

MINUTES

**Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Board of Scientific Counselors (BSC)
Sixty-Fourth Meeting
May 12, 2015
NIOSH Offices
395 E Street, S.W., Suite 9000
Washington, DC 20201**

The meeting began at 8:30 am. Emergency evacuation procedure instructions were provided by John Decker.

Opening of the BSC meeting was initiated by John Decker. Each member completed self-introductions and declared any potential conflicts of interest.

In attendance:

Dr. Michael Larranaga (No Conflicts)
Dr. Darryl Hill (No Conflicts)
Dr. Karla Armenti (No Conflicts)
Mr. Theodore Courtney (No conflicts)
Dr. Corinne Peek-Asa (No Conflicts)
Dr. Margaret Kitt
Dr. John Howard
Dr. Bonnie Rogers (No Conflicts)
Mr. John Decker
Dr. Bradley Evanoff (No Conflicts)
Dr. Lamont Byrd (No Conflicts)
Dr. David Bonauto (No Conflicts)
Dr. Judith McKenzie (No Conflicts)
Dr. Sharon Cooper (On the phone, No conflicts)
Dr. James Platner (No Conflicts)

Quorum was achieved for the meeting. Dr. Bonnie Rogers chaired the meeting. The meeting agenda can be found in Appendix A. A complete list of all BSC members and their affiliations can be found in Appendix B.

Dr. Theodore Courtney requested correction of dates on the previous minutes. No other corrections were mentioned for the previous minutes.

Opening remarks by Dr. Howard, talking points.

A copy of Dr. Howard's talking points can be found in Appendix C. Dr. Howard introduced four (4) new members:

- **Karla Armenti, Sc.D., M.S.**
New Hampshire Department of Health and Human Services
Division of Public Health Services, Health Statistics & Data Management
- **Sharon Cooper, Ph.D.**
Professor of Epidemiology
University of Texas School of Public Health
- **Theodore Courtney, M.S., C.S.P.**
Liberty Mutual Research Institute for Safety
- **Judith McKenzie, M.D., M.P.H.**
University of Pennsylvania, Perelman School of Medicine
Division of Occupational Medicine

Dr. Howard also introduced two new divisions: The Spokane Mining Research Division (SMRD) and the Western States Division (WSD). The SMRD is a new Division located at the NIOSH facility in Spokane, Washington. The SMRD will provide leadership for prevention of work-related illness, injury, and death in the extractive industries, with an emphasis on the special needs of these industries in the western United States. Ms. Pam Drake is serving as acting SMRD Director. The WSD will be a geographically diverse Division comprised of non-mining staff at the Spokane facility, NIOSH staff located at the Alaska-Pacific Office in Anchorage, Alaska, and at the Denver Western States Office in Denver, Colorado (headquartered in Spokane). The WSD Division will achieve efficiencies in many areas and will work collaboratively with all other NIOSH Divisions, Laboratories, and Offices to address the most pressing OSH needs in the West. Planning is underway to stand up the new Division. Until a permanent WSD Director can be named, the WSD will be led by CAPT Margaret Kitt.

Dr. Howard mentioned that after more than 40 years of government service, Diane Porter, formerly Deputy Director for Management, has retired. Kelley Durst is currently serving in this position in an acting capacity. Lore Jackson Lee is serving as the Acting Associate Director for the Office of Policy, Planning and Evaluation while Kelley Durst fills the role of Acting Deputy Director. Christina Spring has been appointed as NIOSH Deputy Chief of Staff effective May 3, 2015. As Deputy Chief of Staff, she will manage the administrative staff that support the NIOSH Washington Office and will assist Frank Hearl, the NIOSH Chief of Staff, in carrying out the responsibilities of the Chief of Staff's Office. Teresa Miles has agreed to serve as Acting Management Official until David Baden returns from his detail as acting CDC Chief Financial Officer Director.

Dr. Howard provided budget updates for the Institute. In FY 2015, NIOSH received a \$2.5 million budget increase over the FY 2014 enacted budget. This brings the total budget for occupational safety and health to \$334.8 million. Additionally, NIOSH received \$270.3 million to support the World Trade Center Health Program (WTCHP) and \$50.2 million for Energy Employees Occupational Illness Compensation Program (EEOICPA). Also, in FY 2015 the Department of Health and Human Services provided \$110 million from its' Nonrecurring Expenses Fund to CDC in support of the NIOSH Cincinnati facility consolidation project. CDC has engaged the General Services Administration to secure acquisition services to support the site solicitation process. Public responses to the site solicitation will identify potential facilities for CDC's consideration; solicitation responses are currently projected for the 2nd quarter of FY2016. The solicitation's delineated search area will include the greater Cincinnati area. In February 2015, the FY 2016 President's Budget was released and called for the elimination of the Agriculture, Forestry and Fishing program (-\$24 million) and the Education

and Research Centers (-\$27.4 million) as it has for the past 4 budget cycles. All other occupational safety and health funding remained level with the 2015 budget. The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) reflects an increase to \$55.3 million; however, it is anticipated that it will be reduced due to the sequester of mandatory funding and will be funded at a level similar to FY 2015.

Dr. Howard also provided docket updates. Docket 281: Agricultural Injury Surveillance closes 5/27/2015. NIOSH is currently seeking input on future directions for agricultural injury surveillance. In March, NIOSH held a virtual public meeting to seek stakeholder and public input, and a public docket is open until May 27. The NIOSH agricultural injury surveillance program which has been centered on surveys of farm operators and crop workers through interagency agreements is no longer sustainable. Docket 282: Request for Information about International Labour Office (ILO) Reference Radiographs, closes 6/5/2015. NIOSH is collaborating with the Labour Inspection, Labour Administration and Occupational Safety and Health Branch of the International Labour Office (ILO) in developing a set of digital reference radiographs for the ILO International Classification of Radiographs of Pneumoconiosis (ILO Classification).

Dr. Howard briefly updated the Board Members about NIOSH's efforts on Ebola response. NIOSH staff have deployed to West Africa from all across the Institute in support of CDC's ongoing response to the Ebola outbreak. NIOSH has deployed as epidemiologists, infection prevention and control specialists, healthcare promotion specialists, safety officers, and logisticians. While the numbers of new Ebola cases have significantly dropped, the deployed NIOSH staff are continuing to help to maintain the surveillance infrastructure to detect new cases, as well as conducting training on infection control to improve healthcare worker safety in West Africa.

Dr. Howard mentioned that NPPTL collaborated with The Joint Commission to publish The Joint Commission Monograph to provide strategies for overcoming Respiratory Protection Program implementation challenges in hospitals. NPPTL is collaborating with USAID and OSTP on President Obama's Ebola Grand Challenge to help HCWs provide better care and stop the spread of Ebola. HELD is working on a two-stage cyclone aerosol sampler, developed by Bean Chen and Bill Lindsley to collect airborne particles, is being used by researchers in North & South America, Australia, Asia, Europe and Antarctica, and most recently will be used in the International Space Station. The sampler is used to separate particles by size, which is important because smaller particles stay in the air longer and are much easier to inhale. The particles are collected in a standard disposable centrifuge tube and on a filter, which makes the samples easy to analyze. Over 400 of these samplers have now been produced and have been loaned to dozens of researchers all over the world.

NIOSH recently published a new Current Intelligence Bulletin, Promoting Health and Preventing Disease and Injury through Workplace Tobacco Policies. The bulletin recommends that all workplaces become tobacco-free and that employers make tobacco cessation programs available to workers. These latest NIOSH recommendations, which also encompass the use of Electronic Nicotine Delivery Systems (ENDS)—or e-cigarettes—are aimed at protecting workers from the occupational hazards of tobacco and the effects of secondhand exposure to tobacco smoke and emissions from e-cigarettes. In March, OSHA conducted a press release on a new OSHA/NIOSH co-branded document, Recommended Practices: Green Tobacco Sickness (<http://www.cdc.gov/niosh/docs/2015-104/pdfs/2015-104.pdf>). OSHA and NIOSH will be doing additional outreach to tobacco growers and workers as the harvest season approaches. This is a collaborative effort that includes DSR, DSHEFS, the Office of Agricultural Safety and Health and the NIOSH Office of the Director.

Dr. Howard mentioned that Todd Niemeier of EID has been selected as the recipient of the 2015 John J. Bloomfield Award. This national award has been bestowed annually by ACGIH since 1978. The John J. Bloomfield Award is

presented to an up-and-coming industrial hygienist who has made significant contributions to the profession by pursuing occupational health hazards, primarily through fieldwork.

Dr. Peek-Asa asked if there is a way the NIOSH can better explain to the public what we do, as an agency, and perhaps promote interactions and opportunities for funding.

Dr. Rogers asked about the status of Diane Porter's position, Dr. Howard mentioned that those decisions belong to the higher level of the government and we will have to see what will happen.

Dr. Byrd asked about facility consolidation. Dr. Byrd asked about what will happen to the old buildings. Dr. Platner mentioned that the Department of Energy has research going on during construction of the new DOE building, and wondered if NIOSH will have some construction projects and research going on during construction. Dr. Howard mentioned that Dr. Branche will be in charge of these initiatives.

