APPLIES** to **ALL** active component, Reserve Component, Department of Army Civilian and contractor rated and non-rated crewmembers **OPERATING** as part of an **ARMY AIRCREW**, **REGARDLESS** of FAC level."

VEHICLE CREW COMMO

SEAN MORRILL
4th Brigade Combat Team, 4th Infantry Division
Fort Hood, Texas

Technological advancements continue to provide today's Soldiers with greater capabilities than ever before. Armor enhancements, ballistic glass and additional mission equipment in Army vehicles all offer extra protection on the battlefield. However, these advancements have come at a price for vehicle crews who've had to cope with restricted outside visibility and altered vehicle handling. As the Army continues to improve and upgrade its combat vehicles, the need for effective crew coordination and communication has become essential for crews to safely complete their missions.

Effective crews communicate

Effective vehicle crews are made up of assertive crewmembers who provide input to the vehicle commander. Every crewmember knows they're a part of the team and are willing to help without being asked. The entire crew acts as a team in mission planning, execution and after-action reviews and, with the exception of short-notice missions or high-workload conditions, analyzes information and contributes to decisions.

Vehicle commanders establish an open, professional climate at the beginning of every mission. Effective crews maintain this atmosphere by communicating vital information in a clear, timely manner so conditions, actions and decisions are clearly understood. Finally, effective crews view AARs as learning experiences that can enhance future crew performance.

Some good crews do these things without having a background in crew coordination training. They intuitively know they need to have open communications, provide professional input and work as a team in support of the vehicle commander.

Standardized terminology

Standardized words and phrases, such as those used in radio transmissions, help crews avoid confusion and allow them to react more quickly and efficiently. Using words known by everyone in the crew also prevents them from having to be repeated. If the operator's manuals have a standard callout or term for a piece of equipment, get in the habit of using it, especially if a new crewmember joins the team. If someone doesn't understand what you said, try saying it another way or in clearer terms instead of repeating it multiple times or raising your voice.

Crew coordination is more of an art than science and requires continuous practice. Good crews constantly work on improving their coordination and use AARs as a forum to improve their performance in the future. These combat-proven techniques can help you better accomplish your missions and prevent accidents. Discuss these methods with your crew and practice them on every mission. For more information, see aircrew Training Circulars 1-248 or 1-219. Both can be downloaded from the Army's Publishing Directorate Web site at http://www.army.mil/usapa.

SAY WHAT?

Standardized words and phrases, such as those used in radio transmissions, help crews avoid confusion and allow them to react more quickly and efficiently. Below are examples of some common words or phrases crews might use and their meanings.

Cease fire	Command to stop firing but continue to track
Clear	Clear of obstacle or traffic (e.g. clear right)/weapon is clear
Execute	Command to initiate an action
Firing	Announcement that a weapon is to be fired
Get out!	Command to make an emergency exit from vehicle (say 3X)
Hold	Command to hold present position
Maintain	Command to continue or keep the same
Monitor	Command to maintain constant watch or observation
Move	Command followed by direction (forward, back)
Negative	No, incorrect or permission not granted
Now	Indicates that an immediate action is required
Report	Command to notify
Roger	Message received and understood
Rollover!	Command to brace/take immediate rollover actions (say 3X)
Say again	Repeat your transmission
Slow down	Command to reduce speed
Speed up	Command to increase speed
Stop	Command to go no farther, halt at present position
Target	An alert that a threat has been spotted
Traffic	Refers to another vehicle, followed by a clock position
Turn	Command to deviate from current course, followed by direction
Unable	Indicates inability to comply with instruction or request
Up on	Indicates radio selected and frequency
Weapons red/amber/green	Indicates loaded status of weapon
Weapon on fire/safe	Indicates status of weapon selector switch

WHEN A DESIGNATED DRIVER PLAN FAILS

JIM WIEHE
Fort Benning, Ga.

Editor's Note: This article is based upon an installation accident investigation. The goal of this article is to provide lessons learned to help prevent future accidents. The names of the Soldiers in this story have been changed, but the facts are accurate.

GEN George S. Patton once said, "A poor plan executed well is far better than a good plan executed poorly." So what happens when a designated driver plan goes bad?

SPC Jim Woodson had been something of a model Soldier in his unit. A two-tour combat veteran with a reputation of leading by example, he'd won the respect of fellow Soldiers and earned his leaders' recommendation for promotion. It had been an interesting Friday for Jim. He'd gone on a foot march that morning and then later went before a promotion board. He'd done well on his promotion board and was looking forward to pinning on his sergeant's stripes. That afternoon, his unit sponsored a recreation event at a local lake. With the world going his way, he headed that night out in his pickup truck to celebrate at a sports bar.

Jim met fellow platoon members SPCs Evan Marshall and Terry Large at the sports bar. Terry didn't drink and was the obvious choice for designated driver should Jim or Evan need a ride home. When they met that night, Terry didn't ask his friends for their keys. He decided, instead, just to keep a careful eye on his buddies.

Evan and Jim had been in the bar playing pool. At some point, Evan wandered off. Terry checked the area around the bar, its restrooms and the parking lot until he found him. Terry stuck with Evan for 20 minutes or so, periodically checking on Jim, who was talking to some girls. Sometime later, Terry lost track of Jim. After searching the bar and parking lot, Terry saw that both Jim and his pickup truck were gone.

As it turned out, Jim had left the bar by himself and was driving back to his barracks on a rural road that wound through the mountains. At 1:43 a.m., Jim's truck ran off the road and rolled over. The rollover forces catapulted Jim—who was unbelted—out of the truck and caused severe head injuries. Although he was still alive when medical personnel arrived and transported him to a medical facility, his injuries proved fatal later that morning. Ironically, the Soldier who had a reputation for upholding standards on duty let them drop when he shed his uniform. With a blood alcohol content of 0.24—three times the state's limit—Jim was far too impaired to drive safely. Dead less than a day after his promotion board, he'd never see the sergeant stripes he'd earned.

Why did this happen?

Accidents don't happen in a vacuum—the key element is always people. Like many young Soldiers, Jim felt he was indestructible. Having survived combat, he felt he could survive anything. That night probably wasn't the first time he'd tried to drink and drive—but it was the last time.

Jim made at least four decisions that contributed to his death:

- He decided to consume alcoholic beverages.
- He decided to drive after drinking.
- He decided to circumvent the designated driver plan.
- He decided to drive without wearing his seat belt.

What about Terry's role? The most effective battle buddies for preventing these tragedies are designated drivers who fulfill their responsibilities—including taking away a buddy's keys before they get drunk. As Terry found out that night, you can't watch everyone all the time. The price of letting a buddy slip through the cracks can be an empty space at the next formation.

What about leaders?

Regardless how well Soldiers perform on duty, do their leaders know them well enough to recognize if they're at heightened risk off duty? After all, when does a Soldier stop being a Soldier or a leader stop being a leader? When did the Army profession become merely an 8-to-5 job?

Training, without the discipline to follow it, won't prevent accidents. Jim had completed unit-, installation- and Army-level training to make him a more skillful and defensive driver. He had nearly five years' experience driving privately owned vehicles before this accident. Jim knew the right things to do—he just chose not to do them.

Bad consequences follow bad choices—and choices are a matter of the will, not chance. Jim didn't intend to die that night—but he couldn't escape the consequences of his choices.

Consequences are typically predictable, which means most accidents are preventable. When you have to decide whether to ride with a designated driver or drink and drive, what will you choose? Will you be able to live with the consequences?

> "The most **EFFECTIVE BATTLE BUDDIES** for **PREVENTING** these tragedies are designated drivers who **FULFILL** their responsibilities—including **TAKING AWAY** a buddy's keys **BEFORE** they get **DRUNK**."

HUNTING FOR TROUBLE

GREGORY J. SANCHES
1/25 Stryker Brigade Combat Team
Fort Wainwright, Alaska

Two of my buddies and I had bounced over rocks and logs on our all-terrain vehicles for nine hours as we made our way down a riverbed. We'd camped out for 10 days, finished a successful moose hunting trip and loaded the meat onto an airplane to be flown to Fairbanks. We were trying to cover the 30 miles from our hunting camp high in the Alaskan backcountry back down to the plains. With the temperature headed for the basement, we needed to get out of the mountains before we got snowed in.

We'd traveled about 25 miles and were nearing the point where the trail went from the riverbed into the forest. I was leading the way and following some ATV tracks when the trail suddenly cut away from the riverbed and went up the bank. I gunned my ATV and started up the slope. For a fleeting moment, I thought it might be too steep, but I quickly tossed that idea aside. Moments later, I realized I should've listened to that voice. As my front wheels crested the bank, I felt the front of the ATV rising up and coming over on me. As it did, I was thrown off and landed in the riverbed, bouncing my head off several rocks. My ATV continued rolling over and landed upside down not far from me. As I lay there gathering my thoughts, I was glad I'd worn my helmet. Without it, I'd have been seriously injured.

One of my hunting buddies came running over to see if I was OK. He got me to my feet and checked me out. Fortunately, the only thing I hurt was my pride. We rolled my ATV back onto its wheels while I prayed that everything was fine. I was grateful when my ATV started right up and did a thorough system check to ensure everything was working. The only damage was a bent gear rack.

How did I get into trouble that day? There were several hazards I didn't consider. I didn't think about the extra weight on the back of my ATV or how that affected its handling. I now realize that extra weight is what pulled my ATV over backward as I tried to go up the steep bank. I was also tired and my thoughts had turned toward getting home, enjoying a good meal and sleeping in a warm, comfortable bed. I was so eager to get home I stopped thinking about the dangers around me. I'd skipped the first two steps of composite risk management—identifying and assessing the hazards.

Looking back, I knew I shouldn't have tried to go up the riverbank where I did. After my accident, we checked farther down the river and found a better place to exit. We should have also stopped and camped for the night instead of pushing it like we did. We could've waited until the next day to take the boat trip across the Tanana River for home. That had been our fallback plan and we should've stuck to it.

Yes, it was an enjoyable hunt, and I love my time in the backwoods, but I have learned you have to know when to stop and take a break. The Alaskan backwoods can be an unforgiving place. It's a land where you must rely on yourself and your skills. Pushing it—letting "get-home-itis" blind you to the risks in your environment—is not smart when you're roughing it in the Last Frontier.

DID YOU KNOW?

The ATV Safety Institute has informative videos and classes available to help hone your riding skills? Check them out online at http://www.atvsafety.org/.

UPHILL BATTLES

The following tips from the ATV Safety Institute can help you avoid having an accident like the one described in this story:

- Some hills are too steep for your abilities. Use common sense. If the hill you're approaching looks too steep, it probably is. Also, some hills are just too steep for your ATV, regardless of your abilities.
- Never ride past the limit of your visibility. If you cannot see what is on or over the crest of a hill, slow down until you have a clear view.
- The key to being a good hill rider is to keep your weight uphill at all times.

When approaching an uphill climb, you should:

- Keep your feet firmly on the footrests.
- Shift the ATV into a lower gear and speed up BEFORE climbing the hill so you can maintain momentum.
- When approaching an uphill climb, either move up on the seat and lean forward, or stand and position your torso over the front wheels.

As you're climbing, you may need to shift to a lower gear to prevent lugging the engine or stalling. To shift into a lower gear on a hill, remember:

- Keep your bodyweight forward as you prepare to shift gears. For steeper hills, lean forward as much as possible.
- Shift quickly while momentarily releasing the throttle; this will help keep the front wheels from lifting.

If you don't have enough power to reach the top of the hill but still have forward momentum and enough room to turn around safely:

- Keep your weight uphill.
- Make a U-turn before you lose speed.
- Proceed downhill in a lower gear, keeping your weight to the uphill side.

If you're riding uphill and lose all momentum:

- Keep your weight uphill and apply the brakes to come to a stop.
- Never allow the ATV to roll backward.
- Apply the parking brake while keeping your weight uphill.
- Dismount on the uphill side or to a side if pointed straight uphill, and follow the procedures described in your owner's manual.

HONEY, CAN I DO IT ONE MORE TIME?

HARVEY V. JONES III
1st Brigade Combat Team
101st Airborne Division
Fort Campbell, Ky.

As a guy, I'm easy to please. Put me in front of a barbecue grill, give me a beer and let me watch football on TV. However, with fall beginning and winter just around the corner, it's just a matter of time before I have to put away my grill. My wife knows I dread the end of the grilling season, so she's not surprised when I ask her, "Honey—can I do it one more time?"

Still, earning the final "kitchen pass" of the grilling season isn't my only concern. Barbecue grills can be dangerous—especially if they've seen heavy use and little maintenance. You're in the Army, so you're familiar with Preventive Maintenance Checks and Services. They're those "before," "during" and "after" checks you do on your military equipment so it doesn't blow up, quit running or fall out of the sky. Have you ever thought about doing PMCS on your barbecue grill? Might not be a bad idea, especially since you have a highly flammable gas—propane—very close to your burners.

Let's start with the "before" operation checks:

1. Uncover your grill and look for any obvious damage which might hinder proper operation. Check for items such as broken knobs, exposed igniter wires or frayed hoses leading from the propane tank to the valves.

2. Check for leaks where the regulator screws onto the top of the propane tank. The best method is to apply soapy water to the area and look for bubbles. If air bubbles appear, you have a leak and need to tighten the regulator BEFORE using. Failing to do so could cause an explosion, resulting in injury or death.

3. Don't store extra propane bottles beneath your grill. If these bottles get hot, they can vent propane right into your burners, which is not a good thing.

4. Make sure your grill is clean and free of burnt, old food. You also might want to spray your grilling surface with some type of nonstick spray. However, be advised some cooking sprays use a compressed, flammable gas as a propellant. Never use one of these while the burners are ignited.

The most important "during" operation check is to never leave your grill unattended. Fat dripping onto your burners can catch fire and end up burning more than your dinner.

Finally, we have the "after" operation checks:

1. Turn off the propane tank.

2. Allow the flame to go out and then turn off the knobs on the main unit.

3. Allow the grill to cool for at least 10 minutes.

4. Use a cleaning brush to scrape any burned food off the grill grate.

5. Once the grill has fully cooled, wash it with warm, soapy water and then rinse it off to remove any remaining food.

6. Close the lid and cover for later use.

7. Keep propane bottles in a shady or cool location outdoors—not inside any structure, including porches or balconies.

When it's time to put away the grill for the season, remember to disconnect the hose from the propane bottle. Ensure you cover the grill's connections to keep critters or debris from getting inside.

Until the chill ends your fun with the grill, be careful and enjoy!

TOTAL RECALL

The Consumer Product Safety Commission has recalled the following gas grills:

- **Perfect Flame™ four-burner gas grill (25 inch by 18 inch) sold by Lowe's retail outlets. The model may be missing the hose connecting the manifold to the side burner.**
- **Char-Broil® two-burner gas grill, model number 463720407, sold by Big Lots stores. These grills may contain an incorrect heat shield that could expose the propane tank, hose and regulator to excessive heat and cause a fire.**
- **Weber Genesis® 320-series gas grills sold by several different retail stores. The stainless steel gas tube to the side burner may have been cracked or broken off during shipping.**

For more information or to sign up to receive free Neighborhood Safety Network alerts and posters, go to www.cpsc.gov.

TOASTY LESSONS LEARNED

DEBBIE JOYCE
U.S. Army Forces Command
Fort McPherson, Ga.

Have you ever had your barbecue grill's igniter fail and you had to find a different way to light the burners? Be careful what you do!

We were barbecuing on the back porch while watching a game on TV. The igniter on our grill wasn't working, so my husband used one of those handy little utility lighters to ignite the burners. That did the trick, and he put the lighter on one of the grill's side tables while the burgers and dogs cooked. After a few minutes, he went back to the grill to turn the meat. Suddenly, there was a BOOM! In my side vision, I saw a flash of fire and thought the propane tank had exploded. I was terrified that my husband had been injured, but was grateful when I saw him standing in the yard unhurt.

The culprit in the explosion wasn't the grill or propane bottle—it was the utility lighter. I can't tell you how far away the lighter was from the burners, but I can tell you it became overheated and exploded. Fortunately, the only casualty was the singed hair on my husband's right arm. We gained a couple of useful lessons learned from this experience.

First, we ordered a new igniter for our grill. It's not that expensive and beats using alternative means to light the burners. Second, if we ever use a utility lighter again, I can guarantee it won't just be laid down—especially near any source of flame. We don't need any more toasty lessons learned!

Where's the Fire?

FRANK MCCLANAHAN
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

According to the Occupational Safety and Health Administration, workplace fires kill about 200 workers each year and injure nearly 5,000. In many of these workplace fires, inadequate fire extinguishing systems and locked fire exits contributed to the losses. To prevent those losses, it's important to take a closer look at inspections, exits, fire extinguishers and training.

> "ACCORDING to the Occupational Safety and Health Administration, WORKPLACE FIRES KILL about 200 WORKERS each YEAR and injure nearly 5,000."

Inspections

When inspecting workplaces, as a minimum, be sure to check for the following:

- Ensure extension cords are not being used in place of permanent wiring. If additional receptacles are needed to power appliances and equipment, have a certified electrician install them.
- Do not run power cords for appliances and equipment under carpeting. Over time, the protective insulation can be worn or frayed, resulting in bare electrical conductors arcing and starting a fire.
- Ensure flammable materials are properly stored either outside the workplace or in an approved fireproof storage cabinet.
- Permit smoking only in designated smoking areas and ensure noncombustible receptacles are available.
- Do not store combustible items near electrical appliances or equipment. Also, keep the area around this equipment clear to ensure proper ventilation and cooling.
- Check electrical appliances and equipment for the Underwriter's Laboratory (UL) label before purchasing them.

Exits

Ensure you check fire exits when doing workplace inspections. Consider the following as you develop your checklist:

- Ensure your facility has a sufficient number of exits. Each workplace should have at least two separate means of escape.
- Inspect emergency lighting to ensure it properly illuminates the paths to exits.
- Check the exit routes from your building to be sure they are properly marked as exits and are free and clear of obstructions.
- Be sure to keep doors marked as fire exits unlocked at all times while employees are in the building.

Firefighting equipment

Fire extinguishers are an important part of a fire prevention program. When used properly, they can save lives and property by putting out small fires or controlling them until the professionals arrive. In addition, fixed systems can enhance fire safety within a facility by detecting fires, sounding an alarm and releasing a fire suppressant.

Ensure your workplace has enough fire extinguishers and they are the proper type for the fire hazards present. The types and uses of fire extinguishers are listed below—

- Type A: Use for ordinary combustibles such as paper and wood.
- Type B: Use for flammable liquids such as grease, solvents and gasoline.
- Type C: Use for electrical fires involving equipment such as fuse panels, computers and other energized equipment.
- Type D: Use for combustible metals such as magnesium, titanium and potassium.
- Type K: Use for kitchen fires involving combustible cooking liquids and fats.

Conduct monthly visual inspections of fire extinguishers for proper marking, maintenance and serviceability. During your inspection, be sure there are no obstructions blocking access to the extinguishers.

If your workplace is equipped with a fire suppression system, be sure it is inspected and properly maintained.

Employee training

Workers need to know how to properly use fire extinguishers and should be taught, as a minimum, the following:

- Sound the fire alarm and notify the fire department.
- Before approaching a fire, identify a safe evacuation path and ensure nothing obstructs it.
- Use the appropriate extinguisher for the type of fire encountered.
- Discharge the extinguisher within its effective range using the P.A.S.S. (Pull, Aim, Squeeze, Sweep) technique (see graphic below).
- Move away from an extinguished fire just in case it flares up again.
- If the fire extinguisher has been fully discharged and the fire is not out, evacuate the workplace immediately. Be sure workers also understand they are to evacuate immediately if the fire progresses beyond their ability to control it.

For more information on preventing workplace fires, visit the Occupational Safety and Health Administration Web site at http://www.OSHA.gov.

CAN YOU P.A.S.S. THIS TEST?

Do you know what to do if you have to fight a fire with an extinguisher? If not, familiarize yourself with the simple P.A.S.S. technique described below:

- **Pull the pin—this will also break the tamper seal.**
- **Aim low, pointing the extinguisher's nozzle, horn or hose at the base of the fire.**
- **Squeeze the handle so it will release the extinguishing agent.**
- **Sweep from side to side at the base of the fire until the extinguisher is empty and the fire is out.**

"Dismount right!" It sounds simple enough, correct? Well, that would depend on the level of detail and frequency of your battle drill rehearsals. In the following case, it wasn't that simple, and the resulting accident cost one noncommissioned officer his life.

BATTLE DRILLS

ANOTHER SIDE OF CREW COORDINATION

1SG (RET) MIKE BARKSDALE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

In preparation for deployment in support of Operation Iraqi Freedom, an infantry rifle company planned two weeks of live-fire training, progressing from team-level training through platoon-level training. It was during the platoon-level training that the accident occurred. After securing their first objective, the platoon received an order to continue their mission and assault a second objective, a change to their original plan. Upon arrival at the support-by-fire position for the second objective, the squad leader for the second stryker vehicle in the platoon gave his squad the command to "dismount right." His squad did just that, dismounting to their right (driver's side) as they exited the rear of the vehicle.

This squad immediately suppressed the objective while the rest of the platoon maneuvered to the left of the objective. As the squad leader attempted to dismount with the squad, his gear tangled in the vehicle, and it took him a few minutes to get loose and off the vehicle. When he did dismount, he dismounted right, or out of the left rear (the passenger's side) of the vehicle. Once he cleared the right side of the vehicle (remember, his squad is on the left side of the vehicle, suppressing the objective), he saw the platoon assaulting the left flank of the objective. As he ran across to join the platoon, the squad leader ran in front of his squad's support-by-fire position and suffered a fatal gunshot wound to the head. One of his team leaders fired the round that killed him.

When asked the question of which direction would you dismount the vehicle given the command of "dismount right," the investigation board got differing responses from the unit. Were their battle drills instinctive? Ask yourself, did something as simple as a poorly executed battle drill contribute to this Soldier's death?

Our doctrine states that a battle drill is a collective action executed by a platoon or smaller element without the application of a deliberate decision-making process. This action is vital to success in combat or critical to preserving life. Battle drills are the necessary building blocks for elements to conduct complex combat operations without loss of life from tactical or accidental hazards. These drills are the "fundamentals" that must be constantly rehearsed until they are second nature for all Soldiers.

In this accident, the platoon received an unexpected change in their original mission. I'm sure you've heard before that no plan survives the first contact, and this is the kind of scenario that the commander wanted the platoon to experience. Well-rehearsed and executed battle drills give a platoon flexibility to react to changing scenarios and help to ensure everyone understands what "dismount right" means! Well-executed battle drills will help to keep your Soldiers safe and in the fight.

DRESSED FOR SUCCESS

LAYER UP!

The "travel light, freeze at night" theory for operations in cold weather still is seen in some units. Ensuring your Soldiers arrive fit to fight calls for specific training. One of the most basic combat multipliers is how your Soldiers dress for the cold. Make the weather a force multiplier rather than a detractor that leads to cold weather injuries.

Our bodies produce heat, which keeps us warm and alive. Being cold and wet forces our bodies to work overtime to compensate for heat loss. If you can't generate more heat than you lose, eventually you will become hypothermic and possibly die if you're not treated.

To keep your head warm, use a wool or Lycra watch cap and the multifunction neck gaiter for field operations. During periods of extended exertion, a watch cap can be easily removed for quick ventilation.

The first layer of clothing must wick moisture away from your body. Sweat will chill Soldiers quickly if it remains trapped against their skin. Medium or lightweight polypropylene or a similar synthetic fiber pulls moisture away from the skin. The brown cotton T-shirt has no wicking ability and traps moisture against your body.

The next insulating layer can be the field jacket liner, Polartec® Spear suit top or a similar fleece jacket. These items will hold warmth next to your body's core, which needs more insulation than your arms and legs. If you're moving regularly, a pair of mid- to lightweight polypropylene underwear often will be all you need to protect your extremities.

Finally, a breathable waterproof or windproof outer shell over the insulating layers allows your body's moisture to escape while preventing rain and snow from soaking through to your skin. The issued Gore-Tex® pants and parka work well as the final layer. Breathability is the key to keeping dry. Don't confuse the Gore-Tex® jacket with a rain suit. A rain suit may take up less space in your rucksack, but the ability to wick moisture away from your body in cold weather is critical.

Size your winter boots correctly by wearing the same socks you'll wear in the field. Your first sock will be a lightweight polypropylene or dress sock. (Never wear cotton socks in the winter.) The first sock layer helps reduce friction, which causes blisters.

SSG STEPHEN JENNINGS
U.S. Army Mountain Warfare School
Jericho, Vt.

Next, add a mid- to heavyweight insulating sock. In extreme cold, add a final Gore-Tex® booty to wick moisture away from your foot.

Boots should fit snugly, not tight. Little or no heel lift is an indicator you're on the right track. Walk up and down an incline or several flights of stairs to check for heel lift. Leave about a half-inch between your toe and the end of the boot. You should have enough space if you can lift your toes easily. Wear the boots for several hours before committing them to any extended operations. Change your socks as often as needed or as the tactical situation allows.

Your hands—like your feet—get cold quickly if they're not covered. Generally, mitten-style hand gear is warmer than gloves. Gloves should not restrict blood flow to the fingers. Wear wool or polypropylene glove liners for fine hand work, but be sure to place them back in an over glove immediately. Minimize the time you have to remove your outer layers, and also practice basic Soldier skills with your over mitts. It takes some time, but all Soldiers can perform the vast majority of their missions without exposing their hands to the cold if they're properly trained.

Handling fuel in the cold requires extra caution because skin can flash-freeze if it comes in contact with fuel. Fuel, unlike water, does not freeze at 32 F. When handling fuel, use thick rubber gloves over your cold weather mittens. Keep in mind that once most cold weather gear is soaked with petroleum products, their insulating properties decrease dramatically. Immediately replace gas-soaked cold weather gear with a clean set.

Carry an extra set of outer gloves or mittens and several sets of liners. On extended operations, this allows Soldiers to dry one set while wearing the other. For shorter missions, the ability to throw on a dry pair as necessary can give you the edge to succeed. If your hands become very cold, place them in your armpits or crotch to rewarm them before putting on dry hand gear.

