UNITED STATES ARMY MEDICAL RESEARCH AND MATERIEL COMMAND

December 2007 Newsletter

Office of Surety, Safety and Environment (SSE)

THE SSE ELUCIDATOR

"Elucidate: to give clarity through explanation and analysis."

HOLIDAY REMINDER – DON'T DRINK AND DRIVE

The holiday season is a time for family gatherings, office parties, and celebrating. But it's also one of the deadliest and most dangerous times of the year, due to an increased occurrence of drunken driving. During the period between Thanksgiving and Christmas, more alcohol-impaired drivers get behind the wheel than at any other time of year. And because many motorists don't realize that just one drink can impair their judgment and motor skills, they risk lives and make driving conditions dangerous for everyone.

Alcohol Related Accidents – Motor vehicle related injuries are the leading cause of death among children and young adults in the United States and the leading cause of death from unintentional injury for people of all ages. More than 43,000 people in the United States died in motor vehicle crashes in 2003 and another 2.9 million people sustain non-fatal injuries. In particular, alcohol related accidents kill 70 people and injure an additional 2,000 people every day. Every 30 minutes someone in America dies in an alcohol related crash. That's over 25,000 deaths per year directly attributed to drinking and driving. In addition, male drivers involved in fatal motor vehicle crashes are almost twice as likely as female drivers to be intoxicated with a blood alcohol concentration (BAC) of 0.08% or greater. A BAC of 0.08% is equal to or greater than the legal limit in most states. According to the National Highway Traffic Safety Administration (NHTSA), about three in every ten Americans will be involved in an alcohol-related crash at some point in their lives.

INSIDE THIS ISSUE

Holiday Reminder - Don't Drink and Drive	1
Preventing Winter Slips, Trips, and Falls	3
Methicillin-Resistant Staphylococcus aureus	4
DEPC Lab Safety Alert	6
Upcoming Courses and Seminars	7

Holiday Drunk Driving Related Accidents – The winter holidays of Thanksgiving, Christmas, and New Year's are especially dangerous times to be on the road. According to the NHTSA, 1,210 people were killed across the U.S. during December 2004 in alcohol-related crashes. In fact, approximately 45 to 50 percent of all fatalities during the holiday period occur in crashes where at least one of the involved drivers was impaired by alcohol, as compared to about 30 percent of all fatalities during the rest of year. The percent of all fatalities that occur in crashes involving at least one impaired driver is the highest during the New Year's Day holiday period followed by the percentage during the Christmas holiday period. That is why the NHTSA designates December as the National Drunk and Drugged Driving Prevention Month.

Historically, during the holidays, the Army loses approximately 15 to 20 Soldiers to preventable and devastating accidents. With the exception of combat fatalities, POV accidents continue to be the number one area in which we lose Soldiers. Alcohol is a major contributor to these vehicle accidents. Definitely a sobering thought if you are hosting or attending a holiday party this year! In fact, think you know everything there is to know about drinking and driving – think again!

HOLIDAY REMINDER – VEHICLE AND ALCOHOL INJURIES (CONT.)

Drunk Driving Myths –

- Coffee or a cold shower will sober you up.
  False: Only time can sober you up.
- If you avoid liquor and stay with beer and wine you will be fine.
  False: A 12 oz. beer and a 5 oz glass of wine have as much alcohol as a 1.5 oz glass of whisky.
- As long as you roll down the windows and turn up the radio, you will be okay to drive home.
  False: Neither of these will help enhance your alertness, motor skills, or judgment.
- By driving slow, you will avoid getting into an accident.
  False: Driving too slow could potentially cause an accident and besides, driving under the influence is never a good idea at any speed.

Plan Ahead to Prevent Drunk Driving – Impaired driving is serious business. So if you're planning to imbibe this holiday season, don't risk your life and the lives of others. Instead, make a plan before you get behind the wheel and stick with it. Having a plan before a night of drinking is a preventative measure that is highly necessary and can keep you and others safe.

