

In this issue of the Environmental Health and Safety (EHS) Listserv, May 10, 2016:

1. Vector-Borne Diseases
 2. Do You Work in the Heat?
 3. Safety Shorts – Heat Illness
 4. UH Explosion – Near-Miss Ignored
 5. New Safety Poster – Safe Needle Recapping
 6. Be Sure Respirators Are NIOSH-Certified
 7. Scissor Lift Hazard Alert
 8. Can You Tell Us?
 9. Revised Training & Safe Operating Procedures
-

1. Vector-Borne Diseases

It's that time of year when there is wet weather and hot weather alternating in the transition from spring to summer. That weather pattern creates standing water which is the perfect breeding ground for mosquitoes, ticks, fleas and other insects. With an increase in flying insect populations comes an increased risk of exposure to the diseases that these insects can carry.

Mosquitos or tick bites can transmit vector-borne diseases such as West Nile Virus (mosquitos), Lyme Disease (ticks) and Rocky Mountain Spotted Fever (ticks). These diseases are called "Vector-Borne Diseases" because they are carried by an insect or "vector." Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, which ingest disease-producing microorganisms during a blood meal from an infected host (human or animal) and later inject it into a new host during a subsequent blood meal.

Newly-emerging Zika virus has been in the news lately. The Zika virus is spread primarily through the bite of an infected *Aedes* species mosquito. To date, Zika virus infected mosquitoes have not been found in the U.S. The only reported cases have been travel-associated¹. CDC has issued a travel advisory for the Caribbean, Central and South America, Mexico and some Pacific Islands². More information about Zika is available on the CDC website³.

Problems associated with vector-borne diseases:

- They are hard to predict, prevent or control
- Only a few have vaccines
- Some vectors are notoriously hard to kill and develop resistance to insecticides
- Almost all vector-borne viruses and bacteria are zoonotic, meaning they are can cause disease in animals as well as in humans.

To avoid getting "bit," follow these prevention tips:

- **Wear insect repellent.** Yes! It is safe. When used as directed, insect repellent is the BEST way to protect against insect bites—even children and pregnant women should protect themselves. Higher percentages of active ingredient provide longer lasting protection.
 - DEET. Products containing DEET include Cutter, OFF!, Skintastic.
 - Picaridin (also known as KBR 3023, Bayrepel, and icaridin). Products containing picaridin include Cutter Advanced, Skin So Soft Bug Guard Plus, and Autan (outside the United States).
 - Oil of lemon eucalyptus (OLE) or PMD. Products containing OLE include Repel and Off! Botanicals.
 - IR3535. Products containing IR3535 include Skin So Soft Bug Guard Plus Expedition and SkinSmart.
- **Cover up.** When weather permits, wear long-sleeved shirts and pants.
- **Keep mosquitoes outside.** Use air conditioning or make sure that you repair and use window/door screens.
- **Avoid.** Avoid areas prone to insect infestation and take action to eliminate or treat potential breeding grounds.

Resources

- Nebraska Department of Health & Human Services (NeDHHS) (phone: 402-471-2937)
- Centers for Disease Control (CDC) – Division of Vector-Borne Diseases (email: dvbd@cdc.gov or phone: 970-221-6400)
- CDC Prevent Mosquito Bites <http://www.cdc.gov/features/StopMosquitoes/>
- CDC Insect Repellent Use & Safety <http://www.cdc.gov/westnile/fag/repellent.html>
- CDC Lyme Disease Prevention <http://www.cdc.gov/Features/LymeDisease/>
- Rocky Mountain Spotted Fever <http://www.cdc.gov/rmsf/>
- NeDHHS WNV (West Nile Virus) Surveillance <http://dhhs.ne.gov/publichealth/Pages/wnv.aspx>
- General Information on WNV http://dhhs.ne.gov/publichealth/Pages/puh_epi_wnv_general.aspx
- Zika Virus (1) <http://www.cdc.gov/zika/geo/united-states.html> (2) <http://wwwnc.cdc.gov/travel/page/zika-travel-information> (3) <http://www.cdc.gov/zika/index.html>

2. Do You Work in the Heat?

May 25 is the National Oceanic and Atmospheric Administration (NOAA) Heat Safety Awareness Day. We often associate heat-related illness with outdoor operations such as farm work, landscaping, and research “in the field.” However, EHS routinely reviews injury reports from employees working INSIDE an unconditioned building (e.g., warehouse, storeroom) or areas of a building prone to heat build-up (e.g., kitchens, laundry, autoclave rooms, etc.). Nationally, heat kills more people annually than all other weather conditions combined.