Start any movement "comfortably cool." Don't overdress; you'll generate plenty of heat when you step out. Ventilate along the way to keep from overheating, but avoid moving with your insulating layer of polypropylene or fleece as your outer layer. It's better to shed that layer and keep your Gore-Tex® shell as your outer layer. Your sweat will soak your insulating layer on an extended movement, and there is always the chance that wet snow will add to your misery. Wear the Gore-Tex® with your lightweight polypropylene T-shirt—you'll be able to move comfortably for extended periods in all but the coldest climates. As soon as you stop, wipe the sweat off and put on your insulating layer. Don't waste all the heat you've generated by overcooling.

Resist the "uniformity is our standard" trap in cold weather clothing. Soldiers' metabolisms vary, and what may be comfortable to some will be unbearably warm or cold to others. Use common sense, stay as dry as possible and carry at least one more dry set of insulating clothing than you think you'll need. Then you will truly be dressed for success.

> "**RESIST** the **'UNIFORMITY IS OUR STANDARD' TRAP** in cold weather clothing. Soldiers' **METABOLISMS VARY**, and what may be comfortable to some will be **UNBEARABLY WARM** or **COLD** to **OTHERS**."

FYI

A good way to remember some basic winter clothing rules is to think "C-O-L-D."

C—keep clothing CLEAN
O—avoid OVERHEATING
L—dress in loose LAYERS
D—keep clothing DRY

Safety in Numbers

CW5 ROBERT REYNOLDS
Headquarters, Headquarters Company
Third Army
Fort McPherson, Ga.

Riding in a group can be exciting and provide you an opportunity to share a great experience with old friends while meeting new ones. Compared to riding alone, you'll need a different set of skills to keep you and your group safe. Here are a few safety tips to ensure everyone has an enjoyable time:

Safety briefings

Successful group rides begin with a short meeting before departure providing detailed information about the adventure. Leaders should provide all riders with maps and information concerning the route of travel, speeds, road hazards and weather, fuel, rest and meal stops. In addition, the ride leader and the sweep and trail riders should identify themselves and demonstrate the proper hand and arm signals. The checklist below provides a useful guide for these meetings:

- Review the destination and route of travel.
- Describe how to handle lane changing and what actions to take if the group gets split up.
- Demonstrate and explain each hand signal and insist everyone use those signals.
- Determine the level of riding experience of any new group members.
- Assign new members to "SLOT" positions until the trail rider is satisfied they can properly handle their bikes.
- Have all riders inspect their bikes to ensure everything is in order. As an extra precaution, have everyone do a quick check of the bikes beside them.

Formation makeup

It's important to maintain a staggered formation to make the group more visible to drivers and allow an adequate safety space around the riders. Also, group riding helps prevent riders from being separated by traffic. To create a staggered formation, lead riders should position themselves in the left third of the lane with the second rider following at least one second behind and in the right third of the lane. This staggered formation should be copied by the following riders in the group, each alternately taking the left or right third of the lane while maintaining a safe following distance. Because it's possible for a group to become too large, riders can be split into smaller formations of five to seven motorcycles.

Traversing intersections

Intersections are particularly dangerous for riders, as many motorists seemingly fail to notice motorcycles. When turning at intersections protected by traffic signals, groups should proceed either single file or in a tight, staggered formation. At unprotected intersections, riders should proceed individually. The group can reform once everyone has safely negotiated the intersection.

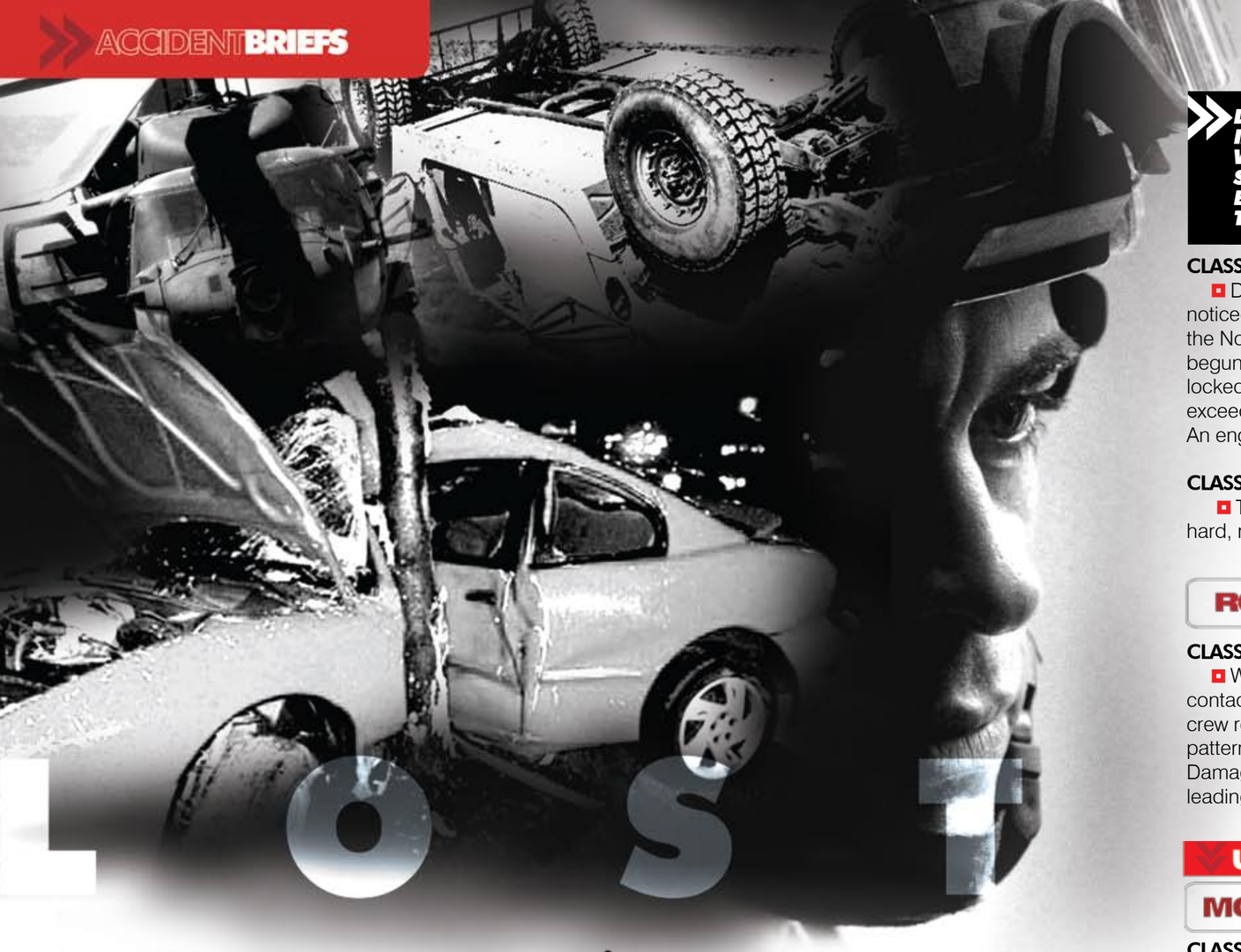
Safe passing

How groups should pass slower traffic depends on the type of road. When there are sufficient multiple lanes—such as on freeways or interstates—riders should pass as a group when directed by the lead rider. On two-lane highways and roads, riders should pass individually when it's safe.

Handling roadside emergencies

Whenever riders require assistance, the group members behind them should stop and provide help. Riders ahead of the incident should continue to the next scheduled stop and wait for everyone to catch up.

Riding with a group can be a great experience if everyone understands the rules and abides by them. Maintaining the integrity of the formation, taking cues from the lead rider and safely operating your bike will allow everyone in the group to enjoy the open road.



AVIATION

CH-47

CLASS C D Model

The aircraft entered brownout conditions and its front wheels entered a ditch during touchdown, resulting in the front wheels and antennas separating from the aircraft. The crew was able to fly the aircraft to home base.

The belly of the aircraft was damaged when it contacted an obstacle during landing in an unimproved landing zone.

OH-58

CLASS A D(R) Model

The aircraft struck wires during flight. The U.S. Army Combat Readiness/Safety Center is currently investigating this accident.

ARE LEADERS ENSURING POLICIES FOR AREA ALTITUDE RESTRICTIONS AND WIRE AVOIDANCE PROCEDURES ARE ENFORCED?

TH-67

CLASS A

The aircraft contacted the ground after becoming unstable during taxi and subsequently rolled over.

UH-60

CLASS B A Model

A Soldier exited the aircraft prematurely during insertion and fell about 20 feet. He suffered multiple left femur, pelvis and spinal fractures.

DURING TROOP INSERTIONS, DO SOLDIERS WAIT FOR A PRE-BRIEFED SIGNAL FROM THE AIRCREW BEFORE DEPARTING THE AIRCRAFT?

CLASS C

During takeoff, the crew noticed a torque split and that the No. 2 engine rotor RPM had begun to decay. Engine No. 2 locked out and the temperature exceeded 942 C for five seconds. An engine inlet plug was installed.

CLASS B L Model

The aircraft touched down hard, resulting in structural damage.

RC-12

CLASS C U Model

While taking off, the aircraft contacted a flock of birds. The crew remained in the traffic pattern for immediate landing. Damage was discovered to the leading edge of one wing.

UAS

MQ-5B

CLASS C

While executing takeoff, the UAS lost link with the ground control station. While attempting to land, the aircraft struck the landing pendant.

RQ-7B

CLASS B

The UAS experienced a cylinder head temperature spike, low RPM reading and rapid descent. The aerial vehicle operator initiated landing procedures, but the UAS contacted the ground, damaging the fuselage, wings and tailboom.

CLASS B

While in flight, the internal generator of the UAS cut out, causing the engine to stall. The UAS went into a quick descent and the parachute deployed.

RQ-11

CLASS C

The RQ-11 launched and was conducting night operations. A short time later, the AVO banked the RQ-11 to the left, barely missing a radio tower. The AVO lost connectivity, and the RQ-11 lost altitude and crashed.

GROUND

ACV

CLASS B (DAMAGE)

An M1A2 was damaged by a fire in the engine compartment.

An M2A3 Bradley Fighting Vehicle was damaged when a fire started in the engine compartment. The crew attempted to extinguish the fire but was unsuccessful.

An M1127 Stryker was damaged when it overturned while negotiating a turn. The crew initiated rollover procedures and suffered no injuries.

DO YOUR SOLDIERS REHEARSE ROLLOVER DRILLS?

AMV

CLASS A

A Soldier suffered fatal injuries when the HMMWV he was riding in overturned during a convoy movement. The convoy speed was reported as 40 mph. The HMMWV sustained damage but was recovered.

ARMY AIRCRAFT LOSSES

FY02 to Present
thru September 18, 2007

	Hostile/ Non-hostile
AH-64A/D	12/48
U/MH-60A/L	8/27
C/MH-47	7/16
OH-58D	11/24
TOTAL	38/115

ARMY GROUND LOSSES

FY07
thru August 2007

	Class A Fatalities
AMV	27/26
ACV	15/9
PERSONNEL INJURY includes weapons handling accidents	50/46
FIRE/ EXPLOSION	4/1
PROPERTY DAMAGE	1/0
TOTAL	97/82

- A Soldier was operating a heavy equipment transporter and hauling HET tractors on an M1K trailer when a rear trailer tire blew after striking a guardrail. A fire ensued and destroyed all the vehicles.

CLASS B

- A Soldier suffered second- and third-degree burns when a flare went off inside the M1151 he was operating, causing the vehicle to catch fire and run into a ditch. The vehicle was a total loss.

- A Soldier suffered a permanent partial disability when he was thrown from an all-terrain vehicle. The Soldier was a passenger on the ATV when the driver attempted a U-turn and the vehicle rolled over. The driver was not injured.

- An M1114 up-armored HMMWV caught fire and exploded due to an unknown maintenance cause. A second explosion followed when ammunition began to cook off. Several sensitive items were destroyed.

- An M1151 HMMWV was damaged and a Long Range Advanced Scout Surveillance System was destroyed when the vehicle overturned. The Soldier operating the HMMWV had swerved to miss an object in the road and overcorrected, causing it to roll over twice. The Soldier was not injured.

- A Soldier inadvertently fired a flare inside an M1114 HMMWV, causing damage to sensitive items, the vehicle and the communications system.

Personnel Injury

CLASS A

- A Soldier suffered a fatal heat injury while conducting maintenance duties on his tracked vehicle. The Soldier was found unresponsive on the ground. His temperature was recorded at 106 F upon arrival at a local clinic.

- A Soldier suffered a fatal electrical shock while attempting to repair a compound generator.

- A Soldier died after suffering a heat stroke during a road march.

- Two Soldiers were killed and three others injured when the small building they were in collapsed during high winds.

CLASS B

- A Soldier suffered major burns to 70 percent of her body when she was engulfed in flames while refueling a generator. Another Soldier was able to pull her away from the generator.

- A Soldier had three fingers severed by a vehicle engine fan blade while performing maintenance. He was replacing the vehicle's water pump and had started the engine to detect leaks. As he pressed against the pump, it moved and the Soldier's hand struck the fan.

DO YOUR SOLDIERS EMPLOY THE PRINCIPLES OF COMPOSITE RISK MANAGEMENT TO ALL THEIR ACTIVITIES?

- A Soldier suffered a spinal injury when he struck a wall head-first during combative training. The injury resulted in the surgical fusion of two of the Soldier's vertebrae.

- A Soldier suffered injuries to his ankle and foot when an artillery simulator went off while he was conducting battle drill room clearing procedures.

- A Soldier had part of his thumb amputated when his hand guard came apart while firing a captured Iraqi weapon on the range.

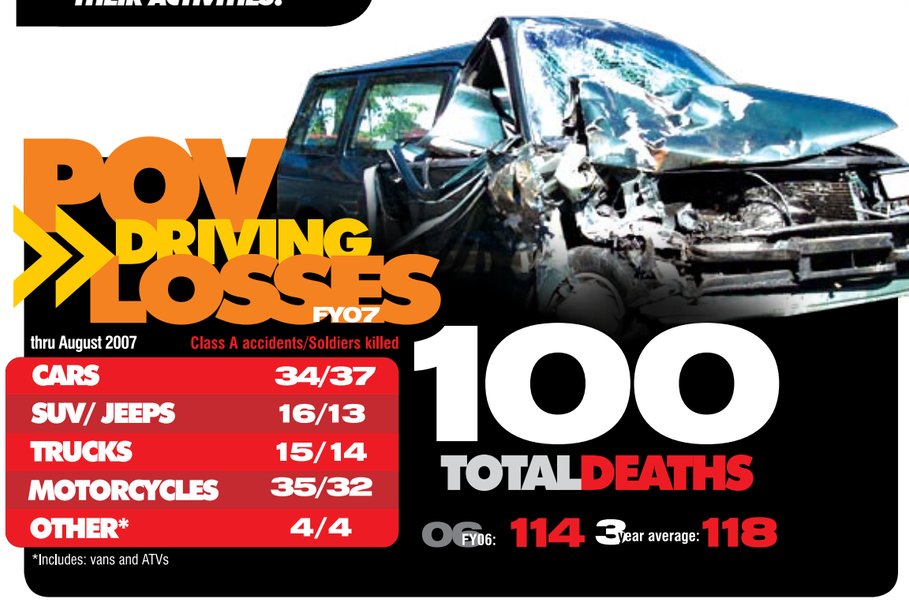
- A Soldier was injured when an M113 generator being loaded onto a trailer landed on his hand.

- A Soldier suffered a foot injury while conducting a crew-level mortar firing drill. After a 120 mm mortar system was fired, the base plate bounced and landed on the Soldier's foot, amputating his toes.

OTHER

CLASS B

- A GBOSS satellite system was damaged when the driver of a vehicle backed over one of the guide wires, causing it to fall.



EXPLOSIVES/FIRE

- Property was damaged when a fire started in a supply tent and spread to two other nearby tents.

DRIVING

POV

CLASS A

- A Soldier was driving his privately owned vehicle with another Soldier when the car left the road and struck a tree. The passenger was fatally injured and the driver hospitalized. Both were wearing their seat belts.

- A Soldier was driving his POV on a state highway when another vehicle crossed the median and struck the Soldier's vehicle. Neither driver took evasive action or braked before the head-on collision. Although he was wearing his seat belt, the Soldier died from his injuries.

- A Soldier was driving his POV when his vehicle swerved, left the roadway and overturned. The Soldier, who was wearing his seat belt, was fatally injured.

- A Soldier was fatally injured when his POV left the roadway and overturned into a ditch. The Soldier, who was not wearing his seat belt, died less than a mile from his residence.

DO YOUR SOLDIERS KNOW THE IMPORTANCE OF WEARING SEAT BELTS AT ALL TIMES?

CLASS B (ATV)

- A Soldier was operating an all-terrain vehicle when he lost control and the ATV flipped over on him and broke his left clavicle. The Soldier was wearing his helmet and goggles.

POM

CLASS A

- A Soldier was fatally injured when his motorcycle collided with an approaching pickup truck. The Soldier was wearing his helmet.

- A Soldier lost control of his motorcycle while entering a curve and crashed into a guardrail. The Soldier apparently had not fastened the chinstrap on his helmet and it came off after he was thrown from his bike. He was pronounced dead at the scene.

- A Soldier died when his motorcycle struck the bed of a tractor-trailer that was making a turn. The Soldier was wearing the required PPE and had attended the Army-approved MSF training.

- A Soldier was operating his motorcycle, accompanied by other riders, when he lost control in a curve and struck a sign on the shoulder of the road. He was pronounced dead at the scene.

- A Soldier was operating his motorcycle when a sport-utility vehicle entered his lane of travel and collided with him head-on, throwing him from the motorcycle. The Soldier was licensed and wearing a helmet. The driver of the sport-utility vehicle has been charged with vehicular homicide.

- A Soldier was operating her motorcycle when she lost control and was thrown from her bike. She was transported to a medical facility, where she later died. The Soldier was wearing her helmet and had received MSF training. Speed was not reported as a factor in this crash.

- A Solder was operating his motorcycle when he attempted to pass a tractor-trailer and struck a construction cone. The impact threw the Soldier off his motorcycle and beneath the truck. The Soldier's helmet came off during the accident and he suffered fatal injuries.

- A Soldier was operating his motorcycle when he lost control, entered oncoming traffic and collided with another vehicle. The Soldier was thrown from his motorcycle and pronounced dead at the scene.

- A Soldier operating his motorcycle on a highway was killed when he was struck by a vehicle exiting a parking lot.

PERSONNEL INJURY

CLASS A

- A Soldier was hiking in a state park around dusk when he fell to his death.

- A Soldier was handling a newly purchased handgun when the handgun inadvertently fired, killing another Soldier.

DO YOUR SOLDIERS UNDERSTAND THAT SAFE WEAPONS HANDLING PROCEDURES ARE VITAL OFF DUTY?

- A Soldier was among a group of five Soldiers swimming in a swollen river when he failed to make it to the water's edge and drowned.

CLASS B

- A Soldier was cleaning his garage when he was bitten by a spider and his finger began to swell. The Soldier went for medical treatment the following day, but the swelling and pain eventually worsened and he had to be hospitalized. Upon release from the hospital, the Soldier was given seven days' convalescent leave.

- A Soldier riding his mountain bike downhill hit a small dip and was thrown over his handlebars. The Soldier landed on his left shoulder, breaking his left collar bone.

AIRCREW COORDINATION

BAND OF BROTHERS

Our Army's strength comes through the concept of being a Band of Brothers. No one stands alone, leaders engage and every person is looking out and taking accountability for the person next to them. This is a concept we must follow on and off duty.

ARMY SAFE IS ARMY STRONG

U.S. ARMY

ARMY STRONG.

U.S. ARMY COMBAT READINESS/SAFETY CENTER

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Don't hesitate

DESIGNATE!

Our Army's strength comes through the concept of being a Band of Brothers. No one stands alone, leaders engage and every person is looking out and taking accountability for the person next to them on and off duty.

Take the keys and be the designated driver.

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ARMY SAFE IS ARMY STRONG

BEST PRACTICES BEGIN HERE

The Leader's Corner Web site has recently been revised to give leaders at every level a single page providing quick and easy access to vital safety information. The site's goal is to help leaders implement Composite Risk Management processes to help keep their Soldiers in the fight and preserve the combat power of their formations. For more information on Leader's Corner, visit the USACRC Web site at https://crc.army.mil/leaderscorner/ or call 334-255-2381.

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ARMY SAFE IS ARMY STRONG

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KNOWLEDGE

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own the EDGE
Leading on the edge

KNOWLEDGE

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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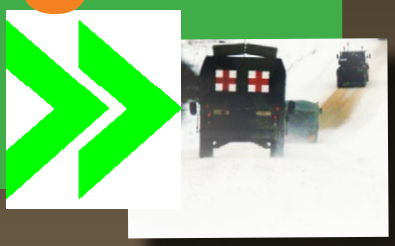

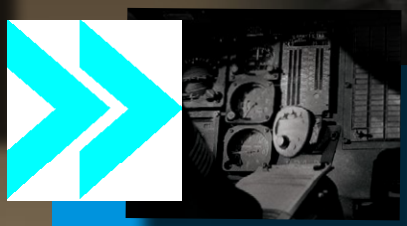

Plus: pull-out posters

THE CHA
TO PR

As we enter this new fiscal year, continuing to arm ourselves with the knowledge and tools necessary to support Leaders and Warfighters on the battlefield as well as the home front remains paramount to the success of OUR Army's Safety.

However, before we move forward, I believe there is value in looking back at fiscal 2007 and understanding where the Army lost Soldiers and why. Incorporating lessons learned, best practices and experiences from our combat veterans and Leaders will undoubtedly assist the Army's efforts in saving lives. Chief of Staff, Army Gen. (George) Casey recently stated, "We have a combat-seasoned force. Now we need to consider the way ahead to further protect them on and off duty. Look at what safety issues they are up against and make sure they are aware and ready."

At the end of fiscal 2006, our Army reduced accidental loss by 19 percent from fiscal 2005; however, in fiscal 2007 we failed to match the successes of 2006. Every loss is tragic and this past year 247 Families learned just how hard it is to carry on without their loved ones–all lost to accidents. These 247 Soldiers are fallen comrades no longer in our formations.

Looking at last year's accidents even closer, 143 Soldiers died in off-duty accidents compared to 104 on-duty. POV accidents claimed 110 lives; Personnel Injury 50; Aviation 37; Army Motor Vehicle 37, Army

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BG William H. Forrester Commander/Director of Army Safety
COL Glenn W. Harp Deputy Commander
CSM Tod Glidewell Command Sergeant Major

Kelly Widener Director of Strategic Communications

Taylor Barbaree Editor-in-Chief
Bob Van Elsberg Managing Editor
Paula Allman Editor
Chris Frazier Editor

Blake Grantham Graphic Design
Leslie Tisdale Graphic Design
Kami Lisenby Graphic Design

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> "By **UTILIZING** our **TOOLS**, **PROGRAMS** and **TEAM** of safety experts, **YOU'RE MAKING A DIFFERENCE.**"

LLENGE
ESS AHEAD

Combat Vehicle 11; and two Soldiers died in Fire/Explosion accidents. With the exception of POV and Fire/Explosion accidents, overall, the Army experienced increases in all other accident categories this year.

What's killing our Soldiers? Below are some identified trends, gained through the collection and analysis of accidental losses, from which we can learn and develop control measures in our efforts to save lives:

Air—Causes of aviation accidents continue to be assumption of low risk missions, inadequate mission planning, indiscipline and occurrences of overconfidence.

Ground—Operating/riding in an Army vehicle remains the number one fatality-producing on-duty activity. Excessive speed for the conditions, overcorrecting and inadequate training are all common threads in these accidents. Also, between November and May of fiscal 2007, six Soldiers drowned in Army vehicle rollover accidents. These months are emerging as peak periods for potential rollover accidents. A majority of these accidents occurred during periods of limited visibility and when Soldiers did not necessarily have situational awareness of their surroundings. We also experienced a five-year high in water activity-related accidents with 14 Soldiers drowning. Negligent discharge incidents, higher than in the previous two years, killed eight Soldiers.

Driving—Additonally, speed along with failure to use seat belts and loss of vehicle control were the most common causal factors in all fatal accidents across the board in fiscal 2007. There were fewer 18- to 25-year old drivers involved in fatal accidents than in fiscal 2006 (54 vs. 74). Of the motorcycle accident fatalities, 66 percent involved Soldiers over the age of 25 and 63 percent were E-5 or higher. Additionally, 42 percent of motorcycle accidents were primarily attributed to exceeding the capabilities of the bike or the operator.

The most significant category of decreased fatalities occurred with POVs. With a 13 percent Army-wide decrease in POV accidents, there was also a 22 percent decrease in the number of motorcycle fatalities.

While it may be easy to get wrapped up in what went wrong and count losses this past fiscal year, it's more difficult to know exactly what impact you have had in saving Soldiers' lives and affecting their decisions. By utilizing our tools, programs and team of safety experts, you're making a difference. We know engaged leadership works both on-duty and off-duty in protecting our most precious resource–our Soldiers. Please continue to make a concentrated effort to understand, apply and teach Risk Management and reach out to Family members and engage them, too. The Combat Readiness/Safety Center will continue our efforts to assist in any ways you think possible. Thank you for all you do.

Army Safe is Army Strong!

William H. Forrester
Brigadier General, USA
Commanding

"BEST PRACTICES offer INSIGHT and SUGGESTIONS of others that are DEALING with SIMILAR HAZARDS that many of us face."

BEST PRACTICES WILL PROVIDE US CONSISTENCY TO DEFEAT ACCIDENTS

We ask our leaders to guide and mentortheir Soldiers, including training them to be safe both on and off duty. Looking back on our accident statistics from fiscal 2007, we see some areas where our fatality numbers came down from the previous fiscal year. Sadly, however, the overall fatality numbers increased—that is an unsettling trend. The struggle against accidental fatalities—a threat that stalks our Soldiers whether in combat or at home station—is a never-ending battle.

So, how do we win this battle? What strategies will enable us, as leaders, to reduce these needless losses? I believe sharing of "Best Practices" is sometimes the best approach.