- Designate a non-drinking driver before the holiday party or celebration begins, if possible.
- Plan to give the host your car keys to reduce the likelihood you'll drive under the influence.
- If you don't have a designated driver, arrange for a sober friend or family member to pick you up-or call for a taxi.
- Check with your state department of transportation, city transit system, or local church about alternative transportation provided to the public free of charge during the holiday season.
- If you can't find a ride ahead of time, don't panic. If all else fails, arrange to spend the night at your host's home. Most will understand and would rather you camp on their couch than take unnecessary chances.

Hosting a Holiday Party – Planning a family gathering or holiday party at your house? Then you too could be potentially liable for any guests that leave your home drunk. If your guests get into an accident because they had too much to drink at your party, the finger could be pointed at you. The best solution is to have a dry party filled with holiday foods, games, prizes, and non-alcoholic beverages. However, if you still want to have a holiday party with alcoholic beverages, then consider practicing the following tips:

- Ask friends to designate a driver before the party begins.
- Collect everyone's coats and keys as they arrive.
- Encourage lively conversations and group activities that focus on fun and not alcohol.
- Make food and non-alcoholic drinks easily available.
- Provide plenty of food so the focus is not solely on alcohol.
- Never serve alcohol to anyone under the age of 21.
- Make sure all of your guests leave with a sober driver.
- If someone has had too much to drink and a sober driver is not available, offer to have them spend the night or call a cab – don't let them drive home drunk.

Serious Consequences of Drunk Driving – Driving impaired or riding with someone who is impaired is not worth the risk. The consequences are serious and real. Not only do you risk killing yourself or someone else, but the trauma and financial costs of a crash or an arrest for driving while impaired can be really significant and not the way you want to spend your holiday season. Violators often face jail time, the loss of their driver's license, higher insurance rates, and dozens of other unanticipated expenses from attorney fees, other fines and court costs, car towing and repairs, lost time at work, etc. Plus there is the added embarrassment, humiliation, and potential loss and consequence after informing family, friends, and employers. So remember, designate a sober driver before all holiday season and New Year's festivities.

PREVENTING WINTER SLIPS, TRIPS, AND FALLS

Most of us are very experienced walkers. After all, we've been walking almost all of our lives. So why is it that simply putting one foot in front of the other to get from place to place results in so many injuries? After all, slips, trips, and falls are a major cause of injuries, both at work and away from work. Nationally, 10% of all injuries are caused by slips, trips, and falls. According to OSHA, they cause 15% of all accidental deaths, second only to motor vehicles. Admittedly, some of these injuries involve falls from ladders, buildings, or other heights. However, most of them are injuries to folks just walking from one place to another.

While falls are especially dangerous for seniors, no one is safe when sidewalks and laneways are icy. As winter weather approaches extra measures are needed to avoid getting hurt from accidentally slipping on ice and snow. During last year's Valentine's Day ice and sleet storm that descended on Fort Detrick, Maryland, there were 18 mishaps from falls reported to the Safety Office. There are times where avoiding the ice and slippery conditions isn't possible. However, there are a number of tips to follow for anyone venturing outdoors in icy conditions.

Tips for Walking on Snow and Ice:

- Concentrate on what you are doing while you are doing it.
- Be aware of your surroundings – Always watch for hazards and dangers such as ice on steps, sidewalks, and pathways, snow and water puddles.
- Walk flat-footed and drag your feet along slowly.
- Don't rush. Move at a speed that feels comfortable and shorten your stride. Give yourself lots of time to get where you are going.
- Keep your centre of gravity over your feet; avoid reaching or twisting when walking. Keep one hand free for your balance.
- Be especially careful getting on and off buses and getting in and out of cars.
- Carry a bag of grit (sand or non-clumping kitty litter) to sprinkle ahead of you for traction while walking.
- Some experts believe up to half of all slips and falls could be prevented through proper footwear alone. A pair of well insulated boots with good rubber treads is a must for walking during or after a winter storm.
- In addition to good traction, wear boots with a low wide heel – not smooth leather soles or high heels.
- Wear ice grippers on footwear to help prevent falls on ice and snow. Make sure you can attach and remove them from your boots before purchasing. Grippers must be removed when walking on smooth surfaces such as stone, tile and ceramic.
- If possible, avoid outdoor stairs and entrances that are not sanded or salted and maintained free of ice and snow during the winter.
- Maintain three points of contact on stairs or ramps by using a handrail.
- If walking near a sidewalk which has not been cleared, and you must walk in the street, walk against the traffic and as close to the curb as you can.
- Be on the lookout for vehicles that may have lost traction and are slipping towards you.
- At night, wear bright clothing or reflective gear.
- During the daytime, wear sunglasses to help you see better and avoid hazards.
- Limit your load. Make sure your load doesn't obstruct your vision. Whenever possible, use wheels of some kind so you can push or pull your load instead of carrying it.
- Finally, Exercise regularly to maintain strength, flexibility, and balance.