Dr. Felknor's presentation, in Atlanta, talking about research integration: Building a Roadmap to Impact.

Dr. Felknor started the presentation providing a definition of research integration, which is defined as an effort to strategically align and improve NIOSH's scientific productivity and impact by facilitating coordination, cooperation and collaboration between all who receive NIOSH funding.

The National Academies reviews of selected NIOSH programs cited lack of integration across intramural and extramural research activity. NIOSH's leadership established target goals to facilitate a strategic conversation with extramural and intramural scientist, to identify key activities to support the development and evaluation of a research integration initiative, and to build and implement a roadmap to integration that furthers science and best serves the field of occupational safety and health.

The process to get this accomplished involves meetings with over 400 NIOSH scientists and Branch Chiefs, as well as meetings with Centers Directors. The team developed a roadmap and some major themes emerged for this roadmap: define successful partnerships, identify topics and opportunities best suited for research integration, and also how to disseminate information and facilitate resource sharing. Input was received from NIOSH scientists in September of 2014 and from Extramural Centers in March of 2015.

Dr. Platner asked about the kind of metrics that they foresaw for evaluating these programs. Dr. Felknor mentioned that her next presentation would cover some of these points. The further development of indicators and metrics will help to address these issues. Dr. Howard mentioned that unlike NIH, separate worlds between intramural and extramural activities do not exist, and NIOSH is striving to bring the two worlds together. NIOSH cannot afford to have duplicative activities as a general matter. Dr. Felknor mentioned that NIOSH has engaged other agencies including NIH in the past, and those overlapping activities are being leveraged. It was noted that with the sequester and the reduction of agencies' budget, fewer agencies are willing to share resources for specific initiatives. Dr. Bonauto mentioned that it would be good to orchestrate the intramural and extramural activities as related to the program goals and the objective of targeting and addressing the NORA goals. Dr. Felknor indicated that NIOSH is trying to make it easier for people to interact and share research ideas. Dr. Felknor indicated importance of face to face meeting to initiate stakeholder engagement. Dr. Cooper (on the phone) asked whether thought has been given about collaborations with the ERC's. Dr. Felknor mentioned that NIOSH is always trying to promote opportunities for the different parties to talk and interact with each other. Dr. Felknor mentioned that the extramural activities are limited, and the budget uncertainty makes it difficult to plan.

Dr. Felknor's 2nd presentation: Indicators and Metrics to Assess NIOSH Research Programs

Dr. Felknor started by acknowledging all the members and participants of the research metrics workgroup. Dr. Felknor also provided some background about the Science and Technology Policy Institute (STPI) as being a Federally Funded Research and Development Center (FFRDC) chartered by Congress in 1991. The mission was established as to provide rigorous objective advice and analysis to the Office of Science and Technology Policy (OSTP) and other Executive Branch agencies, offices, and councils. The funding for STPI is administered by the National Science Foundation (NSF).

The objectives of this study are to develop a framework for integrated research performance measurements, to define key performance indicators for research programs at NIOSH, and to focus on measuring impact on workplace health and safety, but not as an evaluation of any specific program.

The study methods were designed as a multi-method approach with interviews of intramural and extramural researchers, benchmarking impact metrics with peer agencies. This study also conducts a review of comprehensive project reports from NIOSH program planning and management database for FY10 – FY12 for Construction, Hearing Loss Prevention, Nanotechnology, and Healthcare programs.

In summary, this study provided a breadth of NIOSH research activities and helped measuring end outcomes. NPPM was found useful to track a project completion, but not to assess intermediate or end outcomes as end outcomes may take 10 – 15 years to emerge. This study also found that enhanced surveillance systems are essential for measuring end outcomes of NIOSH funded work.

Some recommendations provided by the STPI report were for NIOSH to consider applying differential metrics to each category of research and also to consider focusing its research evaluation on measuring output and short-term outcomes that depend mostly on its own activities.

Dr. Felknor closed her presentation with the logic model framework where different metrics are required for different types of activities and provided the framework for indicators and metrics of NIOSH research impact (dated April 2015). The next steps are to complete qualitative and quantitative metrics for intermediate outcome indicators as appropriate, and to have these changes ready for FY2017.

Dr. Bonauto mentioned that reaching non-traditional activities and how those will relate to the current NIOSH activities might also be beneficial. Dr. Armenti, mentioned that STPI report recommended an increase in Surveillance, and asked for clarification and expansion. Dr. Howard mentioned that it is important to see what type of surveillance is needed and direct money in places where it really matters, and to focus on smarter surveillance. Dr. Evanoff mentioned that it is difficult to track the intermediate outcomes, as they often happen years down the line. Dr. Felknor mentioned that in intramural research we can better track the outcomes, as compared to extramural projects where the process ends when the project is over. It is difficult to track things that happen 10-15 years down the line. Dr. Bonauto mentioned that he liked the second recommendation from STPI as it is clear the organizing the output will facilitate tracking the impact. NIOSH should emphasize the communication plans and interact with those parties that can disseminate these findings and how to measure impact. Dr. Howard mentioned long-term/chronic diseases are difficult to track. Dr. Peek-Asa mentioned that generally there has been passivity to measuring impact. Every study should have a logic model that also demonstrates how these logic models fit into the larger models. Dr. Howard mentioned that the cultural change from “more research is needed” to “these are some ideas that our partners will carry on to do some other activities”. Dr. Rogers mentioned that with the Hazardous Drugs, a lot has changed because of the work that NIOSH has done. The number of deaths have been progressively reduced as the result of the work NIOSH and others have done to advance

Occupational Safety and Health. Dr. Evanoff mentioned that the results of the research should be pushed in more ways than just research articles.

Dr. Max Lum's Presentation: Finding Signals in the Noise: Using Wikipedia to Drive Innovation, Dissemination, and Engagement.

Dr. Lum started the presentation by showing how the communication network pattern has changed through time where nowadays the message reaches a broader audience and in shorter amounts of time. Dr. Lum also mentioned that back in 1999 when you typed "NIOSH" on the Google search browser, the browser actually prompted you and asked if you meant "OSHA" instead. Dr. Lum proceeded to compare the traffic that the NIOSH web had between 1999 and 2015. Dr. Lum also illustrated and provided data on the referring domains to the NIOSH website and the number of hits that each domain listed in January of 2013 and 2014.

Dr. Lum also provided a site comparison between the NIOSH website and Wikipedia. The NIOSH website contains 150,000 web pages with 8 million visits per year, whereas Wikipedia contains 3.4 million articles and 8 million visits per hour. In an attempt to shift these numbers, NIOSH recently hired a NIOSH Wikipedia in Residence that will target to improve and increase NIOSH's edits to Wikipedia, working with the chemistry and medical Wikipedia Groups, building a coalition with other federal agencies, meeting with Wikipedia Foundation, and networking with other Wikipedia science editors at Wikimania.

Dr. Lum closed his presentation posing some questions to the BSC member. Questions such as:

- How best to stimulate collaboration to increase the quality and utility of Wikipedia?
- Would you personally be interested in learning more about Wikipedia for yourself and/or your institution?
- What strategies do you think would provide more interactive social exposure to NIOSH research in the commons?

Dr. Platner asked if our rankings changed in the last two months as Google might have changed the algorithms. Dr. Lum responded that we haven't noticed any decrease, our World Trade Center is already mobile, and we are moving to all our webpages being mobile friendly. Dr. Platner was also wondering about AB testing, to compare the old way versus the new way of formatting and get a quantitative assessment of that, and compare different analytics on old vs. new results. Dr. Lum responded that EID has done a lot of testing and perhaps some pages could use some help, but we are trying to update them all to be consistent and evaluate how much time people spend in a given page to assess interest. Dr. Lum mentioned that we have those metrics. Dr. Larranaga was concerned about reference updates, and how to make sure they are accurate. He was also concerned about accuracy of translations of the Wikipedia pages. Dr. Hill mentioned targeting different groups other than just the Millennials. Dr. Lum wondered about how to evaluate individuals' characteristics that re-tweet our information. Dr. Platner mentioned assessing response rates from these websites, and careful evaluation when you ask people to fill online surveys on the web. Dr. Bonauto asked about who the users and audience of these pages (ours) are? Dr. McKenzie mentioned that probably there will be a cultural change to socially/academically accept quoting Wikipedia as a reliable source of information. Dr. Larranaga mentioned that for referencing, Wikipedia is becoming somewhat accepted. Dr. Peek-Asa mentioned that Wikipedia is a good resource to find the proper references and then go to the reference source to find the content. BSC members asked for an update on this initiative. There was no time specified, but there was a general consensus of wanting an update concerning NIOSH's Wikipedia efforts.

