March 2022
Issue 126

Army Industrial Hygiene News and Regulatory Summary

Hazardous Substances

Blow Flies Can Be Used Detect Use of Chemical Weapons, Other Pollutants

Special Interest Articles:

Researchers at the School of Science at IUPUI have found that blow flies can be used as chemical sensors, with a particular focus on the detection of chemical warfare agents.

Despite widespread bans, chemical weapons have been deployed in recent conflicts such as the Syrian civil war, and some experts fear they may be used in the war in Ukraine. An IUPUI study shows that blow flies could be used as a safer alternative for investigating the use of these weapons -- as well as other chemicals in the environment -- keeping humans out of potentially dangerous situations.

The work appears in the journal Environmental Science and Technology.

The research was funded through a contract from the U.S. Defense Advanced Research Projects Agency.

Read more:
https://www.eurekalert.org/news-releases/947618

Contents:

Efficacy of Dental Evacuation Systems for Aerosol Exposure Mitigation in Dental Clinic Settings

Dental personnel are ranked among the highest risk occupations for exposure to SARS-CoV-2 due to their close proximity to the patient's mouth and many aerosol generating procedures encountered in dental practice. One method to reduce aerosols in dental settings is the use of intraoral evacuation systems. Intraoral evacuation systems are placed directly into a patient's mouth and maintain a dry field during procedures by capturing liquid and aerosols. Although multiple intraoral dental evacuation systems are commercially available, the efficacy of these systems is not well understood. The objectives of this study were to evaluate the efficacy of four dental evacuation systems at mitigating aerosol exposures during simulated ultrasonic scaling and crown preparation procedures. We conducted real-time respirable (PM4) and thoracic (PM10) aerosol sampling during ultrasonic scaling and crown preparation procedures while using four commercially available evacuation systems: a high-volume evacuator (HVE), and three alternative intraoral systems (A, B, C). Four trials were conducted for each system. Respirable and thoracic mass concentrations were measured during procedures at three locations including (1) near the breathing zone (BZ) of the dentist, (2) edge of the dental operatory room approximately 0.9 meters away from the mannequin mouth, and (3) hallway supply cabinet located approximately 1.5 meters away from the mannequin mouth. Respirable and thoracic mass concentrations measured during each procedure were compared with background concentrations measured in each respective location. Use of System A or HVE reduced thoracic (System A) and respirable (HVE) mass concentrations near the dentist's BZ to median

background concentrations most often during the ultrasonic scaling procedure. During the crown preparation, use of System B or HVE reduced thoracic (System B) and respirable (HVE or System B) near the dentist's BZ to median background concentrations most often. Although some differences in efficacy were noted during each procedure and aerosol size fraction, the difference in median mass concentrations among evacuation systems was minimal, ranging from 0.01 to 1.48 µg/m3 across both procedures and aerosol size fractions.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 15 Mar 2022 (Available with AIHA membership)

Temporal and Spatial Variations in the Levels of Prominent Airborne Disinfection by-Products at Four Indoor Swimming Pools

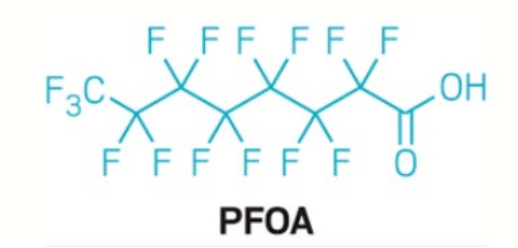
Exposure to airborne disinfection by-products, especially trichloramine and trichloromethane, may cause various adverse health effects for the workers and users of indoor swimming pools. This study aims to evaluate the spatial and temporal variations in trichloramine and trichloromethane concentrations within and between swimming pools. Workplace measurements were carried out at four indoor swimming pools in Quebec (Canada) during the cold season. To fully represent daily operating conditions, sampling started 2 hr before the swimming pool opened and continued until 2 hr after closing. To quantify trichloramine and trichloromethane concentrations, 304 air samples have been collected. Temperature, humidity, and CO2 were measured—simultaneously every 2 hr. The results showed that both trichloramine and

trichloromethane concentrations varied significantly in time. The observed daily variations in trichloramine and trichloromethane concentrations suggest that the common practice of collecting a single 2-hr air sample does not represent daily pool trichloramine and trichloromethane contamination levels and, consequently, does not represent the true exposure and health risks for workers that are present for a full 8-hr shift. This study recommends a new 8-hr sampling strategy or a full-shift strategy using a cassette with

three impregnated filters as a valid and cost-effective solution for comparing time-weighted average (TWA) concentrations to permissible trichloramine exposure limits.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 21 Mar 2022 (Available with AIHA membership)

PFOA Added to Prop 65 Carcinogen List



California continues to increase the scope of Prop 65's PFAS-related listings. As we previously reported, in December 2021 California formally listed PFOS as a carcinogen and PFNA and as a reproductive toxin under Prop 65.

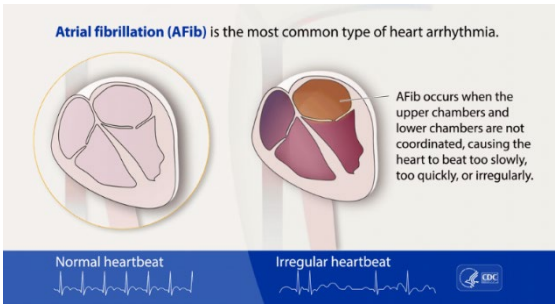
On February 25, California added PFOA to its Prop 65 list for cancer. PFOA was already listed for reproductive harm. The formal notice states: "The listing of perfluorooctanoic acid (PFOA) is based on its formal identification by the National Toxicology Program (NTP), an authoritative body for purposes of Proposition 65, that the chemical causes cancer."

Read more:
https://www.jdsupra.com/legalnews/pfoa-added-to-prop-65-carcinogen-list-9760402/

Firefighters' Risk of Irregular Heartbeat Linked to Number of On-The-Job Fire Exposures

Among firefighters, the risk of having an irregular heart rhythm, known as atrial fibrillation (AFib), increases with the number of fires they respond to, according to new research published today in the Journal of the American Heart Association, an open access, peer-reviewed journal of the American Heart Association.

