

June 2016,  
Issue 58

# Army Industrial Hygiene News and Regulatory Summary

## Hazardous Substances

### Special Interest Articles:

- [Eggshells](#)
- [Earbuds](#)
- [Aging Spines](#)
- [Flood Safety](#)
- [Lightning](#)

DOEHRS Super Star

### Final GHS/HazCom Deadline In 2016: Is Your Company Ready?

The final deadline in OSHA's four-stage conversion to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) occurs in 2016. Companies will now have to be in full compliance with the revised hazard communication standard (HCS).

The final deadline is scheduled for June 1, 2016. According to the OSHA document, *Small Entity Compliance Guide for Employers That Use Hazardous Chemicals*: "If an employer identifies new hazards after December 1, 2015, due to the reclassification of the hazardous chemicals, it has six months, until June 1, 2016, to ensure that those hazards are included in the hazard communication program, workplace labeling reflects those new hazards, and employees are trained on the new hazards."



## Are you GHS ready?

New labelling of workplace

Read more:

<http://www.safetynewsalert.com/final-ghshazcom-deadline-in-2016-is-your-company-ready/>

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## The US Government Conducted Bioterror Research Right under Subway Riders' Noses



Every time a train races through a subway station in New York City, it sends a blast of air rolling through the 100-year-old system's enormous network of tunnels. That blast kicks up and carries a whole slew of particles. They swirl and float and fly. And then they deposit themselves all over everything. Over five days

this past May, the US Department of Homeland Security (DHS) conducted a massive test to find out what would happen if those particles weren't just harmless pieces of dust or lint: What if they were something more dangerous, like anthrax? How would they move around and where, exactly, would they land?

Read more:

<http://www.bbc.com/autos/story/20160621-how-to-fight-bioterrorism-on-subways>

## Airborne Asbestos Exposures Associated With the Installation and Removal of Roofing Products

Asbestos-containing roofing products were widely used throughout the 20th century, and certain products are still used in limited quantities today. Roofing products are generally considered non-friable and are not expected to release appreciable amounts of airborne asbestos fibers; however, despite the variety of roofing products that have



contained asbestos over time, there are no comprehensive analyses of the exposure data associated with these products in the published literature. The objective of this study was to analyze the available data and characterize asbestos exposures associated with the installation, removal, and replacement of built-up roofing (BUR), felts, flashings, shingles, coatings, cements, and mastics under a variety of work practices. Published and unpublished literature that contained the following information was included in the analysis: (1) airborne fiber concentrations determined by PCM; (2) a description of the product(s) used; and (3) a description of the task(s) performed. More than 800

personal air samples from 12 studies performed between 1982 and 2010 were identified which fit the inclusion criteria. The findings indicate that short-term and full-shift exposures from the use of asbestos-containing roofing products were typically well below applicable occupational exposure limits. Additionally, the cumulative exposures associated with roofing work would be well below published chrysotile no-observed-adverse-effect-levels (NOAELs) for asbestos-related diseases.

*Read more: Journal of Occupational and Environmental  
Published online: 07 Jun 2016  
(Available with AIHA membership)*

### Eggshells as a Source for Occupational Exposure to Airborne Bacteria in Hatcheries



Occupational exposure to high concentrations of airborne bacteria in

poultry production is related to an increased risk of respiratory disorders. However, potential sources and formation of hatchery bioaerosols are rarely characterized. In this study, bacterial multiplication on fresh shell fragments from turkey hatching eggs under conditions present in a hatcher incubator was investigated. A  $10^5$ -fold amplification was observed both by colony count and total cell count gaining  $4 \times 10^7$  cfu/cells per gram eggshell within 30 hours of incubation. Furthermore, the bacterial community

present on eggshells was analyzed by generation of 16S rRNA gene clone libraries and identification of eight isolates. RFLP analysis revealed no shift in community composition during incubation and *Enterococcus faecalis* and *Enterococcus gallinarum* were found as the predominant species on turkey eggshells, both have been classified as risk group 2 microorganisms (German TRBA 466). Since *Enterococcus* spp. were found as predominant species on turkey eggshells, contribution of this genus to bioaerosol formation was demonstrated. During different work activities with poult and eggshell handling concentrations of airborne enterococci up to  $1.3 \times 10^4$  cfu m<sup>-3</sup> were detected. In contrast, no enterococci were identified at a day without poult or

eggshell processing. In conclusion, turkey hatching eggs carry a viable specific microflora from breeder flocks to hatcheries. After hatching of turkey poults, hatcher incubators and eggshell fragments provide appropriate conditions for excessive bacterial growth. Thus, high bacterial loads on eggshell fragments are a source of potential harmful bioaerosols caused by air flows, poult activity and handling of equipment.

*Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 24 Jun 2016 (Available with AIHA membership)*

### Modeling Risk of Occupational Zoonotic Influenza Infection in Swine Workers

Zoonotic transmission of influenza A virus (IAV) between swine and workers in swine production facilities may play a role in the emergence of novel influenza strains with pandemic potential. Guidelines to prevent transmission of influenza to swine workers have been developed but there is a need for evidence-based decision-making about protective measures such as respiratory protection. A mathematical model was applied to estimate the risk of occupational IAV exposure to swine workers by contact and airborne transmission, and to evaluate the use of respirators to reduce transmission.

The Markov model was used to simulate the transport and exposure of workers to



IAV in a swine facility. A dose-response function was used to estimate the risk of infection. This approach is similar to methods previously used to estimate the risk of infection in human health care settings. This study uses concentration of virus in air from field measurements collected during outbreaks of influenza in

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commercial swine facilities, and analyzed by polymerase chain reaction.

