

## Hazardous Substances

### Special Interest Articles:

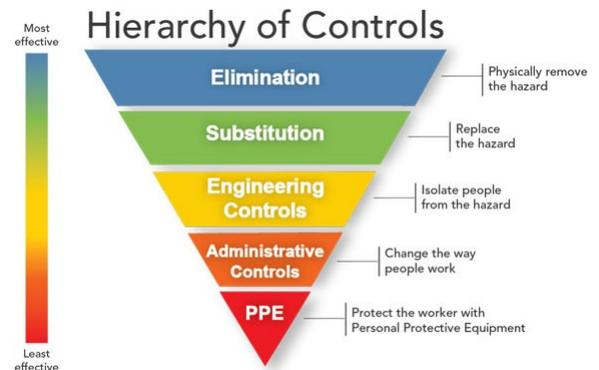
- [Isoflurane](#)
- [Hearing Loss](#)
- [Green  
Mobility](#)
- [Pokémon Go](#)
- [Combat Shirt](#)

DOEHRS Super Star

## NIOSH's Engineering Controls Database

The hierarchy of controls shows us that engineering controls can protect workers by eliminating or reducing hazardous conditions to acceptable exposure levels. The idea behind the hierarchy is that the control methods at the top of the graphic are potentially more effective and protective than those at the bottom. Following the hierarchy of controls can lead to safer systems, where the risk of illness or injury has been substantially reduced. Examples of controls include elimination, substitution, local exhaust ventilation to capture and remove airborne emissions, or machine guards to protect the worker. Well-designed engineering controls can be highly effective in protecting workers. Controls generally do not interfere with worker productivity or personal comfort and make the work easier to perform rather than more difficult. The initial cost of engineering controls can be higher than some other protective methods, but over the longer term, operating costs are frequently lower, and in some instances, can provide a cost

savings. The new NIOSH Engineering Controls Database provides information on effective engineering controls. You can search by occupation or work process to find a solution that may work to control the exposure in your workplace.



Read more:

<http://blogs.cdc.gov/niosh-science-blog/2016/07/20/engineering-controls/>

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## Guidelines for Safe Chemical Segregation

Storage Codes		
<b>R</b>	STORAGE CODE RED	<b>Red.</b> Flammable. Store in area segregated for flammable reagents.
<b>Y</b>	STORAGE CODE YELLOW	<b>Yellow.</b> Reactive and oxidizing reagents. May react violently with air, water or other substances. Store away from flammable and combustible materials.
<b>B</b>	STORAGE CODE BLUE	<b>Blue.</b> Health hazard. Toxic if inhaled, ingested, or absorbed through skin. Store in secure area.
<b>W</b>	STORAGE CODE WHITE	<b>White.</b> Corrosive. May harm skin, eyes, mucous membranes. Store away from red-, yellow-, and blue-coded reagents.
<b>G</b>	STORAGE CODE GRAY	<b>Gray.</b> Presents no more than moderate hazard in any category. For general chemical storage. <span style="color: green;">Green also may be used.</span>
 <b>Exception.</b> When this symbol appears within the storage code bar, the reagent is incompatible with other reagents of same color bar. Store separately.		

### Solving Chemical Incompatibility Issues

Do you realize that improper storage of chemicals accounts for nearly 25 percent of all chemical accidents? <sup>1</sup>

Sadly, all of these are entirely preventable, yet they continue to occur despite the easy availability

of excellent resources just a few mouse clicks away.

### Example of a recent incident: *Oxidizer Solvent Explosion*

*A corrosive storage cabinet under a chemical hood in a university undergraduate laboratory was the site of an early morning explosion. Luckily, no one was standing in front of the hood when the explosion occurred. We believe the explosion resulted from nitric acid (an oxidizer) and an organic solvent being mixed in a closed container.<sup>2</sup>*

Read more:

<http://www.labmanager.com/lab-health-and-safety/2016/07/guidelines-for-safe-chemical-segregation?fw1pk=2#.V5isfzbr2Uk>

## Different People, Different Outcomes: Assessing Genetic Susceptibility to Lead Exposures

Prenatal and early-life exposures to lead have long been known to cause an array of adverse developmental effects in children. <sup>1</sup> However, the variety of responses to lead, even with exposures, suggests that an



individual's genetic background might influence how lead toxicity manifests.<sup>2,3,4</sup> A new study in fruit flies scrutinizes susceptibility on the genetic level and highlights genes that might help shape individual responses.<sup>5</sup>

Read more:

<http://ehp.niehs.nih.gov/124-A131/>

### How Industrial Hygienists Assist in Rail Emergencies

Industrial hygienists are well prepared to perform an important role during the response to a railroad hazardous materials emergency, several experienced experts said during an AIHce 2016 session about rail crude oil spills on May 24. Risk assessment, data analysis, and plan preparation (such as the health and safety plan, respiratory protection plan, and air monitoring plan) are important early in the response to such emergency incidents, and CIHs are equipped to do all of these, they stressed.



