

National Institute for Occupational Safety and Health Personal Protective Technology Program Stakeholder Meeting and Workshop



March 20 & 21, 2012



NIOSH PPT / NPPTL

Vision & Mission

The **VISION** is to be the leading provider of quality, relevant, and timely PPT research, training, and evaluation.

The **MISSION** of the PPT program is to prevent work-related injury, illness and death by advancing the state of knowledge and application of personal protective technologies (PPT).

An estimated 20 million workers use PPE on a regular basis to protect themselves from job hazards.

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March 20, 2012

Welcome to the 5th NIOSH Personal Protective Technology (PPT) Program and National Personal Protective Technology Laboratory Stakeholder meeting!

An estimated 20 million workers rely on Personal Protective Equipment (PPE) on a regular basis to protect them from job hazards. Effective PPE is critical for preparedness and response activities to secure the nation against terrorist events and other disasters as well as ensuring the safety of American workers who depend upon PPE.

For the past five years, the PPT Program has held stakeholder meetings where PPE users, manufacturers, researchers, and other interested parties can meet, interact, and exchange information with NIOSH intramural and extramural researchers and discuss current and future research needs. The meetings offer stakeholders the opportunity to provide input to NIOSH and learn about current PPT activities.

Several invited partners and speakers will provide presentations to discuss PPE selection, use, and expectations from their perspectives; integrating their research and experience into the discussion.

Today 40 posters are on display describing ongoing intramural and extramural PPT activities. A dedicated session provides stakeholders the opportunity to view the posters and discuss the research with the author. Eight moderated breakout sessions afford stakeholders an opportunity to learn and provide input on four industry sectors emphasized in current PPT program activities.

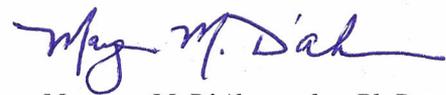
Tomorrow, five two hour workshops (heat stress, hearing protection, respirator fit testing, pesticide PPE best training techniques, and chemical, biological, radiological, and nuclear (CBRN) respiratory protection programs) are scheduled. Each workshop will be conducted twice to enable participants to attend two workshops during the half-day session. In addition, the NIOSH hearing loss van will be available for hearing protector fit testing on day two.

The agendas for both days, agendas for each sector breakout session, tomorrow's workshop descriptions, speaker bios, poster abstracts, and other PPT Program information of interest are included in this handout.

We hope you will take a minute to complete the evaluation form that will be distributed in each of the breakout rooms to provide suggestions for making future stakeholder meetings even more informative.

We thank you for your attendance and participation.


Roland Berry Ann
Interim Director, NPPTL
Acting NIOSH PPT Program Manager


Maryann M. D'Alessandro, Ph.D.
Interim Deputy Director, NPPTL
PPT Program Coordinator

NIOSH PPT Program Stakeholder Meeting Agenda

March 20, 2012

**Hyatt Regency Pittsburgh International Airport
Pittsburgh, PA**

7:00 - 8:00 am	Registration	
8:00 - 8:15 am	General Session - Welcome and opening	<i>Regency Ballroom</i>
	<i>Margaret Kitt, M.D., MPH, NIOSH Director for Program Roland Berry Ann, B.S., Interim PPT Program Manager/Interim NPPTL Director Maryann D'Alessandro, Ph.D., Interim NPPTL Deputy Director and PPT Program Coordinator</i>	
8:15 - 8:45 am	Theme-based presentation:	<i>Regency Ballroom</i>
	1: Innovative Approaches to Knowledge Sharing in Public Health <i>Ron LaPorte, Ph.D., University of Pittsburgh</i>	
8:45 - 9:00 am	Break	
9:00 - 10:30 am	Breakout sessions Healthcare Breakout Mining Breakout Pesticide Handlers Breakout Public Safety Breakout	<u>Rooms:</u> <i>Yeager Lindbergh Earhart Wright</i>
10:30 - 10:45 am	Break	
10:45 - 11:30 am	Theme-based presentations:	<i>Regency Ballroom</i>
	2: A case example of PPE Selection and Use in the Hospital Environment <i>Mary Yarbrough, M.D., Ph. D., Vanderbilt University</i>	
	3: PPE Selection, Use and Expectations from an Industry Perspective <i>J.A. Rodriguez, Jr., Senior Manager, Environmental Health and Safety, Raytheon Corporation</i>	
11:30 - 1:30 pm	Lunch (included in registration) and Keynote Speaker	<i>Regency Ballroom</i>
	Personal Protective Technology Selection, Use, and Expectations <i>Gordon Graham, J.D.</i>	
1:30 - 3:00 pm	Poster session	<i>Allegheny & East Foyer</i>
3:00 - 4:30 pm	Breakout sessions Healthcare Breakout Mining Breakout Pesticide Handlers Breakout Public Safety Breakout	<u>Rooms:</u> <i>Yeager Lindbergh Earhart Wright</i>
4:30 - 4:45 pm	Sector Breakout Wrap-up	<i>Breakout Session Rooms</i>
4:45 - 5:15 pm	Wrap-up	<i>Regency Ballroom</i>
5:15 - 5:30 pm	Break	
5:30 pm	Networking Reception sponsored by ISEA	<i>Regency</i>

NIOSH PPT Program Stakeholder Meeting Agenda

March 20, 2012

Hyatt Regency Pittsburgh International Airport
Pittsburgh, PA

Regency Ballroom

Presentation 1: Innovative Approaches to Knowledge Sharing in Public Health

Ron LaPorte, Ph.D., University of Pittsburgh

Over 98% of teaching in the US and worldwide is by a classroom teacher. Dr. LaPorte has spearheaded the “SuperCourse” concept to provide local educators the means to markedly improve their teaching. Dr. LaPorte uses internet technology to empower the educator with good up to date materials, to help the educator teach. He will describe the value of the SuperCourse during the H1N1 Pandemic and other emergency response events, as well as discuss the potential usefulness and implementation of personal protective equipment knowledge as part of the SuperCourse concept.

Presentation 2: A case example of PPE Selection and Use in the Hospital Environment

Mary Yarbrough, M.D., Ph. D., Vanderbilt University

This presentation will formulate a comparison between the safety level of healthcare personnel who wear N95 respirators consistently when necessary and those who do not. Vanderbilt University study that compared TB conversion rates across groups of healthcare personnel will be used.

Presentation 3: PPE Selection, Use and Expectations from an Industry Perspective

J.A. Rodriguez, Jr., Senior Manager, Environmental Health and Safety, Raytheon Corporation

J.A. Rodriguez Jr. will present issues regarding selection and use taking into account industrial and healthcare exposures and the challenges associated with applications from both the national and international perspectives. The talk will incorporate case examples of PPE use in a variety of environments to include healthcare, emergency response, and pesticide handling. J.A. will emphasize the fact that PPE selection, use and expectations should be tailored to the particular environment and conditions of use and will discuss the limitations of the PPE under extreme conditions.