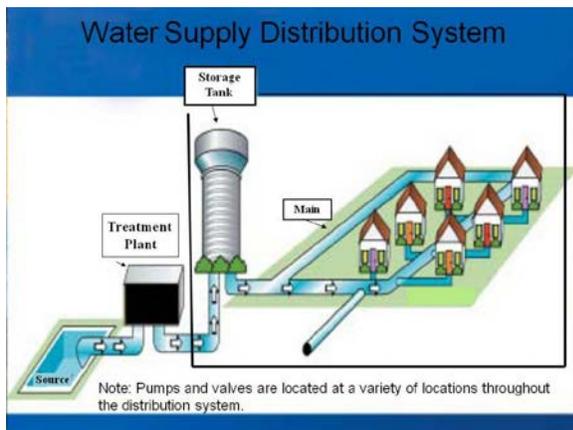
It was found that spending 25 min working in a barn during an influenza outbreak in a swine herd could be sufficient to cause zoonotic infection in a worker. However, this risk estimate was sensitive to estimates of viral infectivity to humans. Wearing an excellent fitting N95 respirator reduced this risk, but with high aerosol levels the predicted risk of infection remained high under certain assumptions.

The results of this analysis indicate that under the conditions studied, swine workers are at risk of zoonotic influenza infection. The use of an N95 respirator could reduce such risk. These findings have

implications for risk assessment and preventive programs targeting swine workers. The exact level of risk remains uncertain, since our model may have overestimated the viability or infectivity of IAV. Additionally, the potential for partial immunity in swine workers associated with repeated low-dose exposures or from previous infection with other influenza strains was not considered. Further studies should explore these uncertainties.

*Read more: Journal of Occupational and Environmental Accepted author version posted online: 26 Apr 2016 (Available with AIHA membership)*

### CDC: Water System Management Key to Curbing Rise in Legionnaires'



Legionnaires' disease cases have quadrupled since 2000, marked by recent high-profile outbreaks in New York City, Illinois, and Michigan, but most are preventable with simple steps by building

owners and managers, the CDC said in a Vital Signs report.

At a media briefing, CDC Director Tom Frieden, MD, MPH, said the reason for the steep rise is probably a combination of factors that include aging building water systems, an aging population that is more susceptible to the disease, and better diagnostic tools and reporting.

*Read more:*  
<http://www.cidrap.umn.edu/news-perspective/2016/06/cdc-water-system-management-key-curbing-rise-legionnaires>

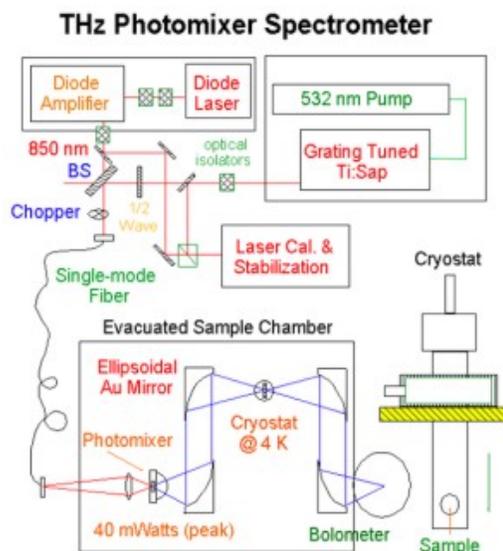
## Radiation

### Speedy Terahertz-Based System Could Detect Explosives

Terahertz spectroscopy, which uses the band of electromagnetic radiation between microwaves and infrared light, is a promising security technology because it can extract the spectroscopic “fingerprints” of a wide range of materials, including chemicals used in explosives. Spectroscopic system with chip-scale lasers cuts detection time from minutes to microseconds.

Read more:

<http://www.homelandsecuritynewswire.com/dr20160524-speedy-terahertzbased-system-could-detect-explosives>



### Amid Terrorism Fears, Promising Leads in Hunt for Radiation Antidote



University of Virginia School of Medicine researchers have identified promising drugs that could lead to the first antidote for radiation exposure that might result from a dirty bomb terror attack or a nuclear accident such as Chernobyl. Some of the compounds, including the drug rapamycin, have previously been shown to extend life in organisms such as worms and flies, though it's unknown if they would have the same benefit in humans. UVA's research suggests that these compounds, or similar drugs, might counter the deadly effects of ionizing radiation.

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Read more:

[http://www.healthnewsdigest.com/news/Research\\_270/Amid-Terrorism-Fears-](http://www.healthnewsdigest.com/news/Research_270/Amid-Terrorism-Fears-)

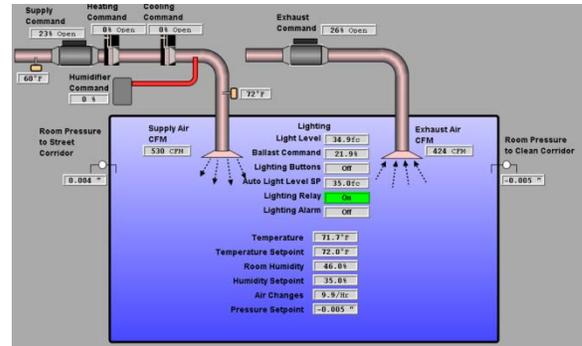
[Promising-Leads-in-Hunt-for-Radiation-Antidote.shtml](http://www.healthnewsdigest.com/news/Research_270/Amid-Terrorism-Fears-Promising-Leads-in-Hunt-for-Radiation-Antidote.shtml)

## Ventilation

### HVAC Systems and Equipment Focus of 2016 ASHRAE Handbook

Revisions to the majority of chapters, including major updates related to thermal storage and district heating and cooling, are included in the newly published 2016 ASHRAE Handbook – HVAC Systems and Equipment.

“Nearly 90 percent of the chapters have undergone revision since the 2012 volume was published,” Forrest Yount, volume chair, said. “That means there is a lot of new material for users to become familiar with. Many chapters have incorporated the results of recent research projects funded by ASHRAE.”



Read more: <http://hvac.com/air-conditioning/hvac-systems-and-equipment-focus-2016-ashrae-handbook>

## PPE

### Evaluation of Gowns and Coveralls used by Medical Personnel Working with Ebola Patients against Simulated Bodily Fluids Using an Elbow Lean Test



Gowns and coveralls are important components of protective ensembles used during the management of known or suspected Ebola patients. In this study, an Elbow Lean Test was used to obtain a visual semi-quantitative measure of the resistance of medical protective garments to the penetration of two bodily fluid simulants.