[/how-industrial-hygienists-assist-in-rail-emergencies.aspx?admgarea=ht.IndustrialHygiene](#)

Read more:

<https://ohsonline.com/articles/2016/07/01>

### Using ToxCast™ Data to Reconstruct Dynamic Cell State Trajectories and Estimate Toxicological Points of Departure

# ToxCast™

**Background:** High-content imaging (HCI) allows simultaneous measurement of multiple cellular phenotypic changes and is

an important tool for evaluating the biological activity of chemicals.

**Objectives:** Our goal was to analyze dynamic cellular changes using HCI to identify the “tipping point” at which the cells did not show recovery towards a normal phenotypic state.

**Methods:** HCI was used to evaluate the effects of 967 chemicals (in concentrations ranging from 0.4 to 200  $\mu$ M) on HepG2 cells

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over a 72-hr exposure period. The HCI end points included p53, c-Jun, histone H2A.x,  $\alpha$ -tubulin, histone H3, alpha tubulin, mitochondrial membrane potential, mitochondrial mass, cell cycle arrest, nuclear size, and cell number. A computational model was developed to interpret HCI responses as cell-state trajectories.

**Results:** Analysis of cell-state trajectories showed that 336 chemicals produced tipping points and that HepG2 cells were resilient to the effects of 334 chemicals up to the highest concentration (200  $\mu$ M) and duration (72 hr) tested. Tipping points were identified as concentration-dependent transitions in system recovery, and the corresponding critical concentrations were generally between 5 and 15 times (25th and

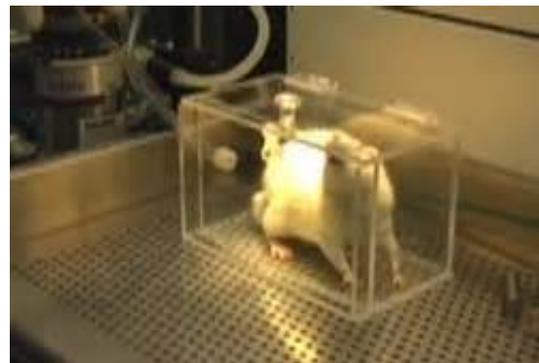
75th percentiles, respectively) lower than the concentration that produced any significant effect on HepG2 cells. The remaining 297 chemicals require more data before they can be placed in either of these categories.

**Conclusions:** These findings show the utility of HCI data for reconstructing cell state trajectories and provide insight into the adaptation and resilience of *in vitro* cellular systems based on tipping points. Cellular tipping points could be used to define a point of departure for risk-based prioritization of environmental chemicals.

Read more: <http://ehp.niehs.nih.gov/14-09029/>

### Evaluation and Control of Isoflurane during Experimental Dental Procedures on Rodents

The purpose of this study was to assess exposures to isoflurane to employees performing an experimental dental procedure on rodents. Isoflurane was used as an anesthetic for rodents during injections and placement of dental apparatus into the mouth. We collected eight full-shift samples using passive badges over a 3-week period. The procedure was performed once a week for approximately 45 minutes each day. Results showed that employees were being exposed to isoflurane above the National Institute for Occupational Safety and Health recommended exposure level for halogenated anesthetic gases of two parts per million. The employer installed a



ventilation system in the procedure room after the initial sampling and results. We collected twelve full-shift samples after the ventilation system was in place. Results showed an approximate 86% decrease in isoflurane concentration.

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Read more: Journal of Occupational and Environmental Hygiene Accepted author

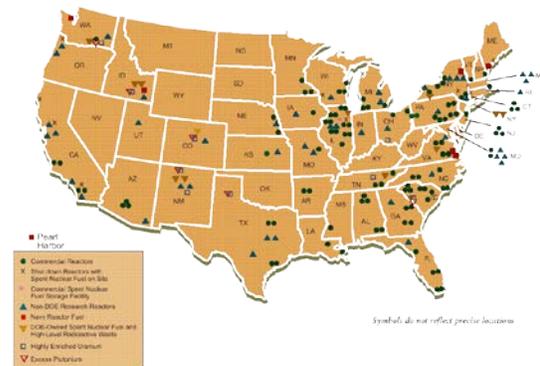
version posted online: 20 Jul 2016

## Radiation

### NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain

The Nuclear Regulatory Commission (NRC) and the 37 states it permits to grant licenses for radioactive materials—called agreement states—have taken several steps since 2007 to help ensure that licenses are granted only to legitimate organizations and that licensees can only obtain such materials in quantities allowed by their licenses. However, NRC and agreement states have not taken some measures to better control some dangerous quantities of radioactive materials. The International Atomic Energy Agency established a system ranking quantities of certain radioactive materials into five categories based on their potential to harm human health, with, in descending order of danger, categories 1, 2, and 3 all considered dangerous.