11:30 - 1:30 pm	Lunch (included in registration) and Keynote Speaker	Regency Ballroom
	Personal Protective Technology Selection, Use, and Expectations Gordon Graham, J.D.	
	Build Your Own Sandwich Wheat or White Bread Turkey Ham Roast Beef Lettuce/Tomato/Condiments Chips Fruit Cookie Soft Drink If you need a vegan or gluten free option, please see NPPTL staff at the registration desk.	

We would like to say a special thanks to all who have contributed their time and effort to making this year’s Personal Protective Equipment Selection, Use, and Expectation: PPT Stakeholder Meeting and Workshop a success. It has been through the hard work of the meeting planners, administrative support, and the planning committee that we are able to bring our stakeholders together to learn from one another and share ideas on how we can work to build safer occupational environments.

Of special note is our appreciation to our partners the Pittsburgh Section of the American Industrial Hygiene Association, and the International Safety Equipment Association.

General Session Presenter Biographies

NIOSH Presenters

Margaret M. Kitt, MD, MPH, Dr. (CAPT) Margaret Kitt has served as the NIOSH Deputy Director for Program since 2009. She represents the NIOSH Director and the Institute on committees and at meetings with various agencies and stakeholder groups. She received a Bachelor of Science from The State University of New York at Albany, a Doctor of Medicine from the University of Rochester School of Medicine and Dentistry, and a Master of Public Health from the University of Washington. She served in the U.S. Air Force as a Senior Flight Surgeon for 14 years. In 2002, she joined CDC and the U.S. Public Health Service at the NIOSH Division of Respiratory Disease Studies and in 2007 became the NIOSH Associate Director for Emergency Preparedness and Response. In 2008, she served as the HHS Office of Global Health Affairs Coordinator for the HHS Secretary's Afghanistan Health Initiative, before returning to NIOSH in 2009.

Roland Berry Ann is the Deputy Director, National Personal Protective Technology Laboratory (NPPTL), NIOSH. Roland has served as the Interim Director of the NPPTL, manager of the National Occupational Research Agenda (NORA) Public Safety Sector and manager of the NORA Personal Protective Technology (PPT) Cross Sector since November 2011. He has 20 years of experience working in respirator certification and PPT issues at NIOSH. Roland has served in a variety of leadership roles during his tenure in NIOSH, including serving as the Chief of the respirator certification program before becoming the Deputy Director, NPPTL in 2007. Roland is currently serving as a Director for the Americas' Section and the International Society of the International Society for Respiratory Protection (ISRP). He also serves as a member of the NORA Healthcare and Social Assistance Sector Council, and Steering Committees of the Respiratory Diseases and PPT Cross Sectors. He is often called upon to represent NPPTL and NIOSH as a nationally and internationally recognized expert in the area of personal protective technology (PPT), providing leadership throughout the scientific community. Roland received his Bachelor of Science degree in Electrical Engineering in 1972 from West Virginia University.

Maryann D'Alessandro, Ph.D., Dr. Maryann D'Alessandro has served as the Interim Deputy Director of the NIOSH National Personal Protective Technology Laboratory since December 2011, and the Associate Director for Science for the past eight years. Maryann's leadership in research and development management, strategic planning, and scientific program evaluation have produced results as she leads the NPPTL Scientific Excellence Program to ensure research, surveillance, technology evaluations, and standards development initiatives in personal protective technologies (PPT) maximize workplace safety and health. Maryann provides leadership to the NIOSH PPT Cross Sector Program where she serves as the Coordinator leading the effort to align PPT initiatives with user needs across all workplace industry sectors, has led the National Academies' involvement in NPPTL activities, and is currently leading the PPT Conformity Assessment effort. Prior to joining NIOSH in 2003, she had a short academic career at the University of Pennsylvania's Department of Bioengineering, and also served 15 years with the U.S. Army in biomedical sensors, communications, and intelligence systems research and development. Maryann received her B.S. and Ph.D. in electrical engineering from Florida Institute of Technology (1988), and Georgia Institute of Technology (2001) respectively.

General Session Presenters

Ron LaPorte, Ph.D., University of Pittsburgh is a Cognitive Psychologist turned epidemiologist. His primary interest is the application of Internet Technology to the prevention of disease. The concept is simple, since 1950 there has been 25 year worldwide improvement of life expectancy. At least 20 of the years increase has been due to prevention. Most of prevention is merely the sharing of knowledge, prevention education. We are harnessing the Internet to improve knowledge sharing and prevention. We have created the Supercourse which has over 65,000 faculty worldwide. We are sharing our knowledge by collecting the best PowerPoint lectures of prevention and science, and making these available through an open source lecture library (www.pitt.edu/~super1). He has published over 462 papers, and is the Director for Disease Monitoring and Telecommunications at the University of Pittsburgh WHO Collaborating center.

General Session Presenter Biographies

Mary Yarbrough, M.D., Ph. D., Dr. Mary Yarbrough earned an M.D. from Vanderbilt and an MPH from Johns Hopkins. She completed residencies at Vanderbilt (Internal Medicine) and Johns Hopkins (Preventive Medicine and Public Health) and is boarded in Internal Medicine, General Preventive Medicine and Public Health, and Occupational Medicine. She is an Associate Professor of Internal Medicine and Assistant Professor of Preventive Medicine at Vanderbilt. She is the Executive Director of Vanderbilt's Faculty/Staff Health and Wellness Programs, which includes the Occupational Health Clinic; the Child and Family Centers; Work/Life Connections--EAP, including the Faculty/Physician Wellness and Nurse Wellness Programs; and Health Plus, Vanderbilt's health promotion program.

J. A. Rodríguez Jr., CSP, is a Raytheon Technical Services Company LLC EHS senior manager with more than 28 years of experience and is responsible for effective implementation of international EHS programs. He is a Certified Safety Professional, an elected board member of Region III VPPPA Inc., a professional member of ASSE, a Special Government Employee under the OSHA VPP, a member of the Industry Advisory Council at Western New England College School of Engineering, an inventor (patent # 5,285,961), and author of the book "Not Intuitively Obvious – Transition to the Professional Work Environment".

Keynote Speaker:

Gordon Graham, J.D., is a 33 year veteran of California Law Enforcement. During this time period, Graham began to see deficiencies in how officers were being trained. He revolutionized law enforcement training in California with his SROVT program: Solid, Realistic, Ongoing, Verifiable, Training. For this program, Gordon Graham was awarded the California Governor's award for excellence in law enforcement training. Graham combines his practical, real-world experience with an extensive education. He graduated from Western State University School of Law with his Juris Doctorate in 1982. In 2002, Graham became a co-founder of Lexipol - a company designed to standardize policy, procedure, and training in public safety operations. For more information about Mr. Graham, visit <http://www.gordongraham.com/about.html>.