Compared with people in other occupations, firefighters are known to have a disproportionately high risk of heart disease, and almost half of fatalities in on-duty firefighters result from sudden cardiac

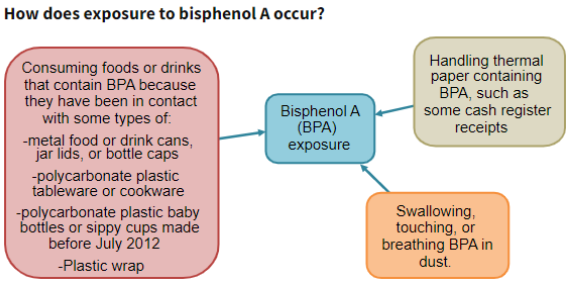


death -- when the heart suddenly stops beating and pumping blood to vital organs. An increased risk of an irregular heart rhythm or arrhythmias from the ventricles, the bottom chambers of the heart, has been documented in firefighters, however,

prior to this study, little was known about AFib, which is an arrhythmia involving the top chambers of the heart. According to the American Heart Association, AFib is the most common type of irregular heartbeat with at least 2.7 million people living with it in the United States. People with AFib have an increased risk of blood clots, heart failure, stroke and other heart complications.

Read more:
https://www.sciencedaily.com/releases/2022/03/220323101252.htm

Higher Exposure to Bisphenol A in the Womb Associated with Increased Risk for Asthma and Wheezing in School-Age Girls



An analysis of data from more than 3,000 mother-child pairs from six European countries indicates that prenatal exposure to bisphenol A may have negative effects on respiratory health in school-age girls. The results of a study led by the Barcelona Institute for Global Health (ISGlobal), an entity supported by the "la Caixa" Foundation, have just been published in the journal Environment International.

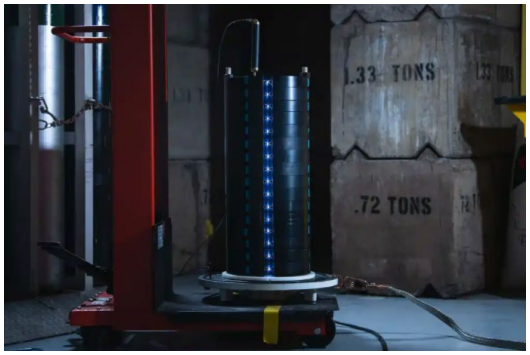
Bisphenols are chemical substances used in the manufacture of plastics and resins found in many consumer products, such as food cans, reusable bottles and toys. The most well-known is bisphenol A (BPA), a known endocrine disruptor used widely in the manufacture of food containers and the interior coatings of such recipients. The European Chemicals Agency (ECHA) included BPA on its list of substances of "very high concern" in 2017. Since then, some countries have limited its use, leading some manufacturers to replace BPA with other bisphenols.

Read more:
https://www.sciencedaily.com/releases/2022/03/220318080253.htm

Radiation

LANL: New Technology to Power Radiographic Imaging for National Security

In the cutting-edge science of national security, where a fast-evolving understanding of materials and physical processes is critical to applications, a middle-aged technology is at the center of the action. The size of a small sport-utility vehicle and shaped like a barrel, devices called Febetrons generate X-rays to photograph objects that are moving at extremely high speeds as part of a detonation and allow the measurement of their position, speed, shape and internal density profiles. Powering the Febetrons are capacitor modules, a technology that had not seen a design update in more than 40 years, until a Los Alamos National



Laboratory research team developed a new "K-module" device.

Read more:
https://losalamosreporter.com/2022/03/29/lanl-new-technology-to-power-radiographic-imaging-for-national-security/

Ventilation

Use of Portable Air Purifiers as Local Exhaust Ventilation during COVID-19

The purpose of this study was to determine if strategic placement of portable air purifiers would improve effectiveness of aerosol reduction in a space as compared to use as a general room air purifier. Two sizes of portable air purifiers were placed in two different positions intended to function similar to either a local exhaust ventilation hood or an air curtain to determine if strategic placement would lead to a reduction of

particles in a worker's position at a desk in an office environment. Particle generators were used to introduce particulate into the air and personal aerosol monitors measured particles during each test condition. Results showed that when the medium room portable air purifiers used in this study were set to high, corresponding to 98 CFM, placed near the breathing zone of each office worker with the unit's filter cover removed, the particle concentration was reduced 35% beyond the reduction that would be expected if the same units were placed on the floor behind the occupant's workstation. Results also indicated that the larger portable air purifier tested, positioned as close as reasonable to each occupant's breathing zone with the largest capture area possible (i.e., removing the unit's filter cover), delivers the best aerosol reduction performance. The authors concluded that as a layer of protection against transmission of airborne infectious organisms for office occupants, installing a portable air purifier, sized and operated similar to the units tested in this study on the desk 12 inches from the breathing zone of the worker, has the potential to reduce airborne particulate to a greater degree than if the same units were placed outside of the breathing zone, in the general cubicle area.

Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 15 Mar 2022 (Available with AIHA membership)

Assessment of Respirable Aerosol Concentrations Using Local Ventilation Controls in an Open Multi-Chair Dental Clinic

Dental procedures require patients to be unmasked throughout most of a dental visit, with some procedures generating both inhalable and respirable aerosols. Understanding aerosol generation and transport were important to developing protocols to protect both the patient and workers in dental environments early in the COVID pandemic. This study investigated the need, suitability, and effectiveness of using local exhaust ventilation units during patient procedures and examined the impact of patient density in a large, multi-chair dental clinic at an academic institution. Phase One measured respirable

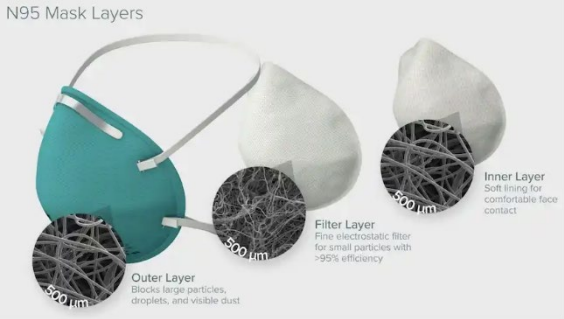
aerosol concentrations at the dental assistant's breathing zone and in neighboring unoccupied patient operatories. Results were compared during four dental procedures with three local ventilation (LV) options, with a single faculty performing procedures on a simulated patient. Phase Two deployed LV in all active patient operatories during