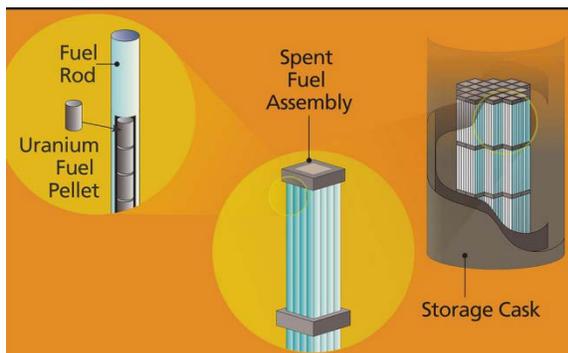
Locations of Spent Nuclear Fuel and High-Level Radioactive Waste Destined for Geologic Disposal



Read more:

<http://www.gao.gov/products/GAO-16-330>

### Studying the Basic Science of Nuclear Waste



Approximately 300 million liters of highly radioactive wastes are stored in hundreds of underground tanks at the Hanford Site in Washington and the Savannah River Site in South Carolina. These wastes are extremely complicated mixtures of salts and sludges that have been exposed to ionizing

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radiation for decades. Their chemistry is dominated by interactions at solid-liquid interfaces that are poorly understood. A more thorough understanding of the chemistry of radioactive waste is key to treating this unwanted byproduct of winning the Second World War and the cold war.

*Read more:*

<http://www.homelandsecuritynewswire.com/dr20160726-studying-the-basic-science-of-nuclear-waste>

### Ventilation

#### Governor Cuomo Announces New Ventilation Standards for Nail Salons

Governor Andrew M. Cuomo announced that new ventilation requirements to protect workers and customers in nail salons statewide will go into effect this October. Nail salon ventilation systems must meet the standard set by the 2015 International Mechanical Code, which contains specific ventilation requirements for nail salons and any other businesses that provide nail services, such as hair salons.



*Read more:*

<http://www.longisland.com/news/07-23-16/cuomo-nail-salon-ventilation-standards.html>

#### NIOSH Evaluation of Aircraft Hangars Identifies Sampling Strategy, Ventilation Improvements



Environmental health and safety managers at a military facility recently requested NIOSH's assistance to characterize airflow inside four aircraft hangars used to maintain, repair, and restore active and historic aircraft. Workers in the hangars apply paints and paint removers on a variety of surfaces using low-pressure spray guns or paint rollers. Others remove old aircraft surface coatings using tools such as

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mechanical or pneumatically-driven sanding equipment, grinders, or scrapers; according to NIOSH, the particulate generated during this removal may contain isocyanates, polyurethanes, solvents, or metals. The health and safety staff assigned to the hangars intended to use the information from NIOSH's evaluation to help them select where to conduct sampling for potential air contaminants so that they could evaluate exposures under worst-case

ventilation conditions. The information would also be useful to identify areas where exposure controls could be necessary.

Read more:

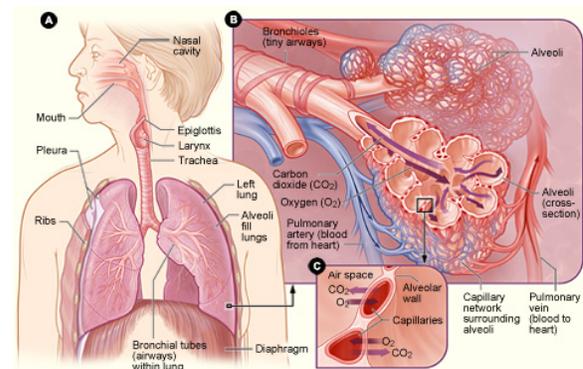
<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/NIOSH-Evaluation-of-Aircraft-Hangars-Identifies-Sampling-Strategy,-Ventilation-Improvements.aspx>

## PPE

### Efficacy of N95 Respirators in Conditions Representative of Human Breathing

Researchers have tested the efficacy of N95 filtering face piece respirators in conditions of constant and cyclical air flow, simulating human breathing, from 42 to 360 L/min. N95 respirators are the personal safety equipment most commonly used in Quebec by industrial and health-care workers to protect themselves against exposure to ultrafine particles (UFPs).

The researchers first examined the impact of breathing frequency and inhalation flow rate on the efficacy of N95 respirators. They then compared the efficacy of N95 respirators in conditions of cyclical air flow with the results for constant air flow. Last, they assessed the impact of the clogging time of the filter on the performance of N95 respirators as a function of relative humidity and air flow (cyclical and constant).

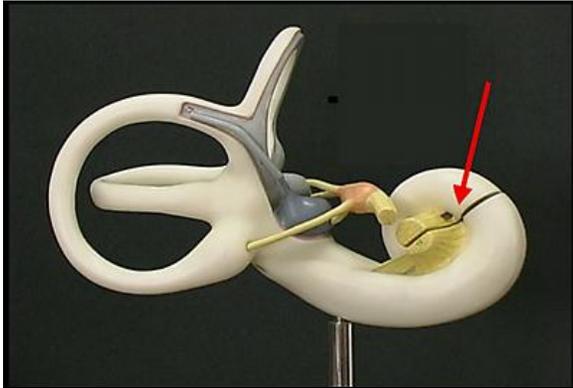


Read more:

<http://www.irsst.qc.ca/en/institute/medias/news-releases/id/353/efficacy-of-n95-respirators-in-conditions-representative-of-human-breathing>

Noise

Human Hearing Loss Could Be Reversible



After a songbird loses its hearing due to physical trauma or loud noise, the sensory hair cells in its inner ear regenerate naturally. The healed bird can use its restored hearing to decode complex songs from other birds. In fact, this ear repair is almost universal in vertebrates. Fish and frogs share it. Only for mammals is hair cell death irreparable.

