

## Hazardous Substances

### Cops and Loggers among Higher Risk Occupations for Prostate Cancer: Study

Policing and logging may be some of the highest-risk careers for prostate cancer, according to new research that also found a higher risk of aggressive tumours in bus and truck drivers — possibly because of the “whole body vibration” phenomenon. The study, which involved nearly 2,000 men in Montreal’s French-speaking hospitals is one of the largest exploring possible links between occupation and the most frequently diagnosed cancer among Canadian men.

Studies dating back to the 1980s have shown farmers have a higher-than-normal risk of dying from this cancer. However, other attempts have been “inconsistent or inconclusive,” and few job-based studies have taken into account the aggressiveness of the cancer when it was diagnosed, the team reports in the most recent issue of Environmental Health.

The new study involved 1,937 men aged 75 and younger newly diagnosed in 2005 -09, and a similar number of age-matched, healthy

men randomly selected from electoral lists.



Read more:

[http://news.nationalpost.com/health/cops-and-loggers-among-higher-risk-occupations-for-prostate-cancer-study?\\_lsa=cc54-6e0f](http://news.nationalpost.com/health/cops-and-loggers-among-higher-risk-occupations-for-prostate-cancer-study?_lsa=cc54-6e0f)

#### Special Interest Articles:

- [Skin Sensitization](#)
- [PPE for Women](#)
- [Indoor Dust](#)
- [Cold Weather](#)
- [Mobile Apps](#)

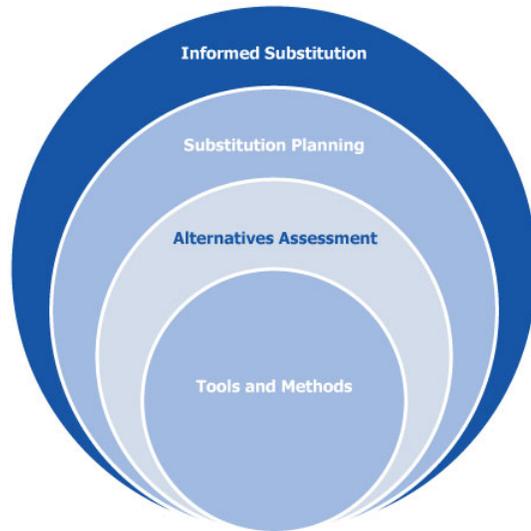
DOEHRS Super Star

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## A Chemical–Biological Similarity-Based Grouping of Complex Substances as a Prototype Approach for Evaluating Chemical Alternatives



Comparative assessment of potential human health impacts is a critical step in evaluating both chemical alternatives and existing products on the market. Most alternatives assessments are conducted on a chemical-by-chemical basis and it is seldom acknowledged that humans are exposed to complex products, not individual substances. Indeed, substances of Unknown or Variable composition, Complex reaction products, and Biological materials (UVCBs) are ubiquitous in commerce yet they present a major challenge for registration and health assessments. Here, we

present a comprehensive experimental and computational approach to categorize UVCBs according to global similarities in their bioactivity using a suite of *in vitro* models. We used petroleum substances, an important group of UVCBs which are grouped for regulatory approval and read-across primarily on physico-chemical properties and the manufacturing process, and only partially based on toxicity data, as a case study. We exposed induced pluripotent stem cell-derived cardiomyocytes and hepatocytes to DMSO-soluble extracts of 21 petroleum substances from five product groups. Concentration-response data from high-content imaging in cardiomyocytes and hepatocytes, as well as targeted high-throughput transcriptomic analysis of the hepatocytes, revealed distinct groups of petroleum substances. Data integration showed that bioactivity profiling affords clustering of petroleum substances in a manner similar to the manufacturing process-based categories. Moreover, we



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observed a high degree of correlation between bioactivity profiles and physico-chemical properties, as well as improved groupings when chemical and biological data were combined. Altogether, we demonstrate how novel *in vitro* screening approaches can be effectively utilized in combination with physico-chemical characteristics to group complex substances and

enable read-across. This approach allows for rapid and scientifically-informed evaluation of health impacts of both existing substances and their chemical alternatives.

*Read more:*

<http://pubs.rsc.org/en/content/articlelanding/2016/gc/c6gc01147k#!divAbstract>

### Fact Sheets Address Asthma in Baking, Dental Hygiene, Other Professions

New fact sheets published by IRSST, a nonprofit scientific research organization in Quebec, Canada, discuss how to prevent asthma in the workplace in six different professions: baking and pastry-making, carpentry and joinery, dental hygiene, plastering, animal health, and plumbing and heating. Each fact sheet provides information on the chemical hazards specific to each industry, examples of potentially harmful products and substances, and how to control exposures. For example, bakery and pastry workers may inhale irritant or sensitizing dusts or mists or their skin may come into contact with irritant or sensitizing substances as they weigh and add ingredients, process dough, and clean equipment and work surfaces. Certain products used by dental hygienists such as filling materials, materials

for impressions, plaster products, antiseptic cleaner, and latex gloves may also lead to health risks.

Separate sections in the fact sheets list basic information to help employers and workers choose a respirator to suit the intensity of dust and vapor to which they are exposed. Additional information on other health and safety risks related to the different professions is also included in the fact sheets.

*Read more:*

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/Fact-Sheets-Address-Asthma-in-Baking,-Dental-Hygiene,-Other-Professions.aspx>

## Seven Substances Added to 14th Report on Carcinogens

Newly reviewed substances		
Substance	Listing Status	Description
Human immunodeficiency virus type 1 (HIV-1)	Known to be a human carcinogen	Virus
Human T-cell lymphotropic virus type 1 (HTLV-1)	Known to be a human carcinogen	Virus
Epstein-Barr virus (EBV)	Known to be a human carcinogen	Virus
Kaposi sarcoma-associated herpesvirus (KSHV)	Known to be a human carcinogen	Virus
Merkel cell polyomavirus (MCV)	Known to be a human carcinogen	Virus
Trichloroethylene (TCE)	Known to be a human carcinogen	Industrial solvent
Cobalt and cobalt compounds that release cobalt ions in vivo	Reasonably anticipated to be a human carcinogen	A metal and its compounds

Five viruses, a chemical, and a metallic element listed in new HHS report

Today's release of the U.S. Department of Health and Human Services 14th Report on Carcinogens includes seven newly reviewed substances, bringing the cumulative total to 248 listings.