First, Best Practices are not new to many of our organizations, while others might have never heard of them. What do I mean by Best Practices? A Best Practice is a countermeasure that we put into place to eliminate, or use to mitigate, the risk of an accident. It can be as simple as setting out a "Wet Floor" sign; or as complex as requiring special skills or the collaboration of others. Best Practices offer the insight and suggestions of others who are dealing with similar hazards that many of us face. Unfortunately, sometimes they're slow to be disseminated from post to post and throughout our Army. For that reason, if you have Best Practices that work for your organization, send them to the Combat Readiness/Safety Center. We will post them on our site and disseminate them through safety channels. I will keep the unit confidential if you wish. However, I hope through information sharing we can save a life. Here at the Combat Readiness/Safety Center we collect, store and analyze accidental loss data on fatalities for our Army. What we can't tell you is how many lives we save. I believe the Best Practices program will provide us some measurement of success in saving Soldier's lives. We serve in one of the most noble and respected professions in our Nation. Our ranks are tired, stretched and worn thin, but we must remain committed to our force, believing that even one preventable loss is too many. Through the sharing of intel and ideas, I'm confident we can defeat the enemy that stole 247 lives from our ranks last year. **Army Safe is Army Strong.**

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center

BEST PRACTICES

Best Practice examples should contain the following:

Topic: Motorcycle Safety
Unit: 10th Mountain Division

Description: Individuals owning a motorcycle may ride their bikes in lieu of running in the Division 4-mile run. Participants will lead the run and then, immediately following, participate in a 52-mile motorcycle ride to promote Safety and Esprit-de-Corps. Event will be followed by a barbeque.

Result/Effectiveness: Event fostered an environment to promote motorcycle safety, education and mentorship through engaged leadership. The unit has seen a significant reduction in class A through C accidents since the event took place.

Topic: Holiday Safety Brief:

Description: At first formation of the day before the Christmas Holiday exodus, the commander commanded "Fall In" and "Taps" played. At the completion of the music, he explained the Army typically loses several Soldiers during the holiday season. Then he explained that he did not want to return from the holidays to hear that music.

Result/Effectiveness: The unit did not suffer a single loss during the Christmas holiday period. Drawback: The technique may trigger uncomfortable memories or post-traumatic stress disorder in some Soldiers.

NOTHING OUT OF THE ORDINARY

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.

"Nothing out of the ordinary," were the words of the air mission commander flying trail with a scout weapons team of OH-58Ds in Iraq. These words describe a flight that unexpectedly ended in tragedy for the lead aircraft.

The flight of two was conducting a left-seat ride during relief-in-place operations while the team was performing a convoy security mission as part of the "training" flight.

In the lead aircraft, the pilot in command was a seasoned combat veteran, completing his second tour in Iraq in the same area he did during his first tour. He knew the area well and was a capable choice to lead a left-seat ride. The incoming pilot in the right seat was no rookie either. This was his second deployment to Iraq—although in a different area than his first tour—and he was an instructor pilot. Both aviators had hundreds of combat hours.

What happened?

The accident crew, flying lead in a team of two, had the primary mission of reconnaissance and security. Trail provided cover for the lead aircraft. Lead, flying low along the route, was looking for improvised explosive devices

and inspecting a suspicious vehicle. The PI was flying about 80 knots and 80 feet above ground level when he saw a tall tower ahead. Beneath the tall tower were two sets of wires on shorter, 75-foot-tall wooden poles. He then made a slight "bump" in altitude to ensure he cleared those wires. However, when the wires to the tall tower suddenly came into view, the PI initiated a very steep cyclic climb to attempt to cross them. The aircraft tail boom struck the wires just forward of the vertical fin, ripping it and half of a tail rotor from the aircraft.

The aircraft climbed about 50 feet, leveled off and the nose started to turn to the right. The PI rolled down the throttle and initiated an autorotation. According to witnesses, the aircraft blades were coning and turning slowly when the aircraft struck the ground. The main rotor blades stopped almost immediately upon impact, indicating the PI ran out of collective during the end of the maneuver. The excessive deceleration forces severely injured the PC and fatally injured the PI.

Why did it happen?

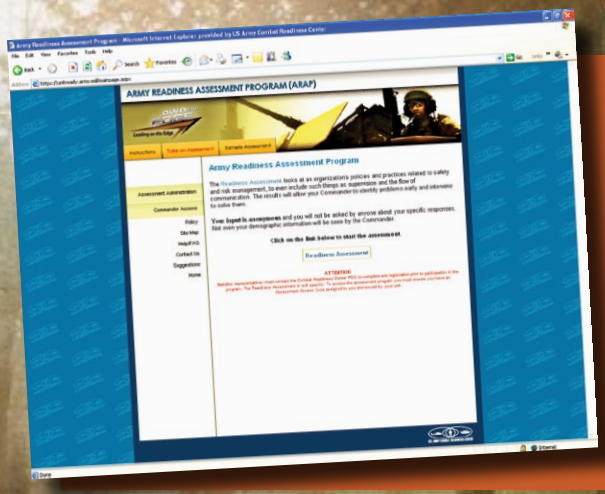
With the route out the left door, evidence indicates the PC in the left seat was preoccupied with looking at the route and the suspicious vehicle. He was very familiar with the area and should have known about the wires, but apparently stopped scanning and focused on the tactical threat. The PI was new to this area and unfamiliar with the set of wires running across the route at a height of about 170 feet—above and parallel to the wires on the 75-foot-tall poles. A single 190-foot tower stood in the crew's field of view, but the PI assumed it was a radio tower because there wasn't a similar tower nearby. Unbeknownst to the PI, a set of wires ran from the 190-foot tower to a shorter tower near a building across the convoy route. That tower appeared to be associated with the building, perhaps serving as an antenna. The PI never noticed the 170-foot wires until the very last second.

Some people might blame the wires for this accident because they were hard to see. However, the wires were a known hazard, depicted on hazards maps and also depicted on the aircraft's rotorcraft mapping system. The crew had a breakdown in scan and performed inadequate airspace surveillance. As a result, the crew failed to negotiate the wire obstacle.

Lessons Learned

How can we prevent this accident from happening again? As stated by Gen. Richard A. Cody, Vice Chief of Staff, Army, "Our pilots and crewmembers have achieved unprecedented levels of tactical proficiency. However, the overall risk that stands between mission accomplishment and injury to aircrew or damage to aircraft is a composite risk from both tactical and accidental hazards. … I am concerned Army Aviators will find themselves tactically

> "Aviators **MUST** take a **COMPOSITE RISK** approach when **PLANNING** and **EXECUTING TACTICAL** and training missions to **MITIGATE** those **RISKS.**"



proficient in combat operations and vulnerable to the accidental risks that are even more devastating." What a foreshadowing statement to an accident such as this one.

Aviators must take a composite risk approach when planning and executing tactical and training missions to mitigate those risks. Commanders should look closely at the relief-in-place process to determine how much time to allow for crew changeover, how many flights are enough and how to separate local area orientations from tactical missions so arriving aviators can focus on the hazards. Of course, the tactical situation, operations tempo and aircraft availability all play a part in this.

Commanders need to ensure mission briefers take a close look at crew mix. In this case, the crew mix was not in question, but it forces us to think about the crew dynamics in the cockpit. The PC, alone, had almost 1,000 hours of combat time. Although the PI had only two-thirds the combat time of the PC, he had more total flight hours and was an IP. This crew was very comfortable with one another's abilities to fly the aircraft, handle emergencies and see and avoid obstacles. Tragically, this set a dangerous tone of overconfidence in the cockpit. Aviators must fight the tendency to let their guard down when flying with experienced crewmembers.

Although this crew was within their right to fly below the hard deck, when the decision was made to operate at that altitude, they should have made hazard avoidance their primary task. The hard deck is designed to keep aviators away from the majority of hazards. When the decision is made to descend below it, statistics show that accidental hazards are bigger killers than the enemy.

Remain vigilant and live to fight another day. «

DID YOU KNOW?

Make sure your soldiers are ready for the mission by using the Army Readiness Assessment Program. It's a Web-based initiative that provides battalion-level commanders with data on their formation's safety climate and culture. Check it out today at https://unitready.army.mil.

ROAD RULES

CHRIS FRAZIER
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Operating a vehicle in snowy or icy conditions can be a challenge for any driver, especially if they're not trained in winter driving techniques. Fortunately, a little preparation will go a long way toward helping you, as well as others on the road, avoid being a winter driving statistic.

Visibility

Good all-around visibility is a must for safe driving in winter conditions, so make sure you can see what's going on outside your vehicle. For optimum visibility, completely remove ice, snow and fog from all windows and mirrors before operating the vehicle. Use defrosters and windshield wipers to keep the windshield free of ice, sleet, snow and fog while driving. The inside and outside mirrors should also be clean and properly adjusted.

To ensure other drivers see your vehicle on the road, use headlights during periods of reduced visibility. It's also a good idea to increase following distances between vehicles because exhaust gases can cause ice fog. Use a guide when backing the vehicle or where assistance is required in picking a trail in deep snow.

Traction

Good traction is another important factor that can help keep your vehicle on the road. When driving in deep snow or on ice, tire chains will help increase traction during starts and stops. Placing brush and burlap under the wheels can also help a vehicle move through snow. If a vehicle does get struck, try rocking it back and forth by shifting between a low gear and reverse. Never spin the wheels; that will only dig the hole deeper. If rocking the vehicle doesn't work, a little sand or gravel around the tires may provide enough traction to free it.

Braking

Braking in snow and ice can be tricky and requires special techniques. When stopping on an icy road, apply the brakes gently. Never slam on the brakes, which can cause the vehicle to skid. If the vehicle does begin to skid, turn the front wheels in the direction of the skid. The momentum of the vehicle will carry it in a straight line parallel to the original path, and you should be able to regain control.

Truck and Convoy Operations

Drivers must also exercise caution during cold weather truck and convoy operations. Improper operation through or over brush, branches, stumps and rocks may damage vehicle radiators, tires, lights and undercarriages. If unsure about the conditions of a stretch of road, stop and look at the situation before proceeding. Let the lead vehicle go through before allowing other vehicles to drive through the same spot. If the lead vehicle becomes stuck, it may have to be pulled out. Vehicles that bog down in snow or break through ice should be recovered as quickly as possible to prevent them

from freezing to that spot.

All vehicles should also be equipped with the driver's personal gear and field equipment; vehicle maintenance tools; operational rations for emergency use; extra engine oil, fuel and antifreeze; tow and tire chains; pioneer tools; strip maps; fire starters; and highway flares and safety kits. You never know when you might need to remove snow from around the wheels or cut some brush to aid in traction.

Conclusion

Snow and ice can make any trip more difficult and require a vehicle operator to have the skills to safely navigate the road. Use extra care when you encounter adverse weather so you can safely make it to your destination. **Army Safe is Army Strong!**

For more information on preparing for cold weather vehicle operations, as well as maintenance and service, see Field Manual 55-30, *Army Motor Transport Units and Operations,* Appendix G, *Vehicle Operations in Adverse Weather.*

LOW TEMP EFFECTS

When materials essential to motor vehicle operations are exposed to low temperatures, the following occurs:

- **Rubber becomes stiff and brittle. Radiator and heater hoses could crack and break if handled roughly.**
- **Water freezes and expands. This expansion could split radiators or crack engine blocks.**
- **Canvas becomes stiff and brittle, making it difficult to fold, unfold or use without damaging.**
- **Glass conducts heat poorly and could crack or shatter if subjected to a sudden increase in temperature. Do not apply sudden, intense heat to clear or deice vehicle windows or windshields.**
- **Engine oil becomes thick and flows poorly.**
- **Grease becomes hard and thick and loses lubricating properties until it is warmed by normal operations.**

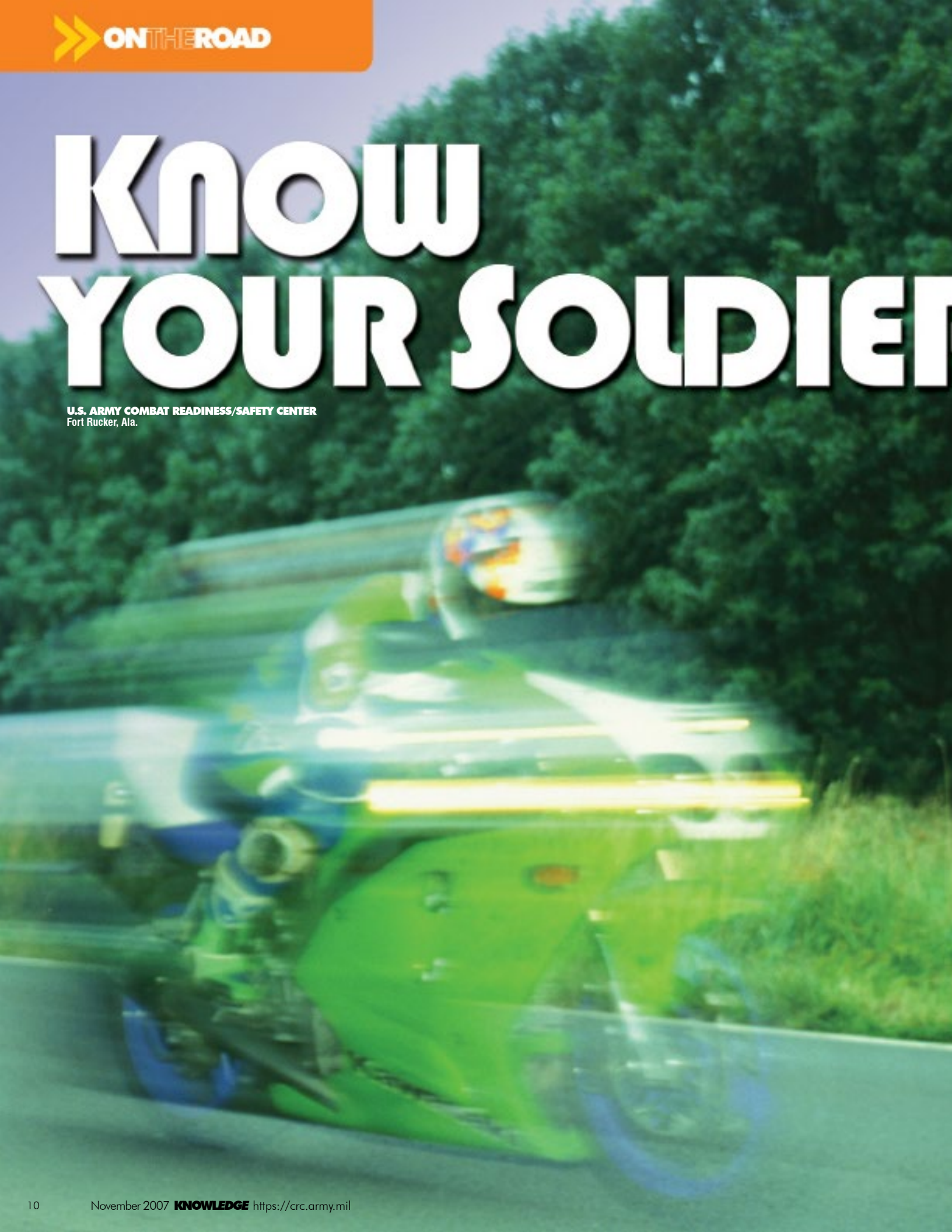
Source: Field Manual 55-30, *Army Motor Transport Units and Operations.*

DID YOU KNOW?

The mountainous regions in north and northeastern Iraq, which include the cities of Mosul and As Sulaymaniyah, receive heavy snowfall each winter, especially during December, January and February. Afghanistan experiences much harsher winters than Iraq. More than 49 percent of Afghanistan is made up of mountains at least 2,000 meters high. (Afghanistan experienced record snowfall and cold temperatures in the early months of 2005, with nighttime temperatures in Kabul dropping to -64 F!

Know Your Soldier

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.



Editor's Note: This article is based upon an accident investigation conducted by the U.S. Army Combat Readiness/Safety Center. The goal of this article is to provide lessons learned to help prevent future accidents. The name of the Soldier in this story has been changed, but the facts are accurate.

Sergeant 1st Class Tim Baker leaned low over the fuel tank of his 2003 Suzuki GSX 1300R Hayabusa motorcycle. Nearby, three fellow club members rode with him in formation, joined by four other club members driving their privately owned vehicles. The convoy was en route to a pool party and farewell barbecue marking the end of a weekend gathering involving three motorcycle clubs. The road had a posted speed limit of 45 mph, but the convoy was pushing it by an extra 5 to 10 mph.

As the convoy rounded a left-hand curve, Baker drifted off the road's right edge and onto the shoulder. Trying to avoid a road sign ahead, he overapplied his front brake, causing the back of the motorcycle to lift and rotate over the top of the locked front wheel. As the bike's rear came up, it catapulted Baker about 30 feet, where he struck the ground with his head and shoulders and then hit a road sign. Although fellow club members rendered first aid and called 911—Baker died in their arms. Emergency medical services personnel arrived at the accident site within six minutes, but it was too late.

Results

- A Soldier, father, son and friend was fatally injured.
- A 2003 Suzuki GSX 1300R Hayabusa motorcycle was damaged.

Why did the accident happen?

- Baker and the club's leadership failed to consider the physical toll of the weekend's events on the club members. During the two nights before the accident, club members drank and partied until the early morning hours, averaging only about five hours of sleep. Investigators believe Baker's fatigue led him to drift off the road while he was trying to round the curve.
- Although the club's leaders were Army senior NCOs, none of them ensured the club's members wore the required personal protective equipment.
- Baker overapplied his motorcycle's front brake and locked the wheel. The wheel then became a pivot point for the rear of the motorcycle, which rotated upward and catapulted Baker onto the ground and into a roadside sign.
- Baker had modified his bike for straight-line drag racing at the expense of its cornering abilities. For example, he used a nylon strap to compress the suspension on his forks and lower the bike's front end. This modification reduced the front suspension's travel and rebound dampening, potentially creating problems when the bike went over bumps and other highway debris, especially while cornering. In addition, Baker replaced the Hayabusa's rear swing arm with a longer version—another drag-racing modification that reduced the motorcycle's cornering abilities. These alterations were not secrets to Baker's friends. He had ridden his motorcycle with these modifications for some time.

Lessons for Leaders

- Ensure Soldiers know the effects of operating a motorcycle while fatigued, understanding fatigue slows response times and reduces situational awareness. Soldiers also need to understand that drinking alcohol worsens the effects of fatigue.
- Ensure Soldiers understand that skill-based errors are the leading cause of motorcycle accidents. Encourage Soldiers to complete the Motorcycle Safety Foundation's Experienced *RiderCourse*SM about four to six months after they complete the MSF's Basic *RiderCourse*SM.
- Ensure Soldiers understand composite risk management applies both on and off duty and that they are required to wear PPE whenever they ride.
- Leaders should learn to identify potentially dangerous motorcycle modifications and engage their Soldiers concerning high-risk behaviors and activities.

> "**LEADERS** should learn to **IDENTIFY** potentially **DANGEROUS** motorcycle **MODIFICATIONS** and **ENGAGE** their Soldiers concerning high-risk **BEHAVIORS** and **ACTIVITIES.**"

UXO: RECOGNIZE RETREAT REPORT

DANIEL LINEHAN
U.S. Army Technical Center for Explosives Safety
McAlester, Okla.

To win our nation's battles, Soldiers must train as they fight. Doing so means they must experience, as close as safely possible, the battlefield environment. This necessitates live-fire training. Over the years, the Army has used vast amounts of land for this training. Occasionally, munitions used during live fire do not work as intended. As a result, unexploded ordnance—sometimes referred to as "duds," can remain in the impact area long after the training was completed. Would you know what to do if you came across a UXO?

Today, much of the land once used for live-fire training is now public property. From time to time, people living on or using that land encounter munitions. So, what should you do if you discover UXO? According to the Defense Environmental Network and Information Exchange, you should follow the three Rs of explosives safety:

- Recognize you may have encountered a munition.
- Retreat from the munition. Do not touch or disturb it, but move away carefully, walking out the same way you entered the area.
- Report what you saw and where you saw it to local law enforcement (call 911).

The Army developed the three Rs to be easily understood and remembered by small children and adults, much like the "Stop, Drop and Roll" fire safety message. The Army has also produced a variety of materials to help in understanding the dangers associated with munitions, particularly UXO, whether found on the ground or kept as a souvenir or war trophy.

The DENIX UXO Safety Education Program Web site, provides a toolbox of explosive safety information and educational material. This material includes general information about UXO and chemical agent identification sets, which were once used for training Soldiers for chemical warfare. It also contains posters, video presentations and explosives safety guides for various activities.

Another section of the Web site is devoted to teaching children what to do if they encounter UXO. The section includes coloring books, posters, videos and other learning tools to help educate them and their parents about the three Rs. Other documents and materials are also being developed to help further educate the public about the hazards associated with military munitions and what to do should they encounter them.

> "**MUNITIONS ENCOUNTERED** in public areas and those kept as souvenirs **POSE** a potential **EXPLOSIVE HAZARD**."

Munitions encountered in public areas and those kept as souvenirs pose a potential explosive hazard. Unfortunately, time and time again people have been injured or killed because they did not follow the simple rules of the three Rs with these munitions. The DENIX Web site is an excellent resource for information you can share with your unit, family, friends and neighbors to help educate them about the potential hazards of UXO and other munitions.

Don't let UXO or souvenir munitions create another casualty. Learn and follow the three Rs of explosives safety. It could save your life.

For more information, visit the DENIX UXO Safety Education Program Web site at www.denix.osd.mil/uxosafety.

DON'T BE A DUD

TAYLOR BARBAREE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Time and time again, unexploded ordnance incidents have shown no prejudice in selecting victims. However, with education and training, people can avoid being injured or killed by UXO.

"The first thing Soldiers need to understand is that it is against Army regulations and Department of Defense directives to touch a UXO, much less have one in their possession," said Capt. Charles Terry, an ordnance officer and commander of the 666th Ordnance Company, Explosive Ordnance Disposal, Alabama Army National Guard, located in Jacksonville, Ala. Terry said, "You have to remember ordnance or munitions are designed for one thing—and that is to blow up."

According to DOD, military munitions, including UXO, come in a variety of types, sizes and shapes and might not be easy to recognize. Military munitions include, but are not limited to, small-arms ammunition, projectiles, cartridges, bombs, rockets, pyrotechnics, grenades, blasting caps, fuses, simulators and raw explosives. Military munitions are designed to kill or injure enemy forces or damage enemy equipment and contain some form of energetic material such as propellants, explosives or pyrotechnic mixes. When military munitions do not function as intended, they become UXO.

Terry, who served tours in Afghanistan (Operation Enduring Freedom) and Kosovo (Operation Joint Guardian), said people need to take a "commonsense approach" in dealing with ordnance. The most important step is to call the proper authorities. The second step should be to mark the UXO without touching it and allow trained professional experts to deal with it. Education is the key to individuals understanding the dangers of UXO, he said.

"During my time in Kosovo and Afghanistan, where there is a large amount of unexploded munitions, our EOD units spent a great deal of time trying to educate people about the dangers UXO present," Terry said. He explained the more educated people are about the dangers UXOs present, the more likely they are to leave them to the professionals to handle. "I cringe every time I hear about a fatal or harmful incident involving a Soldier or civilian. In most cases, it could have been prevented."

While performing a walk-through of an area that would later be the site of a training exercise, a Soldier found an artillery simulator on the ground. When he picked up the UXO, it exploded in his right hand, causing minor burns to his face and second-degree burns to his hand. The Soldier had only intended to move the UXO before anyone else encountered it. However, his unit SOPs and safety briefs included directions not to pick up UXOs and, instead, call explosive ordnance disposal for proper removal.

We all know that Army Aviation is an inherently dangerous profession. And if you ask any aviator what they least like about flying, one of the things on their list would be "Going IIMC!" One of the most hazardous (and scariest) situations for any aircrew member is inadvertently encountering instrument meteorological conditions. But, it doesn't have to be that way. Read on!

THE GROUND IS NOT YOUR FRIEND

PERRY C. HUMBLE
U.S. Army Combat Readiness/Safety Center
Fort Rucker Ala.

Inadvertent IMC is a situation where deteriorating weather prevents you from flying under visual meteorological conditions. The following is a summary from the USACRC database of a recent IIMC accident:

While conducting a night, single aircraft, night vision goggle, cross-country training flight, the flight crew inadvertently encountered IMC and experienced a total loss of situational awareness. The crewmembers lost control of the aircraft and struck the ground at an approximate 10- to 15-degree nose-low attitude. The aircraft was destroyed and three crewmembers received fatal injuries. Findings suggest that had this crew been more proficient in instrument flight, they might have avoided this accident.

How serious is IIMC in Army Aviation? From Oct. 1, 2002, to March 26, 2007, we have experienced 15 IIMC accidents. Statistics show all types of aircraft were involved: seven Black Hawks, four Apaches, three Chinooks and one Kiowa Warrior. Twelve of the 15 occurred at night. Of those accidents, seven were multi-ship, six occurred when the crews failed to update the weather before takeoff and 12 happened when crews failed to modify their flight plans after encountering deteriorating weather. One thing they all had in common was they failed to execute proper IIMC procedures and, as a result, lost control of their aircraft.

Army Aviators are highly motivated and skilled warriors with an important mission to accomplish. However, this same motivation can be a double-edged sword. A professional Soldier/aviator is driven by a sense of duty to country, accomplishment of the unit mission and the welfare of fellow Soldiers. This drive could, at times, cloud one's judgment. For example, if an aircrew doesn't get the needed supplies, ammo or water to the troops on time,

the results could be catastrophic. Or if a combat medical evacuation pilot can't take off immediately to pick up an injured Soldier, then the pilot feels that the fate of the Soldier rests in their hands. That first "Golden Hour" is a critical time for a severely injured Soldier.

This is where training and discipline can and will make the difference between a successful mission and a disaster. We're taught in flight school to "fly" the aircraft. If that's not accomplished without hesitation, nothing else matters. Knowing all the procedures in the world will not save you if aircraft control is lost.

We train our aircrews to avoid inadvertently entering IMC. We tell them over and over to not fly Visual Flight Rules in Instrument Flight Rules conditions because it's dangerous. We've all seen the Combat Readiness/Safety Center accident posters showing the catastrophic results. If the weather is bad, don't fly. If you launch and the weather gets bad, turn around and go back, or land and wait it out. Or, if you're trained, equipped, prepared and proficient for IMC flight, request an IFR clearance from air traffic control and continue the mission IMC. Of course, that last option might not always be available while deployed, depending on local navigation aids and instrument approaches.

IIMC Causes

Conditions that have caused aviators to enter IIMC include:

- Poor pre-mission planning
- Failure to update the weather brief before takeoff
- Continuing the mission too long while encountering deteriorating weather conditions
- Self-imposed stress to accomplish the mission (real or perceived)
- Flying with NVGs and losing situational awareness

Mitigate the Risks

To prepare for IIMC, you must first make the conscious decision that continued flight under VMC is no longer possible, and then decide to either turn around, land immediately (if possible), request an IFR clearance in-flight, or execute established IIMC procedures. I've spoken with many aviators who've said that for a split second they thought about trying to fly down to the ground when they encountered IIMC. Let me emphasize something: the moment you "punch in," the ground is no longer your friend!