Dr. Gayle DeBord: NIOSH Center for Direct Reading and Sensor Technologies

Dr. DeBord started the presentation by stating that many experts say the rise of embedded and wearable computing will bring the next revolution in digital technology. Dr. DeBord mentioned that in 2008 NIOSH started the Direct Reading Exposure Assessment Methods (DREAM) initiative to cover basic research needs and fill research gaps for DREAM devices and methods with new devices or sensors and provide improvements to existing devices. The DREAM initiative will also provide guidance or policy recommendations with the collaboration of partnerships and providing training materials which ultimately will result in worker empowerment.

Dr. DeBord mentioned that technology is expanding exponentially with improvement of measurement science, readily available geographic and spatial information. Instruments are becoming smaller and even smart phones and tablets can be used as measuring instruments nowadays.

NIOSH created a Center for Direct Reading and Sensor Technologies that will focus on coordinating a National agenda for direct-reading methods and sensor technologies, develop guidance documents pertinent to direct-reading methods and sensors, develop training protocols, establish partnerships to collaborate in Center's activities, and to develop an intramural pilot project opportunity. The NIOSH Intramural DREAM strategic plan includes three strategic goals:

1. Strategic Goal # 1: Development of DREAM (single or combination devices)
2. Strategic Goal # 2: Development of guidance and standard methods for the use of DREAM (validation criteria and training)
3. Strategic Goal # 3: Development of research on data streaming, gathering, transmission, handling management approaches and informatics

The overarching issues around the DREAM initiative are trying to answer questions like what is the essential or central role for NIOSH and how can NIOSH have an impact in this area?

As far as future activities, the NIOSH Manual of Analytical Methods will add a Guidance Chapter on direct reading instruments for gases and vapors. Also, an OPHRP project to develop a guidance document on the use of new sensors in emergency response is planned.

Dr. Larranaga mentioned that the smartphones are becoming really important in this field. There may be duplication of efforts, and perhaps potential for collaborations with other groups to achieve the same goal. Dr. Platner mentions that durability of sensors is also important. Dr. Peek-Asa indicated the need to assess whether data are clinically valid. NIOSH should look at how the use of these technologies impact the workers in the field. Dr. DeBord mentioned that some of these sensor methods are already in use on the trucking industry and some drivers actually embrace it, but some others are actually opposed to it. Dr. Rogers mentioned a concern about overreliance on technology. Dr. Evanoff mentioned that a lot of ground was covered on this presentation, but where does NIOSH feel they are going with these technologies? Dr. DeBord mentioned that NIOSH will develop instrumentation that is needed and provide guidance on how to use/implement it. Dr. McKenzie mentioned that the ethics needs to be kept in mind. These technologies are developing so fast that the ethics may not keep pace with the advances in technology. Dr. Platner mentioned that NIOSH should develop guidelines on what is important for IRB to consider when doing research.

Dr. Paul Schulte's Presentation: Issues in the Development of Occupational Exposure Limits (OELs)

Dr. Schulte started the presentation by showing the progress for the development of a Recommended Exposure Limit (REL). The process starts with an extensive literature search, followed by a health effects review, a quantitative risk assessment, a feasibility assessment, an external review, and finally the publication of the REL.

Dr. Schulte mentioned that OELs are a critical component of the risk management process and that many organizations world-wide develop OELs. He also mentioned that few organizations identify the underlying quantitative risk assessment employed in OEL development. NIOSH commissioned an effort to examine issues leading the OEL development. This effort led to developing a dedicated issue of the Journal of Occupational and Environmental Hygiene (JOEH) which included about 10 papers with various authors. The goal of this effort is to provide a clear description of how advances in these areas can be applied to OEL development.

The JOEH issue included NIOSH guidance on how it conducts risk assessment and develops OELs in 10 manuscripts:

1. Manuscript 1: State of the Science – The Evolution of Occupational Exposure Limit Derivation and Application. It provides an overview of the field and papers in the issue with identification of critical questions in each paper
2. Manuscript 2: Advances in Dose-Response Assessment and Modeling for Deriving Occupational Exposure Limits. It describes and contrasts traditional and advanced practices in dose-response modeling from both a toxicological and epidemiological perspective.
3. Manuscript 3: The Science Basis for Uncertainty, Safety, and Modifying Factors in OEL setting. It provides a critical examination of historical use of uncertainty factors in the development of OEL.
4. Manuscript 4: Advance in Inhalation Dosimetry Models and Methods for Occupational Risk Assessment and Exposure Limit Derivation. It shows the use of dosimetry concepts in risk assessment of OELs for inhaled substances. It also shows the need to reduce uncertainty of inhaled dose estimates at the target tissue.
5. Manuscript 5: Systems Biology and Early Effects Dose-Response for OEL setting. It describes the dose-response estimation evolving more fully to incorporate new types of toxicity data and shows developments in physiological science.
6. Manuscript 6: The Role of Genetic and Epigenetic Information in Occupational Risk Assessment. It describes the challenge to characterize human variability in risk assessment. It also shows that genetic and epigenetic data have not been widely used in risk assessment and REL development.
7. Manuscript 7: Understanding the Challenges of Setting Occupational Exposure Limits for Low Molecular Weight (LMW) Chemical Respiratory Allergens. This manuscript shows some toxicological effects present unique challenges to the OEL process. Issues such as sensitizations from chemical allergens are discussed. It also mentions that very few OELs for sensitizers in the literature.
8. Manuscript 8: Occupational Risk Probability and Interpretation of Traditional OELs – Enhanced Information for the Risk Manager. This manuscript focuses on sources of variability and uncertainty in exposure assessment; it characterizes risk in terms of probability instead of using the binary approach (acceptable or unacceptable)
9. Manuscript 9: International Perspectives and Global Harmonization of OEL Practices. It shows a description of international practice to encourage coordination world-wide to make effective use of OEL resources.

10. Manuscript 10: Aggregate Exposure and Cumulative Risk Assessment – Integrating Occupational and Non-occupational Risk Factors. This manuscript reflects the broadening scope of risk assessment thinking in development of OELs as it goes beyond chemicals and it assess complex exposures to chemical and other stressors.

Dr. Schulte then described the future of risk assessment and introduced Dr. Dotson.

Dr. Scott Dotson’s Presentation: Cumulative Risk Assessment (CRA): Bridging the Gap between Well-Being and Occupational Safety and Health.

Dr. Dotson started the presentation by giving a definition of “Cumulative Risk” according to the National Academies of Science as “the combination of risk posed by aggregate exposure to multiple agents or stressors in which aggregate exposure is exposure by all routes and pathways and from all sources of each given agent or stressor”. He then provided a definition for cumulative risk assessment developed by the Environmental Protection Agency (EPA) as “an analysis, characterization, and possible quantification of the combined risk to human health or the environment from multiple agents or stressors.”

Dr. Dotson then showed several diagrams that illustrate a conceptual model of cumulative risk that focuses on the environmental risk factors (ERF) and the personal risk factors (PRF) involved in the cumulative risk. He then proceeded to ask the audience “what about occupational risk factors (ORF)?” Dr. Dotson presented modified diagrams that integrated ORF into CRA, in addition to the incorporation of CRA into occupational risk assessment.

Dr. Dotson talked about changing the workplace and culture. Workplace changes could include economic, demographics, chronic diseases, and technology changes while the cultural changes would include activities to promote well-being and total worker health. Then a case study on the adverse cardiac effects was shown along with the factors associated with adverse cardiac effects.

Dr. Dotson concluded his discussion by describing the on-going cumulative risk assessment project that seeks to integrate ORF and CRA and also integrate CRA into occupational risk analysis. This project is funded under the Total Worker Health program of the National Occupational Research Agenda (NORA). The funding period for this project is from FY15 to FY18 and included three primary phases:

1. Phase 1: Research Vision
2. Phase 2: Case Studies
3. Phase 3: Framework

The FY15 Activities planned for Phase 1 include a large team recruitment with subject matter experts in the fields of toxicology, risk assessment/management, exposure science, behavioral science/psychology, statistics, and health policy and to create small groups to focus on specific topics. Phase 1 will target primary questions such as:

- What are the issues that need to be addressed to advance the practice of CRA?
- What are the issues that need to be addressed to integrate CRA into the practice of occupational risk analysis?
- What are the data gaps and limitations that must be overcome to integrate ORF-based models in CRA?

The outputs of Phase 1 in FY15 will include two manuscripts. One that will be an evidence-based paper that illustrates the role of ORF on the cumulative risk of various health endpoints, and the second that will illustrate the state of the science review, will also outline research needs and vision and will establish the focus of next phases of the project.

Dr. Schulte mentioned that the OEL is not the end, and NIOSH generally recommends controls when there is no OEL. NIOSH is considering occupational exposure banding and control banding. Also, Occupational Exposure Bands are not replacement for OELs, they are an interim, but not the end goal. Dr. Schulte indicated the need for a multidisciplinary approach and broad training to conduct cumulative risk assessments. Dr. Rogers asked about the issue date for the Journal (it is expected to be within this calendar year). Dr. Schulte mentioned that cumulative risk assessment is not intended to blame on the worker, but to acknowledge the third rail of OSH, where there is personal responsibility and also corporate responsibility. This is a topic that has always been hard to address when thinking of worker risks. Dr. Dotson mentioned that this is not about generating more knowledge and doing nothing with it, rather it is intended to generate knowledge and have a plan on how to disseminate the results and positively implement changes. Dr. Hill recommended an approach on how to implement this new model to the academic community. He described a new global competency model (partnership of occupational safety and health organizations, AIHA, Canadian Society of Safety Engineering, Australia... Industrial Hygiene Board).