The chemical trichloroethylene (TCE), and the metallic element cobalt and cobalt compounds that release cobalt ions in vivo, are being added to the list, as well as five viruses that have been linked to cancer in humans. The five viruses include human immunodeficiency virus type 1, human T-cell lymphotropic virus type 1, Epstein-Barr virus, Kaposi sarcoma-associated herpesvirus, and Merkel cell polyomavirus.

*Read more:*

<http://www.niehs.nih.gov/news/newsroom/releases/2016/november3/index.cfm>

## Integrated Decision Strategies for Skin Sensitization Hazard

One of the top priorities of the Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM) is the identification and evaluation of non-animal alternatives for skin sensitization testing. Although skin sensitization is a complex process, the key biological events of the process have been well characterized in an adverse outcome pathway (AOP) proposed by the Organisation for Economic Co-operation and Development (OECD). Accordingly, ICCVAM is working to develop integrated decision strategies based on the AOP using in vitro, in chemico and in silico information.



Data were compiled for 120 substances tested in the murine local lymph node assay (LLNA), direct peptide reactivity assay (DPRA), human cell line activation test (h-CLAT) and KeratinoSens assay. Data for six

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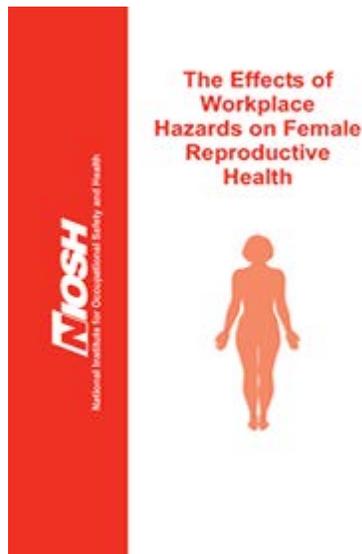
physicochemical properties, which may affect skin penetration, were also collected, and skin sensitization read-across predictions were performed using OECD QSAR Toolbox. All data were combined into a variety of potential integrated decision strategies to predict LLNA outcomes using a training set of 94 substances and an external test set of 26 substances. Fifty-four models were built using multiple combinations of machine learning approaches and predictor variables. The seven models with the highest accuracy (89-96% for the test set and 96-99% for the training set) for predicting LLNA outcomes used a support vector machine (SVM) approach with different combinations of predictor variables. The performance

statistics of the SVM models were higher than any of the non-animal tests alone and higher than simple test battery approaches using these methods. These data suggest that computational approaches are promising tools to effectively integrate data sources to identify potential skin sensitizers without animal testing. Published 2016. This article has been contributed to by US Government employees and their work is in the public domain in the USA.

*Read more:*

<https://www.ncbi.nlm.nih.gov/pubmed/26851134>

### Occupational Exposure to Endocrine-Disrupting Chemicals and Birth Weight and Length of Gestation: A European Meta-Analysis



Background: Women of reproductive age can be exposed to endocrine-disrupting

chemicals (EDCs) at work, and exposure to EDCs in pregnancy may affect fetal growth.

Objectives: We assessed whether maternal occupational exposure to EDCs during pregnancy as classified by application of a job exposure matrix was associated with birth weight, term low birth weight (LBW), length of gestation, and preterm delivery.

Methods: Using individual participant data from 133,957 mother-child pairs in 13 European cohorts spanning births from 1994 through 2011, we linked maternal job titles with exposure to 10 EDC groups as assessed through a job exposure matrix. For each group, we combined the two levels of

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exposure categories (possible and probable) and compared birth outcomes with the unexposed group (exposure unlikely). We performed meta-analyses of cohort-specific estimates.

Results: Eleven percent of pregnant women were classified as exposed to EDCs at work during pregnancy, based on job title. Classification of exposure to one or more EDC group was associated with an increased risk of term LBW [odds ratio (OR) = 1.25; 95% CI: 1.04, 1.49], as were most specific EDC groups; this association was consistent across cohorts. Further, the risk increased with increasing number of EDC groups (OR = 2.11; 95% CI: 1.10, 4.06 for exposure to four

or more EDC groups). There were few associations ( $p < 0.05$ ) with the other outcomes; women holding job titles classified as exposed to bisphenol A or brominated flame retardants were at higher risk for longer length of gestation.

Conclusion: Results from our large population-based birth cohort design indicate that employment during pregnancy in occupations classified as possibly or probably exposed to EDCs was associated with an increased risk of term LBW.

*Read more:*

<http://ehp.niehs.nih.gov/EHP208/>

## New Guide Will Help Small Businesses Comply With OSHA's Silica Rule for Construction

OSHA has released a Small Entity Compliance Guide for Construction that is intended to help small business employers comply with the agency's Final Rule to Protect Workers from Exposure to Respirable Crystalline Silica. The guide describes in easy-to-understand language the steps that employers are required to take to protect employees in construction from the hazards associated with silica exposure. All covered must: provide respiratory protection when required; restrict silica exposure from housekeeping practices where feasible; implement a written exposure control plan; offer medical exams to workers who will need to wear a respirator for 30 or more days a year; communicate hazards and train employees; and keep records of medical examinations.



Enforcement of the final rule in construction is due to begin June 23, 2017.

Read more:

<https://www.osha.gov/as/opa/quicktakes/g>

[t111516.html](https://www.osha.gov/as/opa/quicktakes/g)

## Radiation

### Global Dialogue Discussion Paper: Strengthening the Security of Radiological Sources



Today, there are tens of thousands of radioactive sources used worldwide throughout medicine, industry, agriculture, academia, and government facilities for a variety of purposes, stored in thousands of facilities—many of which are poorly secured and vulnerable to theft. These sources pose a serious threat and could be readily employed for use in a dirty bomb.

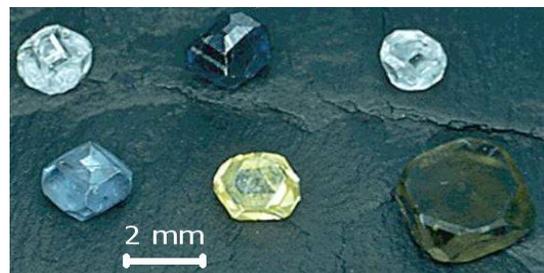
Radiological terrorism is an increasing threat and states as well as the private sector must do more to secure these dangerous materials and keep them out of the hands of terrorists. A dirty bomb detonated in a major metropolitan area could result in economic losses in the billions of dollars as a result of evacuations, relocations, cleanup, and lost wages. In addition, panic and psychological impacts may contribute to the impact of a dirty bomb.