7:00 - 8:00 am	Registration	
8:00 - 8:15 am	General Session - Welcome and opening	<i>Regency Ballroom</i>
	<i>Margaret Kitt, M.D., MPH, NIOSH Director for Program</i> <i>Roland Berry Ann, B.S., Interim PPT Program Manager/Interim NPPTL Director</i> <i>Maryann D'Alessandro, Ph.D., Interim NPPTL Deputy Director and PPT Program Coordinator</i>	
8:15 - 8:45 am	Theme-based presentation:	<i>Regency Ballroom</i>
	1: Innovative Approaches to Knowledge Sharing in Public Health <i>Ron LaPorte, Ph.D., University of Pittsburgh</i>	
8:45 - 9:00 am	Break	
9:00 - 10:30 am	Breakout session 1:	<i>Yeager</i>
	Respirator Evaluation in Acute Care Hospital (Reach II) Regional Results <i>Presenting Panel: Dr. Lisa Brosseau, Dr. Eileen Franko, Dr. Barbara Materna, Dr. Edie Alfano-Sobsey, Lauren Joe (CDPH), TBD (Michigan PHI)</i>	
Topics:	Discuss the Findings of the Reach II Study <ul style="list-style-type: none"> • Responsible respirator program administration • Selection of appropriate respirators for various tasks • Medical evaluation and clearance for respirator use • Fit testing • Training of wearers • Length of use and maintenance/storage 	
10:30 - 10:45 am	Break	
10:45 - 11:30 am	Theme-based presentations:	<i>Regency Ballroom</i>
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11:30 - 1:30 pm	Lunch (included in registration) and Keynote Speaker	<i>Regency Ballroom</i>
	Personal Protective Technology Selection, Use, and Expectations <i>Gordon Graham, J.D. *</i>	
1:30 - 3:00 pm	Poster session	Allegheny & East Foyer
3:00 - 4:30 pm	Breakout session 2:	<i>Yeager</i>
	Implementing Hospital Respiratory Protection Programs: Seeking Field Input for Educational Monograph	

Healthcare

Room Location: Yeager

<i>Presenters:</i> Brette Tshurtz and Dr. Barbara Braun		
Topics:	<p>Discuss the recommendations to implement research to practice.</p> <ul style="list-style-type: none">• Circumstance of respirator usage, including patient characteristics and procedure• Frequency of usage• Location of usage by department• Wearing according to manufacturer's instructions• Removing, storage and disposal• PPE use and usability issues in acute care and community healthcare settings. This presentation will address barriers due to workplace-culture, comfort, lack of knowledge, and lack of access to PPE.	
4:30 - 4:45 pm	Sector Breakout Wrap-up	<i>Yeager</i>
4:45 - 5:15 pm	Wrap-up	<i>Regency Ballroom</i>
5:15 - 5:30 pm	Break	
5:30 pm	Networking Reception sponsored by ISEA	<i>Regency</i>

Healthcare Sector Presenter Biographies

Edie Alfano-Sobsey, PhD, Dr. Alfano-Sobsey is the Team Leader of the Public Health Regional Surveillance Team 4 (PHRST 4). In this position, she has been successful at creating and leading new initiatives in public health preparedness. Her other areas of expertise include infectious disease epidemiology, medical laboratory sciences and environmental health science and she has publications in all of these disciplines. Because of her diverse experiences, she maintains strong partnerships with many governmental agencies, academic institutions, and local communities in North Carolina. Edie holds a Doctor of Philosophy Degree in Infectious Disease Epidemiology and a Masters of Science in Public Health Degree in Environmental Sciences, both from the University of North Carolina, Chapel Hill. She is also a certified medical technologist and clinical laboratory scientist.

Dr. Lisa Brosseau, CIH, Associate Professor, has been a member of the University of Minnesota School of Public Health since 1991. Her position involves teaching graduate classes, advising masters and doctoral students and conducting research in the industrial hygiene program in the Division of Environmental Health Sciences. She has considerable expertise with respirators with respect to filter fit and performance and respiratory protection programs. She has conducted numerous intervention studies in small manufacturing businesses and has expertise in developing and implementing qualitative and quantitative outcome assessment tools. She served as technical consultant to the California REACH project, which evaluated respirator programs and implementation in the context of the California OSHA Aerosol Transmissible Diseases Standard. She has served on several institute of Medicine panels focused on respiratory protection design and implementation.

Dr. Eileen Franko, PhD, Dr. Franko is the Director of the Bureau of Occupational Health, within the New York State Department of Health. She has been with the Department of Health for the past nineteen years and prior to that was an Industrial Hygienist with OSHA for five years. She also worked as a Public Health Sanitarian with the Albany County Department of Health for three years. Her educational background includes a Doctorate of Public Health and a Masters of Public Health from SUNY Albany, a Masters Degree in Community Health Education from Russell Sage College, Troy, New York, and a Bachelors Degree in Microbiology with a minor in Chemistry from Plattsburgh State.

Barbara Materna, PhD, CIH, is the Chief of the Occupational Lead Poisoning Prevention Program in the California Department of Health Services. She has worked in the field of occupational health for over 17 years, since obtaining a Masters degree in Environmental Health Science at Hunter College, City University of New York. She also holds a Ph.D. in Environmental Health Science from the University of California at Berkeley. Dr. Materna's work experience has been primarily as an industrial hygienist within local and state public health agencies. She has worked on research and education projects involving toxic exposures to wildland firefighters, prevention of pesticide illness in agriculture, ergonomics and back injury prevention, perchloroethylene exposure of dry cleaners, as well as occupational lead poisoning.

Barbara Braun, PhD, is currently Project Director, Health Services Research, in the Division of Healthcare Quality Evaluation at The Joint Commission. The Joint Commission's mission is to continuously improve health care for the public, in collaboration with other stakeholders, by evaluating health care organizations and inspiring them to excel in providing safe and effective care of the highest quality and value. In her position, she is involved with designing and implementing collaborative projects related to quality of care and multi-site infection prevention research funded by CDC and AHRQ with partners at several universities. Her research interests include the relationship between process of care, organizational factors and outcome measures of quality; evaluating the effectiveness of quality measurement and improvement strategies; and healthcare organization linkages with community entities for emergency preparedness. She is also a certified green belt in Robust Process Improvement, a blended form of lean and six sigma methodologies, and teaches quality management at the University of Illinois at Chicago School of Public Health.