More than a third of seniors suffer from at least moderate hearing loss, and while hearing aids have improved over the years, no drug currently exists on the market to recover their lost hearing. In the lower vertebrates like fish and birds, those new hair cells arise from the supporting cells of the cochlea's lining. Now, for the first time, scientists are developing methods that could do the same for humans.

Read more:

<http://www.theatlantic.com/health/archive/2016/07/human-hearing-loss-could-be-reversible/491777/>

Can Industrial Chemical Exposure Cause Hearing Loss?

The short answer to the question in the headline is an unequivocal "yes!" There are industrial chemicals in common use that are ototoxic (poisonous to the ears), meaning that they can damage hearing just as easily as industrial noise. However, simultaneous exposure to noise and ototoxic chemicals is particularly insidious because of their synergistic effect.



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In order to illustrate a synergistic relationship, let's suppose a given noise exposure is responsible for a 10-dB threshold shift. Let's also suppose that an ototoxic chemical, by itself, can induce a 10-dB threshold shift. If exposure to the noise and ototoxin together results in a 20-dB threshold shift, then we say the combined effect is additive. A synergistic effect, however, is one in which the combined impact of the noise and ototoxin results in a much greater total threshold shift than would be predicted by simply adding together the noise- and ototoxin-related

threshold shifts—perhaps a 35- or 40-dB threshold shift may occur. Also, such a threshold shift often impacts a wider range of frequencies. Indeed, a synergistic effect is greater than the sum of its parts, and this observation has been borne out by research involving industrial workers.<sup>1</sup>

*Read more:*

<https://ohsonline.com/articles/2016/06/01/can-industrial-chemical-exposure-cause-hearing-loss.aspx>

### Preventive Medicine

#### No Flu Nasal Spray Next Season: Why Is This Vaccine Not Working?



People who prefer to get the nasal spray version of the flu vaccine, as opposed to the flu shot, will be out of luck next season: Health officials say the nasal spray should not be used this coming fall and winter.

The decision was based on new data showing that the nasal spray was not very effective at preventing flu from 2013 to 2016, according to the Centers for Disease Control and Prevention. In fact, last flu season (2015 to 2016), the nasal flu vaccine had no protective benefit for children ages 2 to 17. In contrast, children who got a flu shot were 63 percent less likely to catch the flu than people who weren't vaccinated, the CDC said.

*Read more:*

<http://www.scientificamerican.com/article/no-flu-nasal-spray-next-season-why-is-this-vaccine-not-working/>

## **Smoking Makes Women Vulnerable to Brain Bleeds, Study Finds**

Smokers - especially female smokers - are at much greater risk for bleeding in the lining of the brain, known as subarachnoid hemorrhage, than non-smokers. This is the conclusion of a new study published in the journal *Stroke*.

Subarachnoid hemorrhage is a form of stroke characterized by bleeding in the subarachnoid region of the brain - the area between the brain the tissues that cover it. While subarachnoid hemorrhage is rare, accounting for around 3 percent of all strokes, it can have serious consequences, causing paralysis, coma, and death.



*Read more*

<http://www.medicalnewstoday.com/articles/311790.php>

## **Alcohol Causes 7 Types of Cancer, New Analysis Confirms**



Alcohol can cause at least seven types of cancer, according to research analysis.

Those who drink — especially those who drink a lot — are at risk for oropharynx (located at the top of your throat), larynx, oesophagus, liver, colon, rectum and female breast cancers, according to a review in the *Addiction* journal from the Society for the Study of Addiction.

*Read more:*

<http://www.deseretnews.com/article/865658653/Alcohol-causes-7-types-of-cancer-new-analysis-says.html?pg=all>

## Quickcards Offer Guidance on Protecting Outdoor Workers from Zika Virus

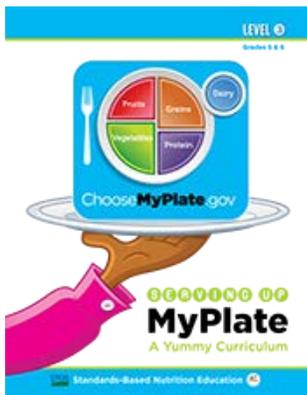
Outdoor workers may be at the greatest risk of exposure to Zika virus in areas where mosquitoes—the main route of transmission—are spreading the disease. OSHA's new QuickCards, available in English and Spanish, provide information for workers about how to protect themselves from mosquito bites when working outside. The QuickCards offer tips on wearing clothing to cover skin, and using insect repellent on exposed skin. The new guidance also links to the most up-to-date information on Zika from the Centers for Disease Control and Prevention, such as potential health outcomes and reproductive effects.



