

**Board of Scientific Counselors**  
**395 Patriots Plaza, SW**  
**Washington, DC 20201**  
**June 20, 2014**

**Personnel and Organizational Announcements**

- New division: Spokane Mining Research Division. Jeffrey Whyatt, Ph.D., P.E., is the Acting Director of the new Spokane Mining Research Division (SMRD). NIOSH has begun a search for a permanent Director for the Spokane Mining Research Division.
- New Division: World Trade Center Health Program. Dr. Dori Reissman is the Associate Administrator
- Don Beezhold is the new Director for the Health Effects Laboratory Division in Morgantown.
- Jeffery Kohler, Ph.D., the NIOSH Associate Director for Mining, has been appointed by The Pennsylvania State University to the Chair of Mining Engineering in the Department of Energy and Mineral Engineering of the College of Earth and Mineral Sciences. NIOSH will be forming a search committee to identify candidates for the position of NIOSH Associate Director of Mining
- Lauralynn McKernan is the new Deputy Director for the Education and Information Division

**Budget**

- The FY 2014 funding level for NIOSH is \$588.6 million
  - Occupational safety and health research: \$292.3 million (49.6%)
  - World Trade Center Health Program: \$241 million (41%)
  - Energy Employees Occupational Illness Compensation Program: \$55.3 million (9.4%)
- The FY 2014 Occupational Safety and Health funding represents a \$9.2 million increase over the FY 2013 operating level. Funding increases are targeted to ERCs, Agriculture, Forestry and Fishing, Mining and restoration of the Mesothelioma Tissue Bank.
- FY 2015 Budget: 2015 budget is being marked up. The President has proposed elimination of all federal funding for the Educational and Research Centers (ERCs), and all federal funding for the Agriculture, Forestry and Fishing (AFF) sector.

**New Programs and Initiatives**

*Center for Direct Reading and Sensor Technologies*

- In May, NIOSH stood up a center to focus efforts on direct reading and sensor technologies.

- Sensor use around the world is growing exponentially. Smart phone technology is driving that use. The quality of information from these sensors with respect to occupational safety and health practice is not known.
- The focus of the center is to coordinate a national research agenda for direct reading methods and sensor technologies, develop guidance documents pertinent to direct reading methods and sensors, including validation and performance characteristics and develop training protocols. The Center staff will establish partnerships to collaborate in the Center's activities.

### *The NIOSH ladder safety phone app*

- NIOSH's first smartphone application for mobile devices. Falls are an important cause of injury in many occupations as well as in home use. This free app improves extension ladder safety by providing real-time visual and audible information on ladder angle, and also provides additional safety information on ladder selection, inspection, accessorizing, and use.
- The app was developed with input from the American Ladder Institute and ANSI A14, fine-tuned with stakeholder feedback, and publicized by partners including the American Society of Safety Engineers and the National Safety Council.
- It is available through the NIOSH website (e.g., the Fall Injuries Prevention page, the 8/27/13 Science Blog) and through the Apple Store and Google Play.
- It has been downloaded more than 20,000 times through May 2014, and is currently one of six finalists for the HHS Innovates Award.

### *Disaster Science Research Initiative (DSRI):*

- The DSRI will expand our understanding of how to conduct timely, scalable, scientifically sound research focused on the safety and health of responders. The goal is to develop a framework that allows for research to be started quickly in the time before, during, and after response to a large scale disaster.
- Scientific study can provide better understanding and reduction of responder health effects from disasters and can lead to improvements in the effectiveness of emergency responses.
- Dr. Kitt will be providing an overview later today.

### *New topic page promotes healthy aging:*

- The new topic page, titled Healthy Aging at Work, along with its associated subpages, features a compilation of recommendations for healthy aging in the workplace as well as NIOSH research on the subject.
- Future planned updates include expanding on research needs as well as information specific to health risks such as hearing loss and musculoskeletal disorders.
- The page also features simple strategies and workplace solutions for an age-friendly workplace.

### *Climate Change and Worker Health*

- New Director's goal develop action plan for climate change
- Max Kiefer and Jennifer Lincoln are leaders of the workgroup.
- Emphasis area for upcoming NORA funding competitions. Paul Schulte is the contact.
- Schulte and Chun (2010) article identifies 7 categories of climate related occupational safety and health hazards.
  - (1) increased ambient temperature, (2) air pollution, (3) ultraviolet exposure, (4) extreme weather, (5) vector-borne diseases and expanded habitats, (6) industrial transitions and emerging industries; and (7) changes in the built environment.
- Related: Revised criteria document on heat and hot environments in development.

