

October 2016,
Issue 62

Army Industrial Hygiene News and Regulatory Summary

Hazardous Substances

Special Interest Articles:

- [IAQ](#)
- [C Difficile](#)
- [Daylight Saving](#)
- [Control Banding](#)
- [Revised Standards](#)

DOEHRS Super Star

OSHA Reveals Top 10 Violations for 2016

OSHA announced the preliminary Top 10 most frequently cited workplace safety violations for fiscal year 2016. Patrick Kapust, deputy director of OSHA's Directorate of Enforcement Programs, presented the list at the NSC Congress & Expo.

Read more:

<http://www.ishn.com/articles/105089-osha-reveals-top-10-violations-for-2016>



The Top 10 for FY 2016* are:

1. Fall Protection, 1926.501 (C) - 6,929
2. Hazard Communication, 1910.1200 - 5,677
3. Scaffolds, 1926.451 (C) - 3,906
4. Respiratory Protection, 1910.134 - 3,585
5. Lockout/Tagout, 1910.147 - 3,414
6. Powered Industrial Trucks, 1910.178 - 2,860
7. Ladders, 1926.1053 (C) - 2,639
8. Machine Guarding, 1910.212 - 2,451
9. Electrical Wiring, 1910.305 - 1,940
10. Electrical, General Requirements, 1910.303 - 1,704

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On the Threshold Conditions for Electron Beam Damage of Asbestos Amosite Fibers in the Transmission Electron Microscope (TEM)



Asbestos amosite fibers were investigated to evaluate the damage caused by a transmission electron microscope (TEM) electron beam. Since elemental x-ray intensity ratios obtained by energy dispersive x-ray spectroscopy (EDS) are commonly used for asbestos identification, the impact of beam damage on these ratios was evaluated. It was determined that the magnesium/silicon ratio best represented the damage caused

to the fiber. Various tests showed that most fibers have a current density threshold above which the chemical composition of the fiber is modified. The value of this threshold current density varied depending on the fiber, regardless of fiber diameter, and in some cases could not be determined. The existence of a threshold electron dose was also demonstrated. This value was dependent on the current density used and can be increased by providing a recovery period between exposures to the electron beam. This study also established that the electron beam current is directly related to the damage rate above a current density of 165 A/cm^2 . The large number of different results obtained suggest, that in order to ensure that the amosite fibers are not damaged, analysis should be conducted below a current density of 100 A/cm^2 .

Read more: Journal of Occupational and Environmental Hygiene Volume 13, 2016 - Issue 12 (Available with AIHA membership)



Phthalates in Fast Food: A Potential Dietary Source of Exposure

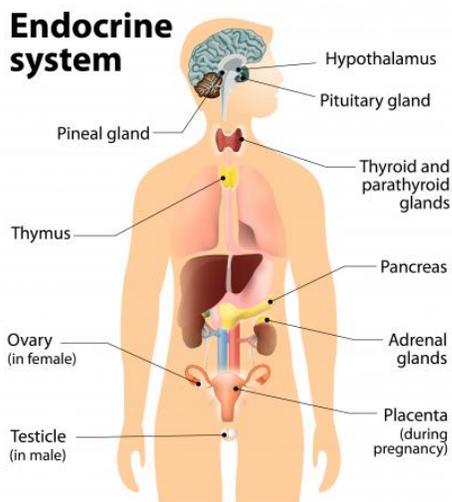
Many research studies have surveyed nutritional habits, but fewer have studied how food processing and packaging might introduce unwanted chemicals into foods. In this issue of *EHP*, researchers report that fast food consumption appears to be one source of exposure to the chemicals di(2-ethylhexyl) phthalate (DEHP) and diisononyl phthalate (DiNP).¹

The authors used data from the National Health and Nutrition Examination Survey (NHANES) to estimate the percentage of individuals' calories that came from fast food, fat intake attributable to fast food consumption, and fast food intake by food group.



Read more: <http://ehp.niehs.nih.gov/124-A191/>

Scientific Issues Relevant to Setting Regulatory Criteria to Identify Endocrine-Disrupting Substances in the European Union



Background: Endocrine disruptors (EDs) are defined by the World Health Organization (WHO) as exogenous compounds or mixtures that alter function(s) of the endocrine system and consequently cause adverse effects in an intact organism, or its progeny, or (sub)populations. European regulations on pesticides, biocides, cosmetics, and industrial chemicals require the European Commission to establish scientific criteria to define EDs.

Objectives: We address the scientific relevance of four options for the

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identification of EDs proposed by the European Commission.

Read more:

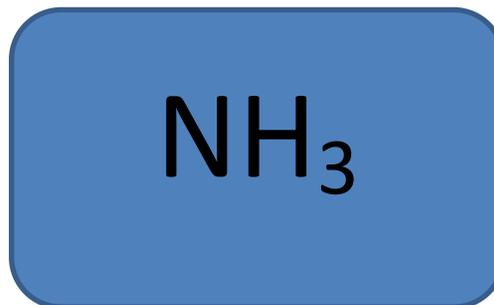
<http://ehp.niehs.nih.gov/EHP217/>

Ammonia Risk Evaluation Good News—Or Not

Babies born in the year the U.S. Environmental Protection Agency (EPA) last set a human health assessment for ammonia are adults now, and it looks like it's not as risky now than it was back then. What does EPA's new assessment portend for facilities that use ammonia and the standard set by the Occupational Safety and Health Administration (OSHA) for workers who handle the chemical?

Will You Be Affected?

The new assessment may seem like good news for facilities that use ammonia. Fertilizer manufacturers, albeit the largest users of commercially produced ammonia, are not the only ones affected by EPA's new risk assessment. Other industries that should take note of the updated human health assessment for ammonia include food producers; household product manufacturers; water purifiers;

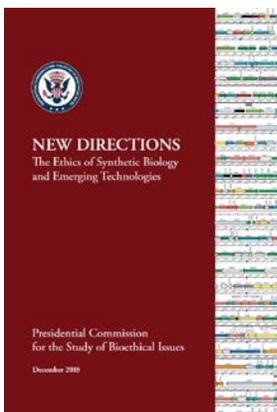


pharmaceutical and other chemical producers; any facility that uses an ammonia-based refrigeration system; combustion sources, such as some industrial boilers that use ammonia to reduce nitrogen oxide emissions; livestock operations; and wastewater companies, to name a few.