*Read more:*

<https://osha.gov/as/opa/quicktakes/qt071516.html> (scroll down)

## The Best Packed Lunch for Work



Workplace wellness programs are now available at about half of U.S. employers with 50 or more employees, according to a 2013 RAND Health study sponsored by the U.S.

Department of Labor and the U.S. Department of Health and Human Services. Wellness programs not only extend to keeping employees active such as lunchtime

walking programs but encourage healthy eating habits as well. The 2010 Dietary Guidelines from the U.S. Department of Health and Human Services state a healthy eating regimen "limits intake of sodium, solid fats, added sugars, and refined grains and emphasizes nutrient-dense foods and beverages."

*Read more:*

[http://m.ehstoday.com/health/best-packed-lunch-work-photo-gallery#slide-5-field\\_images-49081](http://m.ehstoday.com/health/best-packed-lunch-work-photo-gallery#slide-5-field_images-49081)

## **Low Physical Capacity Second Only to Smoking as Highest Death Risk**

A 45 year study in middle-aged men has shown that the impact of low physical capacity on risk of death is second only to smoking. The research is published today in the *European Journal of Preventive Cardiology*.

"The benefits of being physically active over a lifetime are clear," said lead author Dr Per Lادنvall, a researcher in the Department

of Molecular and Clinical Medicine, Sahlgrenska Academy at University of Gothenburg, Sweden. "Low physical capacity is a greater risk for death than high blood pressure or high cholesterol."

*Read more:*

<https://www.sciencedaily.com/releases/2016/07/160726221146.htm>

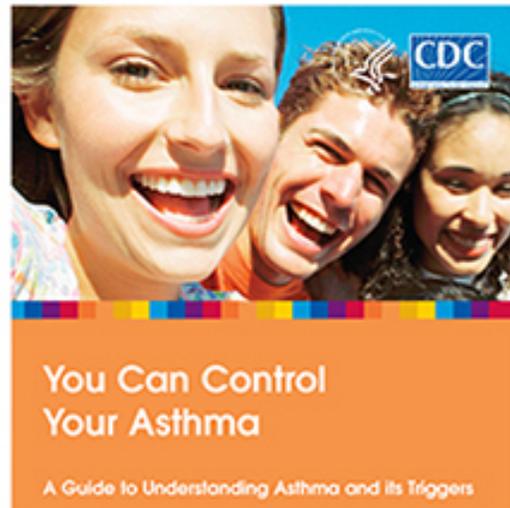
## ***Environmental Health***

### **Fossil Fuel Combustion Endangers Children's Health in Two Significant Ways: Scientist Reviews the Evidence**

Writing in a commentary in *Environmental Health Perspectives*, Frederica Perera, director of the Columbia Center for Children's Environmental Health (CCCEH), identifies fossil fuel combustion and associated air pollution and carbon dioxide (CO<sub>2</sub>) as the root cause of much of the ill health of children today. Because of their inherent biological vulnerability, children now bear a disproportionate burden of disease from both pollution and climate change.

*Read more:*

<https://www.sciencedaily.com/releases/2016/06/160621091033.htm>



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## Energy Department Invests \$19 Million to Improve Efficiency of Nation's Buildings



The Energy Department announced today it is investing \$19 million to improve the efficiency of our nation's homes, offices, schools, hospitals, restaurants and stores. These projects will develop advanced building technologies that will help American consumers and businesses save money on their utility bills, reduce greenhouse gas emissions, and create jobs.

Buildings are the largest energy consumer in the nation—accounting for more than 40 percent of the nation's total energy demand and greenhouse emissions, and resulting in an annual energy bill totaling \$430 billion. On average, nearly a third of this energy is wasted. It's estimated that if the U.S. reduced energy use in buildings by 20 percent, the nation could save nearly \$80 billion annually on energy bills

*Read more:*

<http://energy.gov/articles/energy-department-invests-19-million-improve-efficiency-nation-s-buildings>

## North American Leaders Pledge Green Mobility Future

The leaders of the United States, Canada, and Mexico met at the North American Leaders Summit where they set an historic goal – to generate 50 percent clean power across North America by 2025. They intend to achieve this through a combination of renewable energy, nuclear power, power plants using carbon capture and storage, and cutting energy waste through efficiency. There will be greater cooperation on permitting new transmission lines, commitments to procure clean energy for federal facilities, and cutting waste through increased efficiency.



*Read more:*

<http://enr.com/news/2016/06/30/north-american-leaders-pledge-green-mobility-future/>

## Ergonomics

### Most Americans Experience Digital Eye Strain from Overexposure to Computers



The average U.S. worker spends seven hours a day on the computer either in the office or working from home and the American Optometric Association's (AOA) American Eye-Q® survey reports that 58 percent of adults have experienced digital

eye strain or vision problems as a direct result.