Read more:

<http://www.nti.org/analysis/articles/global-dialogue-discussion-paper-strengthening-security-radiological-sources/>

### Diamonds Turn Nuclear Waste into Nuclear Batteries

One problem with dealing with nuclear waste is that it's often hard to tell what's waste and what's a valuable resource. Case in point is the work of physicists and chemists at the University of Bristol, who have found a way to convert thousands of



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tonnes of seemingly worthless nuclear waste into man-made diamond batteries that can generate a small electric current for longer than the entire history of human civilization.

How to dispose of nuclear waste is one of the great technical challenges of the 21st century. The trouble is, it usually turns out not to be so much a question of disposal as long-term storage. If it was simply a matter of getting rid of radioactive material permanently, there are any number of

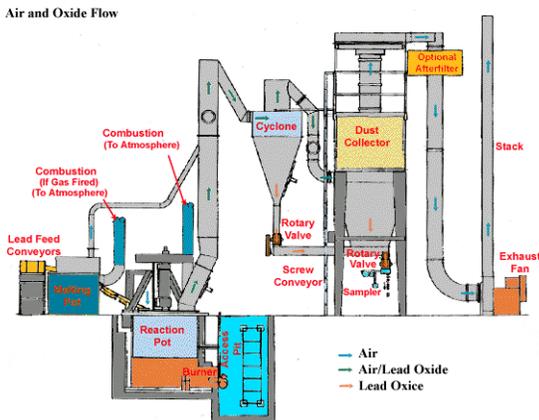
options, but spent nuclear fuel and other waste consists of valuable radioactive isotopes that are needed in industry and medicine, or can be reprocessed to produce more fuel. Disposal, therefore is more often a matter of keeping waste safe, but being able to get at it later when needed.

*Read more:*

<http://newatlas.com/diamonds-nuclear-batteries/46645/>

## Ventilation

### Balancing an Industrial Dust Collection System



Achieving optimum airflow through an industrial dust collection system is done by balancing the system. Balancing involves adjusting the dampers to provide proper airflow to individual pickup points. It's important to understand how your industrial dust collection system is performing and how to accommodate the ever-changing effects on the system through balancing.

Why balancing your system is important

Well-designed industrial dust collection systems will achieve ideal airflow and improve the process performance. See our "Industrial dust collection design strategies for optimal industrial airflow" blog for more information.

However, plugged filters or even changing weather patterns can affect the airflow in your dust collection system. In a facility with a ventilation system having to 25 pickup points on a single-fan system, each of those points may need adjustment to provide adequate airflow.

*Read more:*

<http://www.ivinc.com/balancing-dust-collection-system/>

## PPE

### The Beginner's Guide to PPE for Women



When it comes to Personal Protective Equipment (PPE) for women, we aren't talking about "what's hot and what's not" in Fall 2016. We're talking about safety and making sure that everyone leaves the job site the way they arrived.

The National Association of Women in Construction says that as of 2014, women

made up 8.9 percent of the industry's workers. That's based on the 2015 Bureau of Labor Statistics Household Data Annual Averages report. That number skyrocketed from the previous year when BLS reported women made up 1.2 percent of the industry.

This beginner's guide to PPE for women is aimed at making sure that female employees don't have to "make do" with whatever is available. Work gloves that are too big or hardhats that are too deep can lead to a greater risk of accident or injury.

*Read more:*

<http://www.superiorglove.com/pages/blog/beginners-guide-to-ppe-for-women/#>

## Noise

### Teenage Hearing Loss Is a Serious Issue

With a large number of kids using ear buds and headphones, noise-induced hearing loss is a serious issue, according to the American Speech-Language-Hearing Association (ASHA).

Last year, the World Health Organization estimated 1.1 billion teenagers and young adults are at risk of hearing loss due to the



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unsafe use of personal audio devices, including smartphones, and exposure to damaging levels of sound at noisy entertainment venues such as nightclubs, bars, and sporting events.

The ASHA recently brought its initiative—the Listen To Your Buds concert series -- to six Philadelphia schools. The campaign brings in award-winning musicians to

elementary schools to teach kids about the importance of using technology safely to protect their hearing for the rest of their lives.

*Read more:*

<http://www.ishn.com/articles/105331-teenage-hearing-loss-is-a-serious-issue>

### U.S. Air Force Noise Study Aims To Prevent Hearing Loss



Soldiers returning from combat can face a host of mental, physical and emotional challenges. The nature of their job exposes them to more risk than most non-military people, and they are sometimes left to contend with traumatic brain injury, musculoskeletal injuries or the effects of chemical exposure for the rest of their lives.

Hearing loss is the most common health issue affecting military men and women.

What if, instead of reacting to soldiers' health problems after they occur, steps could be taken to prevent the health problems from happening in the first place? The Air Force Surgeon General has decided to take a new approach to keeping Air Force members healthy through a program called the Total Exposure Health Initiative, which focuses on prevention not only at work, but in other areas of their lives as well.

*Read more:*

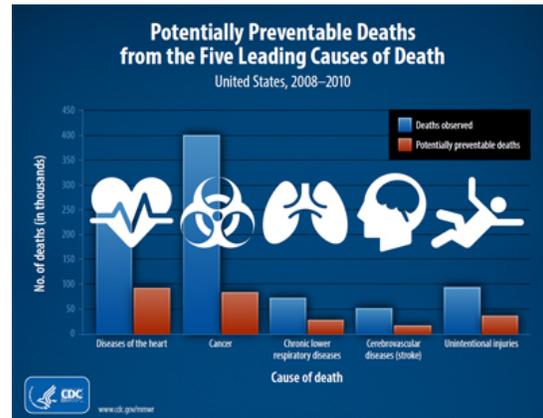
<http://www.ishn.com/articles/105332-us-air-force-noise-study-aims-to-prevent-hearing-loss>

## Preventive Medicine

### CDC Estimates Preventable Deaths from 5 Leading Causes

The number of potentially preventable deaths – premature deaths that could have been avoided – declined from 2010 to 2014 for three of the five leading causes of death in the United States, CDC researchers estimate.