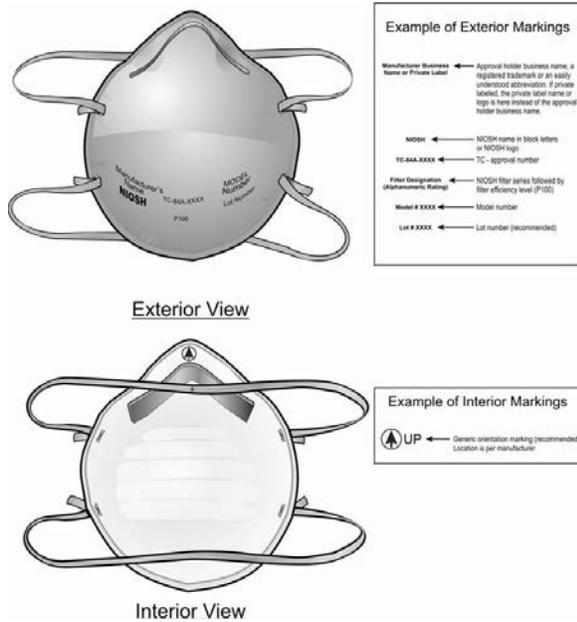
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Tests were done on swatches of continuous and discontinuous regions of fabrics cut from five gowns and four coveralls at multiple elbow pressure levels (2 - 44 PSI). Swatches cut from the continuous regions of one gown and two coveralls did not have any strike-through. For discontinuous regions, only the same gown consistently resisted fluid strike-through. As hypothesized, with the exception of one garment, fluid strike-through increased with

higher applied elbow pressure, was higher for lower fluid surface tension, and was higher for the discontinuous regions of the protective garments.

*Read more: Journal of Occupational and Environmental Accepted author version posted online: 12 May 2016 (Available with AIHA membership)*

## The Effect of Simulated Air Conditions on N95 Filtering Face-Piece Respirators Performance



Filter media for respirator applications are typically exposed to the cyclic flow condition, which is different from the constant flow condition adopted in filter testing standards. To understand the real performance of respirator filter media in the field it is required to investigate the penetration of particles through respirator

filters under cyclic flow conditions representing breathing flow patterns of human beings. This article reports a new testing method for studying the individual effect of breathing frequency (BF) and peak inhalation flow rate (PIFR) on the particle penetration through respirator filter media. The new method includes the use of DMA (Differential Mobility Analyzer)-classified particles having the most penetrating particle size, MPPS (at the constant flowrate of equivalent mean inhalation flow rate, MIFR) as test aerosol. Two condensation particle counters (CPCs) are applied to measure the particle concentrations at the upstream and downstream of test filter media at the same time. Given the 10Hz sampling time of CPCs, close-to-instantaneous particle penetration could be measured. A pilot study was performed to demonstrate the new testing method. It is found that the effect of BF on the particle penetration of test respirator filter media is of importance at all the tested peak inhalation flow rates (PIFRs), which is

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different from those reported in the previous work.

Read more: <http://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20047461&f1=%2A&Sta>

[rtyear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&](http://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20047461&f1=%2A&Sta)

### Noise

#### Army's Smart Earbuds Can Save Soldiers' Hearing

For the past several years, the Army has been developing and deploying a cutting-edge headset called TCAPS, Tactical Communication, and Protective System, designed to protect the hearing of its soldiers. The high-tech hearing protection system can deaden loud noises while also improving ambient sounds that are necessary for situational awareness. The Army developed the headset following a Department of Veterans Affairs report that pinpointed tinnitus and hearing loss as the most common service-related disabilities among veterans. Soldiers typically are issued foam earplugs to protect their hearing, but few wear the ear protection because it blocks all noise, making it difficult to hear commands and listen for both friendly and enemy troop movement. As a result of not wearing earplugs, many soldiers suffer from varying degrees of hearing loss both during and



after their service terms. According to the report, more than \$1.1 billion was paid out for hearing-related injuries in 2009, and this number is expected to continue to rise.

Read more: <http://www.foxnews.com/tech/2016/06/09/armys-smart-earbuds-can-save-soldiers-hearing.html>

#### Improving the Accuracy of Smart Devices to Measure Noise Exposure

Occupational noise exposure is one of the most frequent hazards present in the

workplace; up to 22 million workers have potentially hazardous noise exposures in

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the US. As a result, noise-induced hearing loss is one of the most common occupational injuries in the United States. Workers in manufacturing, construction, and the military are at the highest risk for hearing loss. Despite the large number of people exposed to high levels of noise at work, many occupations have not been adequately evaluated for noise exposure.



The objective of this experiment was to investigate whether or not iOS smartphones and other smart devices (Apple iPhones and iPods) could be used as reliable instruments to measure noise exposures. For this experiment three different types of microphones were tested with a single model of iPod and three generations of iPhones: the internal microphones on the device, a low-end lapel microphone, and a high-end lapel microphone marketed as being compliant with the International Electrotechnical Commission's (IEC)

standard for a Class 2-microphone. All possible combinations of microphones and noise measurement applications were tested in a controlled environment using several different levels of pink noise ranging from 60 to 100 dBA. Results were compared to simultaneous measurements made using a Type 1 sound level measurement system. Analysis of variance and Tukey's honest significant difference (HSD) test were used to determine if the results differed by microphone or noise measurement application. Levels measured with external microphones combined with certain noise measurement applications did not differ significantly from levels measured with the Type 1 sound measurement system. Results showed that it may be possible to use iOS smartphones and smart devices, with specific combinations of measurement applications and calibrated external microphones, to collect reliable, occupational noise exposure data under certain conditions and within the limitations of the device. Further research is needed to determine how these devices compare to traditional noise dosimeter under real-world conditions.

*Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 10 May 2016 (Available with AIHA membership)*

## Preventive Medicine

### Predicting Disease Spread From Animals Improves With New Model

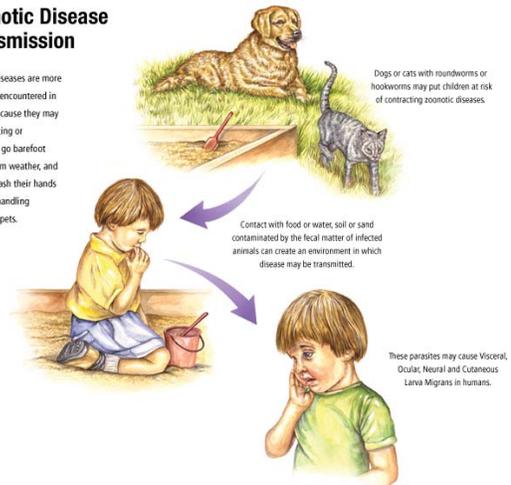
Scientists estimate that 6 out every 10 infectious human diseases are zoonotic - they start in livestock or wildlife and spread to people. Zoonotic diseases can be caused by viruses, bacteria, parasites, and fungi. Many people come into contact with animals in their daily lives. Animals are bred for food and kept in homes as pets. We also come into contact with animals at county fairs and petting zoos, and we can encounter wildlife when out hiking, camping, or clearing woodland.

Read more:

<http://www.medicalnewstoday.com/articles/310936.php>

#### Zoonotic Disease Transmission

Zoonotic diseases are more commonly encountered in children because they may provoke biting or scratching, go barefoot during warm weather, and may not wash their hands following handling household pets.



### Some Viruses Could Survive on Children's Toys for Hours and Cause Infection, Study Finds



Certain viruses, such as influenza, could survive on children's toys long enough to result in exposures, placing children at risk

for getting infectious diseases, according to researchers at Georgia State University. The researchers tested how long an enveloped virus could survive on pieces of a flexible plastic children's toy, a squeaking frog. They were able to recover infectious virions (complete viral particles) from the toy up to 24 hours after the toy's contamination at 60 percent relative humidity, and up to 10 hours at 40 percent relative humidity. These findings show enveloped viruses could survive on toys long enough to result

in exposures. Enveloped viruses have a protective outer layer that may help them survive and infect other cells. Examples of such viruses include influenza and Coronaviruses, such as severe acute respiratory syndrome (SARS) or Middle East Respiratory Syndrome (MERS).

*Read more*

<http://www.medicalnewstoday.com/releases/311228.php>

### **The Hawthorne Effect Hinders Accurate Hand Hygiene Observation, Study Says**

When healthcare providers know they are being watched, they are twice as likely to comply with hand hygiene guidelines. This is in comparison to when healthcare providers do not know someone is watching, according to a new study being presented at the 43rd Annual Conference of the Association for Professionals in Infection Control and Epidemiology (APIC). This phenomenon - called The Hawthorne Effect - impacts the ability to capture accurate human behavior because individuals modify their actions when they know they are being observed.

The infection prevention department at Santa Clara Valley Medical Center in San Jose, California measured the differences in hand hygiene compliance rates when healthcare workers recognized the observers and when they did not. The study found a difference of more than 30 percent in hand hygiene compliance depending on whether or not they recognized the



auditors. "This was not a result that we expected to see," said Nancy Johnson, MSN, CIC, infection prevention manager, Santa Clara Valley Medical Center. Infection preventionists validated the audits conducted by hospital volunteers, which showed no difference in the group's observations.

*Read more:*

<http://www.medicalnewstoday.com/releases/310920.php>

### **ACIP Recommends against Inhaled Flu Vaccine for Next Season**

In an emotional vote sure to shake-up flu immunization plans for the upcoming flu season, federal vaccine advisors

recommended against using the nasal spray vaccine, made by AstraZeneca's MedImmune and sold as FluMist, because

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of problems with vaccine effectiveness over the past three flu seasons.



The vote marks a dramatic turnaround for a version of the vaccine for which health officials have had high hopes. In 2014, the

Advisory Committee on Immunization Practices (ACIP), a group of outside experts that helps guide Centers for Disease Control and Prevention (CDC) vaccine policy, made a preferential recommendation for nasal spray version, also called the live attenuated influenza vaccine (LAIV), because it seemed to provide better protection.

Read more:

<http://www.cidrap.umn.edu/news-perspective/2016/06/acip-recommends-against-inhaled-flu-vaccine-next-season>

### Pilot Study Lays the Groundwork for Future Non-Invasive Diagnosis of Bacterial Infections

The overuse of antibiotics gives harmful bacteria the opportunity to evolve into drug resistant strains that threaten health care. To help tackle the problem, scientists in China have begun a pilot study examining biomarkers exhaled by patients. The team's goal is to develop an efficient (fast, accurate, painless and affordable) test that will assist doctors in prescribing antibiotics only when the treatment is absolutely necessary.

Reporting their first results in *Journal of Breath Research*, the researchers based at Zhejiang University have used benchtop analytical methods as a stepping stone towards developing future diagnostic tools. The group is focusing its initial work on ventilator-associated pneumonia patients in the intensive care unit. Here it is critically



important to differentiate between life-threatening bacterial infection and common colonization to avoid prescribing antibiotics unnecessarily.

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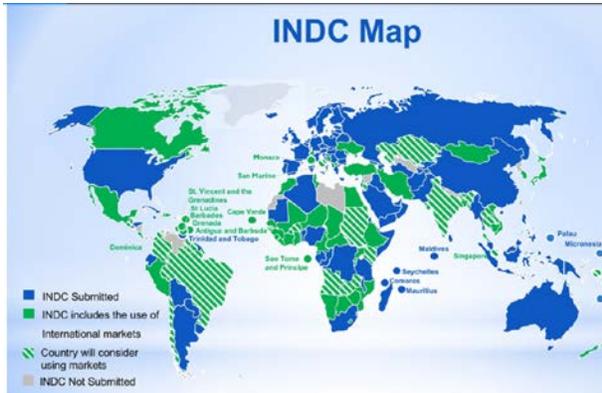
Read more:

<http://www.medicalnewstoday.com/releases>

[es/310829.php](http://www.medicalnewstoday.com/releases)

## Environmental Health

### Hundreds of Cities Commit to Emissions Limits



Cities today host more than half of the Earth's human beings and account for about 70 percent of global energy consumption and greenhouse gas emissions. Now, 228 cities around the world are taking the lead on climate action, setting greenhouse gas reduction goals or targets.