Read more:

<http://ehsdailyadvisor.blr.com/2016/10/ammonia-risk-evaluation-good-news-not/>

Synthetic Biology and Occupational Risk



A newly designed, low-cost, disposable Synthetic biology is an emerging interdisciplinary field of biotechnology that involves applying

the principles of engineering and chemical design to biological systems. Biosafety professionals have done an excellent job in addressing research laboratory safety as synthetic biology and gene editing have emerged from the larger field of biotechnology. Despite these efforts, risks posed by synthetic biology are of increasing concern as research procedures scale up to

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industrial processes in the larger bioeconomy.

A greater number and variety of workers will be exposed to commercial synthetic biology risks in the future, including risks to a variety of workers from the use of lentiviral vectors as gene transfer devices. There is a need to review and enhance current protection measures in the field of synthetic biology, whether in experimental laboratories where new advances are being researched, in health care settings where treatments using viral vectors as gene delivery systems are increasingly being used, or in the industrial bioeconomy. Enhanced worker protection measures should include increased injury and illness surveillance of the synthetic biology workforce; proactive risk assessment and

management of synthetic biology products; research on the relative effectiveness of extrinsic and intrinsic biocontainment methods; specific safety guidance for synthetic biology industrial processes; determination of appropriate medical mitigation measures for lentiviral vector exposure incidents; and greater awareness and involvement in synthetic biology safety by the general occupational safety and health community as well as by government occupational safety and health research and regulatory agencies.

Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 18 Oct 2016 (Available with AIHA membership)

Basics of Indoor Air Quality in the Workplace

The quality of indoor air in the workplace is important not only for workers' comfort, but also for their health. The Occupational Safety and Health Administration recognizes that poor indoor air quality (IAQ) can be hazardous to workers' health. Many factors affect IAQ—poor ventilation (not enough or lack of outside air), problems controlling temperature, high or low humidity, recent remodeling, and other activities in or near a building that can affect the fresh air coming into the building. Sometimes, specific contaminants—such as dust from construction or renovation, mold, cleaning supplies, pesticides, or other airborne chemicals (including small amounts of chemicals released as a gas over time)—may cause poor IAQ.

Read more:
<https://ohsonline.com/articles/2016/10/01/basics-of-indoor-air-quality-in-the-workplace.aspx?admgarea=news>

Radiation

HHS Enhances Nation's Health Preparedness for Radiological Threats



As a part of its mission to help protect Americans' health following even the most unthinkable of disasters, the U.S. Department of Health and Human Services' (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) is purchasing two medical products to treat injuries to bone marrow in victims of radiological or nuclear incidents. Bone marrow is essential to producing blood.

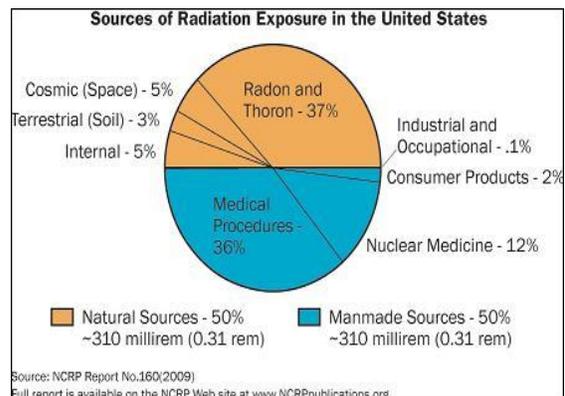
The two products, called colony stimulating factors, stimulate bone marrow to produce blood cells including neutrophils that reduce the body's risk of developing an infection and decrease risk of death from acute radiation syndrome. Infections often occur after exposure to high doses of radiation. These types of products are used commonly to reduce the risk of infection in patients with cancer

Read more:

<https://www.hhs.gov/about/news/2016/10/06/hhs-enhances-nation-s-health-preparedness-radiological-threats.html>

Protective Effects of Hydrogen against Low-Dose Long-Term Radiation-Induced Damage

Molecular hydrogen (H₂) has been previously reported playing an important role in ameliorating damage caused by acute radiation. In this study, we investigated the effects of H₂ on the alterations induced by low-dose long-term radiation (LDLTR). All the mice in hydrogen-treated or radiation-only groups received 0.1 Gy, 0.5 Gy, 1.0 Gy, and 2.0 Gy whole-body gamma radiation, respectively. After the last time of radiation exposure, all the



mice were employed for the determination of the body mass (BM) observation, forced swim test (FST), the open field test (OFT), the chromosome aberration (CA), the peripheral blood cells parameters analysis, the sperm abnormality (SA), the lymphocyte transformation test (LTT), and the histopathological studies. And significant differences between the treatment group

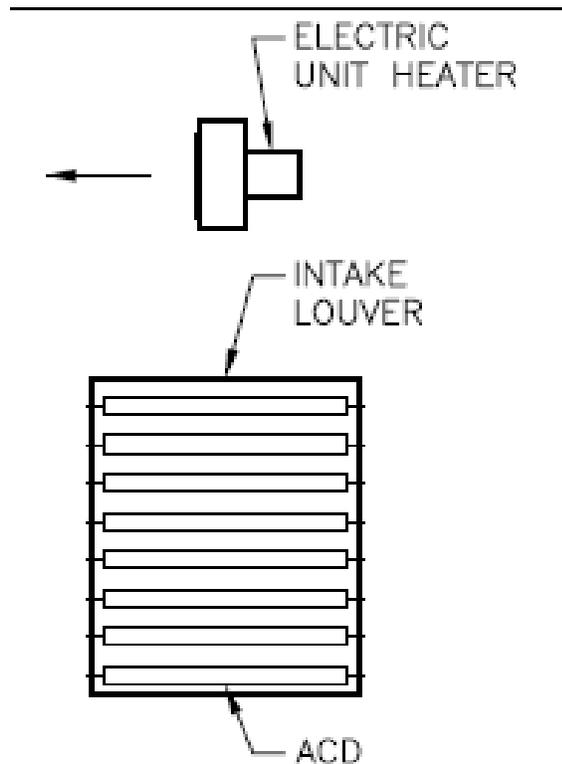
and the radiation-only groups were observed, showing that H₂ could diminish the detriment induced by LDLTR and suggesting the protective efficacy of H₂ in multiple systems in mice against LDLTR.

Read more:

<https://www.ncbi.nlm.nih.gov/pubmed/27774116>

Ventilation

Introduction to Intake and Exhaust Louvers



In this era of sustainability, there is growing need to supply buildings with fresh outdoor air and, thus, growing need to protect outdoor air and building exhaust openings

with louvers. Over time, louvers have evolved to meet market demands and changing design and code requirements.