procedures on actual patients and examined the impact of clinic patient occupancy on respirable aerosol concentrations throughout the clinic. During Phase One, respirable aerosol concentrations in nearby operatories were significantly higher during ultrasonic scaling (mean =3.8 and SD =0.3µg/m3) and lower during rubber cup polishing (mean =0.8 and SD =0.5mg/m3) ($p < 0.001$). While the same trend was identified for the dental assistant, differences were not significant. There was no difference in respirable aerosol concentrations by LV type when measured at the dental assist ($p = 0.51$, task means 3 to 32. 5µg/m3) or neighboring rooms ($p = 0.93$, task means 0.6 to 4.0µg/m3), indicating no improved control for any device tested. For Phase Two, the clinic deployed the extraoral suction (EOS) system in each patient operatory. The background-adjusted aerosol concentrations were significantly reduced ($F < 0.001$) when the operatories were occupied at 50% compared to 25%, likely attributed to increased air filtration of the room with double the EOS systems in use. While this study provides only a single case investigation, findings confirming respirable aerosol concentrations by procedure and across days provided insights into patient scheduling, local exhaust ventilation selection and operation, which could be useful to other open multi-chair dental clinics.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 10 Mar 2022 (Available with AIHA membership)

PPE

Ultraviolet Light Can Clean N95 Masks for Reuse Without Hindering Performance, NIST Study Shows



To combat COVID-19 amid supply shortages in 2020, health care facilities across the U.S. resorted to disinfecting personal protective equipment (PPE), such as N95 masks, for reuse with methods such as ultraviolet (UV) light. But questions lingered about the safety and efficacy of these methods and how best to implement them.

Now, in perhaps the most rigorous examination of UV light's effects on N95 masks yet, researchers at the National Institute of Standards and Technology (NIST) have shown that these masks can be disinfected with little impact on their form or function. In a new study published in the Journal of Research of the National Institute of Standards and Technology, the researchers, with help from federal and private partners, scrutinized UV-exposed N95 masks for traces of virus and looked for changes in the shape of their fibers, ability to filter out aerosols and other properties.

The results represent a key step toward devising UV standards that could have far-reaching benefits in the future.

Read more: https://www.nist.gov/news-events/news/2022/03/ultraviolet-light-can-clean-n95-masks-reuse-without-hindering-performance

Breakthrough Application of Moisture-Trapping Film to Reduce Heat Stress in Personal Protective Suits

A team of researchers from the National University of Singapore (NUS) has developed a novel super-hygroscopic material that enhances sweat evaporation within a personal protective suit, to create a cooling effect for better thermal comfort for users such as healthcare workers and other frontline officers. This invention was validated through laboratory tests conducted in collaboration with researchers from HTX (Home Team Science & Technology Agency) in Singapore.

The new desiccant film, which is biocompatible and non-toxic, has fast absorption rate, high absorption capacity and excellent mechanical properties. This means that the material is very robust and

durable for practical applications such as for protective suits worn by healthcare workers. It is also affordable, light-weight, easy to fabricate and reusable.

Read more: https://www.sciencedaily.com/releases/2022/03/220325122703.htm

Noise

Combining Physics-Based and Kriging Models to Improve the Estimation of Noise Exposure

Can you hear me now? It may be time to get your ears checked. More than half of Worker exposure to occupational hazards is traditionally measured by equipping workers with wearable exposure monitors. An emerging alternative measurement first generates time-varying hazard maps from permanent monitors within the facility, then estimating worker exposure by integrating hazard levels traversed in map, following the tracked movement of workers. Complex environments may require many monitors to produce a hazard map with the necessary accuracy, but effective interpolation functions can reduce the required number of monitors needed. This work assesses the effectiveness of three models for accurately interpolating hazard levels among monitors: a traditional Kriging model, a physics-based model, and a hybrid model that combines the Kriging and physics-based models. The effectiveness of each interpolation function was tested with sound levels collected in four environmental settings. These detailed experimental data were used to generate over 10,000 simulation trials, where each trial configured the experimental data into a unique arrangement of simulated monitoring and sampling positions. For each simulation trial, the effectiveness of the three models was assessed with the

root mean square error of the sound levels at the simulated sampling positions, using the simulated monitoring positions as input. The interpolated values between the monitored positions were analyzed separately from the extrapolated values beyond the monitored positions. The hybrid model consistently reported among the lowest errors in each trial. The Kriging model performed best for the densest networks (those with the most monitors). Even in these cases, the hybrid model performed within 10% of the Kriging model with less than a third of the monitors. The experiment demonstrates that the hybrid model is highly effective at estimating hazardous sound levels; future work may demonstrate similar advantages for gas and aerosol hazards.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author

version posted online: 14 Mar 2022
(Available with AIHA membership)

Preventive Medicine

More Balmy Summer Nights, Higher Heart Death Rate in Men

Warm summer nights may leave you tossing and turning in bed, but that could be the least of your worries. Just a slight rise in summer nighttime temperatures increases the risk of heart-related death for men in their 60s, a new study shows.

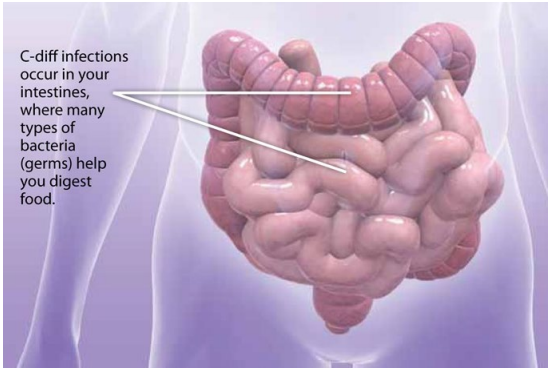
"Considering the growing likelihood of extreme summers in Western USA and the United Kingdom, our results invite preventive population health initiatives and novel urban policies aimed at reducing future risk of cardiovascular disease events," the authors wrote in the report published online March 28 in the BMJ Open.

Read more:
https://consumer.healthday.com/b-3-29-more-balmy-summer-nights-higher-heart-death-rate-in-men-2657033122.html

Clostridioides Difficile Vaccine Candidate Indicates Strong Potential Effect

New York-based Pfizer Inc. announced results from the CLOVER pivotal Phase 3 study evaluating its Clostridioides difficile (C. difficile) vaccine candidate (PF-06425090) in the prevention of C. difficile infection (CDI).

Initial analyses of two protocol-defined secondary endpoints indicated a highly favorable benefit in reducing CDI severity



and 100% vaccine efficacy in preventing medically attended CDI. However, the trial did not meet its pre-specified primary endpoint of prevention of primary CDI.