### *New Nail Gun Safety Topic Page:*

- Nail guns have replaced hammers in wood frame construction. They are powerful, easy to operate and boost productivity for nailing tasks.
- Nail guns are a leading cause of injury among residential carpenters and responsible for an estimated 37,000 emergency room visits each year, of which 60% are occupationally-related. Puncture wounds to the hands and fingers are most common, but more serious injuries and deaths occur using nail guns.

### *Virtual Center for Motor Vehicle Safety:*

- The National Institute for Occupational Safety and Health (NIOSH) has created a virtual research center within the agency that will better focus, coordinate, and stimulate research to prevent work-related motor vehicle injuries and fatalities. Motor vehicle crashes consistently have been the leading cause of work-related death in the U.S., accounting for more than one-third of all job-related fatalities in 2008.
- Research initiatives under the new virtual NIOSH Center include road safety for workers across all industries and occupations, building on existing studies and partnerships. The center is hosted by the NIOSH Division of Safety Research in Morgantown, W.Va., and links researchers together from NIOSH's geographically dispersed facilities through shared computer networks and other communication technologies.
- More on the NIOSH motor vehicle program later today

### *Campaign to Prevent Falls in Construction:*

- This national campaign to prevent construction-worker falls was launched on April 26, 2012. The Campaign encourages everyone in the construction industry to work safely and use the right equipment to reduce falls.
- Special emphasis and activity will focus on residential construction contractors and workers.

### *New Interactive Map Reveals Info on Fire Fighter Investigations*

- A new NIOSH interactive mapping application is available on the NIOSH website. The map shows all fire fighter deaths tracked by the U.S. Fire Administration

### *NIOSH work on immigrant workers is highlighted in the current issue of Professional Safety*

- “Safety and the Diverse Workforce: Lessons from NIOSH’s Work with Latino Immigrants,” authored by Mike Flynn of the Education and Information Division. <http://www.asse.org/>
- Discusses the challenges in integrating employees from an increasingly diverse workforce to remain effective, competitive and safe. These challenges include knowledge, language, culture and structural realities such as unfamiliarity with materials, institutional culture and PPE fit issues. While focused on Latino immigrants, the approaches discussed can inform efforts with workers from various backgrounds.

### *Extramural Research and Training Programs:*

- NIOSH invites applications for training programs that address occupational safety and health training needs of miners in the Western United States.
- NIOSH invites applications for a National Center of Excellence for the Prevention of Childhood Agricultural Injury. The research, prevention, intervention, outreach, education, translation, and evaluation efforts of the Center should focus on improving the safety and health of children and adolescents who are present where agricultural work occurs.
- Extramural Research Goals 2014 – 2016: Extramural priority research goals have been identified for the Fiscal Year 2014 – 2016 period. Please see [priority areas](#) for the NORA Sector and Cross Sectors.

### *GAO Study - Chemical Toxicity Risk Assessment*

- Requested by the House Science Committee
- 5 agencies are involved: ATSDR, EPA, NIOSH, NTP, OSHA
- NIOSH had several conference calls with GAO
  - Reported how NIOSH coordinated or collaborated with the other agencies.
  - Cited chemical assessments that OSHA has used or is planning to use in rulemaking, such as silica, chromium and diacetyl/2,3-pentanedione.
  - Described work with international organizations such as IARC, EU-US Joint Conference on Occupational Safety and Health, DECOS, WHO/ILO, WHO International Programme on Chemical Safety.
  - Forwarded MOUs or other agreements to GAO
- Expect GAO report later this year.