Louver Types

A louver is a device consisting of multiple blades that, when mounted in an opening in a building's envelope, permits the flow of air, but inhibits the entrance of water, rain, sand, and other unwanted materials. Louvers with "Z"- or "J"-type non-drainable blades have been in use in building construction for centuries. They provide a means for large volumes of airflow, but offer virtually no rain defense. This led to the design of "K"-type non-drainable-blade louvers. Dubbed "stormproof," these louvers feature a rain hook in the blade design, but provide only very little rain defense (Figure 1).

Read more <http://hpac.com/iag-ventilation/introduction-intake-and-exhaust-louvers>

PPE

OSHA Proposes to Amend Respiratory Protection Standard to Add Two Additional Fit-Testing Protocols



The Occupational Safety and Health Administration today issued a Notice of Proposed Rulemaking to add two quantitative fit-testing protocols to the agency's Respiratory Protection Standard. The protocols would apply to employers in

the general, shipyard and construction industries.

Appendix A of the standard contains mandatory respirator fit-testing methods that employers must use to ensure their employees' respirators fit properly and protect the wearer. The standard also allows individuals to submit new fit-test protocols for OSHA approval. TSI Incorporated submitted an application for new protocols for full-facepiece and half-mask elastomeric respirators, and filtering facepiece respirators.

Read more:

https://www.osha.gov/pls/oshaweb/owadi.sp.show_document?p_table=NEWS_RELEASES&p_id=33264

Effect of Multiple Alcohol-Based Hand Rub Applications on the Tensile Properties of Thirteen Brands of Medical Exam Nitrile and Latex Gloves

Current CDC guidance for the disinfection of gloved hands during the doffing of personal protective equipment (PPE) following the care of a patient with Ebola recommends for multiple applications of alcohol-based hand rub (ABHR) on medical exam gloves. To evaluate possible effects of ABHR applications on glove integrity, thirteen brands of nitrile and latex medical exam



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gloves from five manufacturers and two different ABHRs were included in this study. A pair of gloves were worn by a test operator and the outside surfaces of the gloves were separately treated with an ABHR for 1–6 applications. Tensile strength and ultimate elongation of the gloves without any ABHR treatments (control gloves) and gloves after 1–6 ABHR applications were measured based on the ASTM D412 standard method. In general, tensile strength decreased with each ABHR application. ABHRs had more effect on the tensile strength of the tested nitrile than latex gloves, while ethanol-based ABHR

(EBHR) resulted in lesser changes in tensile strength compared to isopropanol-based ABHR (IBHR). The results show that multiple EBHR applications on the latex gloves and some of the nitrile gloves tested should be safe for Ebola PPE doffing based on the CDC guidance. Appropriate hospital staff practice using ABHR treatment and doffing gloves is recommended to become more familiar with changes in glove properties.

Read more: Journal of Occupational and Environmental Hygiene Volume 13, 2016 - Issue 12 (Available with AIHA membership)

Noise

Proven Methods for Reducing Noise Exposures

The average sound exposure levels needed to reach the maximum allowable daily dose of 100%		
Time to reach 100% noise dose	Exposure level per NIOSH REL	Exposure level per OSHA PEL
8 hour	85 dBA	90 dBA
4 hour	88 dBA	95 dBA
2 hour	91 dBA	100 dBA
1 hour	94 dBA	105 dBA
30 minutes	97 dBA	110 dBA
15 minutes	100 dBA	115 dBA

Many of us work in environments where noise is a hazard that we encounter daily. Although changes in work patterns and the

use of quieter and more efficient machinery have reduced noise levels in recent decades, it is still a major occupational hazard.

It is estimated that 22 million workers in the United States alone are exposed to hazardous noise levels in the workplace each year¹ and an estimated \$242 million is spent annually on workers' compensation for hearing loss disability.

Read more:

<https://ohsonline.com/articles/2016/10/01/proven-methods-for-reducing-noise-exposures.aspx?admgarea=news>

Hearing Testing in the U.S. Department of Defense: Potential Impact on Veterans Affairs Hearing Loss Disability Awards

Hearing loss is the second most common disability awarded by the U.S. Department of Veterans Affairs (VA) to former members of the U.S. uniformed services. Hearing readiness and conservation practices differ among the four largest uniformed military services (Air Force, Army, Marine Corps, and Navy). Utilizing a data set consisting of all hearing loss claims submitted to the VA from fiscal years 2003-2013, we examined characteristics of veterans submitting claims within one year of separation from military service. Our results indicate that having a hearing loss disability claim granted was significantly more likely for men, individuals over the age of 26 years at the time of the claim, individuals most



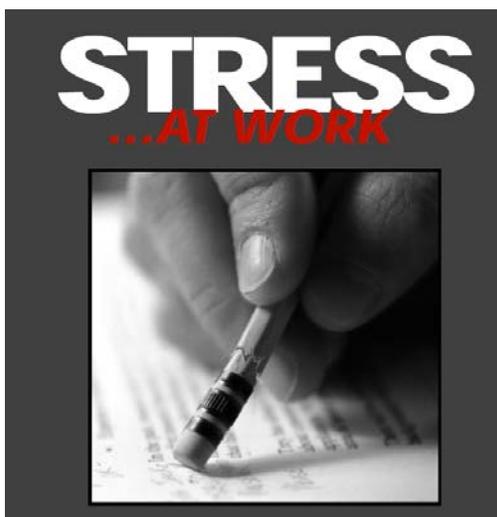
recently serving in the U.S. Army, and those with at least one hearing loss diagnosis.

Read more:

<https://www.ncbi.nlm.nih.gov/pubmed/27768901>

Preventive Medicine

10 Ways to De-Stress Your Employees



The Jacobson Group recently created an infographic that offers 10 tips to help decrease employee stress. Since 76 percent of workers credit their leading cause of stress to their job, it is in employers' best interest to help them stay stress-free while at work.

According to the American Institute of Stress, job stress costs U.S. businesses more than \$300 billion annually. "Numerous

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studies show that job stress is far and away the major source of stress for American adults and that it has escalated progressively over the past few decades," according to the American Institute of Stress. "Increased levels of job stress as assessed by the perception of having little control but lots of demands have been

demonstrated to be associated with increased rates of heart attack, hypertension and other disorders."

Read more:

<http://ehstoday.com/infographics/10-ways-de-stress-your-employees-infographic>

Dull and Dirty: Your Workplace Could Affect Brain Function

A new study by a Florida State University researcher shows that both a lack of stimulation in the workplace and a dirty working environment can have a long-term cognitive effect on employees.

"Psychologists say that the brain is a muscle, while industrial hygienists point to chemicals in the work environment that may cause decline," said Joseph Grzywacz, the Norejane Hendrickson Professor of Family and Child Sciences and lead researcher on the study.