Working in the heat stresses the body and can lead to illness or even death in severe cases. Exposure to heat can also increase the risk of other injuries because of sweaty palms, fogged-up safety glasses, dizziness, and burns from hot surfaces. Most heat-related health problems can be prevented, or the risk of developing them can be reduced.

There are two main categories of risk factors the worker should evaluate when contemplating outdoor work:

- **Weather Conditions.** The risk of heat stress is relative to temperature, humidity, sunlight, and wind speed. High temperature, high humidity, direct sunlight and low wind speed make the worst combination. If possible, schedule strenuous work for the cooler parts of the day.
- **Personal Factors and Physical Demands.** The risk of heat stress increases with physical demands. For example, a worker who is walking is at higher risk than a worker who is riding in a vehicle. A worker who is lifting and carrying heavy items is at the greatest risk. Older workers, obese workers, and persons taking certain types of medication, such as antihistamines, are at a greater risk for heat illness.

It may not always be possible to work only in cooler parts of the day. The risk of heat-related illness can be reduced by:

- **Acclimation.** Build up tolerance to heat by short exposures before undertaking longer periods of work in a hot environment.
- **Appropriate clothing.** Light, loose clothing and a hat are the clothing of choice.
- **Hydration.** Drink 8-16 ounces of water *before* working in the heat. Drink 4-8 ounces of water or electrolytes every 15-20 minutes while working in the heat. AVOID alcohol, coffee, tea, or soda pop, which further dehydrate the body.
- **Adequate Rest Periods.** Work at a steady pace. Take breaks when your body signals you need one, preferably in shaded or cool areas.
- **Education.** Heat stress can manifest as a number of conditions, all to be taken seriously and some requiring medical assistance to avoid permanent aftereffects. Workers should know the signs and symptoms of these conditions so they can take proper action if they or their co-workers are affected.

More in-depth information can be found within the EHS Safe Operating Procedure (SOP), **Heat Stress**.

OSHA developed a Heat Safety smartphone app that calculates a heat index, identifies the associated risk level and provides reminders about protective measures that should be taken to protect workers from heat-related illness.

Resources:

- OSHA Health and Safety Topics: Occupational Heat Exposure
<http://www.osha.gov/SLTC/heatstress/>

- OSHA Heat Safety Tool (phone app-English & Spanish)
https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html
- OSHA Health and Safety Topics: Using the Heat Index
http://www.osha.gov/SLTC/heatillness/heat_index/index.html
- EHS **Heat Stress** SOP <http://ehs.unl.edu/sop/s-heatstress.pdf>
- National Institute for Health & Safety (NIOSH) Safety & Health Topics: *Heat Stress* <http://www.cdc.gov/niosh/topics/heatstress/>
- National Weather Service, Office of Climate, Water and Weather Services - *Heat: A Major Killer* <http://www.nws.noaa.gov/om/heat/index.shtml>

3. Safety Shorts – Heat Illness

This series features links to short safety resources each month. These videos provide information about a variety of hazards widely applicable across the university. The focus this month is heat stress safety.

- **7 Ways to Beat the Heat – Hot Weather Hazards – Preventing Illness & Death** (Safety Memos, 3:28 minutes)
<https://www.youtube.com/watch?v=WYnj1G94e6Y>
- **Heat Stress Prevention – Training Video Course – SafetyInfo.com** (SafetyInfo.com, 6:50 minutes)
<https://www.youtube.com/watch?v=wsJXMvZCy2c>

NOTE: Resources are provided for informational purposes only. Publication does not in any way endorse a particular company or product or affect current UNL policies and procedures.

4. UH Explosion – Near-Miss Ignored

On March 18, 2016, an explosion at a University of Hawaii (UH) laboratory caused a 29-year-old postdoctoral researcher to lose an arm. According to an April 19, 2016, report in Chemical & Engineering News (C&EN), “The researcher was combining hydrogen, carbon dioxide, and oxygen gases from high-pressure cylinders when the incident occurred.” The gas mixture was “food” for bacteria being used to produce biofuels and bioplastics.

The researcher was using a protocol published in a 2013. That article specifically mentioned that the gas gauge being used in the experiment was a model designed to prevent ignition. When the researcher began work at UH she purchased a 49-L steel gas tank, a different gauge not rated as intrinsically safe, a pressure-relief valve, and fittings, for use in the experiment.