What happens next when IIMC conditions are encountered? Your IIMC tasks outlined in the appropriate training circular/aircrew training manual, local SOPs and other regulations should be second nature; therefore immediately take the appropriate actions.

What Should I Do?

On the next page is a basic overview of what to do when

STANDING OPERA

It is important to state what a standing operating procedure is not. It is not a reprint of existing regulations, policies and doctrine. So what is it? It is the commander's directive, establishing how missions and tasks will be accomplished and is based on the unit's specific and unique missions, organization and location.

Field Manual 5-0, *Army Planning and Orders Production*, describes the SOP in paragraph G-59: "To enhance effectiveness and flexibility, commanders standardize routine or recurring actions not needing their personal involvement. SOPs detail how forces execute these unit-specific techniques and procedures. Commanders develop SOPs from doctrinal sources, applicable portions of higher headquarters procedures, the higher commander's guidance and experience. They are as complete as possible. SOPs allow new arrivals or newly attached units to quickly become familiar with the unit's routine. SOPs apply until commanders change them. As a minimum, it is recommended that the SOP be reviewed annually.

Let's look at the SOP as it relates to Army Aviation. Paragraph 3-3 of AR 385-95, *Army Aviation Accident Prevention*, states, "Commanders will ensure an SOP is developed for all unit functional areas and for all aviation operations executed in the command. The SOP may, where

> "If you **LAUNCH** and the **WEATHER GETS BAD**, turn **AROUND** and **GO BACK**, or **LAND** and **WAIT IT OUT**."

encountering IIMC. This is not intended to replace the published standardized IIMC procedures for your aircraft or unit. These basic items are here to make you think about the possible sequence of events if you should ever encounter IIMC.

- Maintain proper aircraft control and make the transition to IFR immediately. Level the wings on the attitude indicator; maintain heading and turn only to avoid known obstacles.
- Initiate a climb immediately to an appropriate altitude that has been determined during pre-mission planning. Adjust torque to climb power and adjust airspeed to climb airspeed.
- Comply with local IIMC procedures.
- Monitor the attitude indicator, and immediately alert the other pilot of any unusual attitude condition.
- Tune the avionics to the appropriate emergency frequency and set the transponder to the appropriate emergency code.
- Request air traffic control assistance; acknowledge and record the appropriate information.
- Correctly perform crew coordination actions.

Again, let me reiterate this sequence of events does not replace your unit's established SOPs or regulations. IIMC doesn't have to occur. Staying ahead of the aircraft and the weather, coupled with compliance to established procedures, can prevent it. Through proper training, pre-mission planning, strong aircrew coordination skills and strict adherence to SOPs, much of the IIMC stress can be relieved. ■

TING PROCEDURES

ARTHUR J. DOYLE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

applicable, be consolidated at the battalion/squadron or regiment/brigade/group level. The systematic risk management process should be integrated into all unit operational procedures. Command-approved risk control options should be integrated into the SOP as task performance standards." This paragraph also provides a list of 27 subjects to be addressed if they are applicable to the unit's mission. Bear in mind that this list is not all encompassing and only lists the aviation-specific subjects. There are many other requirements such as motor pool operations, convoy operations, unit supply and unit administration—to name a few, which must also be addressed in the aviation unit SOPs.

Does the commander actually develop and write the entire unit SOP? No. The commander relies heavily on the expertise of the unit's leaders and staff. Each plays a part in the development of the SOP based on their particular duty assignment, background and experience. For instance, who better to develop the aviation maintenance SOP than the aviation maintenance officer? Who better to develop the tactical operations SOP than the operations officer? Once the unit leaders have developed their assigned portions of the SOP, they present them to the commander for review and approval.

In the Army, we have a habit of "reinventing the wheel" when it comes to SOPs. There are many underused sources available. If you plan to deploy to the desert in a year, contact the unit you're replacing and request copies of their SOPs. Ask for the hard-learned lessons from their deployment. Contact the Theater Safety Office to obtain theater policies and SOPs. Need more? Log on to the USACRC Web site and go to the Leader's Corner (https://crc.army.mil/leaderscorner/). For more visit the Center for Army Lessons Learned Web site (http://call.army.mil/). You can even "Google it." Been there before? Pull out the plans, SOPs and after-action reviews from your last rotation. A lot of the work has already been done. You just need to obtain it and tailor it to meet your requirements.

DON'T FOOL WITH MOTHER N

TIM MCLAUGHLIN
10th Mountain Division, Sustainment Brigade
Fort Drum, N.Y.

After spending six years driving in Alaska, I thought winter driving at Fort Drum, N.Y., would be a snap. After all, I'd seen my share of accidents and figured I was prepared for anything. But it only took a week to show me I was wrong.

It was October and the lake effect snow had kicked in a month early in New York. The roads quickly became hazardous as plummeting temperatures caused black ice to form. I'd been out that day hunting with a friend from post. It was starting to get dark, so we headed home in my four-wheel-drive pickup. I thought I'd just slow down and take it easy. I figured the other drivers were used to these conditions, so getting home shouldn't be a problem. However, as I found out, I should NEVER ASSUME others know what they're doing or care about safety.

I'd only driven a couple of miles when I rounded a corner to find an oncoming vehicle skidding into my lane. He was out of control, but I was going slow and could still steer. My options were simple—either slam into the car or go for the snow bank. That was a no-brainer, so I steered right into the white stuff. Fortunately, the other driver regained control and continued down the road.

But I was in trouble. When my pickup plowed into the snow, I lost control and my truck jumped the bank and landed in a ditch. I checked myself and my passenger. We'd both been wearing our seat belts and were all right. The truck didn't appear to be damaged, but we now had other problems. Stuck in 3-foot-deep snow, even my four-wheel-drive couldn't get us out of the ditch and back over the snow bank. Fortunately for us, about a half hour later a truck came by and the driver used a chain to pull us out of the snow. The Good Samaritan left after refusing to accept anything other than a thank you and a handshake.

By now, the importance of driving safely had really set in for me. We still had a bit more than 10 miles to go before we'd be home. We'd gone about halfway when I saw snow plows in the oncoming lane. I passed the first one and saw another coming around a corner ahead of me. Just at that moment, a Honda Accord passed me going way too fast for the conditions. The driver apparently saw the approaching snow plow and tried to get back into her lane—but she didn't make it. The Accord smashed

CATCH A BUZZ? ... CATCH

BOB VAN ELSBERG
Managing Editor
U.S. Army Combat Readiness/Safety Center

Remember when Paris Hilton was arrested for driving under the influence? As entertaining as the news accounts were, the media missed the real story—the one where intoxicated drivers cause nearly 40 percent of all highway fatalities.

Still, the real story hasn't been lost. Recognizing some holiday partiers spend too much time behind the bottle before getting behind the wheel, December has been proclaimed National Drunk and Drug Prevention Driving Month.

Just how important is it to not get "plowed" on the pavement? Imagine falling out for formation and the platoon next to yours was missing. Then imagine turning around and seeing one of your squads was gone. Subtract 50 Soldiers from your formation and you've got the daily death toll caused by alcohol-related crashes in America.

And booze isn't the only story. Other "recreational" drugs, such as marijuana and cocaine, figure into nearly 18 percent of highway deaths, often along with alcohol.

So what can you do about it?

- Don't get behind the wheel if you've been drinking. Remember, alcohol numbs your brain before it numbs your hands and feet. Don't let being good behind a pool cue turn you into a numbskull behind the wheel.

NATURE!

into the snowplow and then spun out of control and into a ditch. I was so close when it happened that parts of the Honda flew off and hit my truck.

I stopped and quickly checked the snowplow operator and the car's driver for injuries. As I approached the wrecked automobile, a beautiful young girl looked up at me. I noticed her nose had been split all the way to the bone. She'd also cut her left eye, and her neck and chest were badly bruised. She told me "everything hurt" and asked me if she looked badly injured. I tried to comfort her as much as possible as we waited for the ambulance.

What really struck me was what she said about the crash. She was from South Carolina and had never driven in snow. She told me she'd been skiing all day and, although she'd felt too tired to drive, had been in a hurry to get home. I looked at the car parts scattered up and down the road and then looked at her. This wouldn't have happened had she done a quick risk assessment before passing me. She was going to pay a very high price for being in a hurry.

The lessons learned here are simple. First, never assume your winter driving skills can compensate for the stupidity of others. If the weather is really bad, stay off the road. If some fool wants to hit your car, make him come up your driveway to do it.

And don't be in such a hurry that you ignore the threats during winter weather. If you do, Mother Nature will put you on a collision course with the consequences. After all, as the saying goes—"It's not nice to fool with Mother Nature." ■

A RIDE!

- Pick a designated driver before the party starts. If you're the driver, collect the keys up front so you won't have to fight an angry drunk for them later. Also, keep an eye on your buddy at all times.
- If you're going to drink at a buddy's house, see if you can spend the night there.
- If you're throwing the party, make sure there are some alcohol-free options—especially for the designated drivers. Also, ensure anyone who has been drinking leaves with a sober driver.

TREADING ON THIN ICE

Tips for Slippery Conditions

Ice forming on an asphalt surface is often hard to see. The conditions for "black ice" are right if you have to scrape frost or ice off your car's windshield. If you find yourself on a patch of black ice:

- Don't panic. Keep your cool and take your foot off the gas pedal.
- Don't slam on the brakes. This will only make the situation worse.
- Don't make quick turning maneuvers. Steer gently in the direction you want the vehicle to go.

When your vehicle is involved in a skid:

- Ease your foot off the accelerator or brake pedal.
- Avoid slamming on the brake.
- Downshift if you have a manual transmission.
- Look and steer in the direction you want the vehicle to go.
- Do not oversteer. Make necessary steering adjustments smoothly and gradually.
- If you overcorrect at first, be prepared for a skid in the opposite direction. Again, remember to look and steer where you want the car to go.
  - Continue to steer until your vehicle recovers from the skid.
  - Once the vehicle is under control again, adjust your speed to the road conditions.

Rewarding Su

In the movie, "Patton," General Omar Bradley said, "Give George a headline and he's good for another 30 miles!" Just as recognition helped spur one of the Army's greatest generals to push forward on the battlefield, it can also spur organizations and Soldiers to push forward with their accident prevention efforts. The list of awards below provides a useful tool for encouraging organizations and individuals to help keep the Army Strong by keeping it safe:

■ *Army Headquarters Safety Award*. This plaque is awarded by the Secretary of the Army and Chief of Staff, Army, to Army Commands, Army Service Component Commands and Direct Reporting Units that have demonstrated significant improvements and sustained excellence and leadership in accident prevention programs. Submission deadline is Nov. 15 annually. Note: Organizations are encouraged to develop programs providing local safety awards. Receiving a safety award does not preclude an individual from receiving a military award as described in AR 600-8-22, *Military Awards,* or an incentive award as described in AR 385-30, *The Army Safety Program*.

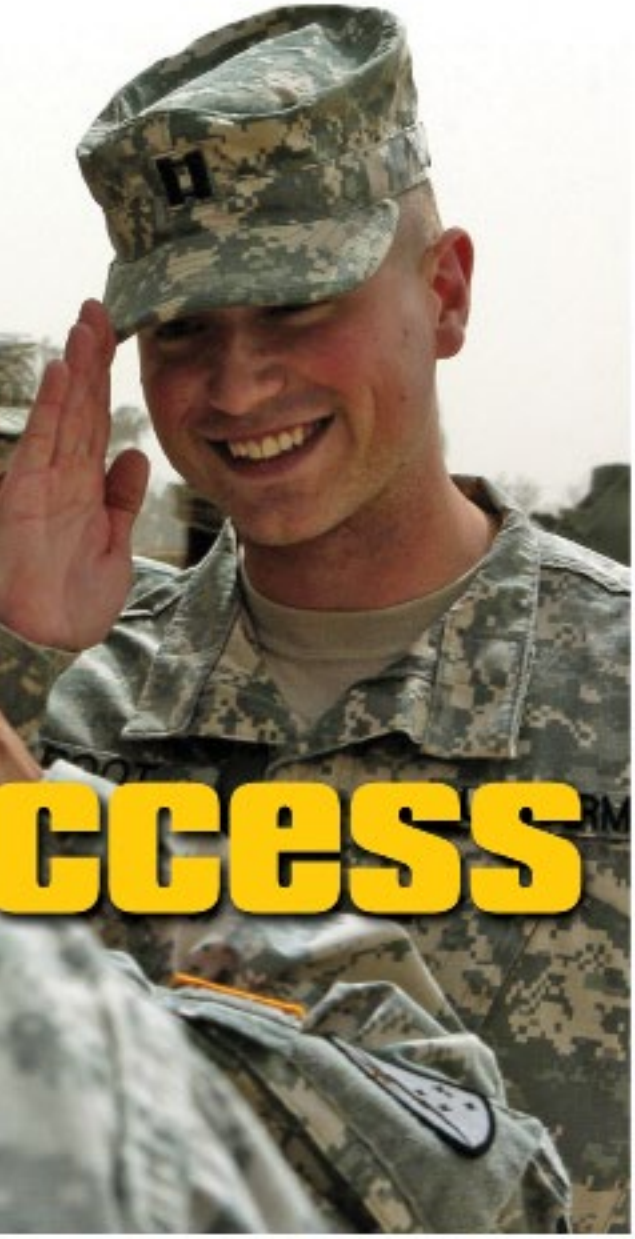
■ *Army Exceptional Organization Safety Award*. This plaque is awarded each fiscal year to the battalion through division and garrison organization with the most effective overall safety program. Submission deadline is Nov. 15 annually.

■ *Army Individual Award of Excellence in Safety*. This plaque is awarded each fiscal year to individuals who, in each of four categories; officer, noncommissioned officer/enlisted, Army civilian, and contractor, make the most significant contribution to accident prevention. Submission deadline is Nov. 15 annually.

■ *Director of Army Safety Composite Risk Management Award*. This plaque is awarded by the Director of Army Safety to organizations or individuals who have made significant contributions to Army readiness through composite risk management. Submissions can be forwarded anytime during the year.

■ *Sergeant Major of the Army Superior Soldier Safety Award*. The SMA awards this plaque to the Soldier who demonstrates "Pockets of Excellence" or "Best Practices" in safeguarding Army operations or personnel. Submissions can be forwarded anytime during the year.

■ *United States Army Safety Guardian Award*. This award is presented by the Director of Army Safety to individuals who through extraordinary individual action in an emergency situation, prevent an imminently dangerous situation, prevent injury to personnel, or minimize or prevent damage to Army property. Submissions should be within two years of



the event and can be forwarded anytime during the year.

■ *Army Aviation Broken Wing Award.* This award is presented by the Director of Army Safety to individuals who, through outstanding airmanship, minimize or prevent aircraft damage or injury to personnel during emergency situations. Submissions can be forwarded anytime during the year.

■ *United States Army Aircrew Member Safety Award.* This award is presented to Army military personnel, Department of the Army Civilians and Army contract employees who fly as aircrew members and have at least 500 flight hours in U.S. Army aircraft without having a contributing role in a human factors-related Class A, B or C aviation accident. Submissions can be forwarded anytime during the year.

■ *Unit Safety Certification Award.* This award is used to identify units, platoon size or larger, that have achieved levels of safety that deserve recognition. To be certified a unit must have completed the following:

- Appointed, in writing, a safety officer who has completed the required level of training.
- Implemented a safety program in accordance with Army safety regulation requirements.
- Reduced the number of accidents, both on and off the job by 50 percent from the previous year.
- Have in place an accident tracking and reporting system that complies with Army safety regulation requirements.
- Have in place a documented CRM process demonstrating risk assessment and resulting implementation and management of controls.
- Sustained the above initiatives for a significant and established period of time, such as one year, two years, and so forth.

When the criteria above have been verified by the commander at the next level, a certificate will be issued by the local safety office recognizing the unit's achievement for the given period of time.

■ *Army Accident Prevention Award of Accomplishment.* This award is presented by MACOM commanders to units having an accident-free year. DA Form 5775 is used for this award and criteria, policies and procedures are outlined in paragraph 2-5 of Army Regulation 672-74, *Army Accident Prevention Awards Program.*

■ *Unit Impact Awards.* These can be used to promote safety and also provide on-the-spot recognition and can be purchased with appropriated funds.

■ *Certificate of Achievement.* Units may use a DA Form 1119-1 or equivalent signed by the organizational leader to recognize individuals. Appropriated funds may be used to purchase items such as trophies.

In addition to the accident-prevention awards listed above, there are two other safety-related awards that can be used to recognize individuals—the *Driver Badge* and the *Mechanic Badge.* Information on these awards can be found in paragraph 8-31 of AR 600-8-22.

Do you need some help getting your individuals or organizations recognized? For examples of award submissions, visit the USACRC Web site at https://crc.army.mil/home/ and click on "Awards Program" and then "Awards Programs and Policies."

For Army DASAF and SMA approved awards, contact the awards administrator at ASO@hqda.army.mil, DSN 332–3509 or CML (703) 602–3509. For the U.S. Army Broken Wing award, contact safetyawards@crc.army.mil or DSN 558–3660 or CML (334) 255–3660 or USACRC help desk, DSN 558-1390, CML (334) 255-1390.

"Just as **RECOGNITION HELPED** spur one of the Army's **GREATEST GENERALS** to push forward **ON THE BATTLEFIELD,** it can also spur **ORGANIZATIONS** and **SOLDIERS** to push forward with their **ACCIDENT PREVENTION** efforts."

Turkey extra-crispy

BRIG. GEN. BILL FORRESTER
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

So, you're thinking you'll deep fat fry that Thanksgiving bird and treat the family to your vast talents and culinary expertise. Before you heat up that peanut oil, read this first.

It all started as we observed our family's standing operating procedure for turkey preparation. I dug through the shed and dragged out the deep fryer equipment—including the stand, pot and appropriate attachments—from where the movers had unloaded them some four months earlier. I then hopped in the car and went to the post gas station to get a propane tank. While I was out, I also picked up several smaller turkeys and plenty of peanut oil from the commissary with the intent of cooking for the neighbors.

I established a cooking location a safe distance from the house, but then I reconsidered and decided to reposition the deep fat fryer a bit closer to the house. The Korean weather was typical—a light, but cold, mist delivered by a slight wind was making standing around outside and watching the pot uncomfortable.

By repositioning the fryer, I had it in my direct line of sight through the sliding glass doors leading to our backyard. I also had a direct line of sight to the television. What could be better? I could enjoy all this from the warmth inside the house.

After getting the cooking gear set and the burner going with the correct-colored flame, I returned to the house and allowed the peanut oil to start warming. About 10 minutes later, I couldn't see the blue flame and realized it had been extinguished by the wind. After a re-light, I returned inside to get warm and watch TV. A bit later, I noticed the flame had again extinguished. I was getting frustrated, figuring this was going to be "one of those days." I repositioned the propane and burner even closer to the house, where it would be shielded from the wind by a wall I shared with my neighbor. I then did a re-light and went back inside to let the oil heat.

Ten minutes into my third re-light, I decided we needed ice cream for the cobbler and told my wife, Nancy, I'd quickly drive to the mini-mart. I asked her to watch the fryer and told her I'd return shortly to put the turkey into the pot. Little did I know I had set the conditions for disaster.

I returned 10 minutes later to a very angry wife and quickly realized the conditions were much more hectic than when I departed. My earlier repositioning of the pot had allowed the burner's flames to get too close to the burner's propane line. As the heat melted the line, the gas shot directly into the flame and created a blowtorch-like scenario as the flames spewed directly onto the pot. The oil, now at a roaring boil, spilled over the pot's top and ignited as it dripped through the flames, spreading fire on the patio deck. The burner, pot and tank were too hot to touch or move, not to mention the hazards posed by the burning oil.

While I'd failed to have a fire extinguisher present, I'd been comforted by the thought the hose spigot from the house was a mere 10 feet away. (I would have been less comforted had I remembered the dangers of using water on an oil fire).

> "Needless to say, my **TURKEY COOKING** was **CANCELED**—our dinner being a **CHEMICAL DISASTER**. **HOWEVER**, I came away **WISER** from my **MISTAKES**."

Further, I'd failed to realize the water in the hose was frozen and, in fact, the hose had been disconnected from the spigot. Before my return, Nancy had reacted superbly. She assessed the situation and ran next door screaming to the neighbors about the fire in our backyard. She then grabbed their fire extinguisher and returned to our house, spraying the entire mess until the extinguisher was empty.

Needless to say, my turkey cooking was canceled—our dinner being a chemical disaster. However, I came away wiser from my mistakes. According to the Consumer Product Safety Commission, my experience isn't all that uncommon. They report that every year many people have close calls or get injured while deep-fat frying turkeys. Because of that, they offer the following tips to help you fry your turkey without cooking your goose:

- Keep the fryer in FULL VIEW while the burner is on.
- Place the fryer in an open area AWAY from all walls, fences or other structures.
- Never use IN, ON or UNDER a garage, breezeway, carport, porch or any structure that can catch fire.
- Raise and lower food SLOWLY to reduce splatter and avoid burns.
- COVER bare skin when adding or removing food.
- Check the oil temperature frequently.
- If the oil begins to smoke, immediately turn off the gas supply.
- If a fire occurs, immediately call 911. DO NOT attempt to extinguish the fire with water.

For safest operation, the CPSC recommends consumers follow these guidelines as they prepare to use a turkey fryer:

- Make sure there is at least 2 feet of space between the liquid propane tank and the fryer's burner.
- Place the liquid propane tank and fryer so that any wind blows the heat from the fryer away from the propane tank.
- Center the pot over the cooker's burner.
- Completely thaw (the U.S. Department of Agriculture says 24 hours for every 4 to 5 pounds of turkey) and dry the turkey before cooking. Partially frozen or wet turkeys can cause the hot oil to splatter when they are placed in the oil.
- Follow the manufacturer's instructions to determine the proper amount of oil to add. If those instructions are not available:
  - Place the turkey in the pot.
  - Fill with water until the turkey is covered by about a half inch of water.
  - Remove and dry the turkey.
  - Mark the water level. Dump the water, dry the pot and fill with oil to the marked level.

Spice Things Up

FRANK MCCLANAHAN
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

As you saw in the article by Brig. Gen. Forrester, preparation and vigilance are extremely important when cooking, as with any task. Let's take cooking preparation a little further by identifying the necessary steps to ensure the food to be cooked is clean and safe. After all, the best way to ruin a holiday meal, short of catching the turkey fryer on fire, is to expose your dinner guests to salmonella, E-coli, staphylococcus, listeria or campylobacter. These organisms can result in anything from a simple stomach ache to a life-threatening illness.

> If your **CUTTING BOARDS** have developed **SCRATCHES** and **CUTS** in them from **EXTENDED USE**, **DISCARD** them and **PURCHASE NEW ONES**.

You can go a long way toward preventing the spread of food-borne illnesses by simply keeping in mind four simple steps: clean, separate, cook, chill. Start by washing your hands thoroughly with hot soapy water every time you handle raw meat, poultry, seafood, vegetables and eggs and keep these food items separate to prevent cross-contamination. Also, you should keep these foods separate in your grocery cart and grocery bags. Remember to clean your work surfaces and wash utensils, knives, cutting boards and even sponges and towels in hot soapy water after every use. If your cutting boards have developed scratches and cuts in them from extended use, discard them and purchase new ones. This will protect you and those you cook for from the bacteria that can hide within those scratches.

Be sure to use a thermometer to measure the internal temperature of the food you're cooking. Also, select the proper thermometer for your cooking method. For example, choose an oven-safe "bimetallic-coil" thermometer if you're going to leave it in the food while it cooks in the oven. The U.S. Department of Agriculture recommends the following as minimum safe internal food temperatures:

- Beef, veal, lamb, steaks, roast – 145 F
- Fish – 145 F
- Pork – 160 F
- Ground beef, veal and lamb – 160 F
- Egg dishes – 160 F
- Turkey, chicken and duck (whole, pieces and ground) – 165 F

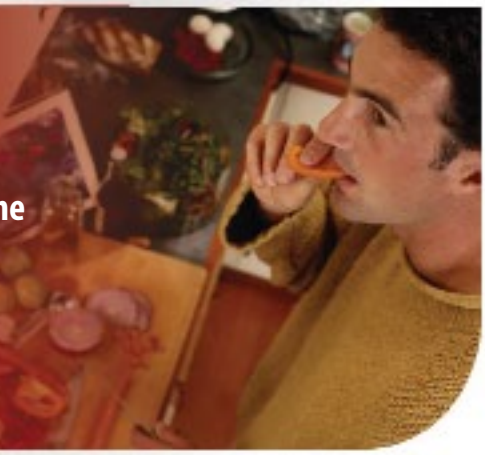
After the food has been cooked, be sure not to place it back on a plate or platter that previously held raw food, and don't handle it with contaminated utensils.

Refrigerating foods is another important step in preventing food-borne illness. Once you arrive at home with your groceries, place your meat, poultry, eggs and other perishable items in the refrigerator or freezer immediately. The Partnership for Food Safety recommends your refrigerator should be set at 40 F or lower, and your freezer should be at 0 F or lower. They also recommend the following additional steps regarding food refrigeration:

- Divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator.
- Thaw frozen food in the refrigerator, cold water or in a microwave – never leave it sitting out at room temperature.
- Marinate food in the refrigerator.
- Clean out the refrigerator and discard old food on a regular basis.