Read more:

<https://www.sciencedaily.com/releases/2016/06/160616165945.htm>



Dogs May Be a Source of Community-Acquired C Difficile Infection



A new study in *PLoS One* suggests that companion animals may be a potential source of community-acquired *Clostridium difficile* infection (CDI) in humans. With US dog ownership estimated to be 36%, and a small body of research suggesting that farm animals and companion animals are contributors to community-associated reservoirs for C

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difficile bacteria, the authors of the study hypothesized that domestic dogs could be a potential source of community-acquired CDI. To determine the prevalence and diversity of *C difficile* in the dog population, the authors systematically collected and screened 216 canine fecal samples from a single city (Flagstaff, Ariz.), genotyped the *C difficile* isolates obtained from those

samples, and then compared the results to a global database of strains isolated from human CDIs.

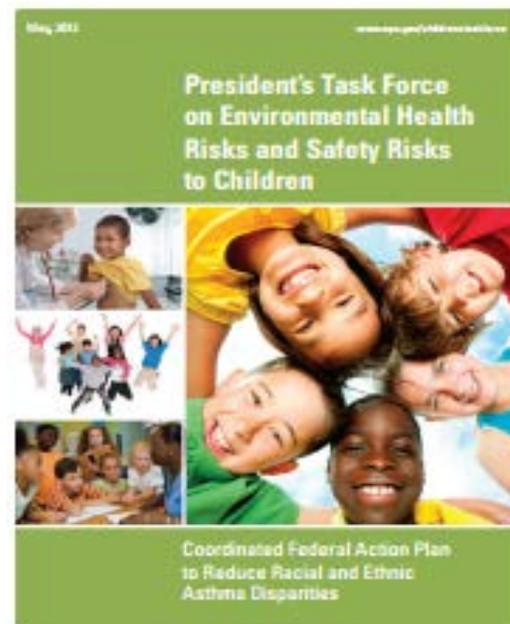
Read more:

<http://www.cidrap.umn.edu/news-perspective/2016/10/news-scan-oct-12-2016>

Toxic Inequality

In 2014, lead began leaching into the water system in Flint, Mich., a majority African-American city where more than 40 percent of residents live below the poverty line. In August, severe ground contamination forced more than 1,000 inhabitants from their homes in East Chicago, Ind. The highest levels of lead- and arsenic-poisoned soil were found in the West Calumet Housing Complex, home mostly to low-income minority families.

The findings were chilling, especially because elevated lead levels are known to be particularly harmful to pregnant women and children. “Lead exposure can affect nearly every system in the body,” according to the Centers for Disease Control. Mounting evidence suggests the crises in Flint and East Chicago are not isolated incidents. According to Harvard sociologist Robert Sampson, they are just two more examples of the “ecology of toxic inequality,” or the theory that higher lead



levels in the blood are often directly tied to racial and ethnic segregation.

Read more:

<http://news.harvard.edu/gazette/story/2016/10/toxic-inequality/>

Air Force: Toxic Chemicals Released Into Colorado City's Sewer System

An Air Force base in Colorado said it accidentally released about 150,000 gallons of water containing toxic chemicals into the sewer system of the adjacent city of Colorado Springs, but the potential health hazards weren't immediately known.

Peterson Air Force Base said the water contained perfluorinated compounds or PFCs, which have been linked to prostate, kidney and testicular cancer, along with other illnesses. The Air Force hasn't said how high the levels were.

The Air Force said the tainted water was released from a storage tank sometime in the past week, but the cause of the leak was still under investigation. It was



discovered during a routine inspection of the tank on Oct. 12.

Read more:

<https://www.airforcetimes.com/articles/air-force-toxic-chemicals-released-into-colorado-citys-sewer-system>

What Do Tweets Say About Our Health?



Tapping into the Twitter stream could help researchers understand how healthy people's lifestyles are and how to target

improved public health, according to a recent study.

Using geotagged tweets, researchers at the Universities of Utah and Washington were able to build a map of the U.S. by neighborhood, with indicators of how happy and active people in that neighborhood are and what their diets are like.

Read more:

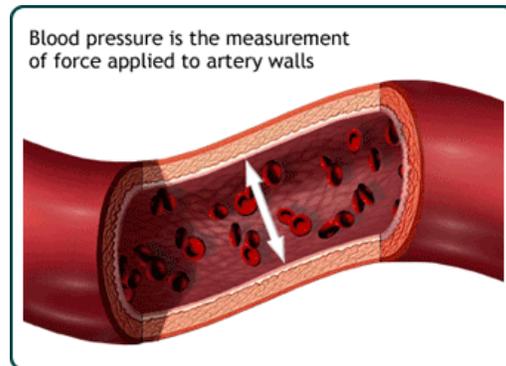
<http://www.foxnews.com/health/2016/10/19/what-do-tweets-say-about-our-health.html>

Environmental Health

World's Largest Study Shows Effects of Long-Term Exposure to Air Pollution and Traffic Noise on Blood Pressure

Long-term exposure to air pollution is linked to a greater incidence of high blood pressure, according to the largest study to investigate the effects of both air pollution and traffic noise by following over 41,000 people in five different countries for five to nine years.

The study, which is published October 25 in the *European Heart Journal*, found that among adults, up to one extra person per 100 people of the same age group living in the most polluted areas of cities would develop high blood pressure (hypertension) compared to those living in the less polluted areas. This risk is similar to the effect of being overweight with a body mass index (BMI) between 25-30 compared to people



with normal weight (BMI 18.5-25). High blood pressure is the most important risk factor for premature illness and death.

Read more:

<https://www.sciencedaily.com/releases/2016/10/161025084744.htm>

Human-Made Noise Can Affect How Animals Use Information from Scents



Research by scientists at the University of Bristol has, for the first time, found that human-made noise can have a detrimental impact on an animal's use of scent -- putting them at greater risk of being attacked by predators.

Using field-based experimental trials on dwarf mongooses in South Africa, the researchers combined sound recordings and fecal samples to demonstrate that

road-noise playback negatively affected the mongooses' ability to detect predator feces. Even after detection, the additional noise led to less information gathering and less vigilance, making the mongooses more vulnerable to danger.

Read more:

<https://www.sciencedaily.com/releases/2016/10/161024133941.htm>

Most Adults Surveyed Don't Know E-Cigarette Use Deposits Nicotine on Indoor Surfaces

Most U.S. adults surveyed in 2015 agree that e-cigarette use should not be allowed in places where smoking is prohibited. Yet one-third of respondents allow use of the devices within their home, and fewer than half said they knew that exhaled e-cigarette vapors contain nicotine that deposits on indoor surfaces.