Read more:
https://www.precisionvaccinations.com/2022/03/08/clostridioides-difficile-vaccine-candidate-indicates-strong-potential-effect

Shift Work Might Delay Menopause, With Potential Harms to Health

Women whose jobs require shift work may experience delayed menopause, according to a new study, and it could be bad for their health. Whether it's working the overnight shift or different hours from day to day, shift work has been linked to higher risks for a variety of health problems, including certain cancers, heart disease, diabetes, and mental health issues such as depression.

This new Canadian study found a relationship between rotating shifts and delayed menopause, the end of a woman's monthly periods. Researchers suspect shift work might disrupt circadian rhythms -- the body's 24-hour internal clock. They said the disruption may trigger changes in estrogen production.

Read more:
https://consumer.healthday.com/3-24-shiftwork-might-bring-on-earlier-menopause-2657002207.html

New Tick-Borne Virus Is Spreading Across U.S.

The potentially deadly tick-borne Heartland virus is spreading across the United States and has now been found in Georgia, Emory University researchers report.

First identified in Missouri in 2009, the virus is found in the Southeast and Midwest and is spread by the lone star tick. The genetic fingerprint of the virus found in Georgia differs from that found in other states. This

suggests the virus may be rapidly mutating, researchers say.

Read more:
https://consumer.healthday.com/3-18-new-tick-borne-virus-is-spreading-across-u-s-2656961952.html

Men Offered Surgery More Often than Women When Carpal Tunnel Strikes

Men are more likely than women to be offered surgery to ease carpal tunnel syndrome, but a small new study from one hospital suggests that gender may have nothing to do with the disparity.

Instead, the difference may exist because the condition tends to be more severe in men, the researchers said. Carpal tunnel syndrome occurs when the median nerve in the wrist is compressed due to trauma, arthritis or inflammation of wrist tendons, resulting in numbness, weakness and tingling in the hand and arm.

Read more:
https://consumer.healthday.com/b-3-24-men-offered-surgery-more-often-than-women-when-carpal-tunnel-strikes-2657000452.html

Road Traffic in European Cities Exposes 60 Million People to Noise Levels Harmful To Health

A study by the Barcelona Institute for Global Health (ISGlobal), a centre supported by the "la Caixa" Foundation, assessed the levels of noise generated by road traffic and examined its impact on health in 749 European cities. The findings, published in Environment International, show that nearly 60 million adults are subjected to

unhealthy levels of vehicle-generated noise. Compliance with the World Health Organisation (WHO) noise-level guidelines could prevent 3,600 deaths annually from ischaemic heart disease alone.

Road traffic is the main source of environmental noise. Previous research has linked environmental noise to a range of adverse health effects: sleep disturbance, annoyance, cardiovascular and metabolic disease, adverse birth outcomes, cognitive impairment, poor mental health and well-being, and premature mortality. Long-term exposure to road traffic noise can cause a sustained stress reaction, which results in the release of stress hormones and increases in heart rate, blood pressure and vasoconstriction, eventually leading to chronic diseases such as cardiovascular disease, depression and anxiety disorders.are particularly susceptible to Mycobacterium abscessus infection.

Read more:
https://www.sciencedaily.com/releases/2022/03/220324104519.htm

Environmental Health

Microplastics Found in Human Blood for First Time

Microplastic pollution has been detected in human blood for the first time, with scientists finding the tiny particles in almost 80% of the people tested.

The discovery shows the particles can travel around the body and may lodge in organs. The impact on health is as yet unknown. But researchers are concerned as microplastics cause damage to human cells in the laboratory and air pollution particles are already known to enter the body and cause millions of early deaths a year.

Huge amounts of plastic waste are dumped in the environment and microplastics now contaminate the entire planet, from the summit of Mount Everest to the deepest oceans. People were already known to consume the tiny particles via food and water as well as breathing them in, and they have been found in the faeces of babies and adults.

Read more:
https://www.theguardian.com/environment/2022/mar/24/microplastics-found-in-human-blood-for-first-time

New Type of Ultraviolet Light Makes Indoor Air as Safe as Outdoors

A new type of ultraviolet light that is safe for people took less than five minutes to reduce the level of indoor airborne microbes by more than 98%, a joint study by scientists at Columbia University Vagelos College of Physicians and Surgeons and in the U.K. has found. Even as microbes continued to be sprayed into the room, the level remained very low as long as the lights were on.

The study suggests that far-UVC light from lamps installed in the ceiling could be a highly effective passive technology for reducing person-to-person transmission of airborne-mediated diseases such as COVID

and influenza indoors, and lowering the risk of the next pandemic.

Read more:
https://www.sciencedaily.com/releases/2022/03/220323101249.htm

Lead Contamination Remains a Significant Issue at Outdoor Shooting Ranges, Prompting Environmental Law Citizen Suits

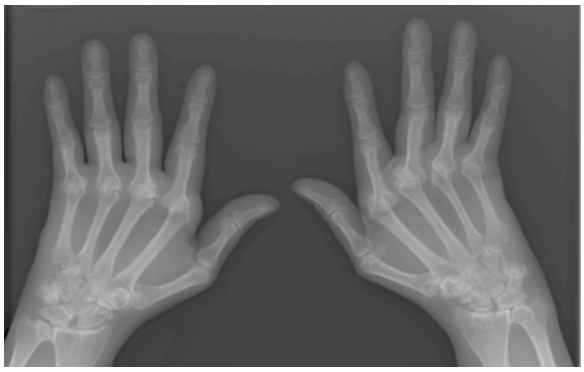
Spent lead ammunition at outdoor shooting ranges remains a significant environmental topic, as accumulated lead can pose a threat to human health and the environment if best management practices are not implemented in a timely fashion to minimize the impact. Lead contamination is a known issue in the shooting community, remains an issue at ranges in many states, and has resulted in several recent major, sometimes multi-million dollar, remediation efforts. In 2021, the owners and operators of a Maryland shooting range settled a citizen lawsuit on the condition that the owners address the existing lead in the soil, surface water and wetlands, redirect certain shooting stations away from wetlands, and conduct regular sampling to check for contamination.