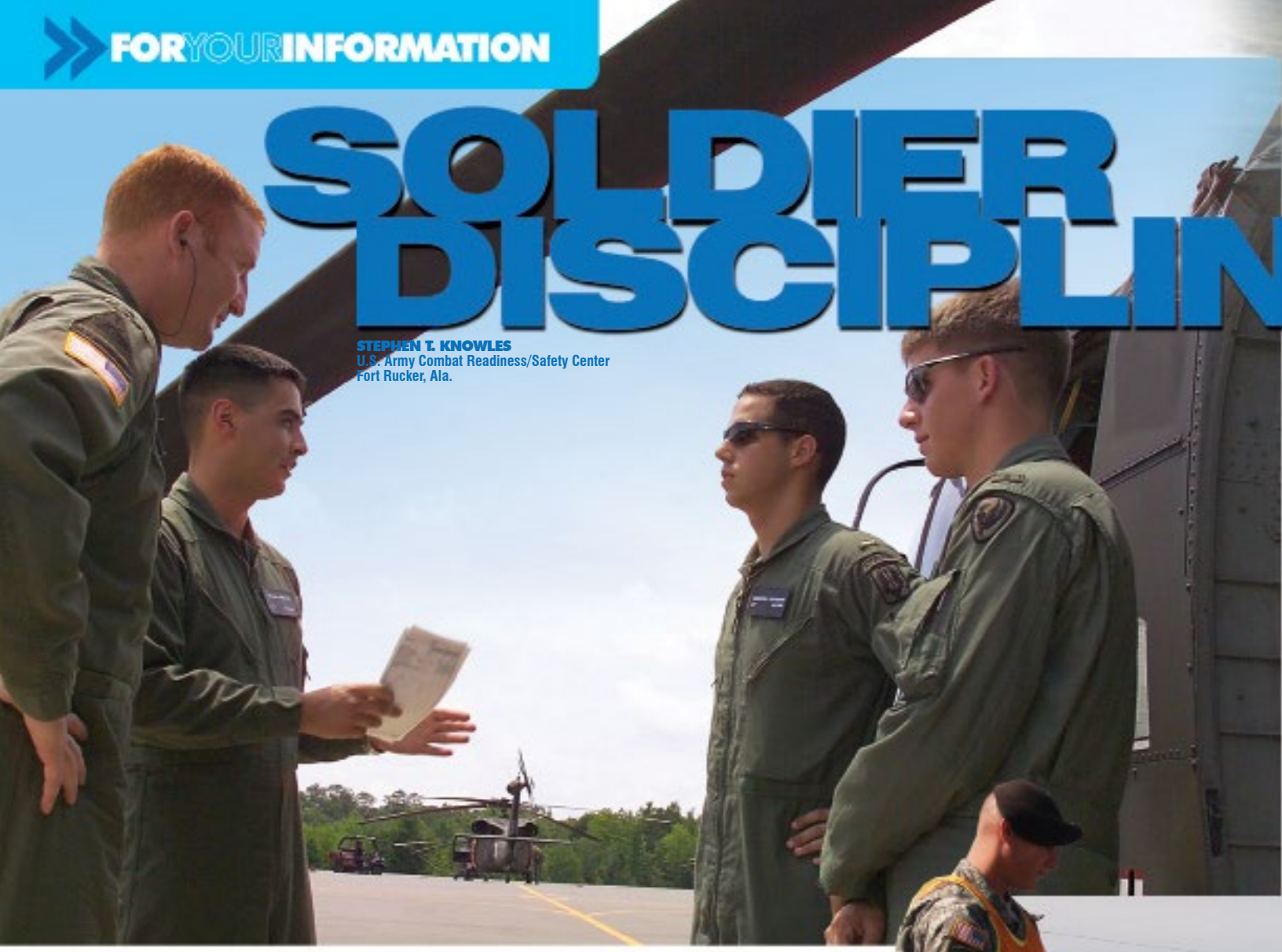
FYI

For more information on food safety, check out the following Web sites at www.fsis.usda.gov, www.thegreenguide.com and www.foodsafety.gov.



SOLDIER DISCIPLIN

STEPHEN T. KNOWLES
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.



In 2006, the U.S. Army Combat Readiness/Safety Center conducted an analysis of aviation Class A accidents from fiscal 2002 to 2006. The trends derived from this analysis were revealing—especially the increase of rotary-wing aircraft accidents due to acts of indiscipline.

So, what is discipline and what is meant by indiscipline? Discipline can be defined as the attitude of an individual or group that ensures prompt obedience of orders (or standards) or initiation of appropriate action in the absence of orders (or standards). Indiscipline, conversely, would be the lack of regard for, or failure to adhere to, known standards defined by Army regulations, commanders' policies or other directives.

Latest Trends

After further analysis in fiscal 2007, the USACRC's Air Task Force observed a reduction in indiscipline incidents in Army Aviation. So, why is there a difference in the 2002 to 2006 analysis and now? It's most likely due to the Army's efforts of informing its leadership, as well as our senior leadership's reminders to remain engaged and accountable. Brig. Gen. Bill Forrester, Director of Army Safety and Commanding General of the USACRC, reminds us that losses can be reduced and/or prevented by the actions of engaged and accountable leaders. He cites

IE

> "LOSSES can be REDUCED and/or PREVENTED by the ACTIONS of ENGAGED AND ACCOUNTABLE leaders."

as prime examples that someone in an organization always knows when there is a problem and that Soldiers should never leave a fallen comrade. These points on engaged and accountable leaders are somewhat intuitive, but what about the others?

Aviation Indiscipline

The following are examples of indiscipline on the part of aviators:

- A pilot in command leaves one forward operating base for the comfort of another despite being directed not to depart because of deteriorating weather.
- An aviator who is known to be overly aggressive and disregards orders not to train others on certain aerial maneuvers crashes while attempting them.
- An aircrew member routinely performs high-angle-of-bank maneuvers at the request of other units and then crashes while putting on one of these displays at low altitude.

These aviation accidents have all occurred. We know by accident investigation conclusions that others knew and did not perform their leadership role. These fallen Soldiers were left behind and on their own. The Army has suffered from these accidents by losing combat power, experienced personnel and resources needed for combat readiness. Some Families will continue to suffer forever from the loss of a loved one because of these thoughtless and irresponsible acts.«

ENGAGED AND ACCOUNTABLE

Someone always knows

In investigating some of our recent motorcycle accidents, experienced investigators determined some unit members were aware when "Johnny" was contemplating purchasing a motorcycle. They were also aware that Johnny had never ridden before, that he didn't have a license to operate a motorcycle and that he hadn't taken an approved motorcycle safety course. Some say his newfound friends even knew he disliked the thought of wearing an approved protective helmet. His peers knew, but what about his chain of command? Had they been informed?

Never leave a fallen comrade

Soldiers should never leave a fallen comrade, and that doesn't necessarily pertain solely to the battlefield. In the motorcycle example above, an engaged leader could have helped prevent a fallen comrade by informing unit leadership of Johnny's thoughts and actions before he became a loss to his family and to his unit. We all know leaders are charged with the responsibility to make the hard right choice instead of the easy wrong.

Whose example are they following?

Leaders, are your Soldiers disciplined or undisciplined because they're following your example? Do you have them abide by the approved standard or do you allow them to do as they wish? If you leave them to do as they wish and disregard the standard, how will you ever be able to enforce standards? And if you can't enforce standards, what role can you play in preventing your unit's next accident?

THE LAST S

MATTHEW R. SCOTT
Army Corps of Engineers
Mobile, Ala.

It was October 2001 and I was anticipating the weekend. To some, this was just like any other weekend. For me, however, this was something I'd waited for all summer—the start of hunting season!

I set out my gear the night before, as I had often done in the past. I checked my climbing stand and added another coat of wax on my bowstrings. I'd already sharpened my broadheads and practiced until I was sure I could hit my target at 30-plus yards. Everything was great except the weather forecast, which included severe thunderstorms and heavy rain during the night and early morning.

My dad and I set our alarms and awoke in the morning to the sounds of a downpour. The wet weather was both bad and good news for us. The bad part was it prevented me from being in the woods at the break of daylight. The good part was I knew the deer would start moving after the rain stopped. Dad and I decided to wait for the weather to clear and catch the deer when they began moving.

After a few hours, the rain stopped and we headed into the woods. I picked out a spot I'd often used in the past—a pine tree next to an old fence. I had seen deer there on many occasions. I set up my treestand while dad went down the road about 200 yards.

Everything went as planned. I climbed the tree and then used the rope I'd attached to my stand to hoist my bow. I sat there for about a half hour without any luck. The only thing I heard was water drops falling from the trees and hitting the ground as the wind blew. Everything in the woods was completely soaked—including my tree. However, that didn't bother me. I'd climbed wet trees in the past without any problems.

I got stiff and stood up to stretch my legs. In the process, I apparently bumped the bottom piece of my stand. Because the tree was wet, the stand had very little traction and slipped down the tree with me dangling close behind. Fortunately, I had my safety harness attached to the tree and didn't fall very far. Thanks to the rope I'd attached between both pieces of the stand, the stand's bottom also didn't go too far.

I pulled myself up to the top piece of the stand and sat down. When I tried to raise the bottom of the stand, the rope snapped and the stand's bottom fell to the base of the tree. There I was, stuck in the tree about 25 feet above the ground with my legs dangling. At least I was sitting down. However, it didn't take long for my legs to "fall asleep." Luckily, my dad was with me and we had two-way radios. I called him and he got to me within a few minutes. With his help, I was able to safely get down from the tree.

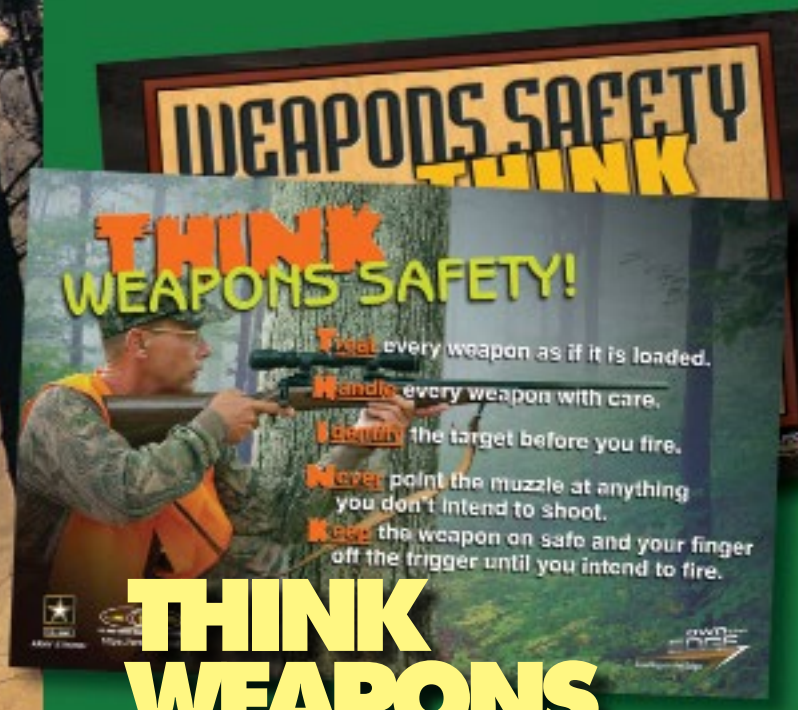
Once I was on the ground, a number of questions ran through my mind. What if I hadn't been wearing my safety harness? What if dad hadn't been with me? What if we hadn't had those two-way radios? I was thankful none of those what-ifs had happened. Thanks to my safety harness, I was able to hunt the rest of that day and, ultimately, enjoy the entire season. Without my safety harness, I'd have fallen for

sure and been injured or killed.

That day I learned a valuable lesson I will never forget. The most important thing to bring home during hunting season isn't your deer—it's yourself!

Here are a few safety tips regarding both climbing and ladder-type tree stands:

1. Always choose a live tree to climb.
2. Always use a safety harness while climbing up or down a tree.
3. Always use a safety harness while you're in your stand.
4. Always leave your weapon on the ground and use a rope to hoist it up to you.
5. If possible, avoid hunting alone.
6. If you are hunting alone, tell someone where you will be and carry a cell phone.
7. If you are hunting with someone else, carry a two-way radio or make sure you both have cell phones in case of an emergency. Remember, however, that two-way radios cannot be used as a tool to help you hunt. Their use should be limited to safety-related communications.
8. Always inspect your equipment before you hunt.



THINK WEAPONS HANDLING PROCEDURES

Did you know weapons handling ranks among the Army's top five accident producers? So far this fiscal year, eight Soldiers have died from negligent discharges, with five of those fatalities happening off duty. Did you also know that negligent discharges account for the majority of Army Class A through C weapons-related accidents?

The Army has a new tool for engaged leaders to use in preventing negligent discharges. "WEAPONS" is a set of videos providing personal accounts of negligent discharges, information on the proper registration, transportation and storage of firearms; and examples of clearing procedures for handguns, rifles and shotguns. Each video closes with "THINK"—an acronym emphasizing correct weapons handling procedures. These videos, along with other tools such as the Weapons Handling Procedures booklet and THINK posters, are part of the Army's commitment to prevent weapons-related accidents and fatalities.

The current "WEAPONS" video deals with privately owned weapons; however, future videos will be added that include on-duty and range accidents.

The "WEAPONS" videos can be downloaded from the U.S. Army Combat Readiness/Safety Center Web site at https://crc.army.mil. Once you have entered the site, click on the Multimedia button, select the link for Videos and then hit the Ground, Weapons Handling and View buttons. Getting these videos will require you to log into Army Knowledge Online.

For more information, contact the USACRC by e-mail at video@crc.army.mil.

NOT ALL TOYS ARE FOR TOTS!

BOB VAN ELSBERG
Managing Editor
U.S. Army Combat Readiness/Safety Center

I remember the Christmas when I got my first BB gun. It was just like the movie "A Christmas Story"—mom warning me to be careful not to shoot my eye out. While I still have both peepers, I did manage to earn a spanking when I shot a walnut out of a tree and it landed on dad's head. While dad appreciated my marksmanship, he didn't appreciate my shooting in his direction. As he applied his "hand of experience" to my "seat of knowledge," he ensured I understood BB guns could seriously injure people. That's the first time I realized not all toys are necessarily harmless.

As you wrap your child's Christmas presents this year, ensure it is a gift that will give them pleasure, not pain. Check the manufacturer's labels and follow the warnings and age suggestions. Toys that may be appropriate for older children could be deadly for toddlers if those products have small parts that could be swallowed. Also, some gifts—like the aforementioned BB gun—require the supervision of an adult until the child demonstrates the maturity to handle them safely. Finally, some toys fail to meet safety standards designed to protect children. To make sure none of those wind up beneath your Christmas tree, please review the following list of toys recalled by the Consumer Production Safety Commission.

Fatal attractions

Many toys come with small magnets inside. However, if swallowed by a toddler, these magnets can join and either block or perforate the intestines. Because such magnets have killed one child and injured 86 others since 2005, the CPSC is recalling these toys:

Mattel Inc.

- Poly Pocket™ play sets sold May 2003 through November 2006
- Doggie Day Care™ play sets sold July 2004 through August 2007
- Barbie and Tanner™ play sets sold May 2006 through August 2007
- Batman™ and One Piece™ Triple Slash Zolo Roronoa™ magnetic action figure sets sold June 2006 through June 2007

Get the lead out!

Paints containing lead can pose health hazards. To protect children from this danger, the CPSC is recalling these toys:

Mattel Inc.

- "Sarge" die cast toy cars sold from May 2007 through August 2007 and produced in China

Fisher-Price

- Big Big World 6-in-1 Bongo Band toys sold July through August 2007
- Geo Trax Locomotive toys sold September 2006 through August 2007
- Barbie accessory toys sold October 2006 through August including:
  - Barbie Dream Puppy House
  - Barbie Dream Kitty Condo Playset
  - Barbie Table and Chairs Kitchen Playset
  - Barbie Bathtub and Toilet Playset
  - Barbie Futon and Living Room Playset
  - Barbie Desk and Chair Bedroom Playset
  - Barbie Couch and Table Living Room Playset
- Sesame Street, Dora the Explorer and other toys sold May through August 2007.

Toys "R" Us

- Imaginarium brand 213 Piece Wooden Coloring Cases sold October 2006 through August 2007

Martin Designs Inc.

- SpongeBob SquarePants™ Character Address Books and Journals sold June 2006 through July 2007

Schylling Associates

- Thomas and Friends, Curious George and other spinning tops and tin pails sold July 2001 through September 2002

What can you do?

If you have you any of these toys, please immediately take them away from children and contact the company using the information provided below:

- Mattel/Fisher-Price Toys: Call (888) 597-6597or (800) 916-4997/4498, or go online at www.service.mattel.com
- Toys "R" Us: Call (800) TOYSRUS/869-7787, or go online at www.toysrus.com
- Martin Designs Inc: Call (866) 898-0261, or go online at www.martindesigns-ltd.com
- Schylling Associates: Call (800) 767-8697 between 9 a.m. and 5 p.m. EST Monday through Friday, or go online at www.schylling.com ■

DID YOU KNOW?

You can automatically receive product recalls from the Consumer Product Safety Commission by joining their e-mail subscription list at www.cpsc.gov/cpsclist.aspx.

AVIATION

AH-64

CLASS A A Model

Search and rescue efforts were initiated after an AH-64A failed to arrive at a designated recon point following the crew's last radio transmission. The aircraft crash site was located and both crewmembers suffered fatal injuries. The U.S. Army Combat Readiness/Safety Center is investigating the accident.

CLASS A D Model

The aircraft impacted mountainous terrain after encountering inadvertent instrument meteorological conditions. The aircraft was destroyed by a post-crash fire. Both crewmembers suffered non-life-threatening injuries and were able to egress the aircraft. The USACRC is investigating the accident.

During a search and rescue effort for the aircraft in the brief above, the crew reported low rotor and subsequently impacted mountainous terrain. The aircraft rolled and descended down the mountainside. Both crewmembers were able to egress. The USACRC is investigating the accident.

CLASS C

The aircraft experienced a torque reading of 137.5 percent for two seconds during a ground reposition flight.

The aircraft experienced a No. 2 engine OIL PSI warning. TGT exceeded 949 C and resulted in engine failure. An inspection revealed oil present throughout engine nacelle and on the fuselage.

During cruise flight, the aircraft experienced a partial loss of the No. 1 engine oil pressure. The PC landed the aircraft and the No. 1 engine failed upon touchdown.

CH-47

CLASS A D Model

While performing a maintenance test flight, the aircraft crashed. The USACRC is investigating the accident.

During taxi, the aircraft contacted a stationary aircraft. The

taxiing aircraft sustained damage to the main rotor system, separating the aft pylon and transmission. The passengers sustained injury on egress. The parked aircraft received damage from flying debris.

MH-60

CLASS A L Model

- The aircrew experienced loss of both engines and landed hard in a field, impacting the side of a privately owned building. Crew was able to egress without injury.

TH-67

CLASS B A Model

- The aircraft rotated 270 degrees to the left while on short final and contacted the ground upright about 8 feet short of the runway.

UH-60

CLASS B A Model

- Post-flight inspection revealed all four main rotor blades, tip caps and the stabilator were damaged from contact with vegetation and rotor wash debris.

CLASS C

- The crew reported a fixed-pitch setting condition during flight while in the traffic pattern and elected to attempt a landing on the fourth go-around. The landing gear tires blew out on touchdown.

IS IT SMART WEATHER OR GET HOME WEATHER?

CLASS A L Model

- The aircraft crashed shortly after takeoff from an exfiltration mission. All onboard—including four crewmembers and 10 passengers—suffered fatal injuries. The USACRC is investigating the accident.

CLASS B

- The aircraft landed hard in terrain conditions that were not anticipated and sustained damage to the main landing gear fairings an fuselage-buckling on the right side.

UAS

RQ-7B

CLASS B

- The UAS experienced an AP servo failure during normal descent and sustained damage during landing.

- The UAS experienced a generator FAIL and ignition primar and secondary link failures. The AVO deployed the recovery chute and the UAS crashed.

- Upon approach, the UAS landed 650 feet short of the touchdown zone. The UAS landing gear struck the forward blade of a parked UH-60.

DOES YOUR CREW PROVIDE EFFECTIVE CREW COORDINATION REGARDING UAS ALTITUDE AND OBSTACLE AVOIDANCE?

CLASS C

- The UAS crashed after experiencing a flap-servo failure during descent.

RQ-11

CLASS C

- The operator lost video link with the system during flight. The UAS went down at an undetermine location and has not been located.

- The tactical UAS initiated an uncommanded flight off course. The UAS landed, following unsuccessful attempts to re-establish flight trajectory. A recovery team was deployed, but they could not locate the UAS.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru October 9, 2007

Hostile/ Non-hostile	
AH-64A/D	12/48
U/MH-60A/L	8/27
C/MH-47	7/16
OH-58D	11/24
TOTAL	38/115

ARMY GROUND LOSSES

FY07

thru September 2007

Class A/Fatalities	
AMV	32/37
ACV	18/11
PERSONNEL INJURY includes weapons handling accidents	54/50
FIRE/ EXPLOSION	5/2
PROPERTY DAMAGE	2/0
TOTAL	111/100

GROUND

ACV

CLASS A

A Soldier was killed and three others were injured when their platoon received small-arms fire while conducting a counter-IED operation. The injuries were from a unit Stryker fire.

A Soldier was killed when he was pinned between two M2 Bradley Fighting Vehicles. The Soldier was in the process of affixing the shipping decal onto the M2 he was assigned to ground guide when it lurched forward and pinned him against the other vehicle.

DO YOUR SOLDIERS PRACTICE GROUND GUIDING PROCEDURES?

AMV

CLASS A

While en route to camp, an M1114 HMMWV overturned for unknown reasons. One Soldier was pronounced dead at the scene, while a second Soldier died upon arrival at a medical facility. Two other Soldiers were also injured in the accident. Seat belt use was not reported.

A Soldier suffered fatal head injuries when the M1114 he was operating during night driver training/vehicle qualification overturned. The Soldier was wearing a Modular Integrated Communications Helmet. Seat belt use was not reported.

A Soldier died when his M1114 ran off the road and overturned into a 5-foot gully. Two other Soldiers were also injured. Seat belt use was not reported.

CLASS B

Two Soldiers were injured when their HEMTT contacted a low-clearance overpass. The overpass was marked to indicate a 13-foot 11-inch clearance and featured posted warnings.

DO YOU IDENTIFY AND BRIEF ROAD HAZARDS DURING MISSION PLANNING?

Two Soldiers were injured and an M1114 was destroyed when the vehicle caught fire due to a possible oil leak.

Other

CLASS A

A Soldier was killed when the commercial fuel truck he was riding in reportedly went out of control on a steep downgrade and ran off the road and down a hillside. The driver of the vehicle was injured. Seat belt use was not reported.

Personnel Injury

CLASS A

A Soldier was unloading 25 mm rounds into a Gator when the primer of one round initiated and the cartridges exploded. The Soldier suffered fatal fragmentation injuries.

A Soldier was changing a tire on a front-end loader being lifted by a HEMTT when the loader shifted. The Soldier was pinned between the loader and the HEMTT and suffered fatal injuries.

A Soldier lost his vision and five other Soldiers were injured when a detonation occurred while they were performing range clearance and preparation for demolition of dunnage.

CLASS B

A Soldier was preparing a blasting cap for an igniter test when it went off in his hand. The Soldier lost most of his hand below the thumb and suffered minor shrapnel injuries to his face and torso.

A Soldier suffered a puncture wound to his eye when he fell onto a stick while conducting escape and evasion training. The Soldier had been wearing eye protection but lost it when he fell.

DRIVING

POV

CLASS A

A Soldier was driving his

POV DRIVING LOSSES FY07

Class A accidents/Soldiers killed

CARS	36/39
SUV/ JEEPS	18/15
TRUCKS	17/14
MOTORCYCLES	41/38
OTHER*	4/4

TOTAL DEATHS

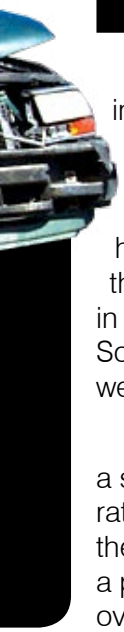
FY06 126 y 132

automobile when he was involved in a head-on collision with a sport utility vehicle. He was thrown from his vehicle and fatally injured. Seat belt use was not reported.

- A Soldier was driving her Ford Mustang with several passengers when she collided with a tractor-trailer that had pulled into her path. The Soldier and a passenger were fatally injured.

- A Soldier speeding in his pickup swerved to avoid slower traffic in the right lane and struck a concrete divider. The pickup slid along the barrier for about 400 feet with the unbelted and partially ejected Soldier pinned between the barrier and his vehicle. The Soldier was taken to a local medical facility and pronounced dead.

HAVE YOU DISCUSSED WITH YOUR SOLDIERS THE TRAGIC COSTS OF RECKLESS DRIVING?



- A Soldier was a passenger in a car traveling through rain and fog when the car struck a stalled truck in the roadway. The truck didn't have any hazard lights or reflectors, and the car's driver didn't see the truck in time to apply his brakes. The Soldier and three other passengers were killed in the accident.

- A Soldier was a passenger in a sports car being driven at a high rate of speed by a civilian when the car left the road and struck a power pole and tree. The car overturned onto its roof, trapping the driver and the Soldier inside. The Soldier, who was wearing his seat belt, suffered fatal injuries.

ATV

CLASS A

- A Soldier was operating his all-terrain vehicle along a road at 3:30 a.m. when he failed to negotiate a sharp right-hand turn, ran off the road and struck a tree. The Soldier was not wearing his helmet and suffered fatal blunt-force injuries to his head. He was pronounced dead at the scene.

POM

CLASS A

- A Soldier was operating his motorcycle when a speeding drunk driver struck him from behind. The Soldier was transported to a nearby Army medical center, where he died the following day. He was wearing his helmet and personal protective equipment. He also was licensed and had attended Motorcycle Safety Foundation training.

- A Soldier was operating his motorcycle when he rear-ended a van as it was slowing to make a turn. The Soldier suffered severe injuries and was transported to a local medical facility, where he remained in a coma. The Soldier was wearing his PPE, but had not attended MSF training or registered his bike on post. The accident has been reported as a permanent total disability.

- A Soldier was killed while operating a borrowed motorcycle in the parking lot of his barracks. As he was operating the motorcycle, he lost control and hit the brakes and slid before the motorcycle went over on its side. The Soldier—who'd borrowed the bike from another Solder—wasn't wearing any PPE and hadn't received MSF training. The Soldier was transported to a local medical facility, where he was pronounced dead.

DO YOUR SOLDIERS UNDERSTAND THE "BUDDY SYSTEM" INCLUDES PROTECTING EACH OTHER OFF DUTY?

OFF-DUTY

Personnel Injury

CLASS A

- A Soldier was on leave from Iraq and fishing with another person in a 12-foot johnboat when the boat capsized and submerged. The Soldier entered the water and attempted to swim to shore, but sank below the surface and drowned. According to the person, who survived, neither he nor the Soldier was wearing a personal floatation device and both had been drinking.

- A Soldier who was TDY was walking with a group to their hotel when he slipped, fell down an embankment and suffered a serious head injury. He was placed on life support and is listed as suffering a permanent total disability.