Symptoms of digital eye strain, also known as computer vision syndrome, include eyestrain, headaches, blurred vision, dry eyes and neck and shoulder pain. The AOA recognizes the need to address this issue, encouraging both employees and employers to make eye health a priority. The five tips below easily can be implemented in most office spaces:

Read more: <http://ehstoday.com/eye-face-head/most-americans-experience-digital-eye-strain-overexposure-computers>

## Safety

### OPM to Agencies: Let Feds Telework to Avoid Heat

It is really hot out. Oppressively, dangerously hot, and excessive heat warnings are in effect across the country. The Office of Personnel Management wants to make sure federal employees stay safe, and this summer that could mean staying at home and in the air conditioning. OPM encouraged agencies to approve telework and flexible work schedules when the weather reaches levels that create poor



air quality. The human resources agency said if agencies allow it, employees can

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adjust their schedules so they avoid travel during the hottest parts of the day. Employees can also take vacation days, OPM said.

Read more: <http://www.govexec.com/pay-benefits/2016/07/opm-agencies-let-feds-telework-avoid-heat/130146/>

## Are You Prepared for the Top 5 Laboratory Hazards?



### 1. Fire/Explosions

In a laboratory, all chemicals and liquids should be treated as if they are as potent as gasoline. Vapors can travel long distances and may ignite if they reach a flame or spark. Be sure to keep a fire extinguisher on hand and ensure each individual in the laboratory knows its exact location to prevent fires from spreading. The

appropriate personal protective equipment (PPE), like a flame-resistant (FR) lab coat, should also be worn.

### 2. Thermal and Chemical Burns

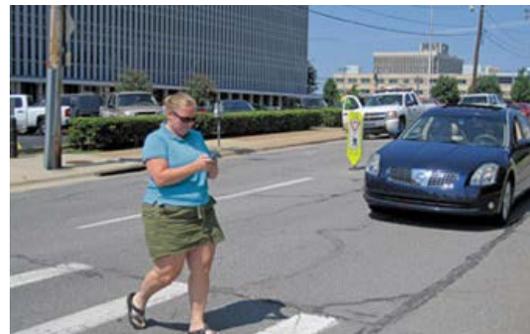
Many chemicals, both organic and inorganic, may be flammable or corrosive to the skin and eyes. It is important to exercise caution with chemicals to prevent spills and splashes. Additionally, the correct PPE always should be worn, such as lab coats that offer both FR properties and chemical-splash protection (CP).

Read more:

<http://ehstoday.com/protective-clothing/are-you-prepared-top-5-laboratory-hazards>

## NYPD Shares *Pokémon Go* Safety Tips

The New York City Police Department is channeling Officer Jenny, offering safety tips for *Pokémon Go* players of all ages. After reports of *Pokémon Go* players being lured to fake Pokéstops to be robbed, as well as general accidents when focusing on the app instead of the real world, NYPD's Community Affairs Bureau on Wednesday shared its own set of safety tips.



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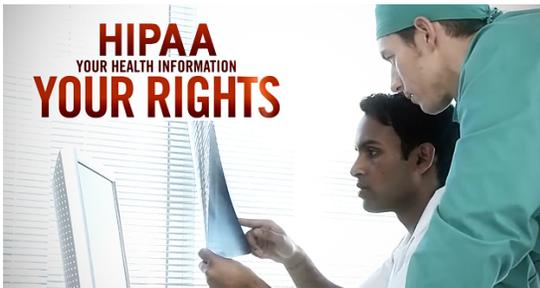
The tips include playing in groups or pairs, avoiding bike and skateboard-riding while looking at the game, and reminding children of “stranger danger,” as Pokéstops draw individuals of all ages to a location. NYPD also addresses the Google account issue, now fixed by *Pokémon Go* creators Niantic Labs, which posed an additional threat of

online information being available to anonymous parties.

*Read more:*

<http://www.ew.com/article/2016/07/13/ny-pd-acts-officer-jenny-sharing-pokemon-go-safety-tips>

## Health Gadgets and Apps Outpace Privacy Protections, Report Finds



The federal patient privacy law known as HIPAA has not kept pace with wearable fitness trackers, mobile health apps and online patient communities, leaving a gaping hole in regulations that needs to be filled, according to a much-delayed government report.

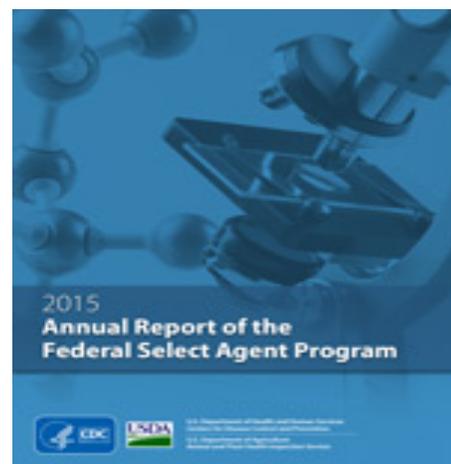
The report, which was supposed to be complete in 2010, does not include specific recommendations for fixing the problem, even though Congress asked the U.S. Department of Health and Human Services to provide them.