September 22nd is the next meeting. Dr. Rogers asked about future Agenda Items, which could be sent to John Decker. Dr. Kitt mentioned plans to report back to the BSC on the labor-management report at the September meeting.

The meeting concluded at approximately 2:30 pm. There were no public comments. These Minutes were recorded by Mr. Alberto Garcia, NIOSH.

Appendix A – Agenda

**Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health
Board of Scientific Counselors (BSC)
Sixty-Fourth Meeting
May 12, 2015
NIOSH Offices
395 E Street, S.W., Suite 9000
Washington, DC 20201**



<u>Time</u>	<u>Topic</u>	<u>Presenter</u>
8:30 a.m.	Welcome and Introductions, Meeting Logistics Introductions, New Members Conflict of Interest Declarations	Mr. John Decker, Designated Federal Official, NIOSH
8:45 a.m.	Agenda, Announcements, and Approval of Minutes	Dr. Bonnie Rogers, Chair, NIOSH BSC
9:00 a.m.	Director's Opening Remarks	Dr. John Howard, Director, NIOSH
9:30 a.m.	Intramural and Extramural Research Integration	Dr. Sarah Felknor, Associate Director for Research Integration & Extramural Performance, NIOSH
10:15 a.m.	Break	
10:30 a.m.	Metrics to Assess NIOSH Research Programs	Dr. Sarah Felknor, Associate Director for Research Integration & Extramural Performance, NIOSH
11:15 a.m.	Finding Signals in the Noise: Using Wikipedia to Drive Innovation, Dissemination, and Engagement	Dr. Max Lum, Senior Advisor Office of the Director, NIOSH
11:45 a.m.	Lunch (box lunch or on your own)	
12:45 a.m.	NIOSH Center for Direct Reading and Sensor Technologies	Dr. Gayle DeBord, Associate Director for Science, Division of Applied Research and Technology, NIOSH
1:30 p.m.	Occupational Exposure Limit Issues	Dr. Paul Schulte, Director, Education and Information Division, NIOSH
2:00 p.m.	Cumulative Risk Assessment	Dr. Scott Dotson, Lead Health Scientist Education and Information Division, NIOSH
2:30 p.m.	Summary & Wrap-up, Future Agenda Items, Meeting Dates, Closing Remarks	Dr. Bonnie Rogers Chair, NIOSH BSC
3:00 p.m.	Adjourn	

Appendix B – NIOSH BSC Membership

Chair

Bonnie Rogers, M.P.H., Dr.P.H., C.O.H.N.-S.

Professor and Director of Occupational
Safety and Health
University of North Carolina
School of Public Health

Executive Secretary

John A. Decker, C.I.H., R.Ph., M.S.

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Members

Karla Armenti, B.A., Sc.D., M.S.

Principal Investigator
Occupational Health Surveillance Program
Division of Public Health Services
New Hampshire Department of Health and Human Services

David K. Bonauto, M.D., M.P.H.

Associate Medical Director
Safety and Health Assessment & Research
Prevention Program
Washington State Department of Labor and Industries

Lamont Byrd, M.S., C.I.H.

Director of Safety and Health
International Brotherhood of Teamsters

Sharon Cooper, Ph.D.

Professor of Epidemiology
University of Texas School of Public Health

Theodore Courtney, M.S., C.S.P.

Director
Center for Injury Epidemiology
Liberty Mutual Research Institute for Safety

Bradley Evanoff, M.P.H., M.D.

Professor of Medicine and Occupational Therapy
Washington University School of Medicine

James S. Frederick, M.S.

Assistant Director
Health, Safety & Environment Department
United Steelworkers

Darryl C. Hill, Ph.D., C.S.P.

Executive Director, Health & Safety
Global Employee Relations
Johnson Controls Inc.

Michael Larranaga, Ph.D., C.I.H., C.S.P., P.E.

Principle Consultant
Risk Management Safety and Health
Ramboll Environ

Judith McKenzie, M.D., M.P.H.

Associate Professor
Department of Emergency Medicine
Division of Occupational Medicine
Hospital of the University of Pennsylvania

John Mendeloff, Ph.D.

Professor
Graduate School of Public and International Affairs
University of Pittsburgh

Corinne Peek-Asa, M.P.H., Ph.D.

Professor
Departments of Occupational and Environmental
Health and Epidemiology
University of Iowa

James W. Platner, Ph.D., C.I.H.

Associate Director for Science and Technology (retired)
Center to Protect Workers' Rights: The Center for
Construction Research and Training

Appendix C – Director’s Talking Points

New Members of the Board of Scientific Counselors (BSC)

Welcome to four new members to the BSC. NIOSH thanks both the new and current members for contributing their time to help advance high quality science at NIOSH.

Karla Armenti, Sc.D., M.S.

New Hampshire Department of Health and Human Services
Division of Public Health Services, Health Statistics & Data Management

Sharon Cooper, Ph.D.

Professor of Epidemiology
University of Texas School of Public Health

Theodore Courtney, M.S., C.S.P.

Liberty Mutual Research Institute for Safety

Judith McKenzie, M.D., M.P.H.

University of Pennsylvania, Perelman School of Medicine
Division of Occupational Medicine

Organizational Announcements

- NIOSH has two new divisions: The Spokane Mining Research Division and the Western States Division. See the following Federal Register announcement for more details:
<https://www.federalregister.gov/articles/2015/03/11/2015-05552/statement-of-organization-functions-and-delegations-of-authority>
- **Spokane Mining Research Division (SMRD):** The SMRD is a new Division located at the NIOSH facility in Spokane, Washington. The SMRD will provide leadership for prevention of work-related illness, injury, and death in the extractive industries, with an emphasis on the special needs of these industries in the western United States. Ms. Pam Drake is serving as acting SMRD Director.
- **Western States Division (WSD):** The WSD will be a geographically diverse Division comprised of non-mining staff at the Spokane facility, NIOSH staff located at the Alaska-Pacific Office in Anchorage, Alaska, and at the Denver Western States Office in Denver, Colorado (headquartered in Spokane). The WSD Division will achieve efficiencies in many areas and will work collaboratively with all other NIOSH Divisions, Laboratories, and Offices to address the most pressing OSH needs in the West. Planning is

underway to stand up the new Division. Until a permanent WSD Director can be named, the WSD will be led by CAPT Margaret Kitt.

- The Division will continue the successful programs in Alaska Aviation Safety, Commercial Fishing Safety, Oil and Gas Extraction Safety and Health, and Wildland Firefighting Safety. The WSD will provide technical expertise for identification and response to priority occupational safety and health issues in the Western states and promote occupational safety and health surveillance and capacity building in the Western States.
- A new climate change initiative to address associated OSH hazards will be housed within the WSD. Also, the NIOSH American Indian/Alaska Native initiative which has provided field assistance to tribal nations (Navajo) will hold a one-day workshop (co-sponsored with the MAP ERC) “Improving Worker Safety and Health among American Indians/Alaska Natives” in Denver this fall.

Personnel Announcements

- After more than 40 years of government service, Diane Porter, formerly Deputy Director for Management, has retired. Kelley Durst is currently serving in this position in an acting capacity.
- Lore Jackson Lee is serving as the Acting Associate Director for the Office of Policy, Planning and Evaluation while Kelley Durst fills the role of Acting Deputy Director.
- Christina Spring has been appointed as NIOSH Deputy Chief of Staff effective May 3, 2015. As Deputy Chief of Staff, she will manage the administrative staff that support the NIOSH Washington Office and will assist Frank Hearl, the NIOSH Chief of Staff, in carrying out the responsibilities of the Chief of Staff's Office.
- Teresa Miles has agreed to serve as Acting Management Official until David Baden returns from his detail as acting CDC Chief Financial Officer Director.

Budget

- In FY 2015, NIOSH received a \$2.5 million budget increase over the FY 2014 enacted budget. This brings the total budget for occupational safety and health to \$334.8 million. Additionally, NIOSH received \$270.3 million to support the World Trade Center Health Program (WTCHP) and \$50.2 million for Energy Employees Occupational Illness Compensation Program (EEOICPA).
- Also, in FY 2015 the Department of Health and Human Services provided \$110 million from its' Nonrecurring Expenses Fund to CDC in support of the NIOSH Cincinnati facility consolidation project. CDC has engaged the General Services Administration to secure acquisition services to support the site solicitation process. Public responses to the site solicitation will identify potential facilities for CDC's consideration; solicitation responses are currently projected for the 2nd quarter of FY2016. The solicitation's delineated search area will include the greater Cincinnati area.