Healthcare Sector Presenter Biographies

Brette Tschurtz, BA, is an Associate Project Director (APD) in the Division of Healthcare Quality Evaluation at The Joint Commission. Ms. Tschurtz has had much experience serving as the project coordinator for externally funded projects. She was the coordinator for a project funded by the Flight Attendants Medical Research Institute (FAMRI) in collaboration with the Center for Health Promotion & Disease Prevention at Henry Ford Health Systems, which focused on identifying a group of hospitals that have adopted smoke-free campus policies successfully to document their efforts as case studies, identify best practices, and create a tool-kit for hospitals to implement their own smoke-free policies. She was also the APD for a study to assess the cultural and linguistic needs of the increasingly diverse populations of hospital patients in the Florida counties of Palm Beach, St. Lucie, and Martin where her project responsibilities included coordinating technical advisory panel activities and communication, coordinating internal and external dissemination of project information, recruitment of hospitals, development of training materials and training hospital personnel via webinar, assisting in development of two survey instruments, coordinating completion of surveys, developing and maintaining databases, analyzing and synthesizing information from multiple surveys and documents, managing Wiki application and drafting final manuscripts, abstracts, and reports, including custom reports for each of the 14 participating hospitals. She is currently the APD for a grant-funded initiative to promote the integration of effective communication and patient- and family-centered care into national patient safety and quality efforts. Her experience in successfully leading Joint Commission projects has provided her with the expertise to lead this project to successful completion.

Lauren Joe, CDC/CSTE Applied Epidemiology Fellow at California Department of Public Health

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8:45 - 9:00 am	Break	
9:00 - 10:30 am	Breakout session 1:	<i>Lindbergh</i>
	Mining Sector Breakout Presentations:	
Topics:	9:00 – 9:15	Mining PPE Overview by Bob Stein
	9:15 – 9:30	SCSR Capacity by Nicholas Kyriazi
	9:30 – 9:45	Physiologic Aspects of Switching SCSRs in an IDLH Atmosphere Robert Cohen – CCH&HS
	9:45 – 10:00	Cryogenic Life Support System by Donald F. Doerr – NASA-Consultant
	10:00 – 10:15	Dräger SCSR/SCBA Mining System by Bill Dedig
	10:15 – 10:30	Questions & Answers for Morning Session for the Panel
10:30 - 10:45 am	Break	
10:45 - 11:30 am	Theme-based presentations:	<i>Regency Ballroom</i>
	2: A case example of PPE Selection and Use in the Hospital Environment <i>Mary Yarbrough, M.D., Ph. D., Vanderbilt University</i>	
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1:30 - 3:00 pm	Poster session	Allegheny & East Foyer
3: 00 - 4:30 pm	Breakout session 2:	<i>Lindbergh</i>
	Mining Sector Breakout Presentations:	
Topics:	3:00 – 3:15	Future Technologies for Breathing Air Systems - Rohan Fernando, Ph.D.
	3:15 – 3:30	Novel Knee Protection for Miners – Jonisha Pollard, M.S.

MINING

Room Location: Lindbergh

	<p>3:30 – 3:45 Clear, Sensible Effective SCSR Training: For a new, High-Performance Device, Information Design Augments Safety and Usability by Paul Ream – CSE Corporation</p> <p>3:45 – 4:00 Light-emitting diode (LED) cap lamp research by John J. Sammarco, Ph.D.</p> <p>4:00 – 4:15 Smart BA by Doug Kimball - Avon</p> <p>4:15 – 4:30 Questions and Answers for the afternoon session for the Panel</p>	
4:30 - 4:45 pm	Sector Breakout Wrap-up	<i>Lindbergh</i>
4:45 - 5:15 pm	Wrap-up	<i>Regency Ballroom</i>
5:15 - 5:30 pm	Break	
5:30 pm	Networking Reception sponsored by ISEA	<i>Regency</i>

Mining Sector Presenter Biographies

Robert R. Stein, P.E., Mr. Stein is a senior scientist for the Technology Evaluation Branch of the National Personal Protective Technology Laboratory. Holding an advanced degree from the Colorado School of Mines in Mine Safety and Industrial Hygiene, he started his career with the U.S. Bureau of Mines where he did research in engineering noise control, hearing loss prevention, and respirable dust control as well as respiratory protective devices used in mine emergencies. Ahead of the general transition of Bureau of Mines research into NIOSH, Mr. Stein was employed by the Certification and Quality Assurance Branch within NIOSH's Division of Safety Research, the group responsible for administering Title 42 Code of Federal Regulations, Part 84, the NIOSH respirator standard. He was a co-developer of the Certified Product Investigation Process, still in use to conduct complaint and conformance investigations of approved respirators. He has developed test and certification standards and participated in outside standards-setting bodies, served in various supervisory roles within the certification group and is currently a special investigator and engineering consultant in the areas of testing, quality assurance, and approvals.

Nicholas Kyriazi obtained a BS degree in Biomedical Engineering from Duke University in 1975. He has worked at the Bureau of Mines and then NIOSH since November 1975, involved exclusively with the testing of closed-circuit breathing apparatus.

Paul Ream is the Director of Respiratory Protection for CSE Corporation. Mr. Ream has worked in several industries throughout his career and has vast experience in the diverse areas of technology, management and Marketing. He has been with CSE for over five years the last three in his current position. Mr. Ream has spent the majority of his career in the metals industry. He was the VP Sales and Marketing and President of the Steelmaking Division of AGI with 13 plants throughout North America. During his time in the metals industry, Mr. Ream was recognized as a Distinguished Member of the American Welding Society and in 1991 received the respected Herty award as the author of the year's best technical paper for the Iron and Steel Society. During his time at CSE, Mr. Ream was responsible for the development of CSE's latest and most advanced Respiratory Protection Device, the SRLD, 60 minute SCSR. Mr. Ream has a Bachelor's Degree in Mechanical Engineering from the University of Pittsburgh and has done graduate work at the University of Cincinnati.

Robert A. C. Cohen, MD, FCCP, Dr. Cohen graduated from Northwestern University's Honors Program In Medical Education, in 1981 and then went to Cook County Hospital. In December of 2008 he became the first Chairman of Pulmonary and Critical Care Medicine for the Cook County Health and Hospitals System, and also Chairman at Stroger Hospital. In this new position, Dr. Cohen integrated the pulmonary and critical care practice across at Stroger, Provident, and Oak Forest Hospitals of Cook County. He developed an interest in Occupational Lung Disease and has worked as the medical director of the Black Lung Clinics at Cook County Hospital since 1993, and then became the Medical Director of the Federally Funded Black Lung Clinics Program nationally in 1995. This program is dedicated to the care of coal miners throughout the US. He has served as a consultant to several agencies of the United States government in areas of mining related health issues, including the U.S. Agency for International Development, the U.S. Centers For Disease Control as a member of the Mine Safety Research Advisory Committee, the U.S. Department of Health and Human Services, Health Resources and Services Administration, and the U.S. National Institute for Occupational Safety and Health. He was most recently appointed to the National Academies of Science/Institute of Medicine committee to oversee the work of NIOSH's National Personal Protective Technologies Laboratories.