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS

Often referred to in the press as a superbug, Methicillin-resistant Staphylococcus aureus (MRSA) is a drug-resistant strain of a bacteria, *Staph aureus*, which is normally found throughout the environment and commonly carried by individuals without causing illness. In fact, About 1 in 3 of us carries it on the surface of our skin or in our nose without developing an infection - this is known as being 'colonised' by the bacteria. However, if *S. aureus* bacteria get into the body through a break in the skin they can cause infection. MRSA is resistant to the antibiotic methicillin as well as other more common antibiotics such as oxacillin, penicillin, and amoxicillin. A large study led by the Centers for Disease Control and Prevention (CDC) and published in the October 17, 2007 issue of the *Journal of the American Medical Association* estimated that MRSA was responsible for 94,360 serious infections and associated with 18,650 hospital stay-related deaths in the United States in 2005. These figures would make MRSA infection responsible for more deaths in the U.S. each year than AIDS. Approximately 20% of bloodstream infections in hospitals are due to *S. aureus*, and MRSA accounts for most (65%) of these.

HA-MRSA v. CA-MRSA - MRSA can be health care-associated (HA) or community-associated (CA). HA-MRSA accounts for approximately 85% of MRSA infections, while CA-MRSA accounts for just 14% of infections. HA-MRSA occurs most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. HA-MRSA can cause infection when it is able to enter the body either through a break in the skin (burn, cut, scrape) or during medical care through a needle, catheter, or scope. Risk factors for HA-MRSA include: current/recent hospitalization; residing in a long-term care facility; invasive medical procedures; and recent or long-term antibiotic use. HA-MRSA is often multi-drug resistant and more difficult to treat than CA-MRSA.

In the United States, there have been increasing numbers of reports of outbreaks of MRSA colonization and infection through skin contact in locker rooms and gymnasiums. MRSA has also been found in the public school systems throughout the country. These out-of-hospital strains, or CA-MRSA infections, occur in otherwise healthy people who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery, or catheters). These infections are usually skin infections, such as abscesses, boils, and other pus-filled lesions. Risk factors for CA-MRSA include: young age; contact sports; sharing towels/athletic equipment; being immunocompromised (e.g. HIV/AIDS); and living in crowded/unsanitary conditions (e.g. prisons, barracks). CA-MRSA can typically be treated with antibiotics. About 75 percent of CA-MRSA infections are localized to skin and soft tissue and usually can be treated effectively. However, CA-MRSA strains display enhanced virulence, spreading more rapidly and causing illness much more severe than traditional HA-MRSA infections, which can affect vital organs and lead to widespread infection (sepsis), toxic shock syndrome and necrotizing ("flesh-eating") pneumonia. This is thought to be due to toxins carried by CA-MRSA strains. It is not known why some healthy people develop CA-MRSA skin infections that are treatable whereas others infected with the same strain develop severe infections or die.

Symptoms - Staph skin infections normally cause a red, swollen, and painful area on the skin. Other symptoms may include: a skin abscess; drainage of pus or other fluids from the site; fever; and warmth around the infected area. Symptoms of a more serious staph infection may include: rash; shortness of breath; fever; chills; chest pain; fatigue; muscle aches; malaise (general feeling of illness); and/or headache. Serious staph infections may include: cellulites; endocarditis; toxic shock syndrome; pneumonia and/or blood poisoning. Organ failure and death may result from untreated MRSA infections.