- In February 2015, the FY 2016 President's Budget was released and called for the elimination of the Agriculture, Forestry and Fishing program (-\$24 million) and the Education and Research Centers (-\$27.4 million) as it has for the past 4 budget cycles. All other occupational safety and health funding remained level with the 2015 budget. The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) reflects an increase to \$55.3 million, however, it is anticipated that it will be reduced due to the sequester of mandatory funding and will be funded at a level similar to FY 2015.

Currently Available for Public Review and Comment

- Docket 281: Agricultural Injury Surveillance closes 5/27/2015. NIOSH is currently seeking input on future directions for agricultural injury surveillance. In March, NIOSH held a virtual public meeting to seek stakeholder and public input, and a public docket is open until May 27. The NIOSH agricultural injury surveillance program which has been centered on surveys of farm operators and crop workers through interagency agreements is no longer sustainable. Over time, both the size of the U.S. agriculture workforce and the number of injuries on farms has declined each year, making this surveillance approach more resource-intensive. Additionally, there have been advances in information technology and surveillance methodologies since these surveys were initiated. As a result, NIOSH is exploring ways to improve NIOSH-supported agriculture injury surveillance for the future. This is a joint effort between DSR and the Office of Agricultural Safety and Health. See the following for more information: <http://www.cdc.gov/niosh/docket/review/docket281/default.html>
- Docket 282: Request for Information about International Labour Office (ILO) Reference Radiographs, closes 6/5/2015. The National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention is collaborating with the Labour Inspection, Labour Administration and Occupational Safety and Health Branch of the International Labour Office (ILO) in developing a set of digital reference radiographs for the ILO International Classification of Radiographs of Pneumoconiosis (ILO Classification). For this purpose, NIOSH is requesting trained users of the ILO Classification to submit comments regarding any of the current standard reference images that are felt to be deficient and for which improvements could be made.

New Programs, Initiatives, and Emergency Response Activities

National Center for Productive Aging and Work at NIOSH

- In January NIOSH stood up this Center to spur research in the area of productive aging for working Americans *of all ages*. Important questions need to be addressed, and there exists a considerable gap between what we know about the changes that accompany the aging process and what organizations are actually doing, and should be doing, to address these changes across all age groups.

- The NCPAW will be the first dedicated research Center within the TWH Office and it reflects a shared commitment to improve worker health through the integration of traditional occupational safety and health protection and emerging efforts aimed at promoting health and preventing disease in order to advance worker well-being.
- Some preliminary objectives of NCPAW are to: 1) Develop Institute-wide research goals and leadership with regards to workers of all ages, *as they age*, 2) Facilitate collaboration among NIOSH researchers and project officers on NORA and other funding opportunities to spur research 3) Further develop knowledge on interventions and best practices for creating an "*aging-friendly*" workplace from the physical, emotional, economic and labor relations perspectives, 4) Develop and promote a broad range of translational products that target workers, organizations, and sectors where aging issues are particularly salient and 5) Build and expand upon collaborations with extramural researchers and partners.

NIOSH Staff Assist with Ebola Response

- NIOSH staff have deployed to West Africa from all across the Institute in support of CDC's ongoing response to the Ebola outbreak. NIOSH has deployed as epidemiologists, infection prevention and control specialists, healthcare promotion specialists, safety officers, and logisticians. While the numbers of new Ebola cases have significantly dropped, the deployed NIOSH staff are continuing to help to maintain the surveillance infrastructure to detect new cases, as well as conducting training on infection control to improve healthcare worker safety in West Africa.
- Here are the numbers of NIOSH staff deployed to West Africa (these count deployments so if the same person deployed multiple times, they are counted more than once):
 - International (CDC and PHS teams to West Africa): 65 cumulative and 8 current
 - Domestic (EOC, Q Stations, Anniston training): 29 cumulative and 3 current
 - Response to U.S. cases (Dallas and OH): 6 cumulative
 - U.S. Ebola Treatment and Assessment Centers (preparedness assessments): 82 cumulative
 - Total: 182 cumulative and 11 current

Stand Tall, Stand Proud, Stand-Down for Fall Safety

- NIOSH, in a combined effort with the Occupational Safety and Health Administration (OSHA) and CPWR—the Center for Construction Research and Training (CPWR), among other partners, conducted the second annual construction Fall Safety Stand-Down during the weeks of May 4–15. This event follows the success of last year's Stand-Down and asks employers and workers across the nation to pause in their work and dedicate time to activities that promote the prevention of fatalities from falls.

NIOSH Prevention through Design (PtD) Initiative

- On February 18th, after years of work by internal and external colleagues in the PtD Initiative, the U.S. Green Building Council (USGBC) published PtD pilot credits for their internationally-recognized Leadership in Environmental and Energy Design (LEED) certification program. Those who design and construct buildings around the world can now gain additional credits towards LEED certification of

those buildings by following the new PtD guidance published by the USGBC. The PtD credit advances a “Life-Cycle Safety” perspective that is careful to include hazard protection for ALL building occupants during the entire Life Cycle of a facility. Previously, the emphasis was almost entirely on the final occupants of the building, with little to no consideration for PtD design methods to prevent hazards to the initial construction-worker occupants, and later to the operations and maintenance worker occupants.

- Pursuing LEED PtD credits has been incorporated into the Strategic Plan for the PtD National Initiative. Special thanks go to the members of the NORA Construction Sector Council’s Green Construction Coordinating Committee and its co-chairs Dr. Mike Behm of East Carolina University and Dr. Brian Kleiner of Virginia Tech.

Social Presence Statistics

NIOSH continues to expand its presence on social networks.

- **eNews** subscribers: 56,519 as of 3/31/15.
- **Total Worker Health** newsletter subscribers: 60,353 as of 3/31/15.
- **Science Blog:** 1,435,097 cumulative views since the introduction of the blog in November 2006.
- **Facebook Postings:** 1456 times (since July 2011); 85,909 “likes” for our organizational page
- **Pinterest** pins: We have pinned 36 items to CDC’s Workplace Safety and Health Board, which has 2708 followers.
- **Flickr:** 254 images in our Flickr photo stream.
- **You Tube videos:** 133 posted videos and 270,889 views.
- **Twitter:** We have 15 Twitter accounts, with more than 359,343 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.
- Website views: 1,830,724 for March, 2015.

Science Blog Topics

- April 30, 2015: Occupational Health Safety Network
- April 28, 2015: Worker Memorial Day 2015
- April 13, 2015: Workplace Suicide
- April 10, 2015: Reports of Worker Fatalities during Manual Tank Gauging and Sampling in the Oil and Gas extraction Industry
- April 2, 2015: Tobacco in the Workplace
- March 31, 2015: The Silica/Asphalt Milling Machine Partnership – All Good Things Need Not Come to an End
- March 27, 2015: Violence in Healthcare
- March 25, 2015: A Story of Impact
- March 20, 2015: Workplace Medical Mystery Solved: Blurry Vision Affects a Print Press Operator
- March 3, 2015: Long-Haul Truck Driver Health Survey Results

- February 24, 2015: Occupational Exposures to New Dry-cleaning Solvents
- February 13, 2015: A Perfect Romance: A Valentine's Day Guide to the Necessary Considerations of CBRN APR Use
- February 5, 2015: Fighting Ebola: A Grand Challenge for Development
- January 28, 2015: The Future of Wearable Technology in the Workplace
- January 26, 2015: Be Pioneers to Protect Our Volunteers!
- January 14, 2015: Can Workplace Exposure Increase Risk of Birth Defects? Epidemiology in Action

Highlights from the NIOSH Divisions and Offices: Program and Research Pipeline

Office of Extramural Programs (OEP)

- OEP organized a successful first-ever meeting of NIOSH Center Grantees (Agriculture, Construction, Education and Research Centers [ERCs], and Total Worker Health [TWH]) and intramural NIOSH researchers and Center Directors. Over 100 attendees representing the largest extramural portfolios and over ten NIOSH research centers and program activities. This was a research integration initiative to gather input into the research integration roadmap. One highlight of the meeting with a keynote from Dr. Eula Bingham. The University of Cincinnati hosted the meeting and provided a wonderful venue.
- OEP will publish three new Funding Opportunity Announcements this fiscal year for Agriculture, Education and Research Centers, and Total Worker Health centers with a new framework to help measure impact across portfolios and with intramural programs.

Education and Information Division

NIOSH Youth@Work: Talking Safety curriculum update

Oklahoma:

- On April 1, Gov. Mary Fallin signed SB 262, a state law that directs the Oklahoma Department of Labor (a long-time NIOSH partner) and the Oklahoma State Department of Education to collaborate on providing workplace safety and health education to young people in grades 7 through 12 in OK schools.
- Both departments will be using the new NIOSH *Youth@Work: Talking Safety* curriculum to fulfill the law's requirements.

Miami:

- On April 15, Superintendent of the Miami-Dade County Public School System (M-DCPS), Alberto M. Carvalho, announced in a press release a first-of-its-kind partnership between M-DCPS, the fourth largest school district in the country, and NIOSH to use the NIOSH *Youth @ Work-Talking Safety*

curriculum in 8th grade science courses in schools across the district. NIOSH and M-DCPS are building a model that can be used to prepare all young people for a lifetime of safe and healthy work.