Mining Sector Presenter Biographies

Donald F. Doerr retired from NASA, Kennedy Space Center in December, 2011 where he served as the Chief Biomedical Engineer, a position that involved the responsibility for the preflight checkout and certification of the space shuttle biomedical instrumentation system. His research interests have been concentrated in the area of design, development, testing, and certification of unique forms of personal protective equipment used by NASA to protect workers from toxic and other gaseous hazards involved with the processing of spacecraft. He has authored papers and reports in this area and has also co-authored numerous papers on the physiological effects of microgravity on humans. He received a BS in electrical engineering from the University of South Florida in 1968. After completing a tour of duty in the Navy as a line officer, he joined NASA in 1971 while continuing in the Naval Reserve. He is a Fellow in Aerospace Medicine in the Aerospace Medical Association and has been designated as an honorary member of the Society of NASA Flight Surgeons. He received the NASA Exceptional Service Award in 1988 and the Silver Snoopy Award in 2003. He was admitted to the Space Foundation Technology Hall of Fame in 2008 for his work on the ResQpod. He received the J. Tal Webb Award in 2010.

Rohan Fernando is a Senior Research engineer in the Division of Mining Science & Technology at the Office of Mine Safety Health Research and based in Pittsburgh. Currently investigating enabling technologies for improvement of breathing air supplies in escape, rescue and shelter systems in underground mining. More than 18 years' experience in breathing protection/ life support technology involved in individual apparatus and collective protection system design, production, installation, servicing and marketing for the government and commercial sector. Mechanical engineer by profession with an M.S. in Mechanical Engineering from the University of Nebraska- Lincoln, research area being experimental multi-phase flow with mathematical modeling and a B.Sc. (Honors) in Mechanical Engineering from the University of Manchester, UK. Papers in referred journals and other publications; Member of ASME and IMecE (UK); C. Eng. - Chartered Engineer (UK)

Doug Kimball – Avon Protection Systems, Mr. Kimball's initial foray into rebreather technologies was with Technical Products, Inc., a company which received funding from NIOSH for the development of a 'next generation' SCSR for the mining community. Development of that technology included a hybrid system consisting of a smaller and lighter SCSR, a CO Filtered Self-Rescuer, docking valve and a breathing air monitor built into the miner's cap lamp battery. Today Mr. Kimball is the Program Manager for rebreather technologies at Avon Protection Systems. In this position, Mr. Kimball's primary focus is the development of Closed Circuit Escape Respirators (CCER's) designed to meet current and proposed NIOSH standards as well as U.S. Navy specifications. Mr. Kimball is also is Program Manager for the company's Smart SCSR - a combined FSR, O2 cylinder and O2 sensing & dosing electronics sub-system. The Smart SCSR program has been funded by NIOSH. Mr. Kimball has a B.S. in Engineering from The College of New Jersey and has over 25 years experience in engineering, product development and technical sales.

Bill Dedig – Draeger Safety Inc., Mr. Dedig has product management responsibilities for closed-circuit oxygen breathing apparatus for Draeger in the NAFTA region. He has more than 20 years experience in this range of equipment including service and training of internal and external customers.

John J. Sammarco, Ph.D., is a Senior Research Engineer with the National Institute for Occupational Safety and Health Office of Mine Safety and Health Research. His Federal service has been devoted to mine safety research in a wide variety of areas including mining machine navigation and guidance, control systems, and sensors. His recent research areas concern system safety, hazard/risk analysis of processor-controlled mining systems, smart wireless sensors, visual performance, and solid-state lighting systems for mine applications.

Jonisha P. Pollard, MS, Ms. Pollard joined NIOSH in 2007 while pursuing her M.S. in Bioengineering from the University of Pittsburgh. Ms. Pollard is a Certified Professional Ergonomist and is a member of the Musculoskeletal Disorder Prevention team and currently serves as a Principal Investigator on a research project to reduce the impact of knee injuries in the mining industry.

Pesticide Handlers

Room Location: Earhart

7:00 - 8:00 am	Registration	
8:00 - 8:15 am	General Session - Welcome and opening	<i>Regency Ballroom</i>
	<i>Margaret Kitt, M.D., MPH, NIOSH Director for Program</i> <i>Roland Berry Ann, B.S., Interim PPT Program Manager/Interim NPPTL Director</i> <i>Maryann D'Alessandro, Ph.D., Interim NPPTL Deputy Director and PPT Program Coordinator</i>	
8:15 - 8:45 am	Theme-based presentation:	<i>Regency Ballroom</i>
	1: Innovative Approaches to Knowledge Sharing in Public Health <i>Ron LaPorte, Ph.D., University of Pittsburgh</i>	
8:45 - 9:00 am	Break	
9:00 - 10:30 am	Breakout session 1:	<i>Earhart</i>
	Improving the Ability to Identify Pesticide PPE in the Purchasing Process	
<i>Presenters: Kim Faulkner and Stan Thomas</i>		
Topics:	<p>In this interactive session, stakeholders will be asked to provide input on possible contributing factors to three distinct phases that can lead to difficulty in identifying correct pesticide PPE in the purchasing process. The three phases include: 1) insufficient knowledge of pesticide PPE requirements, 2) limited pesticide PPE market, and 3) difficulty selecting pesticide PPE. We will discuss the group's varying perceptions and experiences on these factors to rate their relative importance. Topics include, but are not limited to, pesticide PPE information sharing, PPE performance standards, pesticide label language, PPE label language and marketing.</p>	
10:30 - 10:45 am	Break	
10:45 - 11:30 am	Theme-based presentations:	<i>Regency Ballroom</i>
	2: A case example of PPE Selection and Use in the Hospital Environment <i>Mary Yarbrough, M.D., Ph. D., Vanderbilt University</i>	
	3: PPE Selection, Use and Expectations from an Industry Perspective <i>J.A. Rodriguez, Jr., Senior Manager, Environmental Health and Safety, Raytheon Corporation</i>	
11:30 - 1:30 pm	Lunch (included in registration) and Keynote Speaker	<i>Regency Ballroom</i>
	Personal Protective Technology Selection, Use, and Expectations <i>Gordon Graham, J.D.</i>	
1:30 - 3:00 pm	Poster session	Allegheny & East Foyer
3:00 - 4:30 pm	Breakout session 2:	<i>Earhart</i>
	Improving Universal Safety Culture	
<i>Presenters: Kim Faulkner and Stan Thomas</i>		
Topics:	<p>In this interactive session, stakeholders will be asked to provide input on possible contributing factors to three aspects of universal safety culture. The three aspects of universal safety culture include: 1) industry, 2) workplace, and 3) user-specific safety cultures. We will discuss the group's perceptions and experiences on these factors and rate their relative importance. Topics include, but are not limited to, social norms, interpersonal modeling, interpersonal support for PPE use, upper management endorsement of safety practices improved product packaging information; improved safety and health management systems, use of behavior change</p>	

Pesticide Handlers

Room Location: Earhart

	motivators, challenges related to short-term workers, limited resources in small companies, and regulatory-based as opposed to hazard-based PPE requirements.	
4:30 - 4:45 pm	Sector Breakout Wrap-up	<i>Earhart</i>
4:45 - 5:15 pm	Wrap-up	<i>Regency Ballroom</i>
5:15 - 5:30 pm	Break	
5:30 pm	Networking Reception sponsored by ISEA	<i>Regency</i>

Pesticide Handler Sector Presenter Biographies

Kim Faulkner, PhD, MPH, Dr. Kim Faulkner is an epidemiologist at the National Institute of Occupational Safety and Health (NIOSH) working with the Personal Protective Technology Laboratory. She is the project officer of the NIOSH National Personal Protective Equipment Surveillance and Intervention Activity for Pesticide Handlers. Kim developed and co-chairs the National Pesticide PPE Training Solutions Committee. She also developed the NIOSH National Pesticide PPE Hotline and conducts outreach at regional trade shows to address PPE concerns of pesticide handlers. Over the past 2 years, Kim has spoken with hundreds of pesticide handlers about their use of PPE.