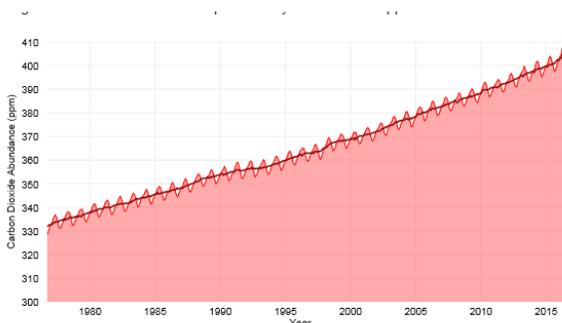
The abstract, "Household rules about e-cigarette use and beliefs about harms to children," will be presented at the American Academy of Pediatrics (AAP) 2016 National Conference & Exhibition in San Francisco on Oct. 22. The study analyzed data from the 2015 Social Climate Survey of Tobacco Control. Of the 3,070 adults responding to this survey, 68 percent said e-cigarette use was not allowed inside their homes, and 77

percent prohibit use in the car. Most respondents (84 percent) also said they believe that e-cigarette use should not be allowed in places that prohibit smoking, and that it is not acceptable for parents to use e-cigarettes in front of children (74 percent).

Read more:

<https://www.sciencedaily.com/releases/2016/10/161021122019.htm>

2016 a First: Global CO2 Averages 400 ppm All Year



For the first time this year, the concentration of carbon dioxide (CO2) in Earth's atmosphere is projected to reach the milestone of 400 parts per million on a global average basis for an entire year, according to the World Meteorological Organization.

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The WMO's annual "Greenhouse Gas Bulletin" issued Tuesday says that CO2 levels had previously reached the 400 ppm mark for certain months of the year 2015 and in certain locations but never before on a global average basis for a whole year.

Read more: <http://ens-newswire.com/2016/10/26/2016-a-first-global-co2-averages-400-ppm-all-year/>

World to Phase out Potent Climate-Warming Refrigerants

Nearly 200 nations have struck a legally binding deal to limit greenhouse gases of high global warming potential used in refrigerators and air conditioners. The accord was reached during talks in the Rwandan capital late Friday, and announced on Saturday.

The agreed amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer phases down hydrofluorocarbon, HFC, compounds by 85 percent between now and 2047. The result will be reduction of HFC emissions by more than 70 billion tons of carbon dioxide equivalent through 2050.

It is projected that the amendment will avoid up to 0.5 degrees Celsius of atmospheric warming, creating a big down



payment on the Paris climate agreement that will take effect on November 4. The result will be reduction of HFC emissions by more than 70 billion tons of carbon dioxide equivalent through 2050.

Read more: <http://ens-newswire.com/2016/10/18/world-to-phase-out-potent-climate-warming-refrigerants/>

Ergonomics

NIOSH Has Your Back

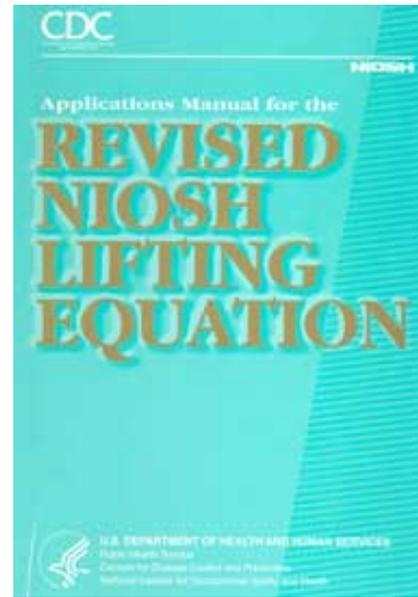
NIOSH is taking credit for saving some workers' backs – and it has the studies to back up that claim.

It's no secret that manual lifting puts a strain on the lower body, especially the back. NIOSH knew that for workers who manually lift items as part of their job (and

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for their employers), knowing where the strain comes from can help prevent serious low back injury and its associated missed workdays and lost productivity.

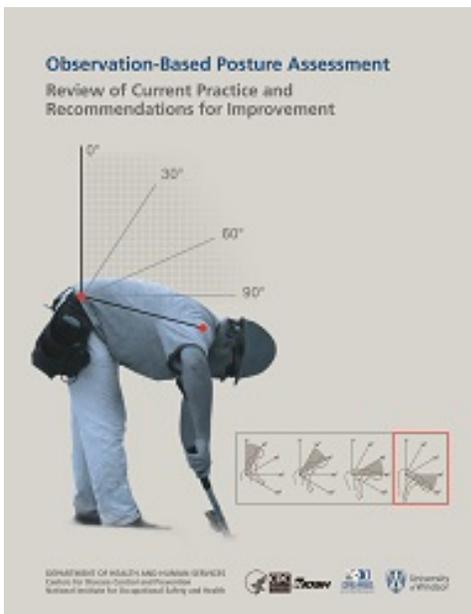
Thus, in 1981 researchers at the agency decided to dive deep into lifting-related risk factors for low back injury, and develop a Lifting Equation. The equation was subsequently expanded and released it as the Revised NIOSH Lifting Equation in 1993. The revised equation provides a proven formula for calculating a lifting index for designing safe lifting tasks to prevent work-related low back pain. However, its impact on research, industry practices, and regulations has remained unclear – until now.



Read more:

<http://www.ishn.com/articles/105104-niosh-has-your-back>

Biomechanical Risk Factors for Musculoskeletal Disorders: What's New?



I teach EHS professionals about the biomechanical risk factors of musculoskeletal disorders (MSDs) and their associated threshold values, which are incorporated into common MSD risk assessment tools such as ACGIH's threshold limit value (TLV) for hand-activity level (HAL), the NIOSH Lifting Equation and the Snook & Ciriello psychophysical guidelines for pushing, pulling and carrying activities.

Read more:

<http://ehstoday.com/health/biomechanical-risk-factors-musculoskeletal-disorders-what-s-new>

Safety

End of Daylight Saving Time Can Be Deadly

Early next Sunday morning most of those in the United States will turn their clocks back one hour for the end of Daylight Saving Time. Most of us think: *“Fantastic! I get another hour of sleep”*; and yes you will. However, there is a huge difference between the “society clock” and the “biological clock” we all work from. During such time changes there is statistically an increase in safety incidents.

With the end of daylight savings time comes an increase of darkness around the time of rush hour, when traffic is at a peak and many are making our way home from work. Drivers aren’t used to the decreased visibility – nor are pedestrians, who might take chances crossing roads when they shouldn’t.