- NIOSH (Safe-Skilled-Ready Workforce Initiative) is engaged in a four-year (NORA-funded) demonstration and evaluation project in M-DCPS. Project leaders were on hand Wednesday for the official announcement—made at the M-DCPS Board of Education Meeting—of the partnership.

Division of Respiratory Disease Studies

- Coordinated efforts of the Cleaning and Disinfecting in Healthcare Working Group of the NORA Healthcare and Social Assistance Sector to address the issue of minimizing harmful exposures associated with surface cleaning and disinfection without reducing the effectiveness of infection prevention. The Working Group, comprised of >40 members from 4 countries, reviewed current knowledge and identified knowledge gaps and future needs for research and practice: Quinn MM, Henneberger PK, members of the National Institute for Occupational Safety and Health (NIOSH), National Occupational Research Agenda (NORA) Cleaning and Disinfecting in Healthcare Working Group. Cleaning and disinfecting environmental surfaces in health care: Toward an integrated framework for infection and occupational illness prevention. *Am J Infect Control*. 2015 Mar 16. PubMed PMID: 25792102.
- Collaborated with Nurses' Health Study II on study documenting that nurses with a baseline history of asthma were more likely to move to jobs with lower exposure to disinfectants and that movement to lower exposure jobs was more likely in those with worse asthma: Dumas O, Varraso R, Zock JP, Henneberger PK, et al. Asthma history, job type and job changes among US nurses. *Occup Environ Med*. 2015 Feb 24. PubMed PMID: 25713153.
- Partnered with the Philadelphia Teachers Health and Welfare Fund and Union, the School District of Philadelphia and the Service Employees International Union. Seeking to develop a practical computer tool to gather information about dampness and mold in schools. Work is currently in progress with partners seeking to expand the computer tool so it can be used to evaluate if school employees in areas with dampness and mold issues are experiencing health effects such as asthma symptoms.

Division of Surveillance, Hazard Evaluations, and Field Studies

NIOSH's Occupational Health Safety Network (OHSN)

- OHSN (see <http://www.cdc.gov/niosh/topics/ohsn>) provides a new IT platform for better tracking occupational injuries in hospitals, sharing information securely, and focusing efforts to prevent injuries. Health care workers statistically are at high risk for injuries from slips, trips, and falls, back injuries, overexertion, needle-sticks, and other hazards. The NIOSH network was designed with extensive input from partners which has helped propel the movement toward standardized occupational data in healthcare. It also provides ongoing, specific, real-time information on the departments, activities, and

personnel at greatest occupational risks and enables facilities nationwide to use this information and NIOSH resources to devise effective interventions and measure their impact.

- The NIOSH network, in partnership with others groups at the Centers for Disease Control and Prevention and diverse health care interests, opened voluntary enrollment for hospitals and clinics in 2013. Participants are exporting data from their own tracking systems into the network with the help of OHSN tools. This partnership is helping the participants benchmark their own performance against aggregate numbers, get help from NIOSH in identifying preventive measures, and network with colleagues to learn ways in which others have reduced injuries. Nationally, the network will improve overall efforts to track injuries and focus safety strategies.
- See <http://blogs.cdc.gov/niosh-science-blog/2015/04/30/ohsn/> for a recent blog on the OHSN.

Impact Update: Ohio Increases Funding for Safety Interventions

- In 2010, the Ohio Bureau of Workers' Compensation (OHBC) and the National Institute for Occupational Safety and Health (NIOSH) developed a formal partnership to protect Ohio workers from work-related injury and illness. Main goals were to 1) improve injury and illness prevention based on Ohio's employer and employee needs and workers' compensation (WC) data, 2) evaluate effectiveness of OHBC-supported safety-health interventions and programs, and 3) disseminate industry specific best-practices based on scientific research.
- This partnership is having direct impact. For example, since 1999 OHBC has offered a Safety Intervention Grant (SIG) program where employers are provided matching funds to implement engineering controls. Recently, OHBC and NIOSH Center for Workers' Compensation (CWCS) studies (see <http://www.ncbi.nlm.nih.gov/pubmed/25223846>) found that the program significantly reduced affected employee claims and costs and OHBC greatly expanded the annual budget. This past year, the SIG program provided \$15 million to 535 employers and OHBC allocated an additional \$45 million for fiscal years 2015-17. OHBC also allocated about \$4 million to fund four major initiatives designed to enhance the safety, health and wellness of Ohio's workforce. The initiatives include:
 1. Providing additional funding to the 81 safety councils throughout Ohio to conduct more training and seminars directed at improving the health and wellness of Ohio's workforce.
 2. Providing additional funding for improved training for volunteer firefighters. The funding will allow close to 1,100 volunteer firefighters to receive "Fire Fighter 1 training," a 120-hr training course which will improve their safety, preparedness and response time to emergencies.
 3. Through collaboration with business, labor and higher education institutions, OHBC will provide funding to create and implement safety programming as part of required training for the skilled trades such as carpentry, welding and plumbing.
 4. In collaboration with higher education institutions in Ohio, OHBC will fund small to medium size research-to-practice research projects with short and long term impact to prevent occupational accidents, injuries and illnesses.
- OHBC and NIOSH are analyzing WC injury data from 2001 to 2011. These data include the frequency and cost of claims per employee per year according to specific industry, size of employer, injury/ illness types and causes. The purpose of the analysis is to produce information that can be used by OHBC insured employers to benchmark their safety and health performance

versus industry peers and develop data-driven plans for prevention. This data will also be used by OHBWC and researchers to understand industry risk trends and tailor safety, health, and disability management services to efficiently allocate resources. The overall goal is to reduce the frequency and cost of work-related injuries and illnesses in Ohio. For more information, visit the OHBWC website: www.bwc.ohio.gov

Division of Applied Research and Technology

NIOSH has received three patents recently for devices to measure ultrafine particles

- Kulkarni, P. and P. Diwakar (2015). Method and apparatus for aerosol analysis using optical spectroscopy, US Patent # US8970840 B2. This invention deals with new technology that allows development of real-time aerosol monitors using spark and laser microplasma spectroscopy.
- Kulkarni, P. and P. Efthimion (2015). Electrode-assisted microwave-induced plasma spectroscopy, Application# US20130321804 A1. This invention allows development of sensitive real-time aerosol monitors using spark and microwave plasma spectroscopy
- Kulkarni, P. (2014). Aerosol Particle Growth Systems for Personal Sampling Applications Using Polymer Electrolyte Membranes. Application# 62/026,559. This invention allows development of next-generation aerosol instrumentation and miniature sampling and microconcentration systems for personal exposure measurement. Kanomax USA Inc. has submitted an application to NIOSH to license this invention.

National Personal Protective Technology Laboratory

- Three year frequency of fit testing study provides data to support OSHA's annual fit testing requirement. NPPTL's recent publication in the Journal of Environmental and Occupational Hygiene compared annual, every 2 year, vs. every 3 year respirator fit test intervals using an initial cohort of 195 subjects. The percent of unacceptable fit increased each year by – 10%, 20% & 25% respectively. 24% that gained or lost ≥ 20 lbs had unacceptable fit.
- NPPTL's recent publication in the American Journal of Infection Control presented results from a study on pregnant women. Healthy pregnant women wearing an N95 FFR for 1 hour did not exhibit any significant differences in measured physiological and subjective responses compared with non-pregnant women.
- NPPTL collaborated with The Joint Commission to publish The Joint Commission Monograph to provide strategies for overcoming Respiratory Protection Program implementation challenges in hospitals. The

monograph was posted in March and is available at

http://www.jointcommission.org/implementing_hospital_respiratory_protection_programs_strategies_from_the_field/.

- NPPTL is collaborating with USAID and OSTP on President Obama's Ebola Grand Challenge to help HCWs provide better care and stop the spread of Ebola. Baseline tests with sweating thermal manikin and human subjects showed significant differences among ensembles in time to reach $\geq 39^{\circ}$ C core temperature, the critical temperature at which heat stress is a concern. NPPTL is scheduled to evaluate 5 cooling systems and 2 new types of ensembles for physiological and ergonomic impact to support improved PPE recommendations.
- The *Institute of Medicine Use and Effectiveness of Powered Air-Purifying Respirators in Health Care* Report, published January 6, 2015, was commissioned by NIOSH in an effort to gather and compile information regarding the needs of the healthcare stakeholder. NIOSH is moving toward more contemporary approaches to updating the standard in accordance with the 1995 National Technology Transfer and Advancement Act (NTTAA) (Public Law 104-113) to address innovative technologies and contemporary applications for PAPRs. The report is being used as one of many significant inputs to revising the standards and prioritizing the performance requirements to be incorporated in the standards that are underway at this time. <http://www.cdc.gov/niosh/npptl/ptprogram.html#national>

Health Effects Laboratory Division

- A NIOSH two-stage cyclone aerosol sampler, developed by Bean Chen and Bill Lindsley to collect airborne particles, is being used by researchers in North & South America, Australia, Asia, Europe and Antarctica, and most recently will be used in the International Space Station. The sampler is used to separate particles by size, which is important because smaller particles stay in the air longer and are much easier to inhale. The particles are collected in a standard disposable centrifuge tube and on a filter, which makes the samples easy to analyze. Over 400 of these samplers have now been produced and have been loaned to dozens of researchers all over the world.