These infections might be caused by something other than MRSA, so laboratory testing is the only sure way to tell if you have MRSA. Swabs from your skin and nose, or samples of urine, blood, or tissue from the infected area will be tested in the hospital

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (CONT.)

laboratory. If you have MRSA, these tests will determine which strain of the bacteria you have and which antibiotics will be used to treat you. Depending on the extent and severity of your symptoms, your doctor may recommend the following tests:

- A skin biopsy and culture from the infected site
- Culture of the drainage (fluid) from the infection to see which organism grows in it
- Blood culture
- Sputum culture through coughing or bronchoscopy, if pneumonia is present or suspected
- Urine culture, if a urinary tract infection is present or suspected

Treatment – Draining the abscess at the doctor's office is usually the necessary treatment needed for a local skin MRSA infection. Both CA-MRSA and HA-MRSA are resistant to traditional anti-staphylococcal beta-lactam antibiotics, such as cephalexin. CA-MRSA has a greater spectrum of antimicrobial susceptibility, including to sulfa drugs, tetracyclines, and clindamycin. Few antibiotics are available to treat more serious MRSA infections. HA-MRSA is resistant even to these antibiotics and often is susceptible only to vancomycin (Vancocin, Vancoled). Newer drugs, such as linezolid (Zyvox) and trimethoprim-sulfamethoxazole (Bactrim, Bactrim DS, Septra, Septra DS), may be effective against both CA-MRSA and HA-MRSA. Because the oral absorption of vancomycin is very low, these agents must be administered intravenously to control systemic infections.

Prevention – The spread of MRSA and other drug-resistant organisms can be limited by infection control measures. In healthcare environments, MRSA can survive on surfaces and fabrics, including privacy curtains or garments worn by care providers. Complete surface sanitation is necessary to eliminate MRSA in areas where patients are recovering from invasive procedures. Testing patients for MRSA upon admission, isolating MRSA positive patients, decolonization of MRSA positive patients, and terminal cleaning of patients rooms and all other clinical areas they occupy is the current best practice protocol for MRSA. MRSA is usually passed on by human contact, with the bacteria most commonly spread via the hands. This means that hospital staff and visitors should always thoroughly wash and dry their hands before and after seeing a patient. Hospital staff should maintain very high standards of hygiene and take extra care when treating patients with MRSA. Before and after caring for any patient, hospital staff should make sure they have thoroughly washed and dried their hands. Staff should wear disposable gloves when they have any physical contact with open wounds, for example when changing dressings, handling needles, or inserting an intravenous drip. If you're concerned about hygiene, don't be afraid to ask the doctor or nurse treating you, or your visitors, if they have washed their hands. If you are being treated in a hospital, you can reduce your risk of infection by taking sensible precautions:

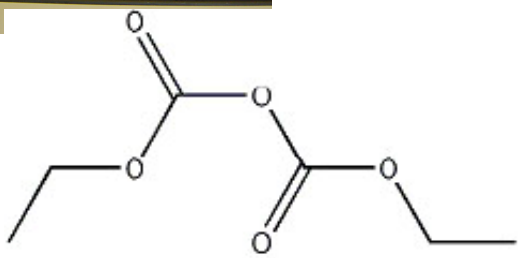
- Keep your hands and body clean
- Take soap, a washcloth, and moist hand-wipes with you, as well as your own razor
- Always wash your hands after using the restroom
- Always wash your hands immediately before and after eating a meal
- Make sure your bed area is regularly cleaned and report any unclean bathroom facilities to the hospital staff

To prevent the spread of MRSA in the workplace, employers should ensure the availability of adequate facilities and supplies that encourage workers to practice good hygiene; that routine housekeeping in the workplace is followed; and that contaminated equipment and surfaces are cleaned with detergent-based cleaners or Environmental Protection Agency (EPA)-registered disinfectants. Alcohol has proven to be an effective surface sanitizer against MRSA.

There are numerous MRSA research efforts ongoing within the Army and DoD. Brooke Army Medical Center and the DoD Infectious Disease Clinical Research Program (IDCRP) are just two groups that are researching this pathogen and measures to reduce its transmission.