## Recently Released CDC/NIOSH Publications and Website Highlights

- The State of the National Initiative on Prevention through Design, NIOSH Pub. 2014-123
- Pandemic Planning: Recommended Guidance for Extended Use and Limited Reuse of N95 filtering facepiece respirators in healthcare settings
- HHE – Poultry line speed study
- NIOSH Extramural Research and Training Program, Annual Report of Fiscal Year 2012.
- A Summary of NIOSH Childhood Agriculture Injury Prevention Extramural Research under the Childhood Agriculture Injury Prevention Initiative: A Quindecennial (1997-2011) of Progress
- MMWR – Smokeless Tobacco Use Among Working Adults, United States, 2005 and 2010
- The State of the National Initiative on Prevention through Design
- Commercial Fishing Morbidity and Mortality, U.S. Distant Water Tuna Fleet.
- NIOSH Center for Motor Vehicle Safety: Strategic Plan for Research and Prevention, 2014-2018
- Workers' Compensation Insurance: A Primer for Public Health
- Common Misconceptions About the Flu Among People Who Work in Child Care Settings
- Controlling Worker Exposures to Nanomaterial: NIOSH Issues New Research-Based Recommendations
- NIOSH Current Intelligence Bulletin #66: Derivation of Immediately Dangerous to Life and Health Values
- Workplace Solutions: Preventing Worker Injuries and Deaths from Backing Construction Vehicles and Equipment at Roadway Construction Worksites (Workers on roadway construction worksites are at risk of injury and death from moving construction equipment and vehicles. A Bureau of Labor Statistics review of 962 fatal workplace injuries at road construction sites between 2003 and 2010 showed that 46% were due to being struck by a vehicle or mobile equipment, 32% of which were backing up. In this Workplace Solutions, NIOSH recommends specific procedures and controls to prevent injuries and deaths from construction vehicles and equipment that are backing up. Standard operating procedures and recommendations are provided to employers (including contractors and sub-contractors), vehicle and equipment operators, workers on foot, manufacturers, and after-market installers. Information is also provided on compliance, vehicle operation and servicing, communication, and training.)

## Other Recent NIOSH Authored Publications:

- Real-time analysis of the effects of toxic, therapeutic and sub-therapeutic concentrations of digitoxin on lung cancer cells.
- Modeling the optical properties of combustion-generated fractal aggregates.
- Interactive effects of cerium oxide and diesel exhaust nanoparticles on inducing pulmonary fibrosis.
- Review of engineered nanomaterial manufacturing processes and associated exposures.
- Commercial carpet cleaning: safety first!

- A summary of research and progress on carbon monoxide exposure control solutions on houseboats.
- An evaluation of classification algorithms for manual material handling tasks based on data obtained using wearable technologies.
- Analysis of the effects of surface stiffness on the contact interaction between a finger and a cylindrical handle using a three-dimensional hybrid model.
- Exposure of firefighters to particulates and polycyclic aromatic hydrocarbons.
- Modeled effectiveness of ventilation with contaminant control devices on indoor air quality in a swine farrowing facility.
- Maternal occupational exposure to polycyclic aromatic hydrocarbons and small for gestational age offspring.
- Respiratory symptoms and lung function abnormalities related to work at a flavouring manufacturing facility.
- Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950-2009).
- Occupational safety beliefs among Latino residential roofing workers.
- A quantitative assessment of the total inward leakage of NaCl aerosol representing submicron size bioaerosol through N95 filtering facepiece respirators and surgical masks.
- Obesity and other risk factors: the National Survey of U.S. Long-Haul Truck Driver Health and Injury.
- Evaluation of exposure to tuberculosis among employees at a medical center.
- Quit interest, quit attempt and recent cigarette smoking cessation in the US working population, 2010.
- NIOSH Health and Safety Practices Survey of Healthcare Workers: training and awareness of employer safety procedures.

## **Upcoming Publications**

- Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments
- Criteria for a Recommended Standard: Occupational Exposures to Diacetyl and 2, 3-pentanedione
- Criteria for a Recommended Standard: 1-Bromopropane
- Current Intelligence Bulletin: Neurological Effects of Manganese Exposure to Welders
- NIOSH Current Intelligence Bulletin: Update of NIOSH Carcinogen Classification and Target Risk Level Policy for Chemical Hazards in the Workplace
- NIOSH Skin Notation Profiles Group B (25 chemicals)
- NIOSH List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings 2014
- NIOSH Manual of Analytical Methods: NMAM 8007
- Recent Coal Dust Particle Size Surveys and the Implications for Mine Explosions
- OSHA-NIOSH Fact Sheet: Recommended Practices for Protecting Temporary Workers (is a pending co-branded document that addresses an increasing and underserved segment of the workforce. The Fact

Sheet provides best practices recommendations to both staffing agencies and host employers, who are jointly responsible for providing and maintaining a safe work environment for these workers. Links to state FACE (Fatality Assessment and Control Evaluation) programs are provided. One story from a FACE investigation is showcased, describing a young man who died cleaning equipment at a food manufacturing plant whose permanent maintenance employees were provided training that was not provided to cleaners employed through a temporary agency.)