Recently Released NIOSH Publications and Website Highlights

- Published a new **NIOSH Current Intelligence Bulletin, *Promoting Health and Preventing Disease and Injury Through Workplace Tobacco Policies***. The bulletin recommends that all workplaces become tobacco-free and that employers make tobacco cessation programs available to workers. These latest NIOSH recommendations, which also encompass the use of Electronic Nicotine Delivery Systems (ENDS)—or e-cigarettes—are aimed at protecting workers from the occupational hazards of tobacco and the effects of secondhand exposure to tobacco smoke and emissions from e-cigarettes. The full publication is available on the NIOSH website at <http://www.cdc.gov/niosh/docs/2015-113/default.html>.

- The ***Best Practice Engineering Control Guidelines to Control Worker Exposure to Respirable Crystalline Silica during Asphalt Pavement Milling*** document represents more than ten years of collaborative research by labor, industry, and government to reduce respirable crystalline silica exposure during asphalt pavement milling in highway construction. The Silica/Asphalt Milling Machine Partnership is coordinated by the National Asphalt Paving Association (NAPA) and includes all U.S. and foreign manufacturers of heavy construction equipment that currently sell pavement-milling machines to the U.S. market. The Partnership recommends ventilation controls be placed on all new half-lane and larger asphalt milling machines to reduce worker exposure to respirable crystalline silica. It is also recommended that water-sprays be used to suppress dust on milling machines if ventilation dust controls are not available. The ventilation and water-spray dust controls described in this document represent the current knowledge of best practices developed by the Partnership for controlling dust during asphalt pavement milling.
- **NIOSH Work Schedule Training for Nurses** was developed by NIOSH researchers and translates for nurses the health and safety risks associated with the demands of shift work and long work hours and presents strategies to reduce these risks. The long-term goal is to minimize the risks associated with demanding work schedules by improving their knowledge, attitudes, and intended behaviors. The training content includes eight topics included in nine modules: 1) overview of how the training works, 2) how demanding work schedules lead to health and safety risks. This is more of a theoretical discussion; 3) common complaints, illnesses, errors, and injuries and potential safety risks to patients and other persons due to worker fatigue; 4) strategies for employers to reduce health and safety risks associated with shift work and long work hours 5) improving sleep and alertness; 6) science of napping; 7) day shift strategies; 8) night shift strategies; 9) Individual Differences; 10) Coping Strategies for Family Life, 11) Driving; 12) Action Steps and Final Comments; and 13) Resources for more information.
- The document, ***Preventing Worker Fatigue Among Ebola Healthcare Workers and Responders*** was developed by NIOSH in response to the Ebola effort. NIOSH and the Occupational Safety and Health Administration (OSHA) recognize that healthcare workers and responders involved with cases related to Ebola in the United States may be required to work longer or unusual shifts. This can involve extended shifts (more than 8 hours long), rotating or irregular shifts, or consecutive shifts resulting in more than the typical 40-hour work week. Long work hours may increase the risk of injuries and accidents and can contribute to poor health and worker fatigue. Additionally, the personal protective equipment (PPE) required for working with Ebola patients can increase workers' core body temperature, contributing significantly to fatigue. Although these guidelines are geared toward workers responding in the United States, the same concepts apply to those working in other countries.
- **NIOSH-developed Pregnancy and Lifting Guidelines:** NIOSH researchers have proposed clinical guidelines, with provisional recommended weight limits, for how much a healthy pregnant worker should lift at work. NIOSH expects that most pregnant workers with uncomplicated pregnancies would be able to perform lifts at those limits without increased risk of adverse maternal and fetal health

consequences. The proposed guidelines should be useful to occupational health practitioners in the evaluation and redesign of lifting tasks and to clinicians in advising patients about manual lifting restrictions at work. To better assist practitioners and the public in understanding and disseminating the guidelines, NIOSH researchers developed an infographic summarizing the guidelines. Future plans are to develop a Current Intelligence Bulletin: Recommended Weight Limits for Manual Lifting During Pregnancy, as well as to develop computer-based/mobile-phone apps training for OB/GYN clinicians on how to use the guidelines following the CIB publication.

- In observance of **Workers Memorial Day**, NIOSH posted a message from Dr. Howard about the importance of the work that NIOSH, its partners, and our stakeholders contribute to our shared national mission, and highlighted the articles by NIOSH researchers in the special Workers Memorial Day issue of the CDC Morbidity & Mortality Weekly Report. These materials were centralized in an updated Workers Memorial Day topic page at <http://www.cdc.gov/niosh/topics/workmemorial/>, spotlighted in the “News and Events” carousel of images on the main NIOSH web page, and widely disseminated through Twitter, Facebook, and other social networks.
- The March 3 edition of the *Morbidity and Mortality Weekly Report* including a **CDC Vital Signs** report entitled **Trucker Safety-Using a Seat Belt Matters**. Vital Signs is a signature CDC health communication effort, released monthly, that includes calls to action for important public health issues. This was NIOSH’s first lead role on a Vital Signs. Products also included a 4-page graphic fact sheet, a press briefing with the CDC Principal Deputy Director and Coordinator of the NIOSH Center for Motor Vehicle Safety, a virtual townhall meeting, and a podcast. The Vital Signs addressed seat belt use by truckers as well as other risk factors for crashes, including drowsy and distracted driving. The Vital Signs was widely covered in the press, including CNN, USA Today, and Telemundo. This was a multi-divisional effort including staff from DSR, DSHEFS, DART and the Office of Health Communications. The MMWR article utilized findings from the NIOSH survey on long-haul truck drivers. In conjunction with the Vital Signs release, webpages and fact sheets on motor vehicle safety were revamped by DSR (<http://www.cdc.gov/niosh/motorvehicle/>), and a new webpage on truck driver safety and health was released by DSHEFS (<http://www.cdc.gov/niosh/topics/truck/>).
- In March, the *American Journal of Preventive Medicine* published an on-line article, **Suicide in U.S. workplaces, 2003-2010: A comparison with non-workplace suicides** ([http://www.ajpmonline.org/article/S0749-3797\(14\)00722-3/abstract](http://www.ajpmonline.org/article/S0749-3797(14)00722-3/abstract)) with an associated press release. The article has garnered much press interest and has been covered by The Atlantic, Newsweek, and the Huffington Post among others. Included among the findings were that the following occupations had elevated rates of suicide at work: protective services workers (e.g. fire fighters and law enforcement); farming, fishing and forestry occupations; and, installation, maintenance and repair occupations. Hope Tiesman authored a NIOSH science blog in April. The print publication is expected in June.

- In March, OSHA conducted a press release on a new OSHA/NIOSH co-branded document, ***Recommended Practices: Green Tobacco Sickness*** (<http://www.cdc.gov/niosh/docs/2015-104/pdfs/2015-104.pdf>). OSHA and NIOSH will be doing additional outreach to tobacco growers and workers as the harvest season approaches. This is a collaborative effort that includes DSR, DSHEFS, the Office of Agricultural Safety and Health and the NIOSH Office of the Director.
- ***Anthropometric Study of U.S. Truckers*** <http://www.cdc.gov/niosh/docs/2015-116/pdfs/2015-116.pdf>
This study was undertaken to update woefully out-of-date data on truck drivers which were being used by manufacturers and product designers. Data from this study, that illustrated a poor fit between today's truck drivers and truck cabs, were previously published in peer-reviewed journal articles and shared with several truck manufacturers and stakeholders through partnership agreements. The just-released NIOSH publication, that includes summary data and information on multivariate modeling, will make the data accessible to all manufacturers, product designers and stakeholders.