While the Honolulu Fire Department report classifies the explosion as “accidental,” the report provides hints that that the incident resulted from systemic failure rather than chance. In the week before the March 18 injury incident, a similar set-up with a

3.8-L tank resulted in a “small internal explosion” leaving evidence of soot and smoke stains that went unreported to the university. The researcher also noted occasional static shocks when touching the tank, which was not grounded.

Photos of the disaster scene (some graphic) and further information are available at: <http://cen.acs.org/articles/94/web/2016/04/Spark-pressure-gauge-caused-University.html>. Comments associated with this article by other researchers raise points to consider: incorporate lessons from near misses into protocol revisions; a culture of safety is important in academic research work; use of safety equipment such as shields or remote-handling devices should be a consideration when a risk of explosion exists; and more.

This incident underscores the need for a thorough hazard assessment & risk minimization plan prior to undertaking experimentation and diligence in near-miss reporting.

Resources

- Kemsley, J. (2016, April 19). Spark from pressure gauge caused University of Hawaii explosion, fire department says. Retrieved from <http://cen.acs.org/articles/94/web/2016/04/Spark-pressure-gauge-caused-University.html>
- UH News Staff (2016, April 18). Investigation continues into lab explosion at UH. Retrieved from <http://www.hawaii.edu/news/2016/04/18/investigation-continues-into-lab-explosion-at-uh/>
- Benderly, B. L. (2016, April 20). University of Hawaii lab explosion caused by inappropriate gauge. Retrieved from <http://www.sciencemag.org/careers/2016/04/university-hawaii-lab-explosion-caused-inappropriate-gauge>. American Association for the Advancement of Science (AAAS) Science
- EHS Chemical Hazard Assessment & Risk Minimization web-based training <http://ehs.unl.edu/web-based-training#ChemHaz>
- **Chemical Safety** SOPs <http://ehs.unl.edu/sop/chemical-safety>
- **EHS Near-Miss/Close Call Reporter** <https://scsapps.unl.edu/EHSNearMissReporter/>

5. NEW Safety Poster – Safe Needle Recapping

EHS provides a number of safety posters of relevance to the campus community. The poster highlighted this month is a NEW poster, applicable to all who use needles.

SAFE NEEDLE RECAPPING

DO NOT RECAP NEEDLES UNLESS ABSOLUTELY NECESSARY!

If you must recap needles, use one of the following techniques or engineering controls to avoid needle-sticks.

1. Safety needles

Some needles are equipped with a type of safety device to reduce the risk of needle-stick injury. Some of these devices activate automatically when you administer the injection; others you have to activate when you use the needle.



2. Needle recapping device

- Allow single-handed unengaging and recapping of needles, complies with OSHA standards.
- Securely grips needle caps, phlebotomy and intravenous catheter caps.
- Base can be affixed to any clean smooth surface.
- Example devices are depicted in Figures 1 and 2.



3. One-handed recapping technique

- Place the cap on a flat surface.
- Hold the needle and syringe level with the surface and stick the needle into the cap slowly.
- Scoop the cap up with the needle.
- Once the cap is covering the end of the needle, it is safe to use your fingers to secure the cap on the needle.



Contact EHS at (402) 472-4925 for questions or comments.

Nebraska
UNIVERSITY
of
LINCOLN
Department
Health & Safety
(402) 472-4925

Request your FREE poster(s) today. Contact ehs@unl.edu or 402-472-4925 with your name, campus mailing address, and quantity desired. Review other FREE posters at: <http://ehs.unl.edu/safety-posters>. If you have an idea for a safety poster you would like to become available, contact Elizabeth (Betsy) Howe, ehowe2@unl.edu, 402-472-5488.

6. Be Sure Respirators Are NIOSH-Certified

Counterfeit and altered respirators are an increasing concern, jeopardizing worker health and safety. Counterfeit respirators are products that are falsely marketed and sold as being NIOSH-certified. Altered respirators are non-approved modifications to a NIOSH-certified respirator. With use of either counterfeit or altered respirators there is no way of knowing whether these products or parts meet the stringent testing and quality assurance requirements of NIOSH and will provide the worker with the expected level of protection. These products are usually priced lower than certified respirators.

The N95 Respirator is a commonly used respirator found at UNL. NIOSH (National Institute of Occupational Safety and Health) warns users of counterfeit N95 respirators being marketed as NIOSH-approved when they are not.