## Recent and Currently Available for Public Review and Comment

- Federal Register: Request for information on respiratory protective devices used in healthcare, in particular those approved by NIOSH and also cleared by FDA as medical devices. Issues include assumption that all particles, regardless if biological or non-biological, follow the same principles of aerosol physics, addition of tests for splash/spray, flammability, addition of respirators other than filtering facepiece respirators (docket closed 4/30/2014). <http://www.cdc.gov/niosh/docket/archive/docket272.html>
- Request for comments on NIOSH draft method 8324, metabolite of 1-bromopropane (Docket closed June 10, 2014). <http://www.cdc.gov/niosh/docket/archive/docket273.html>

## Social Presence

- NIOSH continues to expand its presence on social networks.
- For Workers Memorial Day, NIOSH had a robust, focused presence on Twitter, Facebook, and other networks to support the message of honoring those who have suffered occupational injury, illness, and death, and striving to prevent future tragedies.

## Social Presence Statistics

- **eNews** subscribers: 50,360 as of 5/31/14.
- **Total Worker Health** newsletter subscribers: 54,122 as of 5/31/14.
- **Science Blog**: 1,137,806 cumulative views since the introduction of the blog in November 2006.
- **Facebook** followers: 157 Facebook postings and 39,684 “likes” for our organizational page
- **Pinterest** pins: We have pinned 33 items to CDC’s Workplace Safety and Health Board, which has 1884 followers.
- **Flickr**: 208 images in our Flickr photostream.
- **You Tube videos**: 124 posted videos and 213,207 downloads.
- **Twitter**: We have 14 Twitter accounts, with more than 225,000 followers, combined. One ranking from Twitaholic.com reports that NIOSH is in the top 10 of all Twitter sites among followers in Washington, D.C.
- **You Tube**: We posted our hundredth video on YouTube last year, with 183,000 views of our YouTube channel to date.

## Science Blog Topics

- June 10, 2014: Safety Sustainability
- June 6, 2014: National Doughnut Day: Health risks of bakers
- May 28, 2014: Nickel Nanoparticles: A Case of Sensitization
- May 21, 2014: Safe Handling of Hazardous Drugs
- May 14, 2014: NIOSH Role in Prescription Drug Abuse Prevention
- May 5, 2014: Proper Use and Disposal of Protective Gowns in Healthcare
- April 23, 2014: Coccidioidomycosis: An Enduring Work-Related Disease
- April 22, 2014: Semi-Autonomous Motor Vehicles
- April 16, 2014: Occupations with High Obesity Prevalence
- April 2, 2014: Do We Need to Challenge Respirator Filters with Biological Aerosols?

## Program and Research Pipeline

### Education and Information Division

- **NIOSH Occupational Exposure Banding Process:**
  - NIOSH recognizes the importance of authoritative occupational exposure limits (OELs). However, we also recognize that chemicals are being introduced at a rate that significantly outpaces OEL development. While NIOSH develops new OELs and updates existing OELs, guidance is needed for the thousands of chemicals that lack exposure limits. The recently proposed NIOSH occupational exposure banding process will be useful for dealing with the myriad of unregulated chemicals in commerce.
  - The proposed process comprises a three-tiered evaluation system and uses available toxicological data to define a range of concentrations, i.e. an occupational exposure band (OEB), for controlling chemical exposures.
  - The NIOSH occupational exposure banding process can be used with limited information and resources, and can be performed by toxicologists, occupational hygienists, and health and safety specialists. Through OEBs, companies can protect their workers from many of the chemicals that lack OELs.
- **Nanotechnology Research Center:**
  - NIOSH was an invited participant at a recent GAO Comptroller General's Forum on overcoming barriers to enhance US competitiveness in the nanomanufacturing megatrend. Resolving environmental health and safety issues was identified as a critical need. The success of NIOSH in developing partnerships with nanomaterial companies to

develop good guidance for occupational risk management was identified as an example of what the private sector valued most from the government.

- NIOSH offered a response in its May 28<sup>th</sup> Science Blog to a medical case report involving worker sensitization following possible exposure to nanoscale nickel. In this case, appropriate precautionary measures were not taken prior to introducing the nano nickel into the process. It is not known if the nickel being in nanoparticle form accelerated the sensitization, but it likely contributed to a greater potential for exposure.