Other Recent Publications:

- New [NIOSH website on coccidioidomycosis](#) (Valley fever) that focuses on occupational issues, including risks and prevention
- New Topic Page on [reproductive health](#) provides information for workers, employers, and healthcare professionals on issues related to men's and women's reproductive health, fertility, pregnancy, and breastfeeding.
- NIOSH Topic Page: [Distracted Driving](#)
- NIOSH Topic Page: [NIOSH Center for Motor Vehicle Safety](#)
- NIOSH Topic: [Fatalities in the Oil and Gas Extraction Industry \(FOG\)](#)
- NIOSH Topic: [Safe, Green, and Sustainable Construction](#)
- NIOSH Topic: [Aircrew Safety & Health](#)
- [Long-haul Truck Drivers](#)
- [Preventing work-related motor vehicle crashes](#) DHHS (NIOSH) Publication No. 2015-111
- [Take Charge of Your Safety In and Around Your Patrol Vehicle](#) DHHS (NIOSH) Publication No. 2015-109
- [OSHA/NIOSH Hazard Alert: Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation](#) DHHS (NIOSH) Publication No. 2015-106
- MMWR: [Notes from the Field: Silicosis in a Countertop Fabricator - Texas, 2014](#)
- MMWR: [Silicosis Mortality Trends and New Exposures to Respirable Crystalline Silica - United States, 2001-2010](#)
- NIOSH Update: [Precautionary Measures Lacking for High Level Disinfectants: Results of a Survey of Healthcare Workers Who Disinfect Medical and Dental Devices](#)
- MMWR: [Worker Illness Related to Newly Marketed Pesticides - Douglas County, Washington, 2014](#)
- [NIOSH and the Mid-Air Collision Avoidance Working Group Prevent Aircraft Collisions in Alaska](#) - DHHS (NIOSH) Publication No. 2015-120
- MMWR: [Assessment of Emergency Responders After a Vinyl Chloride Release from a Train Derailment - New Jersey, 2012](#)

- [Online Training Helps Protect Nurses and Other Healthcare Workers from Workplace Violence](#) - DHHS (NIOSH) Publication No. 2015-118

Recently Published NIOSH Manual of Analytical Methods (NMAM):

The following methods have been published in the last 6 months

[NIOSH 5524](#) Metal Working Fluids (MWF) All Categories

[NIOSH 8319](#) Acetone and Methyl Ethyl Ketone in Urine

[NIOSH 8324](#) 3-Bromopropionic Acid in Urine

Other Recent NIOSH Authored Publications:

- [Effects of nitrogen-doped multi-walled carbon nanotubes compared to pristine multi-walled carbon nanotubes on human small airway epithelial cells.](#)
- [Suicide in U.S workplaces, 2003-2010: a comparison with non-workplace suicides.](#)
- [Stochastic reservoir simulation for the modeling of uncertainty in coal seam degasification.](#)
- [California's nurse-to-patient ratio law and occupational injury.](#)
- [Cigarette smoking trends among U.S. working adult by industry and occupation: findings from the 2004-2012 National Health Interview Survey.](#)
- [Endogenous antibody responsiveness to epidermal growth factor receptor is associated with immunoglobulin allotypes and overall survival of patients with glioblastoma.](#)
- [Breakthrough curves for toluene adsorption on different types of activated carbon fibers: application in respiratory protection.](#)
- [Endotoxin deposits on the inner surfaces of closed-face cassettes during bioaerosol sampling: a field investigation at composting facilities.](#)
- [Contamination and release of nanomaterials associated with the use of personal protective clothing.](#)
- [Loss of heat acclimation and time to re-establish acclimation.](#)
- [Characterization of size-specific particulate matter emission rates for a simulated medical laser procedure - a pilot study.](#)
- [Airborne fiber size characterization in exposure estimation: evaluation of a modified transmission electron microscopy protocol for asbestos and potential use for carbon nanotubes and nanofibers.](#)
- [Where occupation and environment overlap: US Forest Service worker exposure to Libby Amphibole fibers.](#)
- [Extended follow-up of lung cancer and non-malignant respiratory disease mortality among California diatomaceous earth workers.](#)
- [Associations between workplace factors and carpal tunnel syndrome: a multi-site cross sectional study.](#)
- [Disparities in occupational injury hospitalization rates in five states \(2003-2009\).](#)
- [Characterization of silver nanoparticles in selected consumer products and its relevance for predicting children's potential exposures.](#)
- [The effects of operator position, pallet orientation, and palletizing condition on low back loads in manual bag palletizing operations.](#)
- [Chronic probable PTSD in police responders in the World Trade Center Health Registry ten to eleven years after 9/11.](#)
- [Case cluster of pneumoconiosis at a coal slag processing facility.](#)

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
- Joint NIOSH/ASSE Report on the Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms (NIOSH has partnered with ASSE to develop a report entitled “Overlapping Vulnerabilities: The Occupational Health and Safety of Young Immigrant Workers in Small Construction Firms.” This report highlights the need to take into account the fact that many groups of vulnerable belong to more than one vulnerable worker population. This report will launch a sustained effort by ASSE to reach vulnerable groups of workers with effective safety and health assistance.)
- Current Intelligence Bulletin: Reproductive Risks Associated with Hazardous Drug Exposures in Healthcare Workers and Recommendations for Reducing Exposures
- Workplace Solutions: Reducing Hazardous Dust Exposure When Cutting Fiber-Cement Siding
- Workplace Solutions: Reducing the Risk of Hearing Loss and Tinnitus Among Musicians
- The three Ebola-related documents:
 - Guidance on Personal Protective Equipment (PPE) To Be Used by Healthcare Workers During Management of Patients with Confirmed Ebola or Persons Under Investigation (PUI) for Ebola who are clinically unstable or have bleeding, vomiting or diarrhea in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing) protective equipment
 - For US Healthcare Settings: Donning (Putting On) and Doffing (Taking Off) Personal Protective Equipment (PPE) for Evaluating Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD) Who are Clinically Stable and Do Not have Bleeding, Vomiting, or Diarrhea
 - Frequently Asked Questions on Guidance on Personal Protective Equipment to Be Used by Healthcare Workers during Management of Patients Confirmed Ebola Virus Disease or Patients under Investigation (PUI) for Ebola Virus Disease Who are Clinically Unstable or Have Bleeding, Vomiting or Diarrhea in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)

Awards

ACGIH Bloomfield Award

Todd Niemeier of EID has been selected as the recipient of the 2015 John J. Bloomfield Award. This national award has been bestowed annually by ACGIH since 1978. The John J. Bloomfield Award is presented to an up-and-coming industrial hygienist who has made significant contributions to the profession by pursuing occupational health hazards, primarily through fieldwork.

Nanotechnology Research Center Awards at Upcoming AIHA Conference

Awards to be presented to members of the NIOSH Nanotechnology Research Center at the upcoming AIHCE meeting in Salt Lake City.

1. NIOSH Nanotechnology Field Research Team – Recipient of the Edward J. Baier Award. Dr. Charles Geraci will accept the award on behalf of the Nanotechnology Field Research Team
2. Dr. Cena Lorenzo’s paper titled “A Novel Method for Assessing Respiratory Deposition of Welding Fume Nanoparticles” published in the JOEH has won the David L. Swift award for best aerosol-related paper published in 2014.

Dr. Mark Hoover is being named as a Fellow of the American Industrial Hygiene Association. NIOSH will now have two AHIA Fellows, Dr. Hoover and Dr. Geraci.

Paper of the Year Award— Respiratory/Inhalation Toxicology at the Society of Toxicology Annual Meeting

NIOSH researcher Linda Sargent, PhD, accepted the Paper of the Year Award in the area of respiratory/inhalation toxicology for the publication “Promotion of lung adenocarcinoma following inhalation exposure to multi-walled carbon nanotubes.” The paper, published in *Particle and Fibre Toxicology*, was the first to show that multi-walled carbon nanotubes encourage the growth of cells with DNA damage (initiated cells) to form tumors that spread to other parts of the body. This research subsequently supported the decision by the International Agency for Research on Cancer to designate this specific class of carbon nanotubes as carcinogenic. The award was presented at a reception held at the annual meeting of the Society of Toxicology on March 23, 2015. Additionally, this paper was nominated for the CDC 2015 Charles C. Shepard Award in Laboratory Science.

Notable Mention

A paper entitled “Using Urinary Biomarkers of Polycyclic Aromatic Compound Exposure to Guide Exposure-Reduction Strategies Among Asphalt Paving Workers” by Michael D. McClean et al., with four NIOSH coauthors - John E. Snawder, Larry D. Olsen, Jerome P. Smith and Deborah L. Sammons (all BHAB) - was runner-up for the 2014 Bedford Prize for the ‘Most Outstanding Paper’ published in *The Annals of Occupational Hygiene* - in 2012 and 2013 (NIOSH TIC No. 20041835). The journal noted that the ‘most outstanding’ paper and the next highest scoring manuscript were both intervention studies, using novel designs and rigorous exposure assessment methods which underscores the value placed on practical solutions supported by good science among the occupational hygiene community.

Upcoming Conferences

- On May 19-21, 2015, NIOSH will be hosting the 6th National Occupational Injury Research Symposium (NOIRS) (<http://www.cdc.gov/niosh/noirs/2015/default.html>). Co-sponsors include the American Society of Safety Engineers, Liberty Mutual Research Institute for Safety, National Safety Council, and Society for Advancement of Violence and Injury Research. NOIRS had a record number of abstract submissions and registration, and we anticipate more than 250 attendees.

Certification Statement

I hereby certify that, to the best of my knowledge and ability, the foregoing minutes of the May 12, 2015, meeting of the NIOSH Board of Scientific Counselors, CDC are accurate and complete.

August 4, 2015

Date

A handwritten signature in black ink that reads "Bonnie Rogers". The signature is written in a cursive style with a large initial "B" and a long, sweeping tail on the "s".

M.E. Bonnie Rogers, MPH, DrPH, COHN-S
Chair, NIOSH Board of Scientific Counselors