In 2014, the five leading causes of death for people under age 80 were diseases of the heart, cancers, stroke, chronic lower respiratory diseases (CLRD), such as asthma, bronchitis, and emphysema, and unintentional injuries (accidents). These causes accounted for 63 percent of deaths from all causes in that year. CDC estimates that 15 percent of these cancer deaths, 30 percent of these heart-disease deaths, 43 percent of these unintentional-injury deaths, 36 percent of these CLRD deaths,

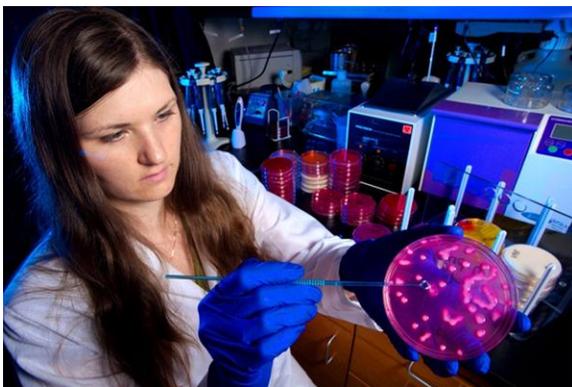


and 28 percent of these stroke deaths were preventable.

Read more:

<https://www.cdc.gov/media/releases/2016/p1117-preventable-deaths.html>

### First Study to Link Antibiotic Resistance with Exposure to the Disinfectant Chlorhexidine



*Klebsiella pneumoniae* bacteria exposed to chlorhexidine-containing disinfectants can become resistant to colistin, a last resort antibiotic often used against multidrug resistant pathogens. This is the first study to link exposure to chlorhexidine with resistance to colistin in this clinically important pathogen. The research is published this week in *Antimicrobial Agents*

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*and Chemotherapy*, a journal of the American Society for Microbiology. In the study, the investigators tested the hypothesis that *K. pneumoniae* could survive exposure to increased concentrations of chlorhexidine, and that these exposures might cause resistance to commonly used antibiotics. They selected

specific strains of *K. pneumoniae* that were representative of isolates routinely found in the clinic.

*Read more:*

[https://www.eurekalert.org/pub\\_releases/2016-10/asfm-fst102616.php](https://www.eurekalert.org/pub_releases/2016-10/asfm-fst102616.php)

### Population Well-Being Measures Help Explain Geographic Disparities in Life Expectancy at the County Level

Geographic disparities in life expectancy are substantial and not fully explained by differences in race and socioeconomic status. To develop policies that address these inequalities, it is essential to identify other factors that account for this variation. In this study we investigated whether population well-being—a comprehensive measure of physical, mental, and social health—helps explain geographic variation in life expectancy. At the county level, we found that for every 1-standard-deviation (4.2-point) increase in the well-being score, life expectancy was 1.9 years higher for females and 2.6 years higher for males. Life expectancy and well-being remained positively associated, even after race, poverty, and education were controlled for. In addition, well-being partially mediated the established associations of race,



poverty, and education with life expectancy. These findings highlight well-being as an important metric of a population's health and longevity and as a promising focus for intervention.

*Read more:*

<http://content.healthaffairs.org/content/35/11/2075.abstract>

### This Is How Your Social Life at Work Impacts Your Health



Whether you're an engineer, a nurse, or a call center worker, you are likely to spend an average of one third of your day on the job. In a new meta-analysis covering 58 studies and more than 19,000 people across

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the globe, psychologists have shown that how strongly we identify with the people or organization where we work is associated with better health and lower burnout. The work appears in the journal *Personality and Social Psychology Review*, published by the Society for Personality and Social Psychology.

While many people assume that finding the right job that fits your personality and skills is the key to a healthy work life, this meta-

analysis shows that health at work is determined to a large extent by our social relationships in the workplace -- and, more particularly, the social groups we form there.

*Read more:*

<https://www.sciencedaily.com/releases/2016/10/161003214129.htm>

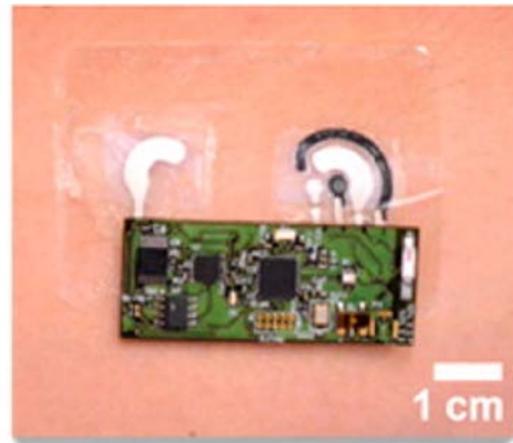
### Skin Patch Might Someday Track Your Health

A new type of acoustic sensor that resembles a small Band-Aid on the skin can monitor your heartbeat and other health measures, researchers say.

The sensor may one day offer a way to painlessly and wirelessly track an individual's health. The patch, which weighs less than one-hundredth of an ounce, can help doctors monitor heart health, stomach condition, vocal cord activity, lung performance and potentially many other bodily functions, researchers say.

*Read more:*

[http://www.upi.com/Health\\_News/2016/1](http://www.upi.com/Health_News/2016/1)



<1/17/Skin-patch-might-someday-track-your-health/4361479402539/>

## Environmental Health

### The Association between Dust Storms and Daily Non-Accidental Mortality in the United States, 1993–2005



Background: The impact of dust storms on human health has been studied in the context of Asian, Saharan, Arabian, and Australian storms, but there has been no

recent population-level epidemiological research on the dust storms in North America. The relevance of dust storms to public health is likely to increase as extreme weather events are predicted to become more frequent with anticipated changes in climate through the 21st century.

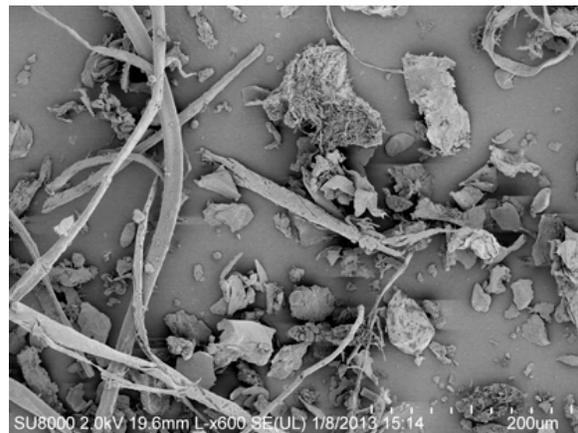
Objectives: We examined the association between dust storms and county-level non-accidental mortality in the United States from 1993 through 2005.