Read more:
https://www.jdsupra.com/legalnews/lead-contamination-remains-a-5173963/

Breathing Dirty Air Could Raise Your Odds for Rheumatoid Arthritis

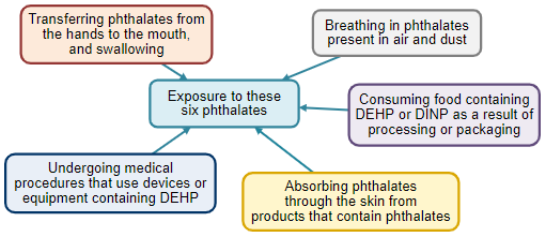
Long-term exposure to air pollution can wreak havoc on your lungs and heart, but new research suggests another vulnerability: It may increase your risk of rheumatoid arthritis and other autoimmune diseases.

For the study, the researchers analyzed health information on more than 81,000 people in Italy submitted by more than 3,500 doctors between June 2016 and November 2020. Most of the patients were women (92%), with an average age of 65.



Read more:
https://consumer.healthday.com/b-3-16-breathing-dirty-air-could-raise-your-odds-for-rheumatoid-arthritis-2656954005.html

Exposure to Phthalates -- The 'Everywhere Chemical' -- May Increase Children's Cancer Risk



In a first-of-its-kind study, research from the University of Vermont Cancer Center has linked phthalates, commonly called the "everywhere chemical," to higher incidence of specific childhood cancers. \

Phthalates are chemical additives used to enhance the durability or consistency of plastics and a wide range of consumer products. Humans are routinely exposed to these compounds when they leach out of the products and into the environment. They are also used as inactive ingredients in some medications, especially those that require extended or delayed drug release to work properly, for example, some anti-inflammatory drugs and antibiotics.

The study, published in the Journal of the National Cancer Institute, suggests that

exposure to medication-associated phthalates may contribute to the development of some childhood cancers, and that minimizing exposure to phthalates may help prevent some childhood cancers in the future.

Read more: https://www.sciencedaily.com/releases/2022/03/220316145830.htm

Using Nanorobots to Help Clean Heavy Metals from Polluted Water

An international team of researchers has developed nanorobots capable of removing heavy metals from polluted water. In their paper published in the journal Nature Communications, the group describes their nanorobots and how well they worked when tested.

Prior research has shown that heavy metals make their way into the water table through landfill leakage, mining operations and industrial dumping. Heavy metals must be removed from water sources, and current methods call for complicated multi-step procedures to remove them. In this new effort, the researchers report a possible alternative—nanorobots.

Read more: https://phys.org/news/2022-03-nanorobots-heavy-metals-polluted.html

Ergonomics

Hotel Bed Lifting Systems Can Cut Housekeeper Overexertion Injuries in Half, Study Shows

Hotel beds with lifting systems can help reduce injuries among housekeepers by at least half, results of a recent study by a safety agency in Spain's Balearic Islands suggest.

At a hotel in Palma that uses lifting mechanisms, researchers from the Balearic Institute of Occupational Safety and Health assessed the effort needed to make a bed while using a lift compared with making beds not equipped with lifts. Results show that hotel workers making a single bed without a lift had to exert 8.4 times more

force. For double beds, exertion multiplied by 7.3 times.

Read more:
https://www.safetyandhealthmagazine.com/articles/22338-hotel-bed-lifting-systems-can-cut-housekeeper-overexertion-injuries-in-half-study-shows

Safety

Harassment of Public Health Officials All Too Common in Pandemic

More than a third of local and state public health officials who resigned or were fired in the first 10 months of the COVID-19 pandemic reported incidents of workplace violence such as threats, harassment, and intimidation, according to a mixed-methods US study yesterday in the American Journal of Managed Care.

The Johns Hopkins University researchers analyzed 583 responses to a survey sent to 2,430 public health department members of the National Association of County and City Health Officials, media and social media content, news releases, local board of health meeting minutes, personal correspondence with journalists and health departments, and publicly reported position departures from March 2020 to January 2021.

Read more:
https://www.cidrap.umn.edu/news-perspective/2022/03/harassment-public-health-officials-all-too-common-pandemic

High-Tech Drug Infusion Pumps in Hospitals Vulnerable to Damage, Hackers

With the increasing number of highly infectious disease incidents, outbreaks, and pandemics in our society (e.g., Ebola virus disease, Lassa fever, coronavirus diseases), the need for consensus and best practices on highly infectious decedent management is critical. In January 2020, a workshop of subject matter experts from across the world convened to discuss highly infectious live patient transport and highly infectious decedent management best practices. This commentary focuses on the highly infectious decedent management component of the workshop. The absence of guidance or disparate guidance on highly infectious decedent management can increase occupational safety and health risks for death care sector workers.

Read more:
https://medicalxpress.com/news/2022-03-high-tech-drug-infusion-hospitals-vulnerable.html

Reflective Vehicle Markings Plus High-Intensity Lights May Make First Responders Harder for Drivers to See

The combination of high-intensity lights and high-visibility markings on emergency vehicles may make first responders working nighttime roadway scenes difficult for approaching motorists to see – even when the responders are wearing hi-vis vests, the "surprising" results of a recent study show.

In collaboration with the U.S. Fire Administration, the Lighting Research Center at Rensselaer Polytechnic Institute

and Embry-Riddle Aeronautical University, researchers from the Emergency Responder

Safety Institute asked 20 volunteer civilian drivers to approach different emergency lighting setups on a closed course at night. The setups – designed to mimic a traffic incident scene – featured a silhouette cutout of a firefighter wearing a hi-vis safety vest along with 14 combinations of lamp color, lamp intensity, pattern, flash rate and presence of reflective markings next to the lights.

Read more:
https://www.safetyandhealthmagazine.com/articles/22413-reflective-vehicle-markings-plus-high-intensity-lights-may-make-first-responders-harder-for-drivers-to-see

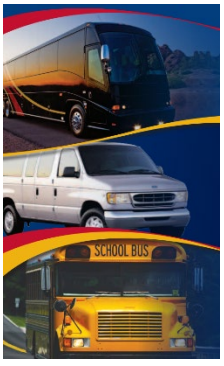
DOT Proposes Oral Fluid Drug Testing as an Alternative Method

The Department of Transportation has issued a proposed rule that would revise industry drug testing protocol by adding oral fluid testing as an alternative to urine testing for commercial motor vehicle operators and workers in other safety-sensitive transportation positions.

In a notice published in the Feb. 28 Federal Register, DOT claims the proposal "will give employers a choice that will help combat employee cheating on urine drug tests and provide a more economical, less intrusive means of achieving the safety goals" of the transportation industry's drug and alcohol testing program.:

Read more:
https://www.safetyandhealthmagazine.com/articles/22362-dot-proposes-oral-fluid-drug-testing-as-an-alternative-method

FMCSA Final Rule Expands Area Where Safety Tech Can be Mounted on Truck, Bus Windshields



The Federal Motor Carrier Safety Administration is increasing the area safety technology may be mounted inside commercial motor vehicles and expanding the definition of "vehicle safety technology."