Stan Thomas, is a Health and Safety Enforcement Manager for Oregon OSHA and has worked as an industrial hygienist and manager for 22 years. Stan also manages Oregon OSHA's Agriculture Health Program, the Pesticide Emphasis Program and works closely with the EPA, NIOSH and the Oregon Department of Agriculture on pesticide safety issues. He served in the United States Air Force where he was responsible for the application of EPA, OSHA and Nuclear Regulatory regulations. Stan is a member of the American Industrial Hygiene Association, is the current chair of the association's Clandestine Drug Lab Working Group and sits on the Confined Space Committee.

PUBLIC SAFETY

Room Location: Wright

7:00 - 8:00 am	Registration	
8:00 - 8:15 am	General Session - Welcome and opening	<i>Regency Ballroom</i>
	<i>Margaret Kitt, M.D.,MPH, NIOSH Director for Program</i> <i>Roland Berry Ann, B.S., Interim PPT Program Manager/Interim NPPTL Director</i> <i>Maryann D'Alessandro, Ph.D., Interim NPPTL Deputy Director and PPT Program Coordinator</i>	
8:15 - 8:45 am	Theme-based presentation:	<i>Regency Ballroom</i>
	1: Innovative Approaches to Knowledge Sharing in Public Health <i>Ron LaPorte, Ph.D., University of Pittsburgh</i>	
8:45 - 9:00 am	Break	
9:00 - 10:30 am	Breakout session 1:	<i>Wright</i>
	Public Safety Breakout Session Presentation: <i>Presenter: Angie Shepherd</i> <i>Presenting Panel:</i> Doug Wolfe, Sarasota (FL) Fire Department; Tim Dorsey, West County (MO) EMS and Fire Protection District; Mark Pinchalk, City of Pittsburgh EMS; Joe Suyama, UPMC Medical Director, Hazmat Medical Response Team; Jim Reidy, San Antonio (TX) Fire Department; Bruce Varner, Fire Chief (Ret.) International Association of Fire Chiefs; Karen Lehtonen, Lion Apparel, Inc.; Don Groce, Showa Best Glove; Steven Corrado, Underwriters Laboratory	
Topics:	This breakout session will address issues related to PPE used by the emergency medical service (EMS) and medical first receivers. A presentation will be given on the NIOSH/NPPTL research conducted in support of the NFPA Technical Committee on Emergency Medical Services Protective Clothing and Equipment. The output of that research was improved performance criteria for EMS protective clothing and equipment which was used in the revision of NFPA 1999 Standard on Protective Clothing for Emergency Medical Operations, 2008 Edition. This breakout session will include a panel session of invited EMS stakeholders including EMS responders and manufacturers that will present and discuss the realities of the use of EMS PPE such as performance, practicality, availability, limitations, and cost.	
10:30 - 10:45 am	Break	
10:45 - 11:30 am	Theme-based presentations:	<i>Regency Ballroom</i>
	2: A case example of PPE Selection and Use in the Hospital Environment <i>Mary Yarbrough, M.D., Ph. D., Vanderbilt University</i>	
	3: PPE Selection, Use and Expectations from an Industry Perspective <i>J.A. Rodriguez, Jr., Senior Manager, Environmental Health and Safety, Raytheon Corporation</i>	
11:30 - 1:30 pm	Lunch (included in registration) and Keynote Speaker	<i>Regency Ballroom</i>
	Personal Protective Technology Selection, Use, and Expectations <i>Gordon Graham, J.D. *</i>	
1:30 - 3:00 pm	Poster session	Allegheny & East Foyer
3:00 - 4:30 pm	Breakout session 2:	<i>Wright</i>
	Public Safety Sector Presentation:	

PUBLIC SAFETY

Room Location: Wright

<i>Presenter: Angie Shepherd, Stephen Miles, Tim Meriner, Mike McKenna</i>		
Topics:	This breakout session will include presentations and discussions related to NIOSH fire fighter fatality investigations involving the performance of protective clothing and equipment and breathing apparatus (SCBA's). It will be a team effort involving the NIOSH Division of Safety Research (DSR) – Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) and divisions from NIOSH National Personal Protective Technology Laboratory (NPPTL). Presentations will also be given other federal agencies and laboratories supporting the revisions to fire and emergency services PPE performance and certification standards.	
4:30 - 4:45 pm	Sector Breakout Wrap-up – Bill Haskell	<i>Wright</i>
4:45 - 5:15 pm	Wrap-up	<i>Regency Ballroom</i>
5:15 - 5:30 pm	Break	
5:30 pm	Networking Reception sponsored by ISEA	<i>Regency</i>

Public Safety Sector Presenter Biographies

Angie Shepherd is currently the Team Leader of the Protective Clothing and Ensembles Team within the Technology Research Branch of the NIOSH National Personal Protective Technology Laboratory. Ms. Shepherd is responsible for a number of protective clothing research projects related to fire and emergency service for PPE including evaluations on protective clothing and equipment under the Fire Fighter Fatality and Injury Prevention Program. Ms. Shepherd was formerly a Quality Engineer and Process Engineer for DuPont Polyester. After which, she became the Senior Project Engineer in PPE Certification for Underwriters laboratories, Inc. Ms. Shepherd is a member of the National Fire Protection Technical Committees on Structural and Proximity Fire Fighting Medical Protective Clothing and Equipment, Hazardous Materials Protective Clothing and Equipment, Special Operations Clothing and Equipment, and Wildland Fire Fighting Protective Clothing and Equipment. She is the current Chair of ASTM International's F23 Committee on Protective Clothing and Equipment. Ms. Shepherd holds degrees from N.C. State University in Chemical Engineering and Textile Chemistry. Awards include the Pittsburgh Federal Executive Board Rookie of the Year – Gold Award (2006), ASTM International President's Leadership Award (2008) and the ASTM International Special Service Award (2010).