Action in these cities, with a combined population of 439 million people, could ensure that countries meet their Intended

Nationally Determined Contributions (INDCs), the national greenhouse gas reduction pledges embodied in the Paris Climate Agreement.

At the UN's annual climate conference in December 2015 in Paris, 195 countries adopted the world's first universal, legally binding global climate deal.

The agreement sets out a global action plan to limit global warming to well below 2°Celsius compared to pre-industrial levels. World leaders from 175 countries signed the historic accord on April 22, Earth Day. The agreement is due to enter into force in 2020

Read more: <http://enr.com/news/2016/06/09/hundreds-of-cities-commit-to-emissions-limits/>

### DOD Is Recovering Materials, but Several Factors May Hinder Near-Term Expansion of These Efforts

The Defense Logistics Agency (DLA) processes tens of millions of pounds of Department of Defense (DOD) electronic waste annually and recovers some



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materials from this waste, including precious metals and one material—germanium—that is being added to the National Defense Stockpile. DLA contracts with recyclers to handle DOD's electronic waste, a process that includes separating out recyclable materials and disposing of what remains. For more than 30 years, DLA has recovered precious metals from excess and surplus property, including electronic waste, for DOD's Precious Metals Recovery Program. The recovered metals are made available to DOD and other federal government agencies. During fiscal year 2016, DLA began to add germanium, a strategic and critical material recovered

from night vision devices and other items, to the National Defense Stockpile. In December 2015, DLA changed its electronics disposal process and began selling electronic waste directly to recyclers, instead of paying for the processing and recovery of recyclable materials. Based on GAO's analysis and discussions with DLA officials, this new approach will likely reduce the amount of precious metals that DLA recovers but is expected to streamline the process and increase DLA's revenues.

*Read more:*

<http://www.gao.gov/products/GAO-16-576>

### Appalachian Coal Ash Rich in Rare Earth Elements



In the wake of a 2014 coal ash spill into North Carolina's Dan River from a ruptured Duke Energy drainage pipe, the question of

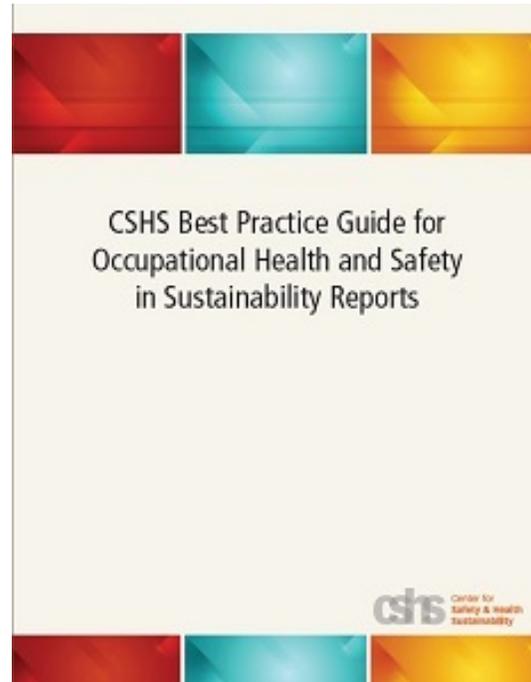
what to do with the nation's aging retention ponds and future coal ash waste has been a highly contested topic. A study of the content of rare earth elements in U.S. coal ashes shows that coal mined from the Appalachian Mountains could be the proverbial golden goose for hard-to-find materials critical to clean energy and other emerging technologies.

*Read more:*

<http://www.homelandsecuritynewswire.com/dr20160531-appalachian-coal-ash-rich-in-rare-earth-elements>

## **New Resource for OSH Professionals Helps Advance Worker Safety and Health through Sustainability**

Over the last several years, businesses have made sustainability a key part of their growth strategy. While most of the focus has been on environmental issues, attention is now turning to other aspects of sustainability, including occupational safety and health. This shift presents new opportunities for OSH professionals to advance the protection of workers. The Center for Safety and Health Sustainability has released a Best Practice Guide for Occupational Health and Safety in Sustainability Reports, which outlines a framework that can be used to incorporate occupational health and safety metrics into sustainability reporting practices. The guide was developed through a collaborative process that included some of the world's largest OSH professional organizations and represents standards of performance which are already accepted, understood, and operationalized by those managing safety and health at work. By using this guide to engage with business leaders OSH professionals can take a critical step in improving occupational safety and health



performance and, ultimately, preventing worker injuries, illnesses and fatalities.

*Read more:*

<https://www.osha.gov/as/opa/quicktakes/qt061516.html> (scroll down)

### ***Ergonomics***

## **Scientists Measure How Baby Bump Changes the Way Women Walk**

Movie sets are normally the home of three-dimensional motion capture systems, but

researchers used the same video recording system in a lab to measure the way

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pregnant women walk. This is the first research study to use 3D motion capture to create a biomechanical model of pregnant women. The results verify the existence of the "pregnancy waddle" and should enable future studies on how to make everyday

tasks safer and more comfortable for pregnant women.

The research team from Hiroshima University studied how pregnant women adjust their movements during daily life, like rising from a chair or changing direction while walking.

Accidental falls cause 10-25 percent of trauma injuries during pregnancy and pregnant women's risk of falling is the same as women who are 70 years old.

*Read more:*

<https://www.sciencedaily.com/releases/2016/06/160627095021.htm>

### Caring for an Aging Spine

Thanks to the Baby Boom generation, a tsunami of aging adults virtually guarantees more Americans over age 65 in coming years than at any point in history. But here's what else it guarantees: more people with aging spines who suffer from back pain, according to Kaliq Chang, MD, of Atlantic Spine Center.