According to a final rule published in the March 7 Federal Register and set to go into effect May 6, the rulemaking was promulgated in response to a petition from Daimler Trucks North America.

Federal Motor Carrier Safety Regulations previously mandated that vehicle safety

devices be mounted no more than 4 inches "below the upper edge of the area swept by the windshield wipers." FMCSA is changing that parameter to 8.5 inches.

Read more:
https://www.safetyandhealthmagazine.com/articles/22343-fmcsa-final-rule-expands-area-where-safety-tech-can-be-mounted-on-truck-bus-windshields

Emergency Preparedness

Emergency Response Missions for Recovered Chemical Warfare Material

A group of seasoned U.S. Army civilians are often called to respond on short notice when suspected recovered chemical warfare material is recovered anywhere around the globe.

The Chemical, Biological, Radiological, Nuclear, Explosives (CBRNE) Analytical and Remediation Activity (also known as CARA) have two remediation response sections: CARA-East based on Aberdeen Proving Ground and CARA-West on Redstone Arsenal in Alabama. During recent missions in Arizona, Delaware, New Jersey, Hawaii and the U.S. Army Pacific area of responsibility, CARA teams have identified and removed potential chemical munitions

or materiel, protecting life, property and the environment by removing these hazardous materials.

Read more:
https://globalbiodefense.com/2022/03/13/emergency-response-missions-for-recovered-chemical-warfare-material/

Deployment Health

Army Develops High-Tech Solution to Keep Hands Warm without Gloves

The United States Army has developed a high-tech solution that will keep a soldier's extremities warm without gloves while allowing them the full dexterity of their hands.

Researchers at the U.S. Army Research Institute of Environmental Medicine have developed the technology, long sought after by the military, the New York Post reported. The project has been in the works for 80 years, as soldiers have struggled with sacrificing warmth for function by using gloves.

"Gloves themselves can decrease dexterity by 50 to 70%. We were wondering if we could find a solution that would enable a person to have warm hands, even if bare-handed, so that dexterity could be maintained," Dr. John Castellani of the U.S. Army Research Institute of Environmental Medicine told the Post.

Read more:
https://nypost.com/2022/03/05/army-develops-high-tech-solution-to-keep-hands-warm-without-gloves/

Nanotechnology

Drug Discharging Smart Bandage Made of Nanofibers to Treat Wound Infection

It is tough to see from the outside if a wound will heal without issues under the dressing or if bacteria will enter the injured area and trigger inflammation. To be safe, antibiotics or disinfectant ointments are applied to the wound prior to the application of the dressing.

However, these preventive strategies are not needed in all cases. Thus, there is a

wastage of medications and injuries are over-treated.

What is worse, the wasteful application of antibiotics increases the rise of multi-resistant germs, which are a huge issue in global healthcare. Researchers at Empa working in two Empa laboratories Biointerfaces and Biomimetic Membranes and Textiles in St. Gallen want to alter this. They are creating a wound dressing that autonomously imparts antibacterial drugs only when they are truly required.

Read more:
https://www.azonano.com/news.aspx?newsID=38902

Regulatory Research & Industrial Hygiene Professional News

Congress

Bill Would Protect Copyrights on Voluntary Standards Incorporated into Government Regulations

Bipartisan legislation recently introduced in the House would provide copyright protections for voluntary standards when they're incorporated into mandatory standards developed by OSHA and other agencies.

The Protecting and Enhancing Public Access to Codes Act, or Pro Codes Act (H.R. 6769), was introduced Feb. 18 by Rep. Ted Deutch (D-FL) and is co-sponsored by Rep. Darrell Issa (R-CA). The copyright protection of standards would apply to any incorporation by reference "in full or in part, into any federal, state, or municipal law or regulation."

One stipulation is the owner of the copyright must make the work available for free "in electronic form on a publicly accessible website."

Read more:
https://www.safetyandhealthmagazine.com/articles/22349-bill-would-protect-copyrights-of-voluntary-standards-incorporated-into-government-regulations

EPA

EPA Publishes Best Practices for Indoor Air Quality in Combating COVID-19

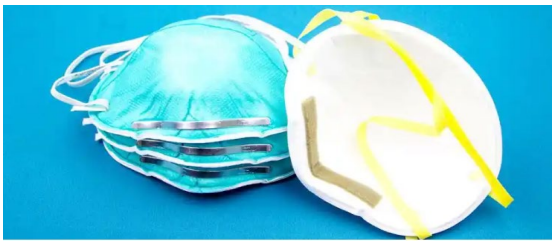
The U.S. Environmental Protection Agency (EPA) has released new guidance on best practices to improve indoor air quality (IAQ) as part of the administration's overall pandemic response plan for combating COVID-19.

Called the "Clean Air in Buildings Challenge," the guidance advises, "[b]uilding owners and operators should engage experts, facilities managers, and others who are skilled, trained, and/or certified in HVAC work to develop and implement plans to improve IAQ and manage air flows."

Read more:
https://www.natlawreview.com/article/epa-publishes-best-practices-indoor-air-quality-combating-covid-19

NIOSH

NIOSH Rescinds Approval for Pacific PPE Respirators



The National Institute for Occupational Safety and Health recently rescinded all respirator approvals issued to Pacific PPE Corp. at the company's request, meaning respirators bearing the NIOSH approval numbers TC-84A-9278, TC-84A-9299 and TC-84A-9313 may no longer be manufactured, assembled, sold or distributed.

Read more:
https://www.aha.org/news/headline/2022-03-29-niosh-rescinds-approval-pacific-ppe-respirators

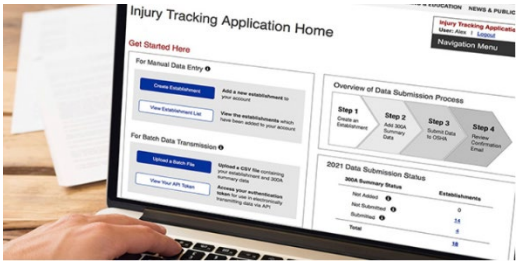
OSHA

OSHA Announces COVID-19 Enforcement Initiative for Hospitals and Nursing Care Facilities

On March 8, 2022, OSHA released an enforcement memorandum detailing a new initiative involving a short-term increase in highly focused inspections directed at hospitals and skilled nursing care facilities that treat or handle COVID-19 patients. The goal of this initiative is to ensure continued mitigation to control the spread of COVID-19 and future variants of the SARS-CoV-2 virus and protect the health and safety of healthcare workers who are at heightened risk for contracting the virus.