DEPC LAB SAFETY ALERT

Diethylpyrocarbonate (DEPC) is commonly used in molecular biology. DEPC is sensitive to moisture and pH and over time hydrolyzes to form carbon dioxide and ethanol upon exposure to moist air or water. Bottles of DEPC will absorb moisture upon being opened; release of carbon dioxide during subsequent storage may lead to pressure buildup and spontaneous explosion. Spontaneous explosion of new unopened bottles can also occur. DEPC is also sensitive to ammonia, which causes decomposition to urethane, a possible carcinogen.



diethyl pyrocarbonate

What Happened? –

An incident occurred recently in a University of Louisville lab involving DEPC. When the researcher opened the container of DEPC it over-pressurized splashing half of the contents onto her arm. She flushed her arm with water for 10 minutes and washed with soap. She did not seem injured by the skin contact.

Safety Precautions for Handling DEPC –

Based on this recent incident at University of Louisville, every container of DEPC, whether new or previously opened, should be considered an explosive hazard. Therefore, precautions should be taken to avoid a similar incident in your laboratory work space.

DEPC should be purchased in small quantities and used as soon as possible after purchased. It has a shelf-life of 2 years. Once opened, the bottle should not be kept for more than 9 months. Date all chemical containers upon receipt and the date opened.

DEPC should be stored tightly capped and refrigerated, with desiccant, in the original metal shipping containers. These may be placed inside larger metal receptacles for added protection. Allow DEPC to equilibrate to room temperature before handling. DEPC should always be opened slowly and in a chemical fume hood. A lab coat, eye protection, and nitrile or natural rubber gloves should be worn. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

While the toxicological properties of this product have not been determined, the solution may cause acute or chronic irritation of skin, eyes and mucous membranes. If DEPC is accidentally ingested, repeatedly rinse mouth with water, drink large quantities of water, and get medical attention if irritation persists. If skin contact occurs, immediately wash skin with soap and flush with large amounts of water for at least 15 minutes. Wash clothing before reuse. Get medical attention if contact area remains irritated. Finally, if DEPC contacts the eyes, immediately flush eyes with large amounts of water for at least 15 minutes. Get medical attention if eye(s) remain irritated.

If you use DEPC in your work area and/or have questions regarding handling this material, please contact your Environmental Coordinator.

UPCOMING COURSES AND SEMINARS

Title: USEPA Workshop: Improving Environmental Compliance and Environmental Management Systems at Federal Labs

Location: Various **Date:** Various

Description: This free, two-day workshop is designed to educate the federal laboratory community about federal facility lab requirements under various environmental statutes, regulations and Executive Orders, as well as environmental management systems and pollution prevention strategies. Pre-registration is required.

Web: For more information, to view locations or dates, or to register visit http://www.fedcenter.gov/_kd/go.cfm? Destination=page&pge_id=3256.

Title: 2008 National Environmental Partnership Summit: "Accelerating Environmental Performance: Pathways to Action"

Location: Baltimore, MD **Date:** 5/19/08 - 5/23/08

Description: This years Summit will be held at the Sheraton Baltimore City Center and will highlight examples of environmental leadership attained by businesses and government programs. Various case studies will be provided to show you how your business or program can do the same.

Web: For more information or to register visit http://www.environmentalsummit.org/.

Title: Transport of Biomedical Waste Online Refresher Course

Location: Online **Date:** 30 days within receipt of materials

Description: You can now complete your refresher training online. This course is conducted using a CD-ROM & online quizzes, linked directly to the US Army Center for Health Promotion and Preventive Medicine website. The final examination is conducted via a proctor. Complete the online application to receive your training materials. Contact Ms. Teresa Lewis at teresa.lewis@apg.amedd.army.mil if you have any questions.

Web: To register visit https://usachppm.apgea.army.mil/TrainCon/datePage.aspx.

U.S. Army Medical Research and Materiel Command

Office of Surety, Safety and Environment

Wishes Each of You a Safe and Happy Holiday Season!

THE ELUCIDATOR
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Visit us at:

http://mrmc-www.army.mil

Reminder

For all accidents, no matter how minor,

specific forms documenting the incident must be submitted to your Safety Office.

Military: DA Form 285-AB-4

Civilian: DOL Claims Forms CA-1 or CA-2

All employees requiring medical attention must visit your local Occupation Health Clinic as soon as possible post mishap.