- A Soldier drowned while attempting to swim across a river at 2 a.m. The other Soldier, who did not attempt to swim across the river, tried unsuccessfully to locate him. Local police conducted search and rescue efforts and located the Soldier's body.

DO YOU KNOW WHAT YOUR SOLDIERS ARE DOING IN THEIR DOWNTIME??

ARE YOU ENGAGED?

Accountable leaders, engaged at the appropriate echelon have the ability to save lives.

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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Brig. Gen. William H. Forrester Commander/Director of Army Safety
Col. Glenn W. Harp Deputy Commander
Command Sgt. Maj. Tod Glidewell Command Sergeant Major

Kelly Widener Director of Strategic Communications

Taylor Barbaree Editor-in-Chief
Bob Van Elsberg Managing Editor
Paula Allman Editor
Chris Frazier Editor
Blake Grantham Graphic Design
Leslie Tisdale Graphic Design
Kami Lisenby Graphic Design

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A FRONTLINE ASSESSMENT OF SAFETY

FROM THE DASAF

"LEADING requires TOUGH DECISIONS and EFFECTIVE communication to get SOLDIERS to wholeheartedly COMMIT to the plan."

The Global War on Terrorism continues and with it the demands on our Army. Post 9/11, our Army's engagement exceeds six years of continuous war. Multiple deployments and gained experiences developed our Soldiers into seasoned warfighters, but needless accidents are equally the enemy. To preclude tragedy, the common requirement remains our Soldiers' vigilance in guarding against accidents while simultaneously fighting a relentless enemy.

At the request of a forward-deployed commander, the U.S. Army Combat Readiness/Safety Center deployed a specialized safety team to theater to look closely at specific factors in an environment where high OPTEMPO leaves little room for error. Allow me to share with you some of the findings.

Our Soldiers remain affected by OPTEMPO and external sources, including, but not limited to, multiple or extended tours, family issues, leader involvement, limited resources, training, enlistment waivers or deployment preparation. These sources lead directly to Soldier behaviors such as fatigue, frustration, overconfidence, distraction, complacency and indiscipline. The intensity of the source can increase the intensity or severity of the reaction, such as the fire under a pressure cooker influences the pressure inside the container. Here are some examples:

Multiple or extended tours:

Deployed Soldiers are working long, hard days in a challenging and dangerous environment. Fatigue during extended rotations has a detrimental effect on daily operations. A few signs leaders need to watch for in combat fatigue and battle stress include inattentiveness, distraction, complacency, illness and lapses in memory.

Training:

Training programs and opportunities such as HEAT, weapons handling skills and Army Safe Driver Training increase skills and knowledge, preparing Soldiers to safely handle the environments in which they operate. Leadership must continue to develop and ensure their Soldiers are able to participate and maintain pre-deployment training, striving for consistency in operations within theater.

Leader involvement:

As engaged leaders, it is your responsibility to set and enforce the standard - providing a consistent message in all areas of safety. You cannot allow subordinates to pick and choose adherence to safety standards such as wearing seat belts or proper weapons handling techniques.

Leader engagement is the overarching control mechanism between Soldier reactions and possible outcomes. This type of engagement requires leaders to select the harder right versus the easy wrong. Leading requires tough decisions and effective communication to get Soldiers to wholeheartedly commit to the plan. Leader engagement in the safety arena will decrease accidents.

Given the persistent OPTEMPO, it is crucial we continue to educate our young leaders on the importance of doing the right thing ALL the time. Here are some applicable TTPs:

- Address leadership gaps
- Mentor and develop junior leaders in the safety culture
- Recognize risks when modifying vehicles
- Include risk management at every opportunity
- Hold people accountable for their decisions/actions
- Continue leader engagement

In the face of combat or during daily operations in garrison, our Soldiers remain dedicated and highly motivated to successfully complete any and all missions. These Soldiers continue to show resilient commitment, steadfastness in operations to liberate the oppressed and staunchness to secure our way of life against those who mean us harm.

Thank you for all you do to keep our Soldiers safe.

William H. Forrester
Brigadier General, USA
Commanding

"My **DEFINITION** of an **ENGAGED LEADER** is someone who not only **HOLDS** his/her Soldiers **ACCOUNTABLE**, but is **HELD** accountable as well."

MAKING A DIFFERENCE WITH ENGAGED LEADERS

Recently, (Brigadier) Gen. Forrester and I, along with several counterparts, visited with Soldiers in Iraq on behalf of the U.S. Army Combat Readiness/Safety Center to better understand safety-related issues affecting Soldier loss among our ranks. And while we understand progress is being made in regards to our mission, as I talked with Soldiers about accident prevention measures, some of the same problems from my first deployment remain.

For example, Soldiers are still opting not to wear their seat belts while driving in theater. Their reasoning behind this decision hinges on the fear of either being trapped in a vehicle after striking an IED and it catches fire, or not being able to exit if their vehicle becomes submerged in water. While these are valid concerns, please note you can't escape from a burning vehicle if you are unconscious.

Another recurring problem is negligent discharges. In October, a Soldier was killed because of a negligent discharge while on duty. In August, another negligent discharge claimed the life of an off-duty Soldier. While most incidents we investigate involving fatalities are accidental, it still does not make losing Soldiers among our ranks acceptable.

In 2007, we continued making great strides in accidental loss prevention. One reason for this was your efforts as engaged leaders. Engaged leaders exist at each level in our chain of command, no matter the rank. My definition of an engaged leader is someone who not only holds his/her Soldiers accountable, but is held accountable as well.

The November issue of *Knowledge* featured an article describing the sequence of events that led to a senior NCO's death in a motorcycle-related crash. The facts in this unfortunate accident revealed fatigue played a large role in the Soldier's death. Additional factors indicate he was in the company of several fellow senior NCOs leading up to the fatal event.

In this case, we are not only saddened by the loss of a Soldier, father, son and friend, but we also shake our heads in disbelief over the obvious. While no one in particular is to blame in an accident such as this, there are ways to prevent this from recurring.

Again, think about what I mentioned earlier about accountability as an engaged leader. The Army lives off of the three-to-six principle. This unspoken principle indicates every leader should be responsible for three to six Soldiers. In the enlisted ranks, the first sergeant is responsible for his platoon/section NCOs; they, in turn, are responsible for their squad leaders, who are responsible for their Soldiers.

The common bridge in this month's column—whether it is seat belt use, negligent discharges or driver error—is engaged leadership can and will make a difference in saving lives in our formations. On or off duty, ensure you are communicating composite risk management to your Soldiers, as well as holding them accountable. «

Tod L. Glidewell
Command Sergeant Major
U.S. Army Combat Readiness/Safety Center

Pushin' My Luck

LT. COL. SCOTT TUFTS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Hanging upside down in my driver seat restrained by my seat belt I was thinking, "How did I get here? What did I do to get myself into this situation?" All I could see through my windshield was the snow on the ground. Then I suddenly heard knocking on my window and my buddy asking, "Scott, are you OK?"

How did my Ford Explorer end up on its roof on the side of Interstate 70 in Kansas? To answer that question, I need to go back 11 hours to 10 a.m. It was a Friday in February and my buddy, Tom, and I had just graduated from the Battalion Motor Officer Course at Fort Knox, Ky. As soon as the graduation was over, we changed clothes, checked out of our hotel and hit the road. We needed to get back to our unit at Fort Carson, Colo., by Monday morning. Although it was a 1,200-mile drive, Tom and I figured we could make it by Saturday morning if we drove through the night. We had our own vehicles, so we decided to follow each other.

Initially, the trip went well. However, as we passed Kansas City, Kan., on I-70, we ran into a blizzard. It caught us by surprise because neither of us checked the weather conditions for our route before we left. I was in the lead, following an 18-wheeler. The blowing snow had cut my visibility to less than 20 feet and I could barely see the back of the tractor-trailer.

Sunset was around 6 p.m. By 7 p.m., we started seeing cars pulling off the side of the highway—their drivers stopping because of the poor visibility. However, this did not deter us. All we were concerned about was getting home as fast as we could.

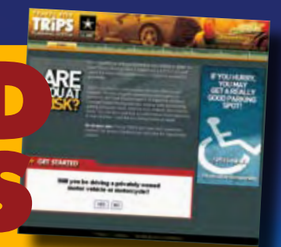
The snow plows were working hard, their blades piling up snow along the sides of the highway. We began encountering black ice on the road. We watched as some of the cars ahead of us fishtailed, went off the highway and plowed into the snow-piled embankments. One car in particular, driven by an elderly gentleman, slid into the grass median. Being good samaritans, we pulled over to help him. We pushed his car back onto the road so he could get going again.

Ironically, although I'd been pushing my luck all day, it wasn't until after we'd rendered assistance that my luck changed for the worse. Once the elderly gentleman was on his way, I got back into my truck, buckled up and started to merge with the traffic. My Explorer had four-wheel drive, but I didn't use it because I didn't want to get out and manually lock the hubs. Besides, the snow was letting up and visibility was improving. However, because it was dark, I didn't see the ice ahead of me. I had slowly accelerated to 30 mph when the back of my vehicle suddenly began to fishtail. I turned the wheel and pumped my brakes—but I couldn't stop sliding. The Explorer slid from the left-hand lane across the right-hand lane and onto the right shoulder. The right side of my Explorer hit the piled-up snow on the embankment and then flipped over. Only my seat belt kept me from being thrown around inside my vehicle and ejected or seriously injured.

I could have missed all this excitement had I considered the risks before taking off on my trip. For example, had I checked the weather, I wouldn't have been surprised by the blizzard. I should have also planned a more reasonable trip schedule—one with an overnight stay and rest breaks. Trying to drive 1,200 miles straight through was a sure setup for fatigue—something you don't need when you're driving.

So how much did it cost me to be in a hurry? Well, it took me longer to get to Fort Carson than I'd planned. In dollars and cents, the damage to my truck ran $3,245. I was fortunate my insurance covered $2,900 of that. However, I was even more fortunate this accident didn't cost me my life. Wearing my seat belt kept me alive so I could pass along these lessons learned. That said, preventing accidents is better than surviving them. Before you take off on your winter trip, go to the U.S. Army Combat Readiness/Safety Center Web site at https://crc.army.mil and check out the Travel Risk Planning System, commonly referred to as "TRiPS." I can tell you from experience, looking at your computer right-side-up beats looking out your windshield upside-down! «

ROAD TRiPS



Want to increase your chances of avoiding a fatal vehicle accident by more than 400 percent? The good news is you don't have to be lucky—you just have to be smart and use your computer. The reduction in Army accident fatalities shows TRiPS works. Of some 846,000 TRiPS assessments done during fiscal 2007, only two Soldiers died in vehicle accidents.

But why does it work so well? The answer is it gets leaders involved with their Soldiers' travel plans early on so they can plan to avoid highway hazards. With privately owned vehicle crashes leading all other causes of accidental death, it's only logical for leaders to want to keep their Soldiers safe on the road.

The program's success is reflected in Army Regulation 385-10, *The Army Safety Program*. This regulation provides that all Soldiers on leave, pass, temporary duty or permanent change of station—along with all Army civilians traveling TDY or relocating from the local area—use TRiPS. By helping prevent POV fatalities, TRiPS protects families from grief and formations from loss—bolstering both morale and readiness.

An Army safe is an Army strong.

LEFT BEHIND AND LOST

MASTER SGT. (RET) MIKE BARKSDALE
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

As your unit deploys, what will happen to those Soldiers who arrive too late to go with you? While they're training for combat, who is training them to be safe? Some of these Soldiers are being lost before they ever arrive in theater.

It goes without saying that the mission of the rear detachment is huge; you certainly don't need us to bring that to your attention! Recently, the Army suffered the loss of two Soldiers who were at a rear detachment pending assignment to their parent unit in Iraq. In a different accident, a single-vehicle motorcycle crash killed another rear-detachment Soldier.

In the first accident, the brigade rear detachment formed a single platoon consisting of Soldiers conducting individual readiness training as they prepared for deployment. Subsequently, as new Soldiers arrived, the platoon grew to 42 Soldiers. With the experienced NCOs deployed, the rear detachment's leadership assigned a sergeant with only five years' service time as platoon sergeant, while other junior sergeants were made squad leaders. We all understand that most sergeants with so little time in service don't have the experience to assume duties as a platoon sergeant. However, sometimes you've got to go with what you've got, and that's what this unit was faced with. Unfortunately, because of his inexperience, the young sergeant failed to complete several locally mandated safety requirements. Among those were privately owned vehicle inspections and counseling his Soldiers on safety requirements, including those required by the installation.

In the motorcycle crash, the Soldier's chain of command lacked experience. The company commander was a second lieutenant with less than one year of service. While the division's policies regarding motorcycle riders were very clear, the unit failed to enforce these policies. The accident investigation attributed much of this failure to lack of involved and experienced leaders.

As you might guess, there is a direct correlation between lack of experience and increased accidents. In this case, the accident investigation determined the leadership's inexperience contributed to the accident. After all, wouldn't you consider a platoon at a significantly higher risk if its platoon sergeant had only five years' Army experience and its squad leaders had even less? Doesn't this boil down to step one of composite risk management—identifying the hazards? However, if all you have are inexperienced junior leaders, what can you do to control the risks?

Working at a rear detachment is a tough job fraught with new challenges every day. In too many cases, younger leaders lack the experience necessary to prevent accidents. Therefore, senior leadership must stay engaged and embrace CRM. They must also provide younger leaders the tools necessary to bridge the gap in their experience so they can "Lead on the Edge!" «

DRIVE TO ARRIVE ALIVE

1ST LT. ERIK JOHNSON
Indiana Army National Guard

Winter is upon us and, depending on their location, Soldiers are encountering various weather conditions. Regardless the weather, missions must go on, so Soldiers must be prepared to drive in all types of conditions, including snow, ice or fog. Soldiers facing these challenges must have the facts and skills necessary to complete their missions safely and successfully.

Snow

Snow forms when water vapor in the air freezes and creates small ice crystals. Some common hazards associated with driving in snow include reduced visibility and traction, reduced directional control and increased braking distance. When snow melts and refreezes, however, drivers encounter even more hazardous road conditions. Intersections, high-traffic areas and shady spots exposed to direct sunlight earlier in the day are all prone to ice over from melted snow. During snowy conditions, drivers must reduce their speed, brake moderately, make turns slowly and increase the following distance between vehicles.

Ice

Another dangerous condition associated with winter weather is windshield icing. Windshields and other glass surfaces can ice over when the temperature is low enough to freeze moisture on ground surfaces. Conditions are ripe for windshield icing any time there's visible ground haze. All ice must be removed from the vehicle's windshield and other windows before operations begin. Preventive Maintenance Checks and Services should be performed on each vehicle to ensure the defroster and heater system are functioning properly. It's a good idea to keep an ice scraper in each vehicle just in case the defroster stops working.

Black ice—a thin sheet of ice on a dark roadway—is extremely dangerous because it's hard for drivers to detect before they're actually on it. Black ice forms when light rain or drizzle falls on a road surface below 32 F or when super-cooled fog droplets accumulate on bridges and overpasses. A roadway covered with black ice appears wet when the ambient temperature is below freezing.

Drivers must use extreme caution when driving on black ice. Vehicles that hit black ice have greatly reduced traction, very little braking capability and extremely poor directional control—all problems that heighten the possibility of skidding. Ideally, vehicles should not be driven in black ice conditions. However, if the mission must go on, drivers should reduce their speed, accelerate very slowly, increase the following distance between vehicles, brake very lightly and make all turns gradually and slowly.

Frost heaving, a condition related to icing, is the uneven lifting and distortion of the ground close to the surface. Frost heaving is the result of water within the soil freezing and expanding. This expansion might damage the road surface and loosen tree roots. The biggest danger associated with frost heaving is the possibility of trees falling across roads, but uneven road surfaces are much more common. Such uneven surfaces can interrupt directional control, which is especially problematic in areas such as curves. Drivers should slow down and look for buckled or uneven patches on the road during freezing weather.

Fog

Valley fog forms when cold, dense air drains from areas of higher elevation into low areas or valleys. As the cool air accumulates in the valley, the ambient temperature sometimes decreases to the dew point temperature and creates dense fog. When driving in fog, drivers should expect reduced visibility and turn on the vehicle's lights, slow down and increase the following distance between vehicles.

Freezing fog is composed of super-cooled water droplets that form when the temperature falls below 32 F. These droplets freeze and form ice as soon as they contact a cold surface. Freezing fog creates driving problems such as reduced visibility, poor traction and directional control and possible skidding. Drivers should turn on their vehicle's lights, reduce their speed, accelerate slowly, increase the following distance between vehicles, brake moderately and make turns slowly.

Conclusion

Remember these guidelines when you're performing mounted patrols and missions this winter and, most importantly, SLOW DOWN! The cold won't last forever. If you and your Soldiers make it through the winter accident-free, you'll have even more reason to celebrate when spring finally comes!

> "**REGARDLESS** the weather, **MISSIONS** must **GO ON,** so **SOLDIERS** must be **PREPARED** to drive in **ALL** types of **CONDITIONS,** including **SNOW, ICE** or **FOG.**"

APACHES DOWN!

U.S. ARMY COMBAT READINESS/SAFETY CENTER
Fort Rucker, Ala.

Editor's Note: The call names of the aircraft and the designations of the forward operating bases involved have been changed for the purposes of this article.

First Apache Accident

Two AH-64D aircrews were given the mission to reposition their aircraft from Forward Operating Base Sandy to FOB Cameroon to support a special mission. The crews consisted of Brevet 18 in the lead and Brevet 15 flying trail. The flight departed late due to a brief weather hold and a minor maintenance problem. When the Apache crews arrived at FOB Cameroon, their mission was changed. They were told they would perform the quick reaction force mission for FOB Cameroon. In their place, FOB Cameroon's QRF would perform the mission originally planned for the Apaches.

Upon completion of the special mission, Brevet 18 and Brevet 15 departed FOB Cameroon en route to FOB Sandy. It was a dark, moonless night with limited visibility. Brevet 18 was leading Brevet 15 up through a draw when Brevet 18 encountered fog. In response, both aircraft began a coordinated 180-degree right turn to return out of the draw. During the turn, Brevet 18 unexpectedly entered instrument meteorological conditions. The crew failed to execute appropriate inadvertent IMC procedures. As a result, while attempting to regain visual contact with the ground and Brevet 15, Brevet 18 crashed into the side of a mountain.

Fortunately, both crewmembers of Brevet 18 survived. After extricating each other from the aircraft, they moved to a concealed location. Using their survival radio, they contacted an Air Force aircraft in the area and reported their situation. After confirming a rescue mission was underway, Brevet 15's crew returned to FOB Sandy.

Why did Brevet 18 crash?

The accident board determined through post-accident interviews that the pilot in command lacked experience. As a result, he was not confident in his abilities to fly under instruments in the conditions he had encountered.

Second Apache Accident

Upon notification of Brevet 18's crash, the Air Force launched two HH-60s from FOB Cameroon to rescue the downed crew. However, bad weather prevented the Air Force HH-60s from reaching the crash site. At FOB Sandy, two AH-64s launched to support a pair of Black Hawks performing a medical evacuation operation (not related to Brevet 18's crash). Bad weather prevented the Apaches from linking up with the Black Hawks, so the two AH-64s returned to FOB Sandy. On their way back, they scouted for alternate routes to reach Brevet 18's crew.

After returning to FOB Sandy, Brevet 11 and Brevet 16 linked up with Delta 06, a Black Hawk from their unit, and departed for Brevet 18's crash site. As they headed toward the crash site, they used a different route than the Air Force had tried. Delta 06 was the air mission commander and flew in the lead with Brevet 11 flying behind him and Brevet 16 in the trail position. Delta 06 had two pilots, two crew chiefs, a flight medic and an aeromedical physician's assistant onboard. Just before arriving at the crash site, Brevet 16's PC had trouble with his night vision system picture, but decided to press on using both the target acquisition designation sight and night vision goggles. Unable to regain any ground references, the pilot became spatially disoriented. Brevet 16 lost rotor speed and crashed into the same mountain as Brevet 18. Fortunately, both of Brevet 16's crewmembers survived. The two crash sites were about 1,600 meters apart.

When the accident occurred, Brevet 11 was climbing in a left-hand turn to enter a racetrack pattern and attempting to contact Brevet 16. After Brevet 11's aircrew recognized they had lost communication with Brevet 16, they heard a faint "mayday" call. They then informed Delta 06 there might be another aircraft down. Delta 06 remained focused on locating Brevet 18 while the crew of Brevet 11 began searching for Brevet 16. Delta 06 located Brevet 18's crew, but had to land about 400 meters uphill from them because of the terrain. Delta 06 dispatched their crew chief and flight medic to assist Brevet 18's crew and provide security. After waiting about 45 minutes, Delta 06 was informed that the severe injuries to the downed aircrew and the rough terrain would delay their getting to the extraction point by another hour. With fuel running low, Delta 06 dispatched the aeromedical physician's assistant to assist the flight medic in getting Brevet 18's crew to the extraction site. With the crew chief now back onboard, Delta 06 returned to FOB Sandy for refueling. En route to FOB Sandy, Delta 06 located Brevet 16's crash site and extracted the crew.

When they got back to FOB Sandy, the crews from Delta 06 and Brevet 11 went to the tactical operations center to meet with unit leaders and plan a follow-on rescue operation. As the crews prepared their aircraft for the rescue mission, Brevet 11 experienced a maintenance malfunction and was pulled from the mission. Delta 52, a UH-60L, had been prepared as a backup for the mission and launched with Delta 06. While en route to Brevet 18's crash site, Delta 52 entered IMC, climbed to a safe altitude and circled overhead. Delta 06 continued to the crash site and completed the rescue mission. Delta 06 and Delta 52 then both returned to FOB Sandy.

Why was Brevet 16 lost?

The PC in Brevet 16 was driven by a sense of urgency and the desire to save his fallen comrades. When faced with trouble with his night vision device, he chose not to alter his in-flight planning and abort the mission, as required by Training Circular 1-251, *Aircrew Training Manual Attack Helicopter, AH-64D*. Unfortunately, as he attempted to press on with the rescue, he crashed his aircraft and his co-pilot/gunner was injured and later transported to the Army hospital in Landstuhl, Germany.

Lessons Learned

The aircrews of both crashed Apaches were very fortunate to have survived these accidents. They were dealt sets of circumstances that would have been challenging for even the most experienced aviators. The Army trains pilots to meet and maintain published standards. The same standards must be enforced on every task, whether it is performed individually or as a part of a larger operation. The drive to save a fallen comrade must include an accurate assessment of the hazards so the best course of action can be chosen. Regrettably, both aircrews failed to execute the prescribed procedures for the conditions they encountered and, as a result, crashed. These accidents resulted in the destruction of two AH-64D aircraft. Their crewmembers are lucky to be alive today. «

Disease

A Soldier's Ancient Enemy

1ST LT. ERIK JOHNSON
Indiana Army National Guard

During the period of the Roman Empire, armies on campaign might suffer more casualties due to disease rather than engagement with enemy combatants. As recently as the Civil War, armies in the field were known to lose Soldiers to disease and combat at about a 50-50 ratio. Fortunately, advances in medicine have greatly improved Soldier survivability while on campaign in environmentally hostile foreign lands. Even so, Soldiers should be ever-vigilant in warding off disease through a few countermeasures.

Before we discuss these disease prevention techniques, let's investigate some of the more harmful threats to health and life Soldiers may encounter in the field. Soldiers should be primarily concerned with infectious diseases originating from two ever-present sources—water and insects. Since every Soldier's essential sustenance on the battlefield is water, let's first examine the hazards that may be found in collected or pooled water.

Amoebic and bacillary dysentery are illnesses spread by contaminated water. The symptoms of amoebic dysentery include fatigue and, possibly, fever. While the victim's excrement may be solid, it will emit a foul odor and contain blood and mucus. Treatment for amoebic dysentery involves heavy consumption of fluids, along with rest and the administration of an antibiotic. Symptoms of bacillary dysentery include high temperature, which comes on suddenly, and excrement tinged with blood. Treatment for bacillary dysentery consists of antibiotics, rest and the consumption of copious amounts of fluids to help prevent dehydration.

Like the two illnesses above, infectious hepatitis enters the body through contaminated water. The symptoms of this disease include pain in the abdomen, nausea and loss of appetite. A more recognizable outward symptom of infectious hepatitis is the yellowish hue of the victim's skin. Treatment includes lots of rest and careful nursing. Poliomyelitis, or polio, is also contracted via the consumption of contaminated drinking water. The disease attacks the central nervous system and can cause total paralysis. Fortunately, poliomyelitis can be successfully treated by applying hot packs to the victim's muscles and, of course, attentive nursing.

Insect-borne diseases, which are just as dangerous as their water-borne counterparts, are also a threat to Soldiers. It is important to remember to always apply insect repellant where insects are a hazard. Moreover, do not camp near swamps or stagnant water, as these areas are a haven for mosquitoes.

When discussing insect-borne diseases, malaria is probably the first illness that comes to mind. While one might be tempted to think of malaria as strictly a tropical disease, this is not true. Virtually any area within a warm climate is susceptible to hosting this dreaded disease.

Malaria is transmitted via the saliva of the female Anopheles mosquito. Symptoms of the disease include a fever which recedes and recurs with characteristic cold sweats and violent shivers. Victims are left weak and exhausted even after successful treatment. The good news is a regimen of tablets taken just before anticipated exposure may protect an individual from contracting malaria. Be sure to ask your unit's medical staff about this particular protocol. As for treatment, antimalarial drugs such as Larium™, Malarone® and Paludrine® are available. Consult your medical staff regarding which drug will offer the best treatment.

Dengue fever is also spread via mosquitoes. Symptoms include fever, as well as a rash and muscle and joint pain. For treatment, medical science only offers rest. There is no vaccine or cure for dengue fever, and it may take up to several weeks for the victim to fully recover.

Yellow fever is another insect-borne disease with no drug treatment. However, a vaccine is available, so inquire about it before deploying overseas. Symptoms of yellow fever include (you guessed it) fever, nausea and perhaps even a slowed heart rate. In severe cases, this disease may cause liver damage, eventually escalating to jaundice and kidney failure. Treatment options are limited to rest and diligent nursing.

Typhus is actually a term used to describe a group of diseases which are more typically spread by fleas, mites and ticks. The symptoms include headache, coughing and back pain and lead to fever, rash and even mild delirium. Victims may also experience a weak heart rate. Treatment for typhus includes antibiotics; however, there is a vaccine available. Ask your unit's medical personnel about this vaccine before your next deployment.