Read more:
https://www.natlawreview.com/article/osha-announces-covid-19-enforcement-initiative-hospitals-and-nursing-care-facilities

OSHA Proposes Reinstating Electronic Filing Rules



The Occupational Safety and Health Administration (OSHA) is proposing to reinstate requirements for electronic submission of injury and illness logs and incident reports. The proposed rule is scheduled to appear in the March 30 Federal Register (FR).

The change would require businesses with 100 or more employees in specified industries to electronically submit information from their OSHA Forms 300, 301, and 300A once a year. Those with 20 or more employees still would electronically file their OSHA Form 300A, the annual

"Summary of Work-Related Injuries and Illnesses."

Read more: https://ehsdailyadvisor.blr.com/2022/03/osha-proposes-reinstating-electronic-filing-rules/

EPA

EPA Releases First Toxic Release Inventory National Analysis Featuring PFAS

Last week, EPA released its 2020 Toxics Release Inventory (TRI) National Analysis, which shows that environmental releases of TRI chemicals by facilities covered by the program declined by 10% between 2019 and 2020.

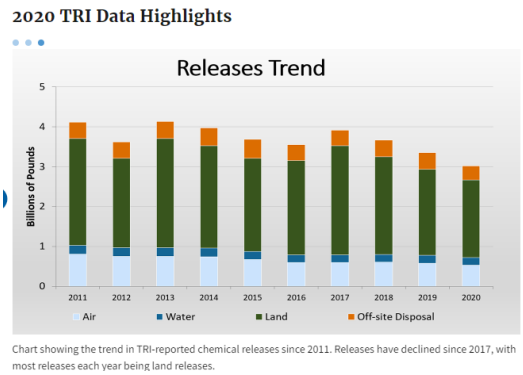
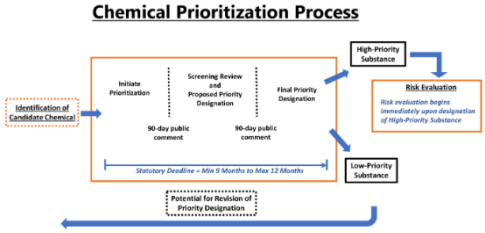


Chart showing the trend in TRI-reported chemical releases since 2011. Releases have declined since 2017, with most releases each year being land releases.

The 2020 Analysis is the first to feature reporting on the 172 types of PFAS added to TRI by the 2020 National Defense Authorization Act. Facilities reported managing 800,000 pounds of PFAS chemicals in 2020, but of that only around 9,000 pounds were reported as releases. Most of the production-related PFAS waste was reported by hazardous waste management facilities or chemical manufacturers, and most releases of PFAS were reported by the chemical manufacturing sector.

Read more: https://www.jdsupra.com/legalnews/epa-releases-first-toxic-release-6061825/

EPA Issues Test Orders For Eight of the Next 20 Chemicals Being Evaluated Under TSCA



The U.S. Environmental Protection Agency (EPA) announced on March 24, 2022, that it has issued a second round of test orders under Section 4 of the Toxic Substances Control Act (TSCA) to obtain additional data on eight of the next 20 chemicals undergoing risk evaluation. EPA states that

after reviewing reasonably available data on these chemicals, it determined additional data are needed and is using its TSCA test order authority to require companies to develop and submit information on avian and aquatic environmental hazard and consumer exposure. The chemicals are:

- Chlorinated Solvents:
- 1,1,2-Trichloroethane;
- 1,2-Dichloroethane;
- 1,2-Dichloropropane;
- Trans-1,2-Dichloroethylene;
- o-Dichlorobenzene; and
- p-Dichlorobenzene;

Flame Retardants:

- 4,4'-(1-Methylethylidene)bis[2,6-dibromophenol] (TBBPA); and
- Phosphoric acid, triphenyl ester (TPP).

Read more:
https://www.natlawreview.com/article/epa-resumes-publishing-tsca-section-8e-notices-to-chemview

APHC

Training

As we continue to combat the COVID-19 virus, we are making our best efforts to provide you with Blueprint, Design Review, and Ventilation lessons that otherwise you'd travel to acquire.

Due to the changing MS TEAMS and DCS environments, and the ability to host a live event with hundreds of participants, we've been providing "Pre-recorded" webinar events.

All handouts are made available, and can be downloaded from your Blackboard webinar course shell with recorded material for you to view ad-hoc, and participation certificates awarded for each lesson survey/evaluation completed.

You may ask yourself "what's the difference between a live webinar and a pre-recorded webinar?"

Not only does a pre-recorded webinar allow you to view in your own time zone at a time most convenient for you, it allows us to edit and re-record segments, swap out segments that didn't work so well, add effects, graphics, and more in the post-production stage.

Pre-recorded webinars give a more polished effect than a live webinar. Right now, we're all adjusting to having more remote meetings, watching broadcasts instead of attending live events, and spending a little more time on our computers than doing surveys.

It is our goal to connect with you, getting you the relevant and emerging information you need to help your clients. Our sustainment webinars, whether live or pre-recorded, can help you achieve those goals.

How to participate in a "pre-recorded" webinar:

1. Navigate to your "Army Industrial Hygiene Webinar" shell on our Blackboard site https://aiph-dohs.ellc.learn.army.mil
2. Use the left navigation tile to locate SPECIAL EDITION WEBINARS
3. Select each webinar link to view
4. Record case sensitive code words while viewing
5. Use the left navigation tile to locate COLLECT CERTIFICATES
6. Select the link for your webinar and use code word to initiate certificate

NOTE: Our classroom space is not allowing traditional classroom courses due to the pandemic. We continue our efforts to provide relevant content that aligns with these courses via our webinars.