Rates of back pain - experienced by 8 in 10 American adults regardless of age - only increase with advancing years because of the gradual breakdown of bone, joints and muscles. But all is not lost with the passage of time: Older adults can take many effective steps to build their back strength and prevent spine-related pain, explains Dr.



Chang, an interventional pain management specialist.

*Read more:*

<http://www.healthnewsdigest.com/news/aging%20issues0/Caring-for-an-Aging-Spine.shtml>

*Safety*

**Gaming Simulation as Health and Safety Training for Home Healthcare Workers**



Background: The demand for home health care services is rapidly increasing and is driving a need for additional trained home health care professionals (HHPs). HHPs need effective training for managing personal health and safety hazards encountered when providing health care services in the home environment. The purpose of this article was to describe the process used for developing and evaluating an interactive virtual simulation training system (VSTS) to educate HHP. Sample: Sixty-eight HHPs, including nurses, home

health aides, occupational and physical therapists, administrators, and health and safety educators, participated in the study. Methods: A mixed methods design that included an interdisciplinary, participatory design methodology was used to develop a VSTS to train HHP to identify and manage health and safety hazards in the home using a gaming simulation learning approach. Results: This approach has yielded a training package that includes modules addressing electrical and fire hazards; environmental hazards; and lift, slip, and trip hazards routinely encountered by HHP. Conclusions: Participatory methods are a useful and effective way to design a VSTS that is interactive, engaging, and informative.

Read more: <http://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20048092&f1=%2A&Staryear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&>

**Productivity Takes Precedent over Employee Health and Safety, Survey Finds**

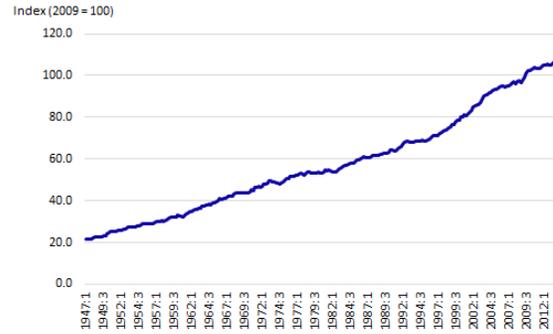
Employees in high-risk industries are choosing productivity over their own health

and safety, according to survey results from the National Safety Council.

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Of the 2,000 employees surveyed across the nation, 60 percent of those in the construction industry and 52 percent from agriculture, forestry, fishing and hunting, felt safety was less of a priority than finishing job-related tasks. Those particular industries are in the top two when it comes to the number of occupational deaths each year. Among all respondents, the number was 33 percent.

Labor productivity in the business sector, first quarter 1947–fourth quarter 2013



Source: U.S. Bureau of Labor Statistics.

Read more: <http://ehstoday.com/safety-leadership/productivity-takes-precedent-over-employee-health-and-safety-survey-finds>

## Nearly Half of Sunscreens Tested Did Not Meet Their SPF Claims



While Consumer Reports urges consumers to use sunscreen, the organization's latest tests show that you may not be as

protected as you think-and it's important to choose the right one. In CR's latest annual tests and ratings of 65 water-resistant lotions, sprays, and sticks with SPF claims of 30 or higher, the organization found that 28 of them-a full 43 percent of the sunscreens tested-tested below their advertised sun protection level. Two of the sunscreens tested, Banana Boat Kids Tear-Free, Sting-Free SPF 50 Lotion and CVS Kids Sun Lotion SPF 50, tested at an SPF 8.

Read more: [http://www.healthnewsdigest.com/news/Research\\_270/Nearly-Half-Of-Sunscreens-Tested-Did-Not-Meet-Their-SPF-Claims.shtml](http://www.healthnewsdigest.com/news/Research_270/Nearly-Half-Of-Sunscreens-Tested-Did-Not-Meet-Their-SPF-Claims.shtml)

## **Hot Stuff: The Cost of On-the-Job Heat-Related Illness & Injuries**

Most people think of heat stroke and heat exhaustion as illnesses that affect outdoor laborers more than indoor workers. However, factory, warehouse and industrial employees are as susceptible to the ravages of high temperatures as outdoor workers. In a confined space, for example, especially with heat-generating equipment and appliances, employees quickly can become exhausted and overheated. Workers wearing personal protective equipment are at an even higher risk for heat-related issues, ...



*Read more:*

<http://ehstoday.com/safety/hot-stuff-cost-job-heat-related-illness-injuries>

## **Transient Smartphone “Blindness”**



Transient monocular vision loss is a common clinical presentation, and the cause is not always thromboembolic.<sup>1</sup> We present two cases in which careful history taking established a benign cause (for the case histories, see the Supplementary Appendix, available with the full text of this letter at NEJM.org).

A 22-year-old woman presented with a several months' history of recurrent impaired vision in the right eye that occurred at night. The results of ophthalmic and cardiovascular examinations were normal. Vitamin A levels and the results of magnetic resonance angiography, echocardiography, and a thrombophilia screening were also normal. The second case involved a 40-year-old woman who presented with a 6-month history of recurrent monocular visual impairment on waking, lasting up to 15 minutes. The results of investigations for a vascular cause were again normal. Aspirin therapy had been commenced.

*Read more:*

[http://www.nejm.org/doi/full/10.1056/NEJMc1514294?query=featured\\_home](http://www.nejm.org/doi/full/10.1056/NEJMc1514294?query=featured_home)

## **Workplace Safety: Shifting from Recordable to Preventable**

### **Injury and Illness Prevention Programs**

*Good for Workers. Good for Businesses. Good for America.*

OSHA's recent rule to modernize injury data collection is a great step towards helping businesses become more proactive in reducing workplace illness and injury. It opens up the data to public scrutiny, and will push some organizations into doing better because of it.

But it's not enough. We all know the best way to improve safety is to have a knowledgeable workforce who can operate equipment safely, work with hazardous

materials properly and knows what to do if something happens on the job. Most companies just record incidents and carry out safety training, but don't really know why safety incidents happen, or how to decrease the numbers. What's missing is the link between whether employees really know what they should do, and whether they can translate their knowledge into job actions that improve safety.