Tim Merinar is a safety engineer and Project Officer with the National Institute for Occupational Safety and Health (NIOSH) Fire Fighter Fatality Investigation and Prevention Program in Morgantown, WV. He has over 23 years of experience with NIOSH where he has worked on a number of fire fighter safety issues including self-contained breathing apparatus certification, compressed-air cylinder failure investigations, and fire fighter line-of-duty death and injury investigations. He has participated in over 40 NIOSH fatality and injury investigations across the United States. He is currently the NIOSH organizational liaison to the International Association of Fire Chiefs, Safety, Health and Survival Section Board of Directors.

Michael McKenna Michael McKenna retired as a fire captain after almost 32 years of professional fire service experience including over 19 years as a fire captain and over seven years as a fire district safety officer. He is an alumnus of the International Association of Firefighters and has been instructing Fire Technology, specializing in fire behavior at American River College since 2000. Michel McKenna has over 18 years of fire service program management and problem solving and solution development. Additionally he has been involved with the NFPA fire service standards development since 1988 and sits as a member of NFPA 1971, NFPA 1851, NFPA 1801 and the Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment. Michael McKenna has published several articles on firefighter issues and contributes as a columnist for FireRescue1.com. As a principle in Michael McKenna & Associates, LLC he works with fire departments and other organizations on issues of firefighter safety and solutions design. Michael McKenna is a member of the ASTM International F23 Technical Committee on Protective Clothing and Equipment. Michael McKenna has Bachelor of Arts degree in Economics & Public Policy development and an Associate of Arts degree in Fire Technology.

Steve Miles is a Safety and Occupational Health Specialist with the National Institute for Occupational Safety and Health (NIOSH) Fire Fighter Fatality Investigation and Prevention Program in Morgantown, WV. He has been with the NIOSH Fire Fighter Fatality Investigation and Prevention Program for four years and has over 30 years of fire service experience. Mr. Miles retired from the Virginia Beach Fire Department after rising to the rank of Battalion Chief. He has worked on a number of fire fighter safety issues and fatality investigations in his present position with NIOSH. He is currently the NIOSH FFFIPP representative on the NFPA 1981 Respiratory Protective Equipment Committee.

Public Safety Sector Presenter Biographies

Breakout Session One Panel:

Doug Wolfe

Sarasota (FL) Fire Department

Tim Dorsey

West County (MO) EMS and Fire Protection District

Mark Pinchalk

City of Pittsburgh EMS

Joe Suyama

UPMC Medical Director, Hazmat Medical Response Team

Jim Reidy

San Antonio (TX) Fire Department

Bruce Varner

Fire Chief (Ret.)

International Association of Fire Chiefs

Karen Lehtonen

Lion Apparel, Inc.

Don Groce

Showa Best Glove

Steven Corrado

Underwriters Laboratory

Workshop Agenda

March 21, 2012

8:00 - 10:00 am	Workshop Session 1: Five, two-hour workshops will be conducted. See workshop choices listed below.
10:00 - 10:30 am	Break
10:30 - 12:30 pm	Workshop Session 2: The same five, two-hour workshops will be repeated for attendee to make a second selection

<p>Workshop Options:</p> <ul style="list-style-type: none"> A. Understanding Respirator Fit Testing B. Protect Your Hearing: Understanding Hearing Loss C. Protect Yourself From Heat Stress D. Practical Use and Care Guidance for Chemical, Biological, Radiologic, and Nuclear (CBRN) Respirators E. Personal Protective Equipment Best Training Techniques for Pesticide Workers <p>ADDED FEATURE THIS YEAR: <i>The NIOSH Hearing Loss Prevention Unit (HLPU) mobile laboratory will be providing free hearing protector fit tests from 8:00 am – 12:30 pm. Space is limited. Please sign up for your free hearing protector fit test at the Registration Table.</i></p> <p>Register for a 20 minute time slot to complete the hearing protector fit test process.</p>	<p><u>Rooms:</u> Regency F Lindbergh Yeager Wright</p> <p>Earhart</p> <p>Parking lot outside of hotel</p>
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A. Understanding Respirator Fit Testing

Regency F

Fit testing is the only recognized way to ensure the fit of tight fitting respirators, but it is not well understood by many users and program administrators. This workshop will provide an overview of fit testing. After attending this workshop, participants will understand fit testing terminology, OSHA fit testing requirements, why fit testing is required and how the results are used. Various fit test methods will be explained and demonstrated. The applicability of the fit test methods to specific types of respirators, as well as their strengths and limitations, will be discussed.

B. Protect your Hearing: Understanding Hearing Loss

Lindbergh

Occupational hearing loss is the most common work-related injury in the United States. An estimated \$242 million is spent annually on worker's compensation for hearing loss disability. This workshop will provide participants with a general overview and introduction to causes of occupational hearing loss, beginning with a basic review of human hearing physiology and hearing loss in general. This will establish a framework from which future hearing loss prevention activities may be pursued.

C. Protecting Yourself from Heat Stress

Yeager

Workshop Agenda

Although heat stress is recognized as a problem in many industries, there continues to be a poor understanding of how heat stress contributes to workplace injury and illness. These issues must be understood by those living and working in hot environments, especially for those workers who must wear personal protective equipment to reduce exposure to occupational hazards. After attending this workshop, participants will understand what heat stress is, how it affects their health and safety, and how it can be prevented.

This workshop will include a brief video presentation on how PPE may affect humans physiologically and how PPE may be tested using a state-of-the-art sweating thermal manikin.

D. Practical Use and Care Guidance for Chemical, Biological, Radiological, and Nuclear (CBRN) Respirators *Wright*

Participants will actively participate in information exchange sessions about CBRN respirators. Practical issues confronted by participants with regard to use and care of CBRN respirators will be addressed by providing on-site information from the newly published NIOSH CBRN Respirator fact sheets. Last year's workshop provided instruction and guidance on the unique aspects of NIOSH-approved CBRN respirators. The workshop this year is tailored to focus on the specific knowledge and information needs of participants by providing the opportunity for group discussion on the practical issues faced by responders in defining and implementing a respiratory protection program (RPP) properly integrating information on the unique features of CBRN respirators.

Session 1, 8:00 AM -10:00 AM: **Respiratory Protection Program Discussions in Emergency Response**

Session 2, 10:00 AM – 12:30 PM: **Live Exercise at FAA Regional Aircraft Rescue Fire Fighting (ARFF) Facility**

E. Personal Protective Equipment Best Training Techniques for Pesticide Workers *Earhart*

This workshop will focus on pesticide PPE best training techniques for those who train pesticide workers. There will be several demonstrations and/or exercises. Also, pesticide PPE training resources will be on display. Agencies from across the country will showcase their resources. This will provide an opportunity for agencies to network with each other and to share resources.