Hopefully, the point has been made that these diseases are to be taken as a serious threat to Soldier survivability in country. Their symptoms are severe and, in some cases, life threatening.

Make certain you have received all appropriate immunizations before deploying. Your unit's medical staff is the best resource for answering any questions regarding a particular theater of operations and its attendant immunization scheme.

Since ancient times, it has behooved Soldiers to exercise individual precautions against disease. Yes, the enemy combatant is always of primary concern. However, take steps to keep an unseen and ever-present enemy from taking you out of the fight. We understand both these threats can injure, maim or kill, and one is no less your enemy than the other. So, aggressively take the fight to the enemy and stay healthy, stay safe and stay alive. Army Safe is Army Strong!

For more information on these and other diseases, visit the U.S. Army Center for Health Promotion and Preventive Medicine at http://chppm-www.apgea.army.mil/.

> "**YOUR** unit's medical staff is the **BEST RESOURCE** for **ANSWERING ANY QUESTIONS** regarding a particular theater of **OPERATIONS** and its attendant **IMMUNIZATION SCHEME.**"

HABIT FORMING

In preparing to combat these diseases, consider the following tips:

- **Purify all drinking water and clearly mark it as such**
- **Never eat with utensils that have not been properly sterilized**
- **Always wash your hands before handling food**
- **Try to shield your food and beverages from insects furthermore, try adopting the following habits:**
- **Bury your excrement when no latrine is available**
- **Clothe your entire body to reduce the likelihood of insect bites**
- **Avoid standing in water inside an at-risk area**
- **Wash your body as often as the tactical situation permits, but DO NOT swallow any of the water**

HAVE A SEAT

PERRY WILDS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

"My back hurts and my legs are falling asleep when I fly; why can't I use just any seat cushion?" This is a question a lot of aviators are asking. Read on! We have the answer.

The answer is simple. It's because a crashworthy seat system is just that, a system. If you change any component of that system, you're not just increasing your risk of a debilitating back injury; you're risking your life. Yes, I did say your life.

We know current rotary-wing operations in combat often require aircrews to sit continuously for six to 12 hours in the cockpit. With this increased exposure and resultant pain, aircrews are reporting decreased concentration and situational awareness. This leads to errors and/or premature mission termination and, ultimately, could adversely impact tactical and strategic objectives. Long hours in the cockpit, ineffective seat padding, poor posture, continual use of night vision goggles and constant vibration can contribute to strain and fatigue in the lumbar muscles. For those aviators involved in a mishap, the sudden deceleration can create stresses resulting in an acute back injury or leaving them predisposed to chronic pain for the rest of their career. The pain can be a mild, intermittent annoyance, or it might be so debilitating that it affects safety of flight.

If you're involved in anything from an accident to a hard landing, you could experience a phenomenon known as "dynamic overshoot." Dynamic overshoot is defined as the amplification of decelerative crash forces experienced by the occupant above the vehicle's decelerative force. Dynamic overshoot can be attributed to the response of the non-rigid components reacting to the dynamic input pulse. How much it is amplified depends on the elastic properties of your harness material, the rebound properties of the seat's foam padding and the human body's naturally compliant characteristics. Essentially, the entire system—including the occupant, seat and restraint—represents a spring-mass-damper. As such, the dynamic overshoot is a function of the natural frequency and damping characteristics of the total system.

Two factors greatly influence your risk of injury—the energy absorption ratio of the cushion material and your buttocks reference point (where you're sitting on the seat). When we talk about the energy absorption ratio, we are concerned with the amount of energy the cushion absorbs and how much energy it rebounds. Key factors for the buttocks reference point are the cushion thickness and shape. The military standard for aircraft cushions is quite clear. When you are seated on the cushion, the bottom of your buttocks should be no more than three-quarters of an inch above the hard pan. If the cushion places your buttocks any higher than that, it will increase your risk of dynamic overshoot.

If the cushions are "worn out", they need to be replaced. Like everything else, cushions have a lifespan. Several factors influence this lifespan, so the next time you sit in a seat and the cushion feels flat, write it up and have it replaced.

Other key factors involved in the design of the seating system are:

- The restraint systems, along with the cushions, provide the interface between the occupant and the rest of the seating system, performing a critical function in providing occupant safety during a crash.
- Pilot visibility is a good example where the integration issue plays an important role and is a factor in maintaining survivability in the combat theater. The relationship between occupant size, seat position and aircraft configuration has a significant effect on mission effectiveness.

According to the Department of the Army's Occupant Crash Protection Handbook, achieving an optimal occupant crash protection concept for a specific vehicle involves decisions that must be consistent with Army Risk Management Decision Criteria. In general, there are four interrelated factors to consider in making these decisions:

1. Anticipated crash impact conditions including, velocity, force, attitude
2. Injury tolerance levels
3. Vehicle restrictions such as, space, weight, hard-point availability
4. Cost

The importance given to each element depends on the specific situation.

So, to answer the question, "Why can't I use just any seat cushion?" The answer is the crashworthy seating system installed in today's helicopters was designed and tested as a system. Each component of that system has a specific purpose, whether it is for crash attenuation, dynamic overshoot prevention, providing the optimal buttocks reference point, properly interfacing with the restraint system or to provide you with optimum visibility. Modifying the seating system without thorough testing can cost you your life during an otherwise survivable crash.

ALL aircraft program managers know there are problems with seat cushions and are working with the U.S. Army Aeromedical Research Laboratory and commercial venders on a solution. So, before you use or purchase any item affecting aircraft life support equipment or crash attenuation, ask yourself if you would be willing to bet your life on that piece of equipment. Don't believe everything you read on a commercial Web site and don't let comfort override safety!

> "Like everything else, **CUSHIONS** have a **LIFESPAN**. Several factors **INFLUENCE** this lifespan, so the next time you **SIT** in a **SEAT** and the cushion **FEELS FLAT**, write it up and **HAVE IT REPLACED**."

Editor's note: This article is based on an OH-58D(R) Class A accident where the pilot placed an aftermarket seat cushion on top of the original aircraft seat to make it more comfortable to fly. The pilot was fatally injured during the crash. Changing either the buttocks reference point or the energy absorption ratio of the cushion will lead to increased energy forces applied to the body during an accident. This can make an otherwise survivable accident deadly.

You Got Game?

BOB VAN ELSBERG
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

You hear about how injuries on the battlefield take Soldiers out of the fight, but how about injuries on the basketball court, softball field or in the weight room in the gym? The issue is more serious than you might think and is cutting into Army readiness stateside and combat power overseas. Just how big is this problem? The U.S. Army Center for Health Promotion and Preventive Medicine recently developed a poster based upon a study of physical training and sports-related injuries. We have summarized the information in that poster in this article and are also providing some sports safety tips suggested by USACHPPM. It is important for leaders to take a few minutes to review this information and consider how reducing these injuries can help maintain their unit's combat power.

The Cost Downrange

Participation in sports and physical training is recognized as a leading cause of injuries among Soldiers. Looking back in history, during the Persian Gulf War these sports injuries accounted for nearly 18 percent of non-combat-related Soldier hospitalizations. Those hospitalizations resulted in significant lost duty time and decreased military readiness.

Play the clock forward to Operation Iraqi Freedom. Although the times have changed, the overall percentage for these injuries hasn't. Looking at the statistics for Soldiers air evacuated from the theater for treatment of non-combat injuries between March 19, 2003, and June 30, 2006, it's still roughly 18 percent. The next paragraph details the major injury producers and types of injuries suffered by Soldiers.

Sports and PT injuries were the second-leading cause of non-combat injuries and resulted in 1,042 Soldiers being air evacuated from the theater for treatment from March 2003 through June 2006. The primary sports were basketball (27.1 percent), football (19.9 percent), PT (19.0 percent) and weightlifting (10.5 percent). The leading injury types were fractures (26 percent), dislocations (21 percent), disorders of muscle/tendon (15 percent) and sprains/strains (11.9 percent). Injuries primarily involved the knee (28 percent), wrist/hand (15 percent), ankle/foot (13 percent), shoulder (12 percent) and lower leg (7 percent).

Table 1. Distribution of cause of injury for non-combat injuries air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).

CAUSE OF INJURY	FREQUENCY (n=5845)	PERCENT (%)
Falls/Jumps	1047	17.9
Sports/physical training	1042	17.8
Motor vehicle crashes	958	16.4
Crushing or blunt trauma	503	8.6
Lifting, pushing, pulling	484	8.3
Twisting, turning, slipping	399	6.8
Shoes and clothing	234	4.0
Cutting and piercing	183	3.1
Handling weapons/ammunition	174	3.0
Environmental	167	2.9
Other specified	654	11.2

Table 1 presents the distribution of causes of injury for the non-combat injuries with an identified cause (n=5,845). The 3 leading causes were falls (17.9%), sports/physical training (17.8%), and motor vehicle crashes (16.4%). The mean (± SD) age for soldiers with a sport/physical training-related injury was 30 ± 8 years and 94.2% were males.

The Cost at Home

Just as with deployed Soldiers, participation in sports and PT is an issue for concern with Soldiers at home station. Because sports-related injuries result in significant lost duty time and decreased military readiness, reducing these injuries has been an important area of focus for Army injury prevention efforts.

During calendar years 2004 and 2005, sports accidents involving non-deployed Soldiers were the fourth-leading cause for injury hospitalizations. Looking over a five-year span from calendar years 1989 through 1994, the leading causes of sports injuries were basketball (23 percent), football (22 percent), softball (8 percent) and PT (6 percent). It should be noted that the importance of sports injuries is not unique to the Army. Each year, an estimated 7 million Americans are treated for sports and recreation-related injuries.

An Overall View

Participating in sports is an important and appropriate leisure time activity for Soldiers during deployments and at home station. While Soldiers are required to perform PT, participating in sports allows them to enhance their physical fitness and encourages a healthy lifestyle. However, when Soldiers are injured during these activities, the result can be significant lost duty time and decreased military readiness. Therefore, leaders need to consider their Soldiers' safety during exercise and sporting activities. The following are some tips suggested by USACHPPM that can help Soldiers stay fit to fight.

General Recreational Safety

- Organized sporting events should have referees who understand the game and will enforce the rules.
- Stay physically fit. Fit Soldiers have a lower risk for injury.

- Start with a warm-up that includes active movement drills similar to the activities involved in your sport.
- Dress appropriately for your sport and weather conditions.
- Wear mouth guards whenever contact with other players is possible.
- Wear eye protection appropriate for your sport. Each sport or recreational activity has its own protective needs. Some of those are addressed by standards published by the American Society for Testing and Materials (ASTM). Industrial safety glasses and goggles are not considered protection for sports.

Table 2. Distribution of sports activities that caused non-combat injuries requiring Soldiers to be air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).

SPORT ACTIVITY	FREQUENCY (n=1042)	PERCENT (%)
Basketball	282	27.1
Football	208	19.9
Physical Fitness Training	198	19.0
Weight Lifting	110	10.5
Softball	56	5.3
Wrestling & Martial Arts	49	4.7
Volleyball	35	3.4
Soccer	26	2.5
Frisbee	11	1.1
Boxing	10	1.0
Swimming/Diving	10	1.0
Other specified	47	4.5

Table 2 presents the distribution of sports activities causing injuries that required air evacuation from OIF. The 4 leading sporting activities were basketball (27.1%), football (19.9%), physical fitness training (19.0%), and weight lifting (10.5%).

Basketball

- Warm up with gradually more intense basketball and movement drills.
- Wear appropriate basketball shoes.
- Remove rings and jewelry.
- Ensure the playing surface is clean and in good condition.
- Check the court and sidelines for trip hazards (gym bags, water bottles).
- Ensure goals posts are padded and offset.
- Use mouth guards and eye protection (ASTM F803 standard).

Flag Football

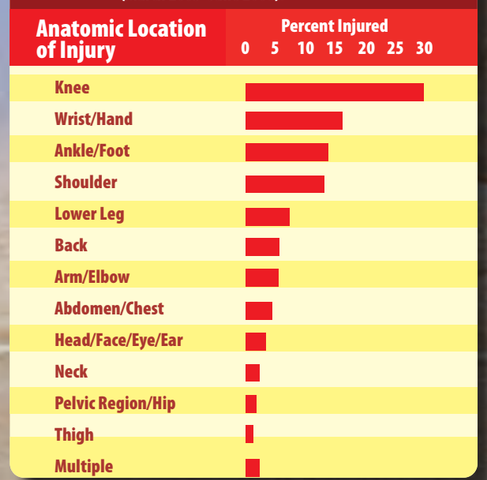
- Avoid over-aggressive play and penalize tackling.
- Remove rings and jewelry.
- Inspect the field prior to play to remove rocks or other obstacles and to eliminate holes or other uneven areas.
- Ensure sidelines are clear of hazards.
- Wear appropriate athletic shoes or molded cleats.
- Use mouth guards and eye protection (ASTM F803 standard) for maximum protection.

Softball

- Warm up with gradually more intense movement drills (running, sprinting, jumping and throwing).
- Wear a batting helmet that protects your face when batting and running bases.
- Wear the appropriate mitt for your position. Catchers should always use a catcher's mitt.
- Catchers should always wear a helmet, face mask, throat guard, long-model chest protector, protective supporter and shin guards.

Figure 1 presents the anatomic location of injury for sports-related injuries. The knee was involved in more than a quarter of the injuries (28.1%), followed by the wrist and hand (15.1%), ankle and foot (13.1%), and shoulder (12.3%).

Figure 1. Distribution of anatomic location for sports-related injuries air evacuated from Operation Iraqi Freedom (March 2003 -June 2006).



KEEP YOUR EYE ON SAFETY

BOB VAN ELSBERG
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

You protect your eyes from the hazards posed by the environment and the enemy when you're in combat, so why not do the same when you're off duty enjoying your favorite sports? Having spent the last dozen years reading accident reports, I can tell you they are liberally sprinkled with examples of eyes getting poked by fingers during sports games. And it's not just fingers that can get you. A friend lost almost all his vision in one eye when a softball grounder he was chasing bounced up and hit him in the face.

Since you only get one pair of eyes in this life, it's a good idea to protect them. Here are some suggestions from the U.S. Army Center for Health Promotion and Preventive Medicine for protective eyewear tailored to your favorite sports:

Baseball

- Use a polycarbonate face shield attached to the helmet in combination with sports spectacles with polycarbonate lenses worn under the face shield for batting and running the bases. American Standard for Testing and Materials (ASTM) Standard F910 covers eye and face protection for younger baseball players and ASTM Standard F803 covers eye protection for adult players.

Basketball

- Use a sports eye guard with polycarbonate lenses and side shields meeting ASTM Standard F803. Frames without side shields are not recommended because of the possibility of a finger entering the open spaces in the frame and injuring an eye.

Football

- Wear a polycarbonate shield attached over a wire faceguard. Wearing sports spectacles meeting ASTM Standard F803 with polycarbonate lenses under the shield will provide additional protection.

Hockey

- Hockey players should use protectors meeting ASTM Standard F513 and ASTM Standard F1587 for eye and face protection.

Paintball

- Paintball players should use eye protectors meeting ASTM Standard F1776.

Soccer

- Soccer players should use sports spectacles with polycarbonate lenses.

Skiing, Alpine

- Skiers should use protectors meeting ASTM Standard F659 for alpine skier eye protection.

Racquet Sports

- Choose eye protectors meeting ASTM Standard F803 for racquetball, tennis, squash and the other sports mentioned previously. The Tri-Service Vision Conservation and Readiness Program recommends players not use lensless protectors for racquet sports.

Other Recreational Activities

Should your recreational activities lean more to auto mechanics or woodworking, use good protective eyewear meeting American National Standards Institute Standard Z87.1, *Occupational and Educational Personal Eye and Face Protection Devices*.

About Your MCEP

Don't have a nearby sporting goods store in your corner of the sandbox? The good news is your military combat eye protection gear is an acceptable option, according to Dr. James W. Stout, a member of the Tri-Service Vision Conservation and Readiness Program. Stout, who works for USACHPPM, pointed out that MCEP provides as much as six times the impact resistance offered by normal industrial safety glasses.

Want to get eyeball-to-eyeball with the facts? Check out Department of the Army Pamphlet 40-506, *The Army Vision Conservation and Readiness Program*. What—you say you don't have a copy in your back pocket? No sweat—just go online and key in http://.apd.army.mil/pdffiles/p40_506.pdf to get the information. While you're surfing the Net, take a few minutes and visit USACHPPM's Web site at http://chppm-www.apgea.army.mil/ for more information on keeping Soldiers safe and healthy.

Table 3. Comparison of the distribution of fractures, dislocations, sprains/strains, disorders of muscle and tendon, and disorders of the back for the four leading sports activities.

DIAGNOSIS (ICD-9-CM CODE)	BASKETBALL (%)	FOOTBALL (%)	PHYSICAL TRAINING (%)	WEIGHT TRAINING (%)
Fractures (800-839)	23.4	39.9	15.2	4.5
Dislocations (830-839)	23.0	25.0	20.2	5.5
Sprains/strains (840-848)	13.5	6.7	11.6	19.1
Disorders of muscle & tendon (725-729)	21.6	6.7	11.6	37.4

Table 3 compares the distribution of the four leading diagnosis categories for injuries caused by basketball, football, physical training and weight training. The proportions of fractures and dislocations are greatest for football and basketball, followed by physical training. These three sports activities involve more complex movement patterns and a greater potential for falling. Other important diagnoses for physical training injuries that are not presented in Table 4 are disorders of joints (13.6%) and disorders of the back (11.6%), many of which tend to be overuse injuries, rather than traumatic injuries. It is noteworthy that one-third of weight lifting injuries involve of muscles and tendons, primarily involving muscle and tendon tears of the upper extremities.

- Wear appropriate athletic shoes or molded cleats (no spikes).
- Wear eye protection (ASTM F803 standard).
- Inspect the playing field for holes, rocks, glass or other obstacles before each game.
- Use breakaway bases and a double first base to minimize base-running injuries.
- Encourage players to call for fly balls to avoid collisions.

Jogging/Running

- Gradually increase your running frequency, speed, and distance.
- Pace yourself for your fitness level and weather conditions.
- Running shoes should be replaced at least every six months if you run regularly.
- Warm up with appropriate movement drills before running.
- Always jog/run against traffic.
- Wear a reflective belt or vest.
- Don't wear headphones.

TRAIN, DON'T STRAIN

Sports and physical training are great ways for Soldiers to stay in shape. However, they're also among the leading causes of injuries in both deployed and nondeployed Soldiers. Below are just a handful of the dozens of sports-related accident reports found in the U.S. Army Combat Readiness/Safety Center's Risk Management Information System database.

A Soldier tore her Achilles tendon when she landed awkwardly while playing basketball.

A Soldier fractured his eye socket when he was struck by another player's elbow during a game of flag football.

A Soldier broke his collarbone when he slipped in wet grass while playing soccer.

A Soldier shattered a vertebrae in his neck when he was hit from behind while playing rugby.

A Soldier broke his foot when he landed on another player's foot while attempting to catch a pass during a game of ultimate Frisbee.

Fit to Fight

TRACEY RUSSELL
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Physical fitness is a critical part of the combat readiness of our Army. In addition to enhancing physical health, participation in sports and physical training provides mental health benefits such as building esprit de corps and is a great form of stress relief for many Soldiers. Unfortunately, participation in sports and PT is also a leading cause of injuries for both deployed and non-deployed Soldiers, resulting in significant lost duty time and a decrease in readiness.

The good news is PT-related fatalities have decreased by 76 percent since fiscal 2005. The majority of these fatalities in the past three years occurred during or shortly after running, jogging or participating in a PT test. While the underlying cause of many of the fatalities is cardiac related, or due to other pre-existing health conditions, it is important to note age is not necessarily an indicator. From the beginning of fiscal 2005, there were 35 PT-related fatalities; 20 percent of those Soldiers were under the age of 25.

According to the injury prevention program at the U.S. Army Center for Health Promotion and Preventive Medicine, sports and PT injuries were the second-leading causes (18 percent) of nonbattle injuries requiring Soldiers to be evacuated by air from Iraq for treatment between 2003 and June 2006. The most common injury-producing activities are basketball, football, PT and weight training, and the most common types of injuries are fractures and dislocations.

There is no single or simple solution to prevent sports injuries, but they can be reduced. Using a semi-rigid brace while playing sports can reduce the probability of Soldiers suffering an ankle injury. The Air Force conducted a pilot test using this brace for intramural sports at two of its installations and found no injuries were suffered by those using these braces.

Leaders, have you recently looked at where your Soldiers are participating in sports activities and PT? Locations with rocky fields, dusty courts, step-offs surrounding basketball courts or no distance between the basketball hoop and the supporting post provide a prime environment for injuries. Engaged leaders familiar with sports and PT hazards using composite risk management, can help ensure Soldiers remain Army Safe and Army Strong!

Are You Wired for Safety?

BOB VAN ELSBERG
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

"What a master electrical engineer I am!" I thought as I knelt and surveyed my handiwork. I'd managed to plug in the Christmas tree lights—including an angel on top of the tree, three miniature electric snowmen, a musical Santa Claus, a Crock-Pot® full of cider, an electrically heated potpourri pot AND our microwave on two extension cords with multiple outlets. And miracle of miracles, I'd been able to hide all the cords by stuffing them beneath the white "snow" blanket at the bottom of the tree. I was so proud. I could dazzle our visitors with all this "Christmas cheer" without distracting them with a pile of extension cords. What a genius I was indeed!

Well, maybe not. The truth is I was probably close to building a bigger fire in my front room than I could in my fireplace! Every year, families "lighting" up their homes to celebrate Christmas wind up lighting their neighborhoods as fire trucks respond. To keep your Christmas cheerful, try following these tips:

Plugs and extension cords

- Polarized plugs have one blade wider than the other, which means there is only one way they can be safely inserted into an outlet. If the plug doesn't fit, resist the temptation to "get a bigger hammer." Instead, consult a certified electrician as it may be necessary to replace your obsolete receptacle.
- Use safety caps on all unused wall and extension cord outlets, particularly when small children are around.
- When you are finished using a small electrical appliance or power tool, unplug it.
- Unplug extension cords that are not in use. The unplugged end in a child's mouth can lead to death or serious injury. Also, pets may be tempted to chew on cords until they wear through the insulation.
- Pull a plug from a wall socket by gripping the plug itself, not by yanking the cord.
- Inspect cords for serviceability prior to use and replace any that are cracked or frayed.
- Untangle any twisted cords.
- Keep cords off steam pipes, furnaces, heaters or other hot surfaces.
- Don't run cords where people walk or under rugs or furniture.
- Insert plugs fully. The prongs should not be exposed when the extension cord is in use.
- Only use cords outdoors that are marked for outdoor use. Use three-pronged, grounded, heavy-duty extension cords.
- Do not overload a circuit. As a general rule, don't plug appliances into the same circuit if the combined wattage exceeds 1500 watts. If the wattage rating isn't on the product, multiply the amps by 125.
- To avoid extension cord overload, add up the wattage rating of all the products plugged into the cord and compare it to the cord's wattage rating.

Other expert advice

Signs of problems in your electric system include blown fuses, tripped circuit breakers, dim or flickering lights, buzzing sounds, odors, hot switch plates, loose plugs and damaged insulation.

- Buy electrical products that are double insulated and approved by a recognized testing lab such as Underwriters Laboratories (UL).
- Don't try to increase your circuit's capacity by replacing a blown fuse with a penny or installing a larger-capacity circuit breaker. You are risking an electrical shock or fire. Call in a professional.
- Know how to change fuses or reset circuit breakers.
- Turn off the switch and/or unplug decorations when replacing light bulbs.

> "The **TRUTH IS** I was probably **CLOSE** to building a **BIGGER FIRE** in my **FRONT ROOM** that I could in my **FIREPLACE**!"

BURNING DOWN THE HOUSE

CHRIS FRAZIER
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

There are few things more miserable than shivering in a tent on a cold winter night. To help kill the chill, many Soldiers in the field will choose to warm their tents with a space heater. The Army has rules and regulations in place regarding space heater usage to keep Soldiers from accidentally sending their tents up in flames. What Soldiers should know, however, is that many of these guidelines also apply to using portable heating devices in their homes.

Portable heating devices, including space heaters, are the leading cause of deaths in home heating equipment-related fires, according to the U.S. Consumer Product Safety Commission. Every year, an estimated 25,000 residential fires are associated with the use of space heaters, and more than 300 people die in these fires. In addition, another 6,000 people receive emergency room care for burn injuries associated with contacting hot surfaces of room heaters, mostly in non-fire situations.

Not surprisingly, the peak months for home heating fires are December, January and February, accounting for 43 percent. As we approach these potentially deadly months, keep these suggestions from the CPSC in mind for the selection, safe use and maintenance of electric, gas, wood and kerosene space heaters:

- Select a space heater with a guard around the flame area or the heating element. This will help keep children, pets and clothing away from the heat source.
- When selecting a heater, look for one that has been tested and certified by a nationally recognized testing laboratory. These heaters have been determined to meet specific safety standards, and manufacturers are required to provide important use and care information to the consumer.
- Buy a heater that is the correct size for the area you want to heat. The wrong size heater could produce more pollutants and may not be an efficient use of energy.
- Read and follow the manufacturer's operating instructions. Keep the owner's manual in a convenient place to refer to when needed.
- Keep children and pets away from space heaters.
- Keep doors open to the rest of the house if you are using an unvented fuel-burning space heater. This helps to prevent pollutant build-up and promotes proper combustion. Even vented heaters require ventilation for proper combustion.
- Never leave a space heater on when you go to sleep or leave the area. For fuel-fired heaters, dangerous levels of carbon monoxide could accumulate or uncontrolled burning could cause a fire.
- Never use or store flammable liquids (such as gasoline) around a space heater. The flammable vapors can flow from one part of the room to another and be ignited by the open flame or by an electrical spark.
- Be aware that mobile homes require specially designed heating equipment. Only electric or vented fuel-fired heaters should be used.
- Place heaters at least three feet away from objects such as bedding, furniture and drapes.
- Never use heaters to dry clothes or shoes. Do not place heaters where towels or other objects could fall on the heater and start a fire.