*Read more:* <http://ehstoday.com/safety-leadership/workplace-safety-shifting-recordable-preventable>

## **Planning, Preparation Serve As Best Defense against Flooding**

Here comes the rain! For most of us, we only suffer from wet feet and damp clothes during rainy season. However, a torrential downpour or a slow-moving storm system can create a very dangerous situation for people in low lying areas. Heavy rain can simply overwhelm drainage systems and overflow nearby rivers, lakes and streams.

The Federal Emergency Management Agency reports that in the past five years, all 50 states have experienced flooding. Floods are among the most common and costly natural disasters in the United States. Each year it causes more deaths than any other weather hazard



*Read more:* <https://www.army.mil/article/169775/>

## Emergency Preparedness & Response

### HHS Selects Regional Ebola Treatment Center For Southwestern U.S.



Putting in place the final piece of a regional network to treat patients infected with severe, highly infectious diseases, the U.S. Department of Health and Human Services (HHS) has selected a health department and associated partner hospital to serve the region covering Arizona, California, Hawaii,

Nevada and the Pacific island territories and freely associated states. Following today's selection, there now is a regional Ebola and other special pathogen treatment center designated for each of HHS's 10 regions nationwide.

The California Department of Public Health, in partnership with Cedars-Sinai Medical Center in Los Angeles, has been selected as the regional treatment center covering the final region.

*Read more:*

<http://www.hhs.gov/about/news/2016/06/14/hhs-selects-regional-ebola-treatment-center-southwestern-us.html>

## Deployment Health

### Cotton Candy Machine Inspires Lighter Bullet Proof Vests, and More

It is "boots on the ground" in this Harvard lab where the researchers are on a mission to protect U.S. troops on the battlefield. Researchers are developing next generation nanofibers at the Harvard Materials Research Science and Engineering Center (MRSEC). The researchers draw their inspiration from the cotton candy machine. They use their own version of that technology to spin a wide range of



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polymers, both natural and synthetic, into new fabrics and materials for military use.

[m/dr20160526-cotton-candy-machine-inspires-lighter-bullet-proof-vests-and-more](http://www.army.mil/article/170226/army_training_looks_at_human_dimension)

*Read more:*

<http://www.homelandsecuritynewswire.co>

### Army Training Looks at Human Dimension



During the month of June, nine squads of Soldiers from the 82nd Airborne Division and the 75th Ranger Regiment are participating in an integrated training program at Fort Benning that focuses on human performance enhancement.

The Squad Overmatch Study - Tactical Combat Casualty Care, in its second year as part of the Army Warfighting Assessment, is a result of 2013 and 2014 studies related to reducing post-traumatic stress disorder through training.

But PTSD is not what SOvM-TC3 is addressing directly, said Rob Wolf, assistant program manager from the U.S. Army Program Executive Office for Simulation, Training and Instrumentation in Orlando, Florida.

*Read more:*

[https://www.army.mil/article/170226/army\\_training\\_looks\\_at\\_human\\_dimension](https://www.army.mil/article/170226/army_training_looks_at_human_dimension)

## Nanotechnology

### A Comparison of Control Banding Tools for Nanomaterials

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

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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.

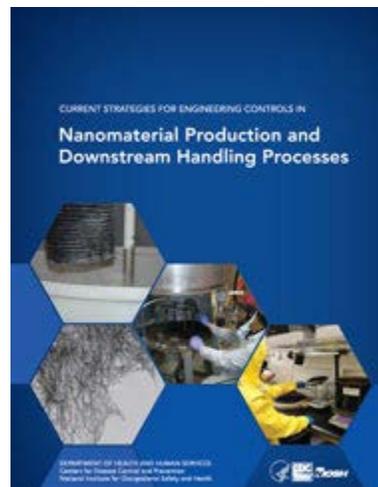
*Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 17 Jun 2016 (Available with AIHA membership)*

### NIOSH Publishes PPOP on Nanotechnology Research Center

On June 15, 2016, the National Institute for Occupational Safety and Health (NIOSH) posted a number of Program Performance One-Pagers (PPOP), including a May 2016 PPOP on the NIOSH Nanotechnology Research Center (NTRC). See <http://www.cdc.gov/niosh/docs/2016-141/pdfs/2016-141.pdf> The PPOP states that the NTRC focuses on increasing understanding of hazards and related health risks to workers who make and use nanomaterials and preventing occupational exposures to nanomaterials.

The PPOP includes the following future NIOSH actions:

- Analyze biomarkers from research studies of nanomaterial workers;
- Publish the first in a series of nanomaterial handling guidance, "Workplace Design Solutions: Protecting Workers during the Handling/Weighing of Nanomaterials";
- Use data on high volume nanomaterials to characterize the size and location of the



nanomaterial workforce; and  
- Complete the draft "Current Intelligence Bulletin: Approaches to Developing Occupational Exposure Limits or Bands for Engineered Nanomaterials."

*Read more: <http://www.nanotech-now.com/columns/?article=1084>*

*Regulatory Research & Industrial Hygiene Professional News*

**DoD**

**Senate Votes to Scale Back Federal Job Preferences for Veterans**

**Difficult-to-Fill Jobs Study**  
Brief Report

Economic Research and Analysis Unit

Congress stepped this week into a sensitive issue that's been quietly roiling the already-challenging hiring system for federal jobs: the Obama administration's high-profile push to give preference to veterans. The Senate version of the vast military policy bill that now heads to conference with the House would knock out one of the advantages veterans enjoy when they apply

for federal work. They would continue to get a leg up over non-veterans to get a foot in the door. But once they're in government and want to be considered for another federal post, they would no longer go to the head of the hiring queue.

*Read more:*

[https://www.washingtonpost.com/news/overpost/wp/2016/06/17/ttkk-veterans/?tid=a\\_inl](https://www.washingtonpost.com/news/overpost/wp/2016/06/17/ttkk-veterans/?tid=a_inl)

**AIHA**

**AIHA Announces SynergistNOW Blog**

**Blogs**

The American Industrial Hygiene Association has rolled out a new blog, the SynergistNOW blog. The blog, according to professional association, has been "created and delivered by the American Industrial Hygiene Association [and] offers ideas, insights, and

perspectives on important topics affecting industrial and occupational hygiene professionals, written by and for experienced IH/OHs, researchers, academics, and AIHA leaders."