Read more:

<http://ehp.niehs.nih.gov/EHP216/>

### Consumer Product Chemicals in Indoor Dust: A Quantitative Meta-Analysis of U.S. Studies

Indoor dust is a reservoir for commercial consumer product chemicals, including many compounds with known or suspected health effects. However, most dust exposure studies measure few chemicals in small samples. We systematically searched the U.S. indoor dust literature on phthalates, replacement flame retardants (RFRs), perfluoroalkyl substances (PFASs), synthetic fragrances, and environmental phenols and estimated pooled geometric means (GMs) and 95% confidence intervals



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for 45 chemicals measured in  $\geq 3$  data sets. In order to rank and contextualize these results, we used the pooled GMs to calculate residential intake from dust ingestion, inhalation, and dermal uptake from air, and then identified hazard traits from the Safer Consumer Products Candidate Chemical List. Our results indicate that U.S. indoor dust consistently contains chemicals from multiple classes.

Phthalates occurred in the highest concentrations, followed by phenols, RFRs, fragrance, and PFASs. Several phthalates and RFRs had the highest residential intakes.

*Read more:*

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

### Creating a Smoking Machine



While it is well known that cigarette smoking is a major cause of lung disease, and a key exacerbating factor for patients suffering from chronic obstructive pulmonary disease (COPD), it has not been possible to effectively model its deleterious effects on human lungs under normal breathing conditions.

In an article in *Cell Systems*, a multidisciplinary team at the Wyss Institute for Biologically Inspired Engineering at

Harvard University describes an instrument they engineered that can “breathe” in and out, actively smoke regular and electronic cigarettes much like a human, and deliver the smoke to microfluidic organs-on-chips lined by human lung small airway cells isolated from non-smokers or COPD patients. The integrated smoking system gives researchers a better understanding of smoke-related pathological changes in individual smokers, and could facilitate the discovery of more accurate biomarkers and new therapeutic targets.

*Read more:*

<http://news.harvard.edu/gazette/story/2016/11/creating-a-smoking-machine/>

### First Cases of *Candida Auris* Reported In United States

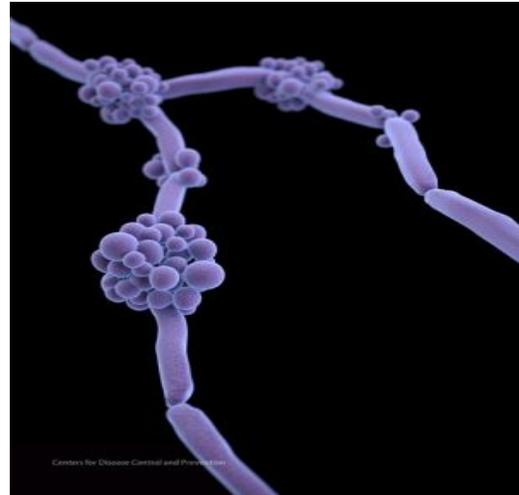
Thirteen cases of *Candida auris* (*C. auris*), a serious and sometimes fatal fungal infection that is emerging globally, have been identified in the United States, according to

the Centers for Disease Control and Prevention (CDC). Seven of the cases occurred between May 2013 and August 2016 and are described in CDC’s Morbidity

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and Mortality Weekly Report (MMWR). The other six cases were identified after the period covered by the report and are still under investigation.

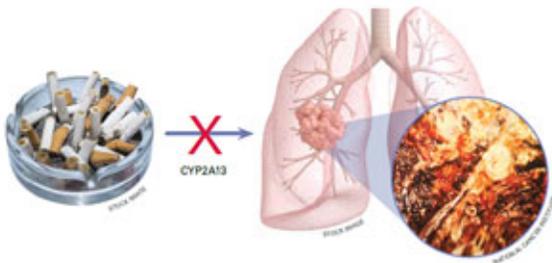
The report is the first to describe U.S. cases of *C. auris* infection. *C. auris* is often resistant to antifungal drugs and tends to occur in hospitalized patients. In June 2016, CDC issued a clinical alert describing the global emergence of *C. auris* and requesting that laboratories report *C. auris* cases and send patient samples to state and local health departments and CDC. Since then, CDC has been investigating reports of *C. auris* with several state and local health departments. The agency expects to continue to investigate possible cases as awareness of the emerging infection increases.



Read more:

<https://www.cdc.gov/media/releases/2016/p1104-candida-auris.html>

## Smoking a Pack a Day Causes 150 Mutations in Every Lung Cell, Research Shows



Scientists have found that smoking a pack a day of cigarettes can cause 150 damaging changes to a smoker's lung cells each year. The findings come from a study of the devastating genetic damage, or mutations, caused by smoking in various organs in the body.

Publishing in the journal Science on Thursday, the researchers said the findings show a direct link between the number of cigarettes smoked in a lifetime and the number of mutations in the DNA of cancerous tumors.

The highest mutation rates were seen in lung cancers, but tumors in other parts of the body - including the bladder, liver and throat - also had smoking-associated mutations, they said. This explains why smoking also causes many other types of cancer beside lung cancer.

Read more

[http://www.reuters.com/article/us-health-](http://www.reuters.com/article/us-health-smoking-mutations-idUSKBN12Y2EH)

[smoking-mutations-idUSKBN12Y2EH](http://www.reuters.com/article/us-health-smoking-mutations-idUSKBN12Y2EH)

## Ergonomics

### Open Offices Are Losing Some of Their Openness

Noisy, open-floor plans have become a staple of office life. But after years of employee complaints, companies are trying to quiet the backlash.

Many studies show how open-plan office spaces can have negative effects on employees and productivity. As a result, companies are adding soundproof rooms, creating quiet zones and rearranging floor plans to appeal to employees eager to escape disruptions at their desk.

Companies are “not providing sufficient variety in spaces,” says David Lehrer, a researcher at the Center for the Built Environment at the University of California, Berkeley. Mr. Lehrer studies the impact of office designs on employees, and lack of “speech privacy” is currently a significant problem, he says. Employees in open-plan



offices are less likely to be satisfied with their offices than employees in a traditional office layout, Mr. Lehrer adds.