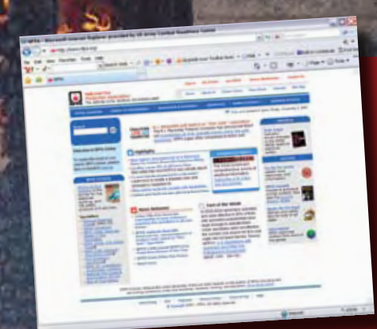
It's also a good idea to check your smoke detectors monthly and install a carbon monoxide alarm in your home, especially if you use a fuel-burning space heater. Known as the silent killer, CO is a poisonous, colorless, odorless gas. It is produced as a result of the incomplete burning of natural gas and other carbon-containing materials such as kerosene, oil, propane, coal, gasoline and wood.

The symptoms of CO poisoning, which include shortness of breath, nausea, dizziness, lightheadedness and headaches, are often confused with the flu, food poisoning or other illnesses. The effects of CO vary, but people with heart or lung disease, elevated CO blood levels (smokers), the elderly, young children and fetuses are the most susceptible. At high concentration levels, CO can kill an individual in minutes.

The National Fire Protection Association recommends choosing a CO alarm that has been listed by an independent testing laboratory and installing it in a central location outside each separate sleeping area. If bedrooms are spaced apart, each area will need a CO alarm.

However, the Environmental Protection Agency warns that CO dectectors are not as reliable as smoke dectectors. Because of that, it is important that fuel-burning appliances, such as porrtable space heaters, are properly used and maintained.

Heat is one thing no one wants to do without when the weather turns cold. By following a few simple guidelines and using a little common sense when operating space heaters, you can ensure the only thing that gets toasty in your home are your feet.



FYI

For more information about space heater safety, visit the U.S. Consumer Product Safety Commission Web site at www.cpsc.gov or the National Fire Protection Association Web site at www.nfpa.org.

THAT ONLY HAPPENS TO THE OTHER GUY

PERRY WILDS
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

"Get in, sit down, shut up and hold on!" As a pilot in command, how many times had I briefed that to the troops getting into the back of my aircraft? How many times have I inspected a troop seat to find the energy absorbing wires broken and failed to fill out a quality deficiency report? How many times did I instruct troops to put their ruck in their lap while flying without any thought of what could happen in the event of a crash?

The answer to all these questions is too many times. But let's face it, I'm an aviator and I'm never going to crash. That only happens to the "other guy." Well, unfortunately, it's happening a lot these days.

Aviation life support equipment and crashworthy seating are designed to protect the crew and passengers in military aircraft. If the user exceeds the design weight or size range for personal protective equipment, it may fail when it's needed most. The distribution and changes in body weight and relevant anthropometric measures were evaluated for Soldier and aviator groups. Each aircraft seat was evaluated to determine the crash strength and maximum allowable weight for a given crash pulse. Keep in mind this equipment was tested as a system. Changing any part of the system or overgrossing the design will lead to injuries.

Here are some facts about troop seats in the UH-60 Black Hawk:

- The UH-60 fleet troop seats were designed and tested for carrying a maximum of 250 pounds. The design and testing of the seat is based on the 5th percentile female, the 50th percentile male and the 95th percentile male with 40.3 pounds of equipment. These numbers do not reflect the practice of Soldiers placing their ruck in their lap while flying. Although this issue is not specially addressed in the technical manual, it does address troop provisions: "WARNING, DO NOT STORE ANY ITEMS BELOW SEATS. DURING A CRASH, ANY OBSTRUCTION WILL INCREASE THE PROBABILITY AND SEVERITY OF INJURY."

Based on data collected from more than 760 Soldiers currently deployed to Iraq and Afghanistan, the average weight carried in combat operation (Approach March Load) is 101.31 pounds. When a Soldier places their ruck in their lap, they are far exceeding the design capability of that seat, and that can lead to significant injuries in the event of any type of hard landing.

- The UH-60 troop seats hang from two wires known as hanger pipes. These wires extend through two rollers that provide friction and allow the seat to absorb energy in a crash. When an excessive weight is placed in the seat, friction causes damage due to mechanical wear, corrosion and fretting at the points of contact between the wires and the support fixtures. Small repetitive movements of the parts in contact with the wires' surface cause the cadmium plating to wear away, allowing oxidation. Continued relative motion of the parts in contact accelerates fretting, corrosion-pitting and abrasion damage to the wire surfaces. The result is that normal repetitive service loads, combined with the wires' high internal stresses, can lead to stress cracks. As these cracks spread, they reduce the bearing strength of the wires. The wires are no longer capable of supporting the sudden impact loading for which they had been designed.

Remember this the next time you fly; you are the last line of defense when it comes to the safety of Soldiers onboard your aircraft. If you see recurring failures of any parts, don't assume that just because you wrote it up in your logbook that someone has corrected the problem. Also, know your aircraft limitations. Don't overload a system or modify a component. Aircraft life support equipment and crashworthy components have been developed to protect the crew and passengers. However, for these components to work correctly, each user must be within the physical design parameters for the particular component. If an aircrew member or passenger exceeds the design weight and/or size range for the personal protective equipment, it might not function properly. If that PPE malfunctions, the result can be serious injury or death.

Do the right thing all the time. It will be a lot easier to live with yourself when the debris stops flying and you realize that you are now one of the "other guys."

FACE FIRST IN THE SNOW

MALGORZATA ZARZECKA
Picatinny Arsenal, N.J.

There was a huge "thud"—then everything went black. When I woke up, I was lying face down in the snow in a rapidly spreading pool of blood. I must have blacked out again because the next thing I remember is lying on my back on a stretcher and staring at the sky. A snowmobile was pulling my stretcher down the mountain. As I passed my friends, I saw their concerned expressions. That scared me—I wasn't sure how badly I was hurt. Before long, I was on my way to an emergency room. After the doctors examined me, I found out I'd broken my nose. That wasn't the way I'd expected my day on the slopes to end.

Earlier that day, I'd been downhill skiing with friends on a mountain I was very familiar with in northeastern Pennsylvania. I grew up in the Northeast and had plenty of experience skiing on icy, packed powder. The slope I was on wasn't that difficult, but it was extremely crowded that day. Unfortunately for me, there were a lot of first-time skiers and snowboarders around. Many of them felt they were too cool to stay on the bunny slopes and had gotten onto the more advanced slopes, making them even more crowded and, unfortunately, dangerous. Not only did these beginners lack the skills for those slopes, many were ignorant of the Skier's Code of Responsibility (see box at end of this article). One of the code's basic rules is you don't get on the slope without first looking uphill and yielding to people already moving downhill. Common sense should tell you skiers coming downhill have a lot of speed and momentum and getting in their way is a recipe for disaster. However, not everyone on the slopes uses common sense.

As I skied down the slope, I suddenly found a snowboarder heading uphill right in front of me. Normally, I'd be able to maneuver and avoid a collision, but the slopes were so crowded I couldn't turn without hitting somebody. Unable to avoid him, I hit the snowboarder head-on, fell over him and then went face first into the ground.

While he escaped injury from the collision, I didn't get off quite so easily. My impact with the ground left me with a deviated septum. You might say my nose is permanently "out of joint." Along with acquiring my crooked nasal passages, I learned some lessons that day I often pass along to new skiers and snowboarders. They're simple and I'll share them with you:

- If it's your first time on skis, take skiing lessons. It's better to learn from a professional rather than follow your friends down the mountain.
- Don't ski on a trail that is above your level. Not only can you hurt yourself, you can hurt others around you.
- Make sure you have the proper equipment and that it is adjusted and fits properly. When taking children skiing, ensure they wear their helmets. According to the U.S. Consumer Product Safety Commission, children between the ages of 5 and 14 are the most likely skiers to suffer head injuries.
- Don't start drinking until after you're done skiing. I've seen too many "buzzed" skiers slam into trees.
- If you're venturing onto to the steeper slopes or off the trail, don't go alone. Although I passed out after the accident, my friends were there to summon the ski patrol to help me. If I hadn't gotten help immediately, who knows how much blood I would have lost?
- Stay in control while you are skiing or boarding. Don't leave the bunny slope until you have mastered it and have the skills to try something more challenging. Practice being safe so you and your fellow skiers and snowboard bums can enjoy the slopes for years to come. «

SKIER'S RESPONSIBILITY CODE

Skiing can be enjoyed in many ways. At ski areas you may see people using alpine, snowboard, Telemark, cross-country and other specialized ski equipment, including that used by disabled or other skiers. Regardless how you decide to enjoy the slopes, always show courtesy to others and be aware there are elements of risk in skiing that common sense and personal awareness can help reduce. Observe the code listed below and share with other skiers the responsibility for a great skiing experience.

1. Always stay in control.
2. People ahead of you have the right of way.
3. Stop in a safe place for you and others.
4. Whenever starting downhill or merging, look uphill and yield.
5. Use devices to help prevent runaway equipment.
6. Observe signs and warnings and keep off closed trails.
7. Know how to use the lifts safely.

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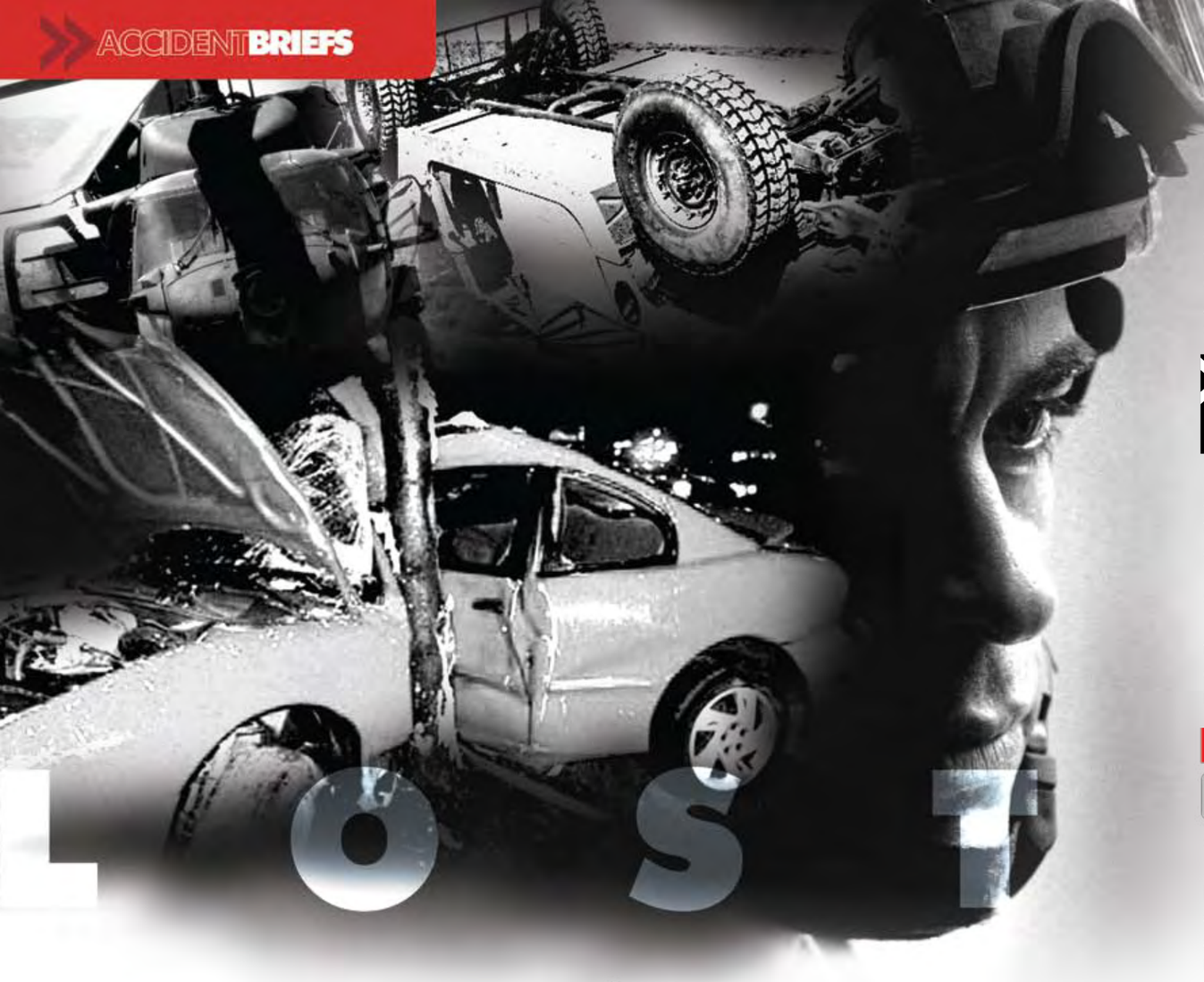


AVIATION

CH-47

CLASS A D Model

The aircraft was on approach to a confined mountainous area when the aircraft rotor system contacted vertical terrain.

DO YOU SELECT A LANDING ZONE BY CONSIDERING AIRCRAFT SIZE, SAFETY ZONES AND METT-T (MISSION, ENEMY, TERRAIN, TROOPS AND TIME AVAILABLE)?

OH-58

CLASS C D(R) Model

The aircraft experienced an engine overspeed condition during startup (125 percent for five seconds).

The aircraft sustained damage to one main rotor blade from the firing of an onboard M4 round during aerial gunnery.

UH-60

CLASS C A Model

The aircraft sustained damage during hoist operations. A 250-pound weight used to reseat the hoist cable oscillated and contacted the aircraft below the left fuel door.

Postflight inspection revealed damage to all four MRB tip caps. Damage resulted from possible contact with razor wire while landing.

The aircraft sustained damage to all four MRB tip caps during fast rope insertion/extraction system training.

CLASS A L Model

Three Soldiers were killed when the crew inadvertently encountered instrument meteorological conditions and crashed. A postcrash fire ensued and all three crewmembers received fatal injuries. The aircraft was part of a training flight of three. The U.S. Army Combat Readiness/Safety Center is investigating the accident.

DO YOU ENSURE YOUR AVIATORS ARE PROFICIENT IN ALL METL TASKS?

The aircraft MRBs struck a dirigible cable while traveling from the airfield to the forward arming refueling point.

CLASS C

While the aircraft was taxiing to refuel, its MRB contacted a light pole, resulting in damage to blade tip caps.

UAS

RQ-7B

CLASS B

The aerial vehicle operator lost signal with the system while attempting to land and received a TALS BIT FAIL indication. The UAS loitered to expend fuel and landed after deployment of the recovery chute.

The UAS experienced engine failure while on short final to the airbase and impacted the ground about 1,000 to 1,500 feet from landing site.

The UAS was on short final using the tactical automated landing system when the engine failed. The system impacted the ground 1,000 to 1,500 feet short of landing area.

The UAS experienced a left EL-RUDDER servo failure and became unstable. The crew deployed the recovery chute to facilitate landing at a selected site. The system suffered damage during landing and was recovered.

The UAS experienced a generator FAIL during flight, followed by failure of the engine. The recovery chute deployed and the system was recovered with damage.

The UAS was launched with engine at idle. However, before the system reached complete launch pressurization, it made ground contact and rolled into a cement barrier.

RQ-11

CLASS C

The AVO experienced altitude loss during flight and ultimately lost link with the system. The infrared strobe location for the downed system was identified, but the recovery team was unable to locate the system.

GROUND

ACV

CLASS A

A Soldier suffered fatal injuries when the M1126 Stryker he was driving overturned into a canal. Seat belt use was not reported.

A Soldier was killed when his M1117 Armored Security Vehicle slid down a ditch, overturned and caught fire. The driver of the vehicle was injured. Seat belt use was not reported.

An M2A3 Bradley Fighting Vehicle was damaged when the engine overheated and caught fire. The onboard systems failed to extinguish the fire. No injuries were reported. Seat belt use was not reported.

ARMY AIRCRAFT LOSSES

FY02 to Present

thru November 14, 2007

	Hostile/ Non-hostile
AH-64A/D	12/48
U/MH-60A/L	8/27
C/MH-47	7/16
OH-58D	11/24
TOTAL	38/115

ARMY GROUND LOSSES

FY07

thru November 2007

	Class A/Fatalities
AMV	4/4
ACV	0/0
PERSONNEL INJURY includes weapons handling accidents	2/2
FIRE/ EXPLOSION	0/0
PROPERTY DAMAGE	2/0
TOTAL	8/6

AMV

CLASS A

- Seven Soldiers and two foreign detainees were killed and another Soldier was injured when the LMTV they were riding in flipped off an overpass. The Soldiers were transporting the detainees back from a raid site at the time of the accident.

- A Soldier was killed when his M1151 rolled three times after being hit from behind by another vehicle. The Soldier was the gunner in the HMMWV and was using a gunner restraint. Two other Soldiers in the HMMWV suffered minor injuries.

- A Soldier suffered fatal injuries when his M1025 left the road and overturned. The Soldier, who was serving as the vehicle's gunner, was not wearing the gunner restraint.

- A Soldier died when the M1151 he was riding in swerved to avoid a pothole and overturned. Four other Soldiers were injured in the accident. Seat belt use was not reported.

DO YOU IDENTIFY AND BRIEF ROAD HAZARDS DURING MISSION PLANNING?

- A Soldier was killed after being ejected from an M1114. The driver of the HMMWV was attempting to make a lane change when the vehicle struck a curb and overturned, causing the gunner to be ejected.

Personnel Injury

CLASS A

- A Soldier was killed when the 9 mm weapon he was handling discharged, firing a round into his head.

- A Soldier was killed when he was struck by a round from another Soldier's 22-caliber rifle. The fatally injured Soldier had been handling the weapon when the other Soldier removed it from his hands. The weapon discharged, striking the Soldier in the eye.

- A Soldier was killed when he was struck by a round from another Soldier's weapon. The Soldier was handling his M9 while it was in AMBER status. The slide was pulled back, but the safety was not engaged. When the Soldier pulled the trigger, a round was discharged into the other Soldier's chest.

DO YOUR SOLDIERS PRACTICE PROPER WEAPONS HANDLING PROCEDURES?

CLASS B

- Three Soldiers were handling ammunition for turn-in when a concussion grenade exploded. One Soldier lost his left forearm below the elbow, while the other two suffered shrapnel wounds.

- A Soldier's left-hand ring finger was amputated when a trailer hitch came down on his fingers. The Soldier was attempting to attach the trailer to a 5-ton vehicle when the injury occurred.

- A Soldier was working on an M977 when another Soldier turned the vehicle's ignition switch instead of the light switch. The Soldier's hand was caught in the alternator belt, resulting in the amputation of his finger.

- A Soldier lost a portion of two fingers while performing maintenance on a Joint Explosive Ordnance Disposal Rapid Response Vehicle.

DRIVING

POV

CLASS A

- A private first class was driving his car when he ran off the right side of the road, overcorrected and lost control. The car then went off the left side of the road and overturned twice, landing on its roof and catching fire. The Soldier wasn't wearing his seat belt and was killed when he was ejected from the car.

- A sergeant was driving a sport utility vehicle when he lost control, crossed the centerline and struck a guardrail. The Soldier wasn't wearing his seat belt and was ejected through the driver-side window. He was transported to a medical facility, where he later died. A half-empty bottle of liquor was found inside his vehicle.

- A specialist and his girlfriend were driving in a POV when a SUV driven by another Soldier crossed the centerline and side-swiped the Mustang at full force. The impact killed the specialist and injured his girlfriend. The Jeep's driver suffered minor injuries, but was arrested for operating a vehicle under the influence of alcohol and charged with vehicular homicide.

DO YOUR SOLDIERS KNOW THEY CAN BE HELD LEGALLY RESPONSIBLE FOR THEIR UNSAFE ACTIONS?

- A female specialist was riding in a POV driven by her husband when they collided with a Jeep that pulled into their path. The specialist, who was nine months pregnant, was taken to a medical center, where the baby was delivered. The specialist later died as a result of her injuries.

- A captain was riding in the bed of a pickup truck with a camper shell with the door to the shell open. When the driver turned left at an intersection and then accelerated, the captain fell out and struck his head, suffering a permanent total disability injury.

POM

- A sergeant was operating his motorcycle when he made a left-hand turn and collided with a cement truck that had right-of-way. The Soldier was taken to a local medical center, where he later died. The Soldier was wearing his helmet and personal protective equipment.

- A sergeant was operating his motorcycle when he collided with a pickup truck that failed to yield right-of-way. The Soldier was thrown from the motorcycle and suffered fatal injuries. The Soldier was wearing a helmet.

- A private first class was operating his motorcycle when a civilian truck turned into his path of travel and caused a head-on collision. The Soldier was ejected from his bike and fatally injured.

- A private was operating his motorcycle at a high rate of speed when he collided with the rear of a POV that entered the lane in front of him. The private had not attended Motorcycle Safety Foundation training and had a daytime-only restricted license. At the time of the accident, the private was home on permanent change of station leave.

- A private first class was operating his motorcycle at an estimated 100 mph in a 45-mph zone when he ran a red light, collided with a van and was ejected into the van's rear passenger window. The Soldier's helmet came off during the crash and was found inside the van. The Soldier was fatally injured during the crash.

DO YOUR SOLDIERS UNDERSTAND PPE WON'T NECESSARILY SAVE THEM IF THEY'RE RECKLESS?

- A staff sergeant was operating his motorcycle between 70 and 90 mph in a 30-mph zone when he struck the driver side of a vehicle as it crossed his path. The Soldier, who was licensed, insured, had attended MSF training and was wearing his helmet and PPE, sustained fatal injuries.

OFF-DUTY

Personnel Injury

CLASS A

- A second lieutenant was walking along a darkened section of roadway when he was struck and fatally injured by a vehicle traveling in the same direction. The vehicle's driver stopped and rendered assistance. Witnesses stated the lieutenant had been drinking and had chosen to walk rather than drive under the influence.

- A specialist was camping with three other Soldiers when their tent was struck by lightning. After the strike, the Soldiers found the specialist unresponsive and requested emergency assistance. The specialist died at the scene.

POV DRIVING LOSSES FY07

thru November 2007 Class A accidents/Soldiers killed

CARS	3/3
SUV/JEEPS	3/4
TRUCKS	0/0
MOTORCYCLES	6/6
OTHER*	0/0

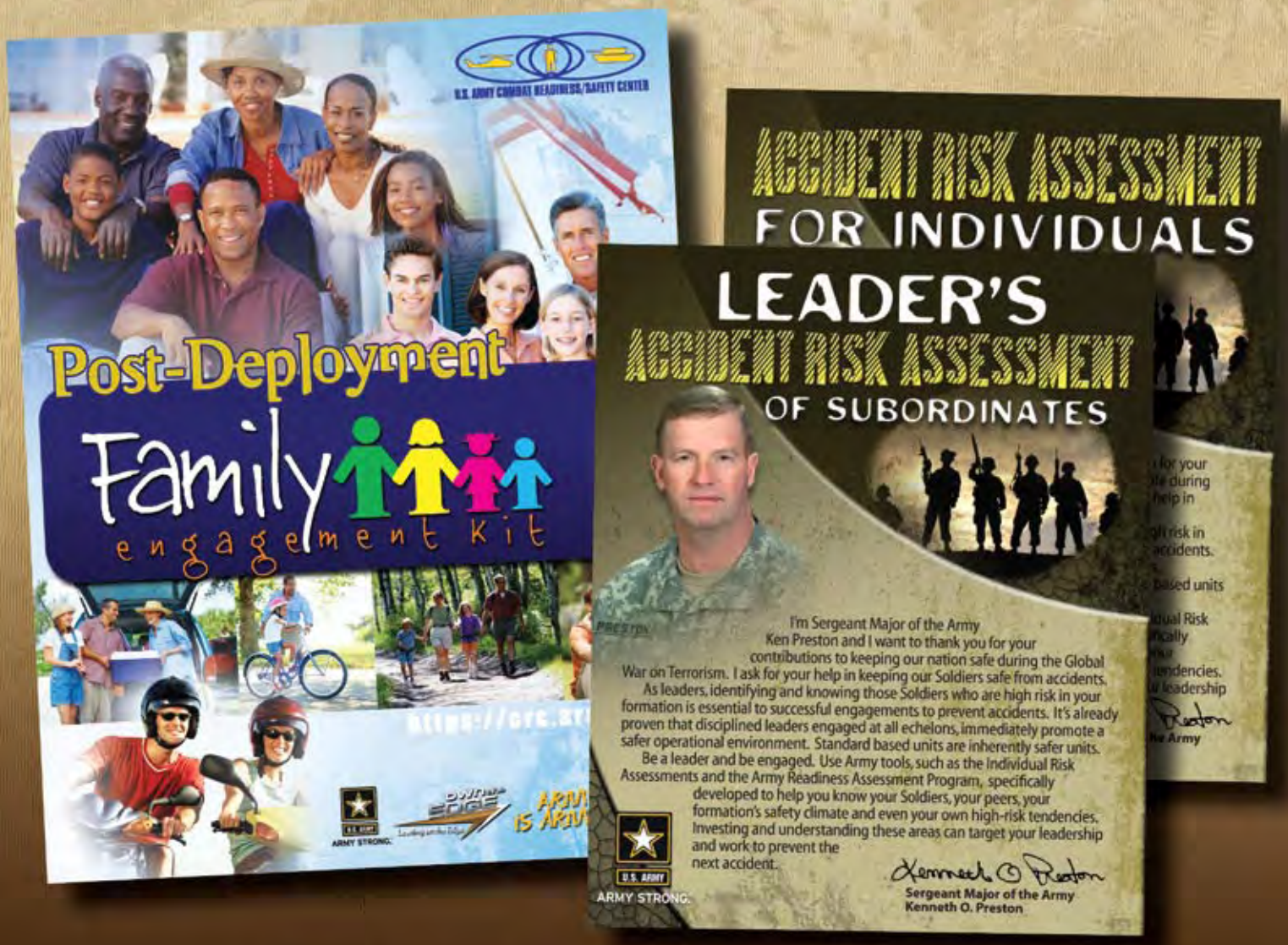
*Includes: vans and ATVs

13 TOTAL DEATHS

07 FY07: 7 3 year average: 9

Can Families help protect Soldiers from accidents?

Can you measure your or your Soldiers' risk for an accident?



Check out the *Family Engagement Kit* and the *Accident Risk Assessments for Individuals and Leaders* links on the U.S. Army Combat Readiness/Safety Center Web site at https://crc.army.mil.

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https://crc.army.mil

ARMY SAFE IS ARMY STRONG

Don't hesitate

DESIGNATE!

Our Army's strength comes through the concept of being a Band of Brothers. No one stands alone, leaders engage and every person is looking out and taking accountability for the person next to them on and off duty.

Take the keys and be the designated driver.

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ARMY SAFE IS ARMY STRONG

Family
Family safe is Family strong!
Engaged Families
The strength of our Soldiers comes from the strength of their Families.
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