Read more:

<http://safetytoolboxtopics.com/Seasonal/end-of-daylight-saving-time-can-be-deadly.html>

California Nurses Association Welcomes New Workplace Violence Regulations



The California Nurses Association welcomed the approval on Oct. 20 of new regulations intended to prevent workplace violence in hospitals. The California Occupational Safety and Health Standards Board voted unanimously to approve them; they resulted from 2014 legislation, SB 1299, that was sponsored by the California Nurses Association/National Nurses United.

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Read more:

<https://ohsonline.com/articles/2016/10/24/california-nurses-association-welcomes->

[new-workplace-violence-regulations.aspx?admgarea=news](https://www.osha-slc.gov/new-workplace-violence-regulations.aspx?admgarea=news)

Capturing Work-Related Injuries from Emergency Department Data

Work-related injuries frequently occur, despite the fact that many are preventable. It is critical that we accurately describe and monitor these injuries in order to improve prevention efforts. Because there is no comprehensive data source that captures all work-related injuries, the occupational injury community relies on multiple sources to describe the problem. The occupational supplement to the National Electronic Injury Surveillance System (NEISS-Work) is a surveillance system that provides one piece of the picture by capturing nonfatal occupational injuries treated in emergency departments (ED).



Read more: <https://blogs.cdc.gov/niosh-science-blog/2016/10/07/niess-work/>

CDC Warns of Infections Tied to Heart Surgery Device



The CDC warned patients and providers of a risk of infection from devices used in open-heart surgery. The concern comes after heater-cooler devices manufactured by LivaNova PLC, of London, were found to be contaminated with harmful bacteria during manufacturing.

Devices commonly used

The CDC said about 60% of the 250,000 heart bypass surgeries performed in the United States each year involve these heater-cooler devices, which keep circulating blood and organs at appropriate temperatures during the procedures. If the

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devices are contaminated, patients could suffer from infection with *Mycobacterium chimaera*, which can cause serious illness and even death.

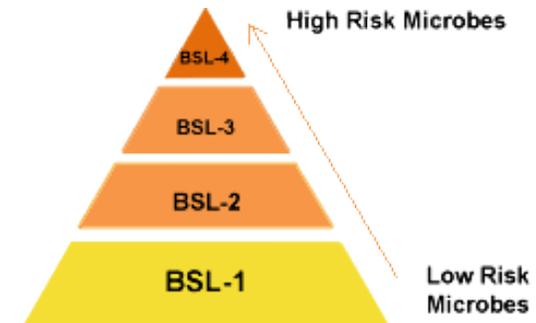
Read more:

<http://www.cidrap.umn.edu/news-perspective/2016/10/cdc-warns-infections-tied-heart-surgery-device>

Biosafety Labs and the Meaning of Biosafety Levels

A biosafety lab is a specialized research laboratory that deals with infectious agents. Some are designed for research, while others are performing some kind of production activity, but proper protection is of the utmost importance for the safety of everyone working in and around a biosafety lab. Protection is not only important for those working in a building with a biosafety lab, but also for the environment and the community around the laboratory.

The protection that is required for any biosafety laboratory is defined by what are known as biosafety levels. There are four levels, which are determined by the types of agents or organisms that the laboratory is working with. As the biosafety level

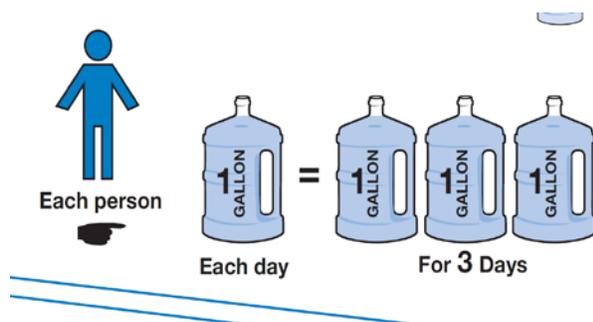


increases, there are more requirements and constraints added to the necessary safety precautions that must be followed.

Read more: <https://www.environmental-expert.com/news/biosafety-labs-and-the-meaning-of-biosafety-levels-676171>

Emergency Preparedness & Response

Emergency Preparedness – How to Store Emergency Water for Cleaning (Without Having to Dip into Your Drinking Water)



If you're into doing any sort of emergency preparedness, you are likely well aware of how important clean, potable (aka drinkable) water is to include in your preps. Water is life and without it, you will not survive an emergency situation where your ability to get good, clean water is taken

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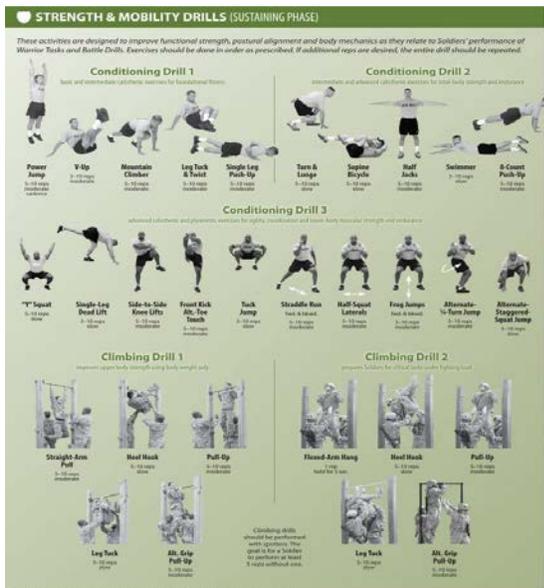
away. This could be a flood, fire, national emergency or any other major event that changes your life. The thing is though that in those situations, you'll need water for more than just drinking, cooking and bathing.

Read more:

<http://sixdollarfamily.com/emergency-preparedness-how-to-store-emergency-water-for-cleaning>

Deployment Health

And the Fattest U.S. Military Service Is ...



in 10 soldiers considered clinically overweight, according to new Defense Department data obtained by Military Times.

Coming in a close second is the Air Force, followed by the Navy. Marines appear to be the fittest service members in today's force. Yet despite the Corps' culture of fitness and vigor, more than 4,800 Marines appear to be heavier than regulations allow.

Read more:

<http://www.militarytimes.com/articles/and-the-fattest-us-military-service-is>

The U.S. military is fatter than ever, and the Army is leading the way with more than one

Virtual Medicine Will Be Norm in Future Crises, Says Health Chief

Virtual health, also called telemedicine, is currently being used across 18 time zones, in 30 countries, and supporting more than 20 clinical specialties.