<http://blogs.cdc.gov/niosh-science-blog/2014/05/28/nickel-nano/>

## Health Effects Laboratory Division

- In collaboration with the National Toxicology Program/National Institute of Environmental Health Services, HELD investigators have begun subchronic toxicology studies to evaluate the ***adverse health effects associated with inhalation of fungal spores***. Spores derived from fungal species nominated to the NTP, such as *Stachybotrys chartarum*, will be aerosolized using an acoustical generator system and delivered to normal breathing mice housed in a nose-only exposure chamber. Various toxicological and pulmonary immune endpoints will be evaluated following NTP specifications.
- HELD's current nanotoxicology research emphasis areas include: ***Nanoparticle induced carcinogenesis***; effects of modification of nanoparticle ***surface chemistry on pulmonary toxicity***; using data from the field to determine relevant occupational doses for *in vivo* models; and developing cell culture screening methods to predict toxicity of new nanomaterials.

## Division of Respiratory Disease Studies:

- DRDS continues to work as part of a cross-Institute initiative to facilitate use of ***electronic health records to improve occupational healthcare delivery*** and to improve occupational safety and health surveillance, especially work-related morbidity surveillance. To achieve this goal, NIOSH is working with ISO, HL7 and others to develop and support standards and tools for the collection, storage, and exchange of industry and occupation information in medical records and to develop clinical decision support capabilities focused on occupational safety and health issues.
- DRDS contributes to the Institute's Health Hazard Evaluations Program, with recent HHEs documenting important issues such as work-related ***color blindness associated with styrene*** exposure, ***diacetyl exposures in flavored coffee manufacturing***, and an unusual cluster of ***pulmonary lymphoproliferative disease*** among workers exposed to metalworking fluid.

- DRDS has contracted with the American College of Radiology to update educational materials for B Readers and the B Reader Certification examination into digital format. DRDS is also working to implement ***expanded health surveillance for coal miners under the new MSHA Coal Mine Dust rule***, which adds spirometry to the surveillance program and extends coverage to surface miners.
- NIOSH is transitioning our Coal Workers' Health Surveillance Program to address ***MSHA's new rule for coal mine dust (CMD) levels***, announced on April 23<sup>rd</sup>, 2014. As well as reducing the permissible limit of CMD from 2 mg/m<sup>3</sup> to 1.5 mg/m<sup>3</sup>, the new standard also called for inclusion of chest radiographs for surface miners. In addition, the current Respiratory Diseases Research Program ensures that 90% of underground mines have a current x-ray rosta and plan for those x-rays. Under the new rule this will be extended to surface coal mines. Similarly, x-ray B Reader obligations will be extended. Again similar to the approval/certification and oversight that RDRP provides for x-rays, it will have to provide the same for medical examinations, which will include spirometry testing, a symptom questionnaire, and an occupational history.

## Division of Surveillance, Hazard Evaluations, and Field Studies

- ***Efforts to incorporate (or better utilize) work-related information in existing surveillance systems.*** This is an important strategy being used across a number of studies to make the best use of Federal funds.
  - NHIS (National Health Interview Survey) is one example –more information on the NIOSH effort can be found at <http://www.cdc.gov/niosh/topics/nhis/>. We have examined the data by industry and occupation.
  - BRFSS (Behavioral Risk Factor Surveillance System), a survey of 400,000 people per year conducted by the CDC, is another example. NIOSH is leading (and funding) the current effort of 28 states to collect industry and occupation over FY2014-2016. If shown to be useful, we are hopeful that these two questions will be included in the core survey for all 50 states.
  - PRAMS (Pregnancy Risk Assessment Monitoring System) is a CDC surveillance project in collaboration with state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. NIOSH has funded the inclusion of industry and occupation into this surveillance system for 2016-18.

## Division of Applied Research and Technology

- NIOSH is looking into occupational exposures that result from the use of nanomaterials in construction lumber. **Micronized copper is a preservative used to treat lumber** and is one of the largest end uses of engineered nanoparticles. Larger particles are in the majority in treated wood while nanoparticles are more plentiful in the aqueous preservative. EPA is evaluating leaching of nanoparticles from micronized copper-treated wood. The EPA researchers suggested that NIOSH/EPHB investigate potential occupational exposures. The DART/EPHB test chamber will be

used to generate emissions from sawing, planing, sanding and routing the wood and determine the size distribution, focusing on the nano-region, and determine if copper is present in the aerosol. HELD will conduct toxicology studies. Work this year is funded by an interagency agreement with the Consumer Product Safety Commission.