Companies recently identified as selling counterfeit N95 respirators are:

- Zubi-Ola. Is not a NIOSH approval holder.
- Wein Products approvals were rescinded in 2011. The company's web site continues to state the ViraMaskN99ESC is certified by NIOSH.
- Steelpro Safety is a private label holder of Fido Masks. In 2014, Fido rescinded the certificate of approval for their respirators, but the Steelpro website continues to state that respirator models, F720V and F333V meet NIOSH standards.

- Handan Nengyoun certificates of approval were voluntarily rescinded as of September 2014. Information on their website continues to include information misleading users to believe that their respirators are NIOSH-approved.

The Occupational Safety and Health Administration (OSHA) article, “*Counterfeit & Altered Respirators: The Importance of Checking for NIOSH Certification*,” reviews how to determine whether a respirator is NIOSH-certified. NIOSH provides an online “Certified Equipment List” which should be consulted prior to purchasing respirators.

Resources

- OSHA article “Counterfeit & Altered Respirators: The Importance of Checking for NIOSH Certification”
https://www.osha.gov/video/respiratory_protection/niosh_transcript.html
- OSHA video “Counterfeit & Altered Respirators: The Importance of Checking for NIOSH Certification”
https://www.osha.gov/video/respiratory_protection/niosh.html
- NIOSH National Personal Protective Technology Laboratory (NPPTL) “Certified Equipment List”
<http://www.cdc.gov/niosh/npptl/topics/respirators/cel/>

7. Scissor Lift Hazard Alert

Scissor lifts have the potential to seriously injure or kill workers when not used properly. OSHA (Occupational Safety and Health Administration) recently issued an updated Hazard Alert. During OSHA investigations over a one-year period, scissor lift-related incidents killed 10 people and injured more than 20. All of these were preventable by properly addressing fall protection, stabilization and positioning. The hazard alert provides the following recommendations:

- Scissor lifts should be installed with guardrails.
- Only trained workers should be allowed to use scissor lifts.
- Never stand on the guardrails and keep work within easy reach to avoid leaning away from the lift.
- Ensure scissor lifts are stable by following the manufacturer’s instruction and using the device outside only in good weather conditions.
- Position scissor lifts at least 10 feet away from electrical power sources.
- Implement traffic controls to prevent workers or vehicles from approaching the lifts.

Resources

- OSHA Hazard Alert “Working Safely with Scissor Lifts”
<https://www.osha.gov/Publications/OSHA3842.pdf>
- EHS **Aerial Lift Safety** Safe Operating Procedure http://ehs.unl.edu/sop/s-aerial_lift_safety.pdf
- **Mobile Aerial Lift** web-based training <http://ehs.unl.edu/web-based-training#MobileAerialLift>

8. Can You Tell Us?

Environmental Health and Safety is committed to excellent customer service and offers a *Customer Satisfaction Survey* as an easy method for the campus community to provide feedback on our services and staff. By taking a few moments to complete the survey (<http://ehs.unl.edu/survey>), you will be helping us to identify areas where we might need to focus our attention. Your participation is greatly appreciated.

Please feel free to contact Brenda Osthus, EHS Director, at 402-472-4927 or bosthus1@unl.edu if you would rather communicate outside the parameters of this survey.

9. Revised Training and Safe Operating Procedures

Web-based Training:

- **Core – Injury and Illness Prevention Plan**
<http://ehs.unl.edu/web-based-training#IIPP>
Revised to include information on Regulated Waste, e.g., aerosol cans, fluorescent lamps, used electronics, including resources on how to dispose within regulatory constraints.
- **Core – Emergency Preparedness**
<http://ehs.unl.edu/web-based-training#EP>
Updated information and resources on tornado, lightning, and flash flood.
- **Chemical Safety, Unit 1**
<http://ehs.unl.edu/web-based-training#ChemSafe>
Added a sample Safety Data Sheet and manufacturer’s label to better illustrate the required components of the Globally Harmonized System of chemical classification.
- **Chemical Safety, Unit 4**
<http://ehs.unl.edu/web-based-training#ChemSafe>
Clarification of chemical release general information versus Imminent hazard versus not an imminent hazard.

Safe Operating Procedures:

➤ ***Analytical X-Ray Equipment***

http://ehs.unl.edu/sop/s-analytical_x-ray equip.pdf

Updated to include training and procedure requirements for hand-held x-ray systems in use at UNL

Remember...SAFETY IS AN ATTITUDE!

Environmental Health and Safety

University of Nebraska-Lincoln

3630 East Campus Loop

Lincoln, NE 68583-0824

(402) 472-4925

<http://ehs.unl.edu>