DOCUMENT LIBRARY
COLLECT CERTIFICATES
NEW WEBINARS
ASK THE SME RECORDINGS
MANAGE YOUR IH MONSTER RECORDINGS
ARMY IH FEILD OP MANUAL RECORDINGS
IH LEADER RECORDINGS
SPECIAL EDITION WEBINAR RECORDINGS
All slide handouts are here
Most recent recordings here
SME recording archive
MONSTER recording archive
FOM recording archive
LEADER recording archive
Special Edition archive


ABOUT THE "ASK THE SME" WEBINARS
These "Ask the SME" Webinars are about communicating freely with subject matter experts.
Most of the subject matter experts have lead in slides to spark conversation, and then take questions from the live a
If you are here, then you probably missed the live event. That's OKAY. This is why we provide recordings.
If you have questions for the subject matter experts that
ot addressed during the live event, we encourage yo
Description
SLIDE HANOUTS: Ask the SME Webinars
Enabled: Statistics Tracking
Attached Files:
11/4/2016 Monster: All About ANOVA (1.918 MB)
11/14/2018 SME: Hexavalent Chromium 48min (451.598 KB)
2/27/2019 SME: Ergonomics 51min (402.939 KB)
8/6/2019 SME: Pharmacy Hazardous Drug Samples 28min (1.569 MB)
3/4/2020 SME: APHC Analytical Lab (1.425 MB)
6/17/20 SME: IH Contract Technical Monitors (1.0hr) (773.407 KB)
OWAS Table.doc (90.5 KB)
Liberty Mutual Tables.pdf (874.9 KB)
OWAS Postures.pdf (135.149 KB)
12/2/20 SME: DOEHRS-IH Report Standardization 90min
Example Standardized Ergo Survey (4.361 MB)
Handouts
Download Handouts
Recordings
12/2/20 SME: DOEHRS-IH Report Standardization 90min
Enabled: Statistics Tracking
Look for slide handouts and a copy of the Army DOEHRS IH Buddy v0.7 in the SLIDE HANDOUTS above, or the DOCUMENT LIBRARY section of this course
12/2/20 SME: Downdraft Ventilation Q/A 7min
Enabled: Statistics Tracking

Downdraft Day	
12/2/20 Monster: Building Downdraft Tables in DOEHRS-IH (52min)	THEME: CONTROLING AIR CONTAMINANTS
12/2/20 Leader: Measuring Downdraft Tables (42min)	THEME: CONTROLING AIR CONTAMINANTS
12/2/20 SME: Downdraft Ventilation Q/A	THEME: CONTROLING AIR CONTAMINANTS
12/2/20 SME: DOEHRS-IH Report Standardization (30min)	THEME: MANAGING ARMY IH
12/2/20 Leader: Compressed Air use with Heavy Metals (30min)	THEME: CONTROLING AIR CONTAMINANTS

Vehicle Maintenance Day	
3/3/21 Monster: Building Vehicle Exhaust Ventilation in DOEHRS-IH (72min)	THEME: CONTROLING AIR CONTAMINANTS
3/3/21 Leader: Measuring Vehicle Exhaust Ventilation (50min)	THEME: CONTROLING AIR CONTAMINANTS
3/3/21 Leader: Vehicle Design Review (2hr)	THEME: CONTROLING AIR CONTAMINANTS
3/3/21 SME: Vehicle Exhaust Ototoxins (40min)	THEME: CONTROLING AIR CONTAMINANTS
3/3/21 SME: IH Manpower Study Survey (14min)	THEME: MANAGING ARMY IH

Coating/Painting Day	
6/2/2021 Monster: Building Paint Booths in DOEHRS-IH (60min)	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 Leader: Measuring Paint Booths (37min)	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 Leader: Paint Spray Design (65min)	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 SME: Data Mining DOEHRS-IH (Paintbooth Accident Investigation) (17min)	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 SME: DOEHRS Cadmium Data/Protecting Against Cadmium 49min	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 SME: Protecting Against Cadmium (combined with Cadmium Data)	THEME: CONTROLING AIR CONTAMINANTS
6/2/2021 Leader: Particle Size Selective Sampling 35min	THEME: SAMPLING
6/2/2021 Leader: IH Professional Sampling Kit 20min	THEME: SAMPLING
6/2/2021 SME: Surface Sampling 18min	THEME: SAMPLING

Laboratory/Healthcare Day	
9/1/2021 Monster: Building Lab Hood Ventilation in DOEHRS-IH (64min)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 Monster: Building Dilution Ventilation in DOEHRS-IH (93min)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 Leader: IH Value Strategy Laboratory Engineering Controls (17min)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 SME: Sampling Qualifiers (15min)	THEME: SAMPLING
9/1/2021 Leader: Laboratory Design (2hr)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 Leader: Methylene Chloride (Workplace, Data Mining, Virtual Tour) (2hr)	THEME: SAMPLING
9/1/2021 Leader: Healthcare Ventilation and Design (3hr)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 Leader: OHS for Laboratory/Healthcare (Overview, Risk Management, IH Role, Virtual Tours) (3hr)	THEME: SAMPLING
9/1/2021 Leader: Modeling Laboratory/Healthcare Exposures in DOEHRS-IH (60min)	THEME: CONTROLING AIR CONTAMINANTS
9/1/2021 Leader: Laboratory/Healthcare Compliance Survey Tour (2hr)	THEME: SURVEY
9/1/2021 SME: Ergonomic Patient Handling (28min)	THEME: HAZARD EVALUATION AND CONTROL

REVIEW	*Recommended Healthcare/Laboratory lessons if you have not already viewed these previously)*
Leader	Adventures in Ventilation at Natick Laboratories (68min)
Monster	Pathology, Grossing, Morgue, Tissue, and Death Care (1.5hr)
SME	Pharmacy Hazardous Drug Samples (28min)
Leader	Audiometric Booth Testing and Certification (17min)

This monthly summary is published by the Industrial Hygiene Program Management Division for the Army Public Health Center.

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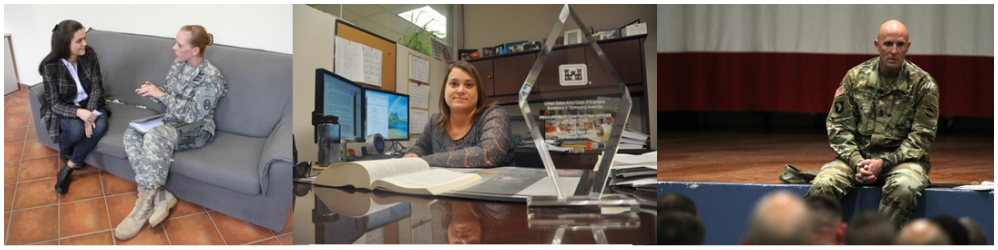
On the Web:
http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/default.aspx



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.