- DART and Western States Office researchers have conducted exposure characterization and biomonitoring studies to determine worker exposures to **volatile organic compounds (VOCs) in hydraulic fracturing** sites.
- NIOSH evaluated the **functionality and accuracy of noise-measuring apps on smart phones**. As of June 2013, 60% of all mobile subscribers use smartphones—that's more than 140 million devices. Apple iOS and Google Android platforms account for 93% of those devices. Smartphone developers now offer many sound measurement applications (apps) using the devices' built-in microphone (or through an external microphone for more sophisticated applications). In order for smartphone apps to gain acceptance in the occupational environment, the apps must meet certain minimal criteria for functionality, accuracy, and relevancy to the users in general and the worker in particular. NIOSH noise researchers conducted a pilot study to select and characterize the functionality and accuracy of these apps. The resulting paper, [Evaluation of smartphone sound measurement application](#), was published in the Journal of the Acoustical Society of America. Android-based apps lacked the features and functionalities found in iOS apps. This is likely due to the iOS advanced audio capabilities compared to other platforms, the open ecosystem of the Android platform, and having so many different Android device manufacturers using different suppliers and components. Challenges remain with using smartphones to collect and document noise exposure data. In conclusion, smartphone sound apps can serve to empower workers and help them make educated decisions about their work environments. They may be useful for industrial hygienists and OS&H managers to make quick spot measurements to determine if hazardous noise levels exist in a workplace.

## Division of Safety Research

- The ***Violence Prevention for Nurses free online training course*** increases knowledge to prevent, assess, and respond to workplace violence incidents. Over the last decade, U.S. healthcare workers have accounted for two-thirds of the nonfatal workplace violence injuries in all industries involving days away from work. When NIOSH began working on an online violence prevention course, we learned of a Small Business Innovation Research grantee who had recently received funding to conduct similar work. We combined resources and the course, which includes text, case study videos and personal interview videos, was developed in coordination with nursing and health communications organizations, academia, labor, and other federal agencies. Nurses can obtain free continuing education units for course completion. Between mid-August 2013 and mid-May 2014, more than 5,000 healthcare professionals completed the course. We are currently working with

our extramural partners to add new modules for long-term care, emergency department, and psychiatric department workers.

- ***Taxicab drivers have one of the highest homicide rates among occupations***; while general population rates have declined (in 2010, 0.37 deaths/100,000 employed), they remain high among taxicab drivers (7.4/100,000). In the early 1990s, bulletproof partitions were the most frequently used security equipment; currently, cameras have become the equipment of choice for industry regulators and fleet operators. Recent NIOSH research examined 15 years of data from a nationally representative sample of 26 cities with large numbers of taxicabs: 8 cities used cameras, 7 used partitions, and 11 control cities used neither. Results suggested that citywide installation of security cameras may result in a sustainable reduction in driver homicide rates, with three times lower rates observed for camera cities compared to controls and seven times lower rates post-camera installation when compared to pre-installation. No homicide rate differences were observed between partition-using cities and controls. It was noted that, to be effective, cameras must be used optimally (i.e., maintained and not intentionally disabled) and publicized (e.g. decals notifying passengers that cameras are in use).

## **Upcoming Conferences**

### **1<sup>st</sup> International Symposium to Advance Total Worker Health**

- October 6–8, 2014, Natcher Conference Center, NIH, Bethesda
- This symposium will explore research, practices, programs and policies that advance the overall safety, health, and well-being of workers through the integration of health protection and health promotion.

## **Awards**

### ***CDC Shepard Award Winner:***

- NIOSH winner of the CDC Shepard Award, Data Methods and Study Design category
- Co-authors: Matt Wheeler, NIOSH Education and Information Division; John Bailer, Miami University, OH
- Wheeler MW, Bailer AJ [2013]. *An empirical comparison of low-dose extrapolation from points of departure compared to extrapolations based upon methods that account for model uncertainty.* Regul Toxicol Pharmacol 67(1):75-82.
- Provides more accurate and robust risk modeling techniques for assessing the risks of environmental and occupational chemical exposures.