Read more:

<http://www.wsj.com/articles/open-offices-are-losing-some-of-their-openness-1475460662>

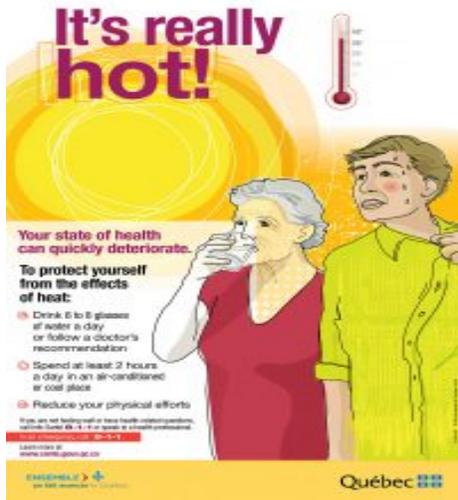
## Safety

### A Difference-in-Differences Approach to Assess the Effect of a Heat Action Plan on Heat-Related Mortality

Background: The impact of heat waves on mortality and health inequalities is well documented. Very few studies have assessed the effectiveness of heat action

plans (HAPs) on health, and none has used quasi-experimental methods to estimate causal effects of such programs.

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**Objectives:** We developed a quasi-experimental method to estimate the causal effects associated with HAPs that allows the identification of heterogeneity across subpopulations, and to apply this method specifically to the case of the Montreal (Quebec, Canada) HAP.

**Methods:** A difference-in-differences approach was undertaken using Montreal death registry data for the summers of 2000–2007 to assess the effectiveness of the Montreal HAP, implemented in 2004, on mortality. To study equity in the effect of HAP implementation, we assessed whether the program effects were heterogeneous across sex (male vs. female), age ( $\geq 65$  years vs.  $< 65$  years), and neighborhood education levels (first vs. third tertile). We conducted sensitivity analyses to assess the validity of the estimated causal effect of the HAP program.

*Read more:*

<http://ehp.niehs.nih.gov/EHP203/>

## NIOSH Simulator Helps Aerial Lift Operators Identify Hazards on Work Sites

A flyer published by NIOSH describes how to access the agency’s newly developed Aerial Lift Hazard Recognition Simulator, which is intended to help aerial lift operators familiarize themselves with hazards they may encounter on the job. In this instance, NIOSH uses the term “aerial lifts” to describe multiple types of lifts, including scissor lifts and boom lifts, which are commonly used on construction sites for elevating workers to various heights. The simulator is intended to provide a safe, controlled environment in which users—employers, trainers, safety and health professionals, and aerial lift operators—can



navigate a realistic workplace with different types of hazards such as potholes, ramps, crushing hazards, and tip-over hazards. The simulator notifies users when they encounter a hazard so that they can identify and avoid hazards on actual work sites.

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Read more:

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/NIOSH-Simulator-Helps-Aerial-Lift->

[Operators-Identify-Hazards-on-Work-Sites.aspx](#)

## Cold Weather Workers Safety Guide



Winter weather presents hazards including slippery roads/surfaces, strong winds and environmental cold. Employers must prevent illnesses, injuries, or fatalities, by controlling these hazards in workplaces impacted by winter weather.

OSHA and National Oceanic and Atmospheric Administration (NOAA) are working together on a public education effort aimed at improving the way people prepare for and respond to severe weather. This page is designed to help businesses

and their workers prepare for winter weather, and to provide information about hazards that workers may face during and after winter storms.

To prevent slips, trips, and falls, employers should clear snow and ice from walking surfaces, and spread deicer, as quickly as possible after a winter storm. When walking on snow or ice is unavoidable workers should be trained to:

- Wear footwear that has good traction and insulation (e.g. insulated and water resistant boots or rubber over-shoes with good rubber treads)
- Take short steps and walk at a slower pace to react quickly to changes in traction

Read more:

<http://www.ishn.com/articles/105346-cold-weather-workers-safety-guide>

## Army: New Record Low for Mishap Fatalities, But Motor Vehicle Deaths Are Up



The Army reports the number of fatalities in mishaps fell in fiscal 2016 for the seventh year in a row, even while motorcycle deaths

were up 32 percent, according to data from the U.S. Army Combat Readiness Center.

In fiscal 2016, 109 soldiers died in accidents that occurred on duty and off duty, according to an Army news release. That number is down from the 110 who died the

## Army Industrial Hygiene News and Regulatory Summary

year before, and it is the lowest number recorded in 45 years, the release said.

Accidental deaths have dropped 32 percent for active-duty soldiers, along with fewer such deaths in the Guard and Reserve, the release said.

Read more:

<https://www.armytimes.com/articles/army-new-record-low-for-mishap-fatalities-but-motor-vehicle-deaths-are-up>

### At-Home Safety: Kitchen Safety for the Holidays

Deep-fried, Oven-roasted, braised, smoked. There are many different ways to cook a turkey, and each method carries with it different safety risks. A new infographic from Electrical Safety Foundation International provides cooking fire preventing tips leading up to the holiday season. According to ESFI, the “recipe” for safety should have the following ingredients: Functioning Smoke Alarms  
Functioning Ground Fault Circuit Interrupters  
Vigilance  
Kitchen Timer  
Clean ...

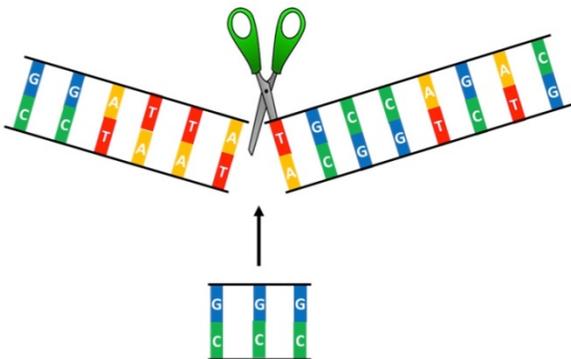


Read more:

<http://ehstoday.com/health/home-safety-kitchen-safety-holidays-infographic>

## Emergency Preparedness & Response

### Obama Advisers Urge Action Against CRISPR Bioterror Threat



Scientific advisers to President Obama warn that the U.S. urgently needs a new biodefense strategy and should regularly brief President-elect Donald Trump on the dangers posed by new technologies like CRISPR, gene therapy, and synthetic DNA, which they say could be coöpted by terrorists.

## Army Industrial Hygiene News and Regulatory Summary

In a letter to the president, the President's Council of Advisors on Science and Technology (PCAST) urges the creation of a new entity charged with developing a national biodefense strategy within six months. Such a strategy was developed in 2009, but it's carried out by several government agencies in an uncoordinated approach, says Piers Millet, a bioterror

expert at the Wilson Center in Washington, D.C.

*Read more:*

<https://www.technologyreview.com/s/602934/obama-advisers-urge-action-against-crispr-bioterror-threat/>

### *Deployment Health*

#### **The Military May Relax Recruiting Standards for Fitness and Pot Use**

Defense Secretary Ash Carter has launched a sweeping review of the military's recruiting standards, saying current rules for screening new entrants may be "overly restrictive" and preventing America's most talented young people from joining the ranks.