Immediately following the 2009 and 2014 shootings at Fort Hood, Texas, the Army's



virtual health care was there, linking the survivors with behavioral health care providers "from Hawaii, D.C. and San Antonio," said Dr. Colleen Rye, Chief of Army Virtual Health, Office of the Army Surgeon General, at an Association of the United States Army Medical Readiness panel recently.

A virtual health pilot is now underway in U.S. Africa Command, where "tyranny of

distance" means that the only medical service providers available on site are the medics and telemedicine, she said. Another virtual health pilot is being conducted with Special Forces, she said.

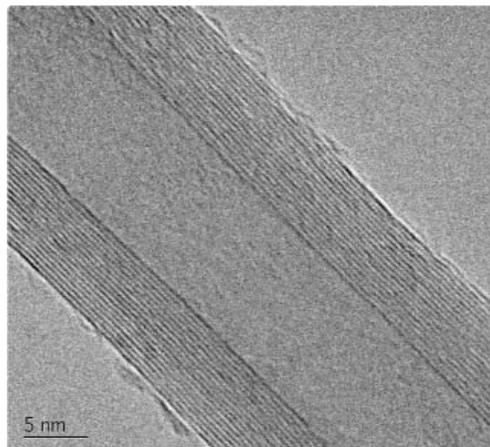
Read more:

<http://www.va.gov/opa/pressrel/pressrelease.cfm?id=2818>

Nanotechnology

Evaluating the Mechanistic Evidence and Key Data Gaps in Assessing the Potential Carcinogenicity of Carbon Nanotubes and Nanofibers in Humans

In an evaluation of carbon nanotubes (CNTs) for the IARC Monograph 111, the Mechanisms Subgroup was tasked with assessing the strength of evidence on the potential carcinogenicity of CNTs in humans. The mechanistic evidence was considered to be not strong enough to alter the evaluations based on the animal data. In this paper, we provide an extended, in-depth examination of the *in vivo* and *in vitro* experimental studies according to current hypotheses on the carcinogenicity of inhaled particles and fibers. We cite additional studies of CNTs that were not available at the time of the IARC meeting in October 2014, and extend our evaluation to include carbon nanofibers (CNFs). Finally, we identify key data gaps and suggest research needs to reduce uncertainty. The focus of this



review is on the cancer risk to workers exposed to airborne CNT or CNF during the production and use of these materials.

Read more:

<http://www.tandfonline.com/doi/abs/10.1080/10408444.2016.1206061?journalCode=itxc20>

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A Comparison of Control Banding Tools for Nanomaterials

Hazard Group vs. Target Exposure Range		
Hazard group	Target airborne concentration range	R phrases
A - Skin and eye irritants	>1-10 mg/m ³ dust >50-500 ppm vapor	R36, R38 All substances that do not have R phrases in groups B - E
B - Harmful on single exposure	>0.1-1 mg/m ³ dust >5-50 ppm vapor	R20/21/22, R40/20/21/22
C - Severely irritating & corrosive, skin sensitizers	>0.01-0.1 mg/m ³ dust >0.5-5 ppm vapor	R48/20/21/22, R23/24/25, R34, R35, R36/37, R37/38, R36/37/38, R37, R39/23/24/25, R41, R43
D - Very toxic on single exposure, reproductive hazard	< 0.01 mg/m ³ dust < 0.5 ppm vapor	R48/23/24/25, R26/27/28, R38/28/27/28, Carc. Cat 3 R40, R60, R61, R62, R63
E - Carcinogen, occupational asthma	Seek Specialist Advice	Muta Cat 3 R40, R42, R42/43, R45, R46, R49
S: Skin and eye contact	Prevention or reduction of skin and/or eye exposure	R21, R24, R27, R34, R36, R38, R41, R43, R48/21, R48/24, plus R -phrase combinations containing these. Skin

Control banding (CB) is a useful approach to evaluate and control the risk of exposure to nanomaterials (NM) due to uncertainty surrounding their toxicity and challenges associated with their measurement. Four CB tools specifically developed for NMs (NanoSafer, Stoffenmanager-Nano, NanoTool, and the Precautionary matrix) have been evaluated for their changes to differences in hazard and exposure input data. The hazard and exposure classification

were also compared with experimental data. The tools provided different hazard and emission/exposure outputs when compared with each other and with experimental data.

For some of the tools the information required to estimate the hazard is not always available in the Safety Data Sheet and it requires expert judgement. The tools have the potential to be valuable starting points to assess areas of high priority, although outputs should be interpreted with care. Further work should be done to improve their estimates, especially the inclusion of modifiers that account for the effectiveness of the ventilation and the effect of high temperatures during the process.

Read more: Journal of Occupational and Environmental Hygiene Volume 13, 2016 - Issue 12 (Available with AIHA membership)

Regulatory Research & Industrial Hygiene Professional News

DoD

Most Americans Trust the Military and Scientists to Act in the Public's Interest

About three-quarters or more of Americans are confident in the military, medical scientists and scientists in general to act in the best interests of the public. But fewer than half of Americans report similar

confidence in the news media, business leaders and elected officials, according to a Pew Research Center report released earlier this month.

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One-third of the public (33%) has a great deal of confidence in the military and an additional 46% say they have a fair amount of confidence. The high ranking of the military is consistent with a 2013 Pew Research Center survey, which found 78% of the public said the military contributes “a lot” to society.

Read more:

<http://www.pewresearch.org/fact-tank/2016/10/18/most-americans-trust-the-military-and-scientists-to-act-in-the-publics-interest/>



EPA

NIOSH Expands List of Drugs Dangerous to Health Workers

NIOSH List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings, 2016

NIOSH has released its 2016 list of hazardous drugs in health care settings, an updated list that include 34 additional drugs. Health workers who prepare or give hazardous drugs to patients, such as those

used for cancer therapy, and support staff may be at risks when exposed to these drugs; NIOSH estimates 8 million U.S. health workers are potentially exposed to hazardous drugs in the workplace.

Read more:

<https://ohsonline.com/articles/2016/10/10/niosh-expands-list-of-drugs-dangerous-to-health-workers.aspx?admgarea=news>

OSHA

OSHA Proposes Revisions to Existing Standards as Part of Standards Improvement Project

OSHA recently proposed 18 revisions to its recordkeeping, general industry, maritime,

and construction standards as part of the agency’s Standards Improvement Project,

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which is intended to remove or revise outdated, duplicative, unnecessary, and inconsistent requirements in OSHA standards. The agency has proposed revisions in the areas of reporting job-related hearing loss, control of hazardous energy (lockout/tagout), chest X-ray requirements, permissible exposure limits (PELs), process safety management of highly hazardous chemicals, personal protective equipment, requirements for pulmonary function testing, and more. OSHA is also proposing to remove from its standards all requirements to include an

employee's social security number on exposure monitoring, medical surveillance, and other records in order to protect employee privacy and prevent identity fraud.