*Read more:*

<http://www.scientificamerican.com/article/health-gadgets-and-apps-outpace-privacy-protections-report-finds/>

## 2015 Annual Report of the Federal Select Agent Program

The 2015 Annual Report of the Federal Select Agent Program, released in June 2016, summarizes 2015 data for the Federal Select Agent Program (FSAP), which regulates the possession, use and transfer of biological select agents and toxins so that important work with potentially dangerous and deadly pathogens is conducted as safely and securely as possible. This program is a partnership between CDC and USDA.



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Our activities include registering and inspecting labs where select agents are handled, conducting security checks on workers who are trusted with these organisms, and making sure that materials are transferred safely from one lab to another.

This first annual report is part of the program's ongoing commitment to increasing transparency and understanding of the program. The data in the report

provide insight into work conducted with biological select agents and toxins at laboratories across the nation, as well as the how the program provides regulation and oversight of these labs.

*Read more:*

<http://www.selectagents.gov/annualreport2015.html>

### Electromagnetic Fields Could Be Used In Tsunami Early Warning



Could electromagnetic (EM) fields be used in tsunami early warning? New research shows that important focal parameters of tsunamigenic earthquakes — particularly

fault dip direction — can be extracted from tsunami-borne EM fields.

“It’s been five years since we discovered that tsunamis generate EM fields,” says Hiroaki Toh, who led the Kyoto University study. “We’ve now demonstrated that tsunami-generated EM fields are a reliable and useful source of information for seismology,”

*Read more:*

<http://www.homelandsecuritynewswire.com/dr20160708-electromagnetic-fields-could-be-used-in-tsunami-early-warning>

### Looking For Ways to Predict Response to Hurricane Evacuation Orders

Millions of people will likely be in harm's way as a new hurricane season unfolds in the United States. The National Oceanic and Atmospheric Administration predicts up to eight hurricanes in the 2016 season, and as many as four major storms with winds of 111 miles per hour or more. What people do — or do not do — to get out of harm's way



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is of keen interest to disaster and emergency response officials. Plans and contingencies work best when they are based on reliable predictions.

*Read more:*

<http://www.homelandsecuritynewswire.com/dr20160628-looking-for-ways-to-predict-response-to-hurricane-evacuation-orders>

### Emergency Preparedness & Response

#### New Method Helps Identify Chemical Warfare Agents



Chemical warfare agents are powerful noxious chemicals that have been used as weapons of mass destruction. Finding trace amounts of a chemical warfare agent in a sample can be challenging, especially if the

agent and the liquid it is in are both water-repellant, which is often the case. A new method for extracting, enriching, and identifying chemical warfare agents from oils and other organic liquids could help government officials and homeland security protect civilians more effectively from their deadly effects. The method uses nanoparticles to capture the chemicals.

*Read more:*

<http://www.homelandsecuritynewswire.com/dr20160714-new-method-helps-identify-chemical-warfare-agents>

### Deployment Health

#### Using Gels for Biological Decontamination

Removing chemical, biological, radiological, and toxic contaminants from a range of surface types could be as easy as peeling off a sticker thanks to research conducted by scientists at the U.S. Army's Edgewood Chemical Biological Center (ECBC) and industry partner CBI Polymer. The researchers explored how a HydroGel can



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be modified to decontaminate surfaces contaminated with biological agents.

[m/dr20160720-using-gels-for-biological-decontamination](http://www.dhs.gov/xlibrary/assets/20160720-using-gels-for-biological-decontamination)

Read more:

<http://www.homelandsecuritynewswire.com>

### Army Engineer Invents Lightweight Ballistic Combat Shirt, Wins Award



When Army engineer Robert DiLalla set out to develop a new design for Soldier protection, he knew he had to break the mold.

The result of his revolutionary approach, which focuses on the Soldier as an athlete, is the game-changing, Ballistic Combat Shirt, a new lightweight body armor system. "We set out with this science and technology effort to meet the needs of high-performance athletes, which is what Soldiers are," said Dilalla, the team leader of the Infantry Combat Equipment Team at the Natick Soldier Research, Development and Engineering Center.

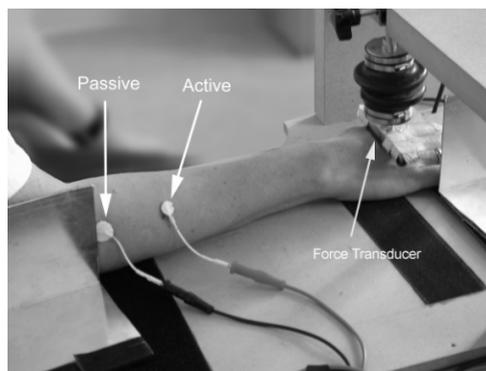
Read more:

[https://www.army.mil/article/171752/army\\_engineer\\_invents\\_lightweight\\_ballistic\\_combat\\_shirt\\_wins\\_award](https://www.army.mil/article/171752/army_engineer_invents_lightweight_ballistic_combat_shirt_wins_award)