Among the benchmarks that will get new scrutiny: fitness standards, marijuana use, tattoo regulations and the military's longtime reluctance to allow single parents to start military careers.



*Read more:*

<http://www.militarytimes.com/articles/recruiting-standards-may-change-secdef-says>

### *Nanotechnology*

#### **OECD Publishes a Number of New Reports in Series on the Safety of Manufactured Nanomaterials**

In November 2016, the Organization for Economic Cooperation and Development

(OECD) published the following new reports in its Series on the Safety of Manufactured Nanomaterials:

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- *Toxicokinetics of Manufactured Nanomaterials*: Report from the OECD Expert Meeting: As part of its Program on the Safety of Manufactured Nanomaterials, OECD initiated a series of expert meetings to discuss the applicability of the OECD Test Guidelines to nanomaterials. The Working

Party on Manufactured Nanomaterials (WPMN) agreed to organize an expert meeting to address the toxicokinetics of manufactured nanomaterials.

Read more: <http://www.nanotech-now.com/columns/?article=1119>

### NIOSH Announces Sampling Strategy to Help Identify Potential Nanomaterial Exposure in an Occupational Setting



On November 1, 2016, NIOSH published a blog item entitled "Never fear! NEAT 2.0 is here! -- How to perform nanomaterial exposure assessment in the workplace." NIOSH notes that in 2009, it developed and

was the first to recommend using the nanoparticle emission assessment technique (NEAT). According to NIOSH, NEAT made use of a condensation particle counter to identify tasks that result or can result in the emission of nanoparticles into the surrounding air. Task-based filter samples were then used to confirm the presence of nanoparticles, using both laboratory elemental analysis and electron microscopy.

Read more: <http://www.nanotech-now.com/columns/?article=1117>

## Regulatory Research & Industrial Hygiene Professional News

### Army

#### Plans Underway for the Release of More Army Mobile Apps

The Army is picking up the pace to make more training mobile applications available

for Soldiers' smartphones and computer tablets.

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Recently, a team of Soldiers and civilians at Fort Eustis, Virginia, started using software to ensure Army mobile apps meet government security requirements and other standards.

"With this new vetting software, we can expedite getting proponent-approved and cyber-secure mobile apps to the force," said Lt. Col. Joe Harris, U.S. Army Training and Doctrine Command Capability Manager-Mobile (TCM Mobile). "Soldiers are getting accurate, up-to-date training content."



*Read more:*

<https://www.army.mil/article/178801/plans-underway-for-the-release-of-more-army-mobile-apps>

### EPA

## EPA Boosts Required 2017 Ethanol Volume above Expected Level



Despite pressure to lower the amount of ethanol blended into the U.S. fuel supply, the Environmental Protection Agency (EPA) has boosted its proposed ethanol volume for 2017.

Under the Renewable Fuel Standard enacted in 2007, specific quantities of ethanol must be blended the national fuel supply. Recently, critics have tried to cap that amount.

But final ethanol volumes announced by the EPA late last Wednesday even exceed the amounts the agency itself proposed in May.

*Read more:*

[http://www.greencarreports.com/news/1107502\\_epa-boosts-required-2017-ethanol-volumes-above-expected-level](http://www.greencarreports.com/news/1107502_epa-boosts-required-2017-ethanol-volumes-above-expected-level)

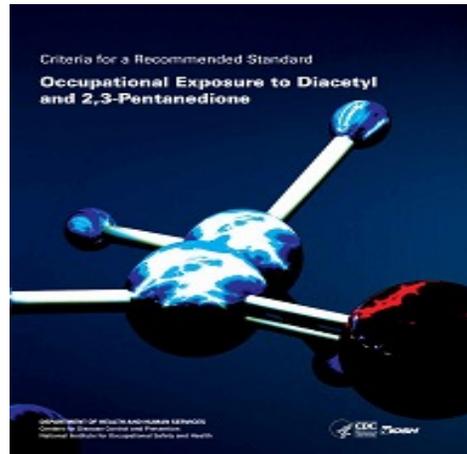
## NIOSH

### NIOSH Announces Recommended Exposure Limits for Diacetyl and 2,3-Pentanedione

NIOSH has released formal recommendations for controlling workplace exposures to diacetyl and 2,3-pentanedione, widely-used food flavoring compounds that have been associated with decreased lung function in exposed workers. The recommended exposure limits (RELs) were published today in the document, Criteria for a Recommended Standard: Occupational Exposure to Diacetyl and 2,3-Pentanedione.

Read more:

<http://www.cdc.gov/niosh/updates/upd-10-31-16.html>



## OSHA

### OSHA Issues Final Rule on Slip, Trip, and Fall Hazards



**OSHA's Final Rule to Update, Align, and Provide Greater Flexibility in its General Industry Walking-Working Surfaces and Fall Protection Standards**

A final rule issued by OSHA updates the agency's general industry walking-working surfaces standards specific to slip, trip, and fall hazards. The new rule, which goes into effect on Jan. 17, 2017, also establishes employer requirements related to the

design, performance, and use of personal fall protection systems under its general industry personal protective equipment standards. Other revised and new provisions included in the final rule address fixed ladders, rope descent systems, fall protection systems and criteria, and training on fall hazards and fall protection systems. The new rule increases consistency between the general industry and construction standards, but does not

## Army Industrial Hygiene News and Regulatory Summary

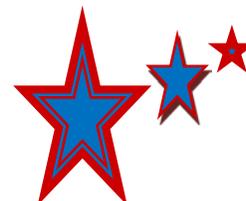
change construction or agricultural standards.