Read more:

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/OSHA-Proposes-Revisions-to-Existing-Standards-as-Part-of-Standards-Improvement-Project.aspx>

OSHA Delays Enforcement of Anti-Retaliation Provisions of Injury and Illness Tracking Rule until December 1



OSHA has agreed to further delay enforcement of the anti-retaliation

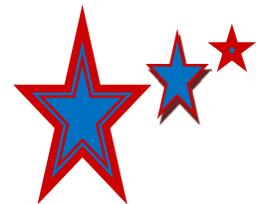
provisions in its injury and illness tracking rule until Dec. 1, 2016. The U.S. District Court for the Northern District of Texas requested the delay to allow additional time to consider a motion challenging the new provisions.

Read more:

<https://www.osha.gov/as/opa/quicktakes/qt101816.html> (Scroll down)

APHC

October DOEHS-IH SUPER STARS



Congratulations to Fort Hood, Fort Lee, and West Point IH Programs for the proper use of Shop Priorities. When categorizing shops,

any shop with a ventilation system in place to control an exposure is a *Priority One Shop!*

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Training

Upcoming Training

What's new with Army IH Training?

This month's featured self-development material on blackboard:

- Thermal Stressors(1.25hrs)
- Ventilation: Protocols (0.75hrs)
- Ventilation: Fundamentals of Ventilation (2hrs)
- 2016 HAZWOPER 8hr Refresher *(limited time offer!)*
- Public Affairs for the OSH Professional: Communicating With the Media(1.0hr)

Self-enroll at <https://aiphdohs.ellc.learn.army.mil>

Face to Face Training Opportunities:

- May 8-12, 2017 Blueprint Reading & Design Review (APG, MD)
- May 15-19, Intermediate Industrial Hygiene Topics Course (APG, MD)
- May 22-26 Industrial Ventilation 40hr Course (APG, MD)
- Self-enroll at <https://aiphdohs.ellc.learn.army.mil>

LIVE Manage Your IH Monster Webinars: 210-249-4234 or DSN 421-3272 (overseas DSN 312)

- Jan (2017) 12th 0700 EST -Business Objects At It's Best
- Mar (2017) 15th 0700 EST -Magic of Medical Surveillance

Registration & Recordings Currently Available at aiph-dohs.ellc.learn.army.mil:

- Lab Interfaces
- Taming That SHOP Monster
- Cancer in the Military
- Taming The SEG Monster
- Don't Be Afraid of The Big Bad Budget
- De-Mystifying The Metrics
- All About ANOVA

Other FREE Training Opportunities:

- AIHA CIH Prep Webinars email: mrupert@sevengenhse.com to register:
Recordings are available upon request aiha.hpecc@gmail.com
- AIHA HPECC Webinars *(2nd Thurs each month; Time: 2-3pm ET 1-800-768-2983 Code: 9567345
<https://www.callinfo.com/prt?host=level3&an=8007682983&ac=9567345>)
recording links available upon request*
 - November 10 Expedient Engineering Controls for Epidemics and Terrorism Events
 - January 12 Direct Reading Instruments for the Practicing IH
 - March 9, 2017 Computational Fluid Dynamics, Can It Truly Benefit the Industrial Hygienist or is It Just Colorful Fluid Dynamics?
 - Recordings are available upon request email

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Important Announcements!

- **See something – Say something:** PHC Blackboard not working? Notify the POC for the class. When Army Blackboard does maintenance it can break links within courses.
- **DOEHRS-IH Demo** website is down until Nov 30!
- **Army Blackboard has not accepted AKO email for over a year.** Users with AKO emails will be deleted from rosters. Certificates cannot be generated for AKO emails. If you are enrolling in PHC Blackboard courses make sure you have updated your email. Instructions for updating email are available at aiph-dohs.elic.learn.army.mil
- **Supervisors of Intermediate Industrial Hygiene students:** be cognizant that students require time to complete the very rigorous online portion and students should be approximately 50% complete with the online portion at this time.
- **Don't be "that" IH.** If you are not viewing the Manage Your IH Monster Webinars you are missing important information about Army IH Practices! Recordings are available on Blackboard.
- **LAST CALL:** the 2016 HAZWOPER 8 hour Refresher course window will close soon. If you need this course to maintain your certification don't wait to enroll and complete this on our Blackboard.

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DOEHRS-IH



What's new with Army DOEHRS-IH?

Face to Face Training Opportunities:

- Dec 12-16 Army DOEHRS-IH Initial (APG, MD bldg, 6008 2 seats remaining)
- Self-enroll at <https://aiphdohs.ellc.learn.army.mil> code: 2016

DOEHRS-IH Super Stars:

- Congratulations to Fort Hood, Fort Lee, & West Point** for proper use of Shop Priority. Any shop with a ventilation system in place to control an exposure is a **PRIORITY ONE SHOP!** *What do your shop priorities look like?*



Shop Information	
Shop Name*	B-90149 Motorpool (E CO 2)
Official Name	B-90149 Motorpool (E CO 2)
Organization/UIC Name*	0227AVGRAY EAGLE UAS
Start Date*	
Shop Priority*	1 - High



Shop Information	
Shop Name*	Motorpool Bldg 10670 (3rd)
Official Name	3rd BSTB
Organization/UIC Name*	03 0010 IN HHC HQS BDE
Start Date*	2012/11/19
Shop Priority*	2 - Medium
Shop Description	Motorpool 3rd BSTB

- Congratulations to IH's at Crane Army Depot, Schofield Barracks, Fort Carson, Japan, and Europe!** Out of 133 participants, five IHs from these program offices are the first to collect certificates for every "Manage Your IH Monster" webinar. Big thank you for the great job staying relevant on Army IH DOEHRS Business Practice. Thank you to all who are participating in these webinars for taking the time to listen and be committed to make a difference in Army IH data collection.

Army Industrial Hygiene News and Regulatory Summary

This monthly summary is published by the Industrial Hygiene and Medical Safety Management Program (IHMSMP) for the Army Public Health Center



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<http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/default.aspx>



Professional Development and Career Programs

For Army Industrial Hygienists and Industrial Hygiene Technicians, Professional Development is through the Army Safety and Occupational Health (SOH) Career Program, known as Career Program 12 (CP-12).

Career Programs were established to ensure there is an adequate base of qualified and trained professional, technical, and administrative personnel to meet the Army's current and future needs.

Planned training and development are essential elements to building a successful career.

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