## Nanotechnology

### Sustainable Sensors to Detect, Predict Muscle Fatigue

It may be clammy and inconvenient, but human sweat has at least one positive characteristic - it can give insight to what's happening inside your body. A new study published in the *ECS Journal of Solid State Science and Technology* aims to take advantage of sweat's trove of medical information through the development of a



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sustainable, wearable sensor to detect lactate levels in your perspiration

Read more:

[http://www.eurekalert.org/pub\\_releases/2016-07/tes-sst072816.php](http://www.eurekalert.org/pub_releases/2016-07/tes-sst072816.php)

## Regulatory Research & Industrial Hygiene Professional News

### CSB

#### CSB Adds Emergency Planning and Response to Most Wanted Safety Improvement Program



The U.S. Chemical Safety Board (CSB) formally announced that “Emergency

Planning and Response” is the Board’s newest “Most Wanted Safety Improvement”, concluding that inadequate or poor emergency planning or response is a recurring finding in the CSB’s investigations.

Read more: <http://www.csb.gov/csb-adds-emergency-planning-and-response-to-most-wanted-safety-improvement-program/>

### AIHA

#### An Excellent Barrier: Measuring Skin Health in Dermal Exposure

In the world of occupational exposure assessments, dermal exposures are often overlooked, but as IH/OH professionals are turning to examine what may be on our skin, they’re also taking a closer look at the skin we’re in – specifically skin’s hydration and health and how those factors may impact exposure. The study and



measurement of skin hydration is new to

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workplace safety, and the early findings and methods are fascinating. -

<https://www.aiha.org/publications-and-resources/TheSynergist/SynergistNow/Lists/Posts/Post.aspx?ID=20>

*Read more:*

**OSHA**

## OSHA Penalties to Be Adjusted For Inflation after August 1

Maximum penalties for OSHA violations are set to increase for the first time since 1990 as part of overall federal penalty adjustments mandated by Congress last year. The increases were announced Thursday by the Department of Labor, which issued two interim rules covering penalty adjustments for several DOL agencies, including OSHA, the Mine Safety and Health Administration and Wage and Hour Division.

OSHA's new penalty levels will take effect after Aug. 1, when the maximum penalty for serious violations will rise from \$7,000

to \$12,471. The maximum penalty for willful or repeated violations will increase from \$70,000 to \$124,709. Any citations issued by OSHA after Aug. 1 will be subject to the new penalties if the related violations occurred after November 2, 2015. OSHA will provide guidance to field staff on the implementation of the new penalties by Aug. 1.

*Read more:*

<https://osha.gov/as/opa/quicktakes/qt070116.html>

## Answers to Common Questions on OSHA's Forklift Standard



OSHA powered industrial truck (PIT) standard, 1910.178, is one of the more

commonly cited standards for general industry.

It should come as no surprise that employers often don't understand what is required under this standard. While the standard does a good job at specifying many safeguards and procedures, it leaves many questions. Many of the questions involve operator training.

*Read more:*

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<http://www.bizjournals.com/wichita/how-to/human-resources/2016/07/questions->

[on-osa-forklift-standard.html](http://www.bizjournals.com/wichita/how-to/human-resources/2016/07/questions-on-osa-forklift-standard.html)

## NIOSH

### Certain Professions at Higher Risk for Airway Obstructions, NIOSH Finds

Investigators at NIOSH recently pinpointed which professions put workers at greater risk for airways obstructions and lung diseases such as asthma or chronic obstructive pulmonary disease (COPD). Data from these findings was pulled from the 2007 to 2008 National Health and Nutrition Examination Survey (NHANES). The nationwide survey included 4,172 working adults between the ages of 18 and 79 years, who voluntarily provided results of a test, called spirometry, which measures the ability to blow air out of the lungs. Nearly half of participants were female, and 47% were white, 20% were black, and 18% were Mexican American, according to NIOSH.



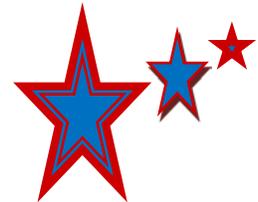
Read more:

<http://m.ehstoday.com/health/certain-professions-higher-risk-airway-obstructions-niosh-finds>

## APHC

### July DOEHS-IH SUPER STAR

Public Health Command Europe has earned the DOEHS-IH Super Star by doing an outstanding job implementing a practical naming convention for their ventilation systems. It helps personnel identify controls and better manage ventilation surveys in DOEHS-IH. Their ventilation naming convention has immensely improved



USACE's Sacramento DOEHS-IH Course Participants

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documentation and assists the IH Program with contractor support planning. The other Super Star goes to the US Army Corps of Engineers for its giant leap into implementing DOEHS-IH throughout the organization.

USACE is currently sponsoring DOEHS-IH training across the country for their personnel at their districts.

## Training

### Upcoming Training

	<p>Aug/Sept 2016</p> <p>Aug 1-5 DOEHS-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 DOEHS-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 DOEHS-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 DOEHS-IH webinars titled "Manage Your IH Monster ", for topics, dates and times visit

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

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