The top item on it June 9 was a post from Aaron Trippler, AIHA's veteran government affairs director who is retiring soon, about

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the most recent OSHA regulatory moves and what may happen when a new president takes charge of the White House in January 2017. His title: "If You Think Washington is Unresponsive Now, Just Wait Until January!"

AIHA promises readers will get educational opportunities, discussions, and behind-the-scenes views from a related weekly

newsletter. You do not have to be an AIHA member in order to subscribe.

*Read more:*

<https://ohsonline.com/articles/2016/06/10/aiha-announces-synergistnow-blog.aspx?admgarea=ht.IndustrialHygiene>

### OSHA

## OSHA and NOAA Provide Guidance to Protect Outdoor Workers from Lightning Strikes

OSHA and the National Oceanic and Atmospheric Administration have released a *Lightning Safety When Working Outdoors* Fact Sheet that provides employers and workers with information about lightning hazards and protective measures that can be taken to ensure workers' safety. Often overlooked as an occupational hazard, lightning strikes can severely injure or kill workers in occupations such as construction, logging, utility repair, agriculture, telecommunications, lawn services, airport ground operations, and pool and beach lifeguarding.



*Read more:*

<https://www.osha.gov/as/opa/quicktakes/qt060116.html> (scroll down)

**NIOSH**

**NIOSH's Suggestions to Prevent Robbery-Related Homicides**



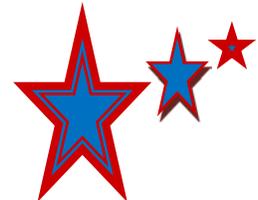
Workers in convenience stores have a seven times higher rate of work-related homicide than workers in other industries, according to the National Institute for Occupational Safety & Health. A recent NIOSH study suggests some steps store owners can take to prevent workplace violence. Robbery-related homicides and assaults are the leading cause of death in the retail industry. In a recent blog entry, NIOSH said

convenience stores that use Crime Prevention Through Environmental Design (CPTED) programs have experienced up to 84% decreases in robberies and a 61% decrease in non-fatal injuries. Back in 2008, a Houston task force led by the mayor, a local convenience store owner and the Houston Police Department instituted a city ordinance that incorporated CPTED to reduce robberies by mandating security measures for store owners. Dallas soon followed suit and passed the same ordinance.

*Read more:*  
<http://www.safetynewsalert.com/nioshs-suggestions-to-prevent-robbery-related-homicides/>

**APHC**

**June DOEHRs-IH SUPER STAR**



Fort Eustis and Aberdeen Proving Ground Industrial Hygiene Program Offices have earned the DOEHRs-IH Super Star by doing an outstanding job identifying in DOEHRs-IH facilities that they are responsible for. Each has a robust shop and location naming convention and has proficiently used the

DOEHRs-IH location tree. IH Program Office data analyzed before March 2016 shows both Fort Eustis and Aberdeen Proving Ground has identified in DOEHRs-IH more than 70% of the facilities on their installations requiring an IH review. These



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program offices follow the DoD Exposure Assessment Model and Army Business

Practices as required by DoDI 6055.5.

## Training

### Upcoming Training

	<p>May 2016</p> <p>May 16-20 DOEHRS-IH Initial Course Bldg 6008 at APG, MD (APG Campus-28 seats)</p> <p>May 31 - DOEHRS-IH June 3 Bldg E1930 at APG, MD (Edgewood Campus- 16 seats)</p>
	<p>June 2016</p> <p>June 20-21 DOEHRS-IH for Safety Professionals Bldg 6008 at APG, MD (APG Campus- 28 seats)</p>
	<p>July 2016</p> <p>July 12 &amp; 13 Manage Your IH Monster Webinar "Taming That Monster - The SEG Bubble"</p> <p>July 25-29 DOEHRS-IH Initial Course - COE ONLY Sacramento, CA</p>
	<p>Aug/Sept 2016</p> <p>Aug 1-5 DOEHRS-IH Initial Course - COE ONLY Bldg 6008 at APG, MD (APG Campus - 28 seats)</p> <p>Sept 13 &amp; 14 Manage Your IH Monster Webinar "De-Mystifying the Metrics"</p>
	<p>Oct/Nov 2016</p> <p>Oct 24-28 DOEHRS-IH Initial Course Bldg 6008 at APG, MD (APG Campus- 28 seats)</p> <p>Nov 1 &amp; 2 Manage Your IH Monster Webinar " All About ANOVA"</p>
	<p>Jan/Mar 2016</p> <p>Jan 11 &amp; 12, 2017 Manage Your IH Monster Webinar " Business Objects at Its Best"</p> <p>Mar 14 &amp; 15, 2017 Manage Your IH Monster Webinar " Mysteries of Medical Surveillance"</p>
	<p>May 2017</p> <p>May 8-12, 2017 Blueprint Reading and Design Review APG, MD (Edgewood Campus-30 seats)</p> <p>May 15-19, 2017 Intermediate Industrial Hygiene Topics Course Phase 2 Dates- Phase 1 open on Blackboard NOW! at APG, MD (Edgewood Campus - 28 seats)</p> <p>May 22-26, 2017 Industrial Ventilation 40hr Course at APG, MD (Edgewood Campus - 28 seats)</p>

# Army Industrial Hygiene News and Regulatory Summary

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



## New Army IH Training Opportunities

- Introduction to Nanomaterials and Occupational Health Course (7 modules/3hr)
- Army DOEHRS-IH Initial Course (Mandatory Training for 0690 & 0640s)
- Intermediate Industrial Hygiene Topics Course
- Don't Be Afraid of the Big Bad Budget!

Self-enroll at <https://aiph-dohs.elic.learn.army.mil>.

We are offering new live DOEHRS-IH webinars titled "Manage Your IH Monster", for topics, dates and times visit

<http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/DOEHRS-IH.aspx>.

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