[resources/TheSynergist/Industry%20News/Pages/OSHA-Issues-Final-Rule-on-Slip,-Trip,-and-Fall-Hazards.aspx](https://www.synergist.com/Industry%20News/Pages/OSHA-Issues-Final-Rule-on-Slip,-Trip,-and-Fall-Hazards.aspx)

*Read more:*

<https://www.aiha.org/publications-and->

**APHC**



### October DOEHS-IH SUPER STARS

Congratulations to Tobyhanna Army Depot IH Program Office for successfully using the Army's Business Practices by:

- Basing their SEGs on DOEHS-IH Common Processes
- Not basing SEGs on buildings
- Naming SEGs with a Common Process name

- Not using "micro" , "nano" , or duplicate SEGs
- Defining Process Name fields the same as DOEHS-IH Process Method names

# Army Industrial Hygiene News and Regulatory Summary

## Training

### Upcoming Training

**What's new with Army IH Training?**

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

- o The Hazards of Ethylene Oxide in the Workplace (1.0hrs)
- o Basic Toxicology for the OHS Professional (2.5hrs)
- o Introduction to Nanomaterials and Occupational Health (3hrs)
- o Intermediate Nanotechnology (20hrs)
- o Radiological Surveys & Emergency Response Awareness (0.75hr)

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

**Face to Face Training Opportunities:**

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

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

- o Jan (2017) 12<sup>th</sup> 0700 EST -Business Objects At It's Best
- o Mar (2017) 15<sup>th</sup> 0700 EST -Magic of Medical Surveillance
- o May (2017) -Reinvigorate Radiation

**Registration & Recordings Currently Available** <https://aiphdohs.ellc.learn.army.mil>

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

**Other FREE Training Opportunities:**

**AIHA CIH Prep Webinars** email: [mrupert@sevengehse.com](mailto:mrupert@sevengehse.com) to register:  
Recorded Episode 1: Engineering Controls & Ventilation – <http://cc.callinfo.com/play?id=uf7ki>  
Recorded Episode 2: Principles of Toxicology - <http://cc.callinfo.com/play?id=guomwx>  
Recorded Episode 3: Principles of Epidemiology & Biostatistics – <https://cc.callinfo.com/play?id=96h1ws>

**AIHA HPECC Webinars** (2<sup>nd</sup> Thurs each month; Time: 2-3pm ET 1-800-768-2983 Code: 9567345 <https://www.callinfo.com/prt?host=level3&an=8007682983&ac=9567345>)

- o January 12 Direct Reading Instruments for the Practicing IH
- o March 9, 2017 Computational Fluid Dynamics, Can It Truly Benefit the Industrial Hygienist or is It Just Colorful Fluid Dynamics?

**Recording links:**  
"Expedient Engineering Controls for Epidemics and Terrorism Events," <http://cc.callinfo.com/play?id=8efyth>  
"You've Got Something on Your Face (and Hands): Assessment of Dermal Lead Concentrations During Army Training Activities?" <http://cc.callinfo.com/play?id=38yaji>  
"Lessons Learned in Selecting an All-Hazards Suite of Direct Reading Instruments" followed by a short story "An EHS Parent's Struggle with High School Arts" <http://cc.callinfo.com/play?id=4yuvrz>

# Army Industrial Hygiene News and Regulatory Summary

## DOEHRS-IH

### What's new with Army DOEHRs-IH?

**Face to Face Training Opportunities:** (APG, MD bldg. 6008 28 seats)

#### 2017 PROPOSED COURSE DATES:

- Jan 23-27
- Feb 27-Mar 3
- Jun 12-16
- Aug 14-18
- Oct 16-20
- Self-enroll at <https://aiphdohs.ellc.learn.army.mil> code: 2017

#### DOEHRS-IH Super Stars:

**Congratulations to Tobyhanna AD** for use of Army Business Practice.

SEGs are based on DOEHRs Common Process. SEG names are same as Common Process. No duplicated SEGs. SEGs not Based on building. User defined Process name same as Process Method.

<u>Administrative Office Duties</u>	Administrative (Quality Control Div 57300 2Bay1) ADMIN (Range Threat Systems Branch 5Y140) Administrative Operation (Counter Fire/Electro-Optics Eng Br 58220 1CBay6) ADMIN (CECOM Liaison 52H40 1A ) Administrative (Accountability & Analysis Div 52K30 1CBay5/6) Perform Administrative Duties (Microwave Radio Support Section 1AEncl) Administrative Duties (Materiel and Tool Movement Br 52K90 1A) Administrative Operation (Education Engineering Br 50120 1C4Bay)
<u>Coating Removal/Equipment Cleaner</u>	Metal Sanding (Vibratory Sanding) Operation (Mobile Equipment Refinishing 5F3E0 1CBay4) Metal Sanding (Component Preparation Branch 5M210 1E) Metal Sanding (Component Preparation Branch 5M210 73)
<u>Compressed Air Spray Painting</u>	Compressed Air Spray Painting (System Paint Branch 5M330 9 ) Compressed Air Spray Painting (System Prep Branch 5M320 30) Compressed Air Spray Painting (System Prep Branch 5M320 10C) Compressed Air Spray Painting (System Paint Branch 5M330 1C4) Compressed Air Spray Painting (System Paint Branch 5M330 73) Compressed Air Spray Painting (Component Paint Branch 5M230 1E1 )
<b>ELECTRONIC REPAIR</b>	Electronics Parts Repair Operation (Airborne Indicators Section 5Y311 (5W110) 1A) Electronic Repair and Cleaning of Transponders (Airborne Identification Sec 5Y313(5W150) Electronic repair & cleaning of radio systems and sub assemblies. Use handtools, battery/electric d Electronic Parts Repair and Cleaning (Microwave Radio Support Section 5Y211 1BBay5) Repair & testing of electronic power supplies (Electro-Mechanical Fab Branch 5M670 (5M430) 3Bay Electronics Parts Repair (Airborne Identification 5Y313(5W140) 1BBay2) Electronic Repair of Transmitters and Modulators (Threat Systems Transmitters Sec 5Y143 4Bay5) Electronic Repair of Avionics Equipment (Flight Control & Nav Sys Sec 5Y312 1A)
<u>CDC Administrative</u>	CDC Administrative (4725 DFMWR-CYS-Child Development Center-CDC#1) CDC Administrative (3100 Child Development Center, CDC #2 )
<u>CDC Kitchen</u>	CDC Kitchen (3100 Child Development Center, CDC #2 ) CDC KITCHEN (4725 DFMWR-CYS-Child Development Center-CDC#1)
<u>CDC Maintenance</u>	CDC Maintenance (4725 DFMWR-CYS-Child Development Center-CDC#1)
<u>CDC Maintenance</u>	CDC Maintenance (4725 DFMWR-CYS-Child Development Center-CDC#1)
<u>CDC Management</u>	CDC Management (3100 Child Development Center, CDC #2 ) CDC Management (4725 DFMWR-CYS-Child Development Center-CDC#1)
<u>CDC Management</u>	CDC Management (4725 DFMWR-CYS-Child Development Center-CDC#1)

# Army Industrial Hygiene News and Regulatory Summary

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



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FAX: (410) 436-8795

### On the Web:

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



## Professional Development and Career Programs

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

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

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

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