Integrating “Clicker” Technology and a Motivational Message into Pesticide Applicator Training to Improve Adoption of Recommended Safety Practices (30 minutes) *Speaker: Dr. Amy Brown, University of Maryland.*

Hands-On Training Technique: People Learn By Doing (45 minutes) –*Speakers: Kit Galvin, Pacific Northwest Agricultural Safety and Health Center; Carolyn Sheridan, Agrisafe; Bob Kincaid, Gemplers; and Ann Rivers, USDA*

Videos in Pesticide Safety Training related to the use of Personal Protective Equipment (PPE) (45 minutes) – *Speakers: Erin Bauer, University of Nebraska, Matthew Peterson and Ron Harrison, Orkin; Carol Ramsay and Darrell Kilgore, Washington State University.*

NIOSH Hearing Loss Prevention Unit Free Hearing Protector Fit Tests

March 21, 2012 8:00 am – 12:30 pm

Sign up at the registration table for a 20 minute timeframe.

Workshop Agenda

The NIOSH Hearing Loss Prevention Unit (HLPU) mobile laboratory will be providing free hearing protector fit tests at this year's PPT Stakeholder Meeting. The laboratory contains the MultiFit system developed by NIOSH. This system has the unique ability to perform fit tests of hearing protection earplugs for up to four individuals at once, delivering test results within about ten minutes. Fit testing is especially critical for obtaining adequate noise protection from earplugs. Other methods, including visual inspection and subjective "feel" are very unreliable compared to the measured attenuation values a true fit test provides. The HLPU will be located conveniently in the parking area outside of the hotel and sign-up sheets will be provided in the registration area to allow attendees to select their preferred test time. Attendees are encouraged to sign up early because testing sessions are limited to four individuals every 20 minutes.

For more information, contact Bob Randolph, Manager of the Hearing Interventions Team in the NIOSH Office of Mine Safety and Health Research at RRandolph@cdc.gov or 412-386-4660.

Workshop Presenter Biographies

A. Fit Test Workshop Presenter Biographies

William Newcomb has a Bachelor of Science in Industrial Management Technology from Roger Williams College. As a physical scientist for the National Personal Protective Technology Laboratory, Bill works specifically with Personal Protective Technologies and Equipment. He is an Officer in the International Society for Respiratory Protection and has participated in the creation of PPE standards in conjunction with various associations around the globe. In 2004 Mr. Newcomb travelled to Japan to present material including "Total Inward Leakage" and "Update on OSHA Assigned Protection Factors" at the ISRP conference. Bill is the Administrator for the US Technical Advisory Group for the International Organization for Standardization, Technical Committee 94, Personal safety - Protective clothing and equipment; Sub-committee 15, Respiratory protective devices and a convener of Working Group 1 and several Project Groups. Before joining NIOSH, Mr. Newcomb worked for a respirator manufacturer for more than 40 years.

Christopher Coffey received his B.A. in Chemistry from Mercyhurst College, Erie, PA, M.S. in Occupational Health and Safety Engineering and Ph.D. in Industrial Engineering (Industrial Hygiene) from West Virginia University. He is a research chemist in the Office of the Director, National Personal Protective Technology Laboratory, National Institute for Occupational Safety and Health. He is a three-time recipient of the John M. White Award for his work that enhanced the knowledge base in area of understanding or provided new insight that will lead to improved employee protection. He is a recipient of Bullard-Sherwood Research-to-Practice (r2p) Award Winner in the Knowledge Category. His research interests include fit-testing and direct-reading instruments for exposure assessment.

Judith Hudnall started at NIOSH in 1985 as a Physical Science Technician supporting heat stress and cold stress studies of work clothing including firefighter turnout gear and fully encapsulating suits. This work also included physical measurements of respiratory workload and perceived rates of exertion. Four years later as a Physical Scientist she moved to the Respirator Certification Branch where she performed the initial evaluations of the respirators submitted for approval. Initially, only evaluating air purifying respirators and gradually assuming air-supplied and self-contained application duties. In 2001 she transitioned to the Laboratory Research Branch carrying out research in aerosol metrology, specifically the changes in metrology with the changes of temperature and humidity. Recently, she transferred to the NPPTL Policy and Standards Development Branch to carry forward research to standardize and quantify new respiratory testing protocols.

Cathy Calvert has a Bachelor of Science degree in biology from Fairmont State College. She has been employed at NIOSH for 36 years, first as an engineering technician in the Respirator Branch from 1979-1997. She ran gas and vapor testing as well as respirator qualitative fit testing on air purifying respirators and then as a physical scientist performing initial reviews on respirators submitted for NIOSH certification. In 2001, she joined DRDS Laboratory Research Branch to work on direct reading instruments and indoor air quality. In July of 2011, Cathy joined NPPTL Policy and Standards Development Branch.

James S. Johnson, Ph.D., CIH, QEP, is an industrial hygiene consultant who now operates JSJ and Associates. He worked at the Lawrence Livermore National Laboratory (LLNL) for 34 years before retiring July 1, 2006. At LLNL his position from November 2000 until retirement was section leader of the Chemical and Biological Safety Section of the Safety Programs Division. Throughout his career at LLNL, Dr. Johnson has been involved with the comprehensive practice of industrial hygiene. He was also involved with respiratory protection and personal protective equipment as the respiratory program administrator, research scientist, and division/section manager. He is an AIHA fellow, past Chair of the International Society for Respiratory Protection and the Americas Section. He is also a member of the Institute of Occupational Medicine Standing Committee on Personal Protective Equipment for Workplace Safety and Health and Secretariat Chair of the American National Standards Institute, Z88 for Respiratory Protection. He is a long-term member and current Past Chair of the American Industrial Hygiene Association Respiratory Protection Committee. He also participates on the AIHA Personal Protective Clothing and Equipment Committee the Incident Preparedness and Response Working Group.

Workshop Presenter Biographies

Patricia Quinlan is an industrial hygienist–senior specialist in the School of Medicine at UCSF and is Deputy Director of the Northern California Center for Occupational and Environmental Health, UC Berkeley. She also holds an appointment as a clinical professor of nursing at UCSF School of Nursing. Her job duties include research, teaching, clinical support work, and community service. Over the past 25 years she has been involved with a series of research projects whose purpose is to better understand the impact of work and the environment on health—specifically how various agents may affect the health of workers and members of the public. These studies have included examining the neurotoxic effects of exposures to solvents and methanol and the pulmonary effects of exposure to agents such as aerosolized pentamidine and metal fumes. Other research has included evaluating workers' exposures for a retrospective colon cancer study, a study of gradients of health in hospital workers, and occupational exposure assessment for several population-based case-control studies of Parkinson's disease and childhood leukemia. Her current research includes studies regarding the effects of environmental exposures on subjects with asthma, chronic obstructive pulmonary disease, and hypersensitivity pneumonitis. Ms. Quinlan is a member of the IOM Standing Committee on Personal Protective Equipment. Ms. Quinlan has served on several advisory committees for the California Occupational Safety and Health Administration, including the 5155 Air Contaminants Committee and the general advisory committee and is also a member of the board of directors of Worksafe, a health and safety advocacy organization.

Jay A. Parker, CIH, is a Physical Scientist at the National Personal Protective Technology Laboratory division of NIOSH for the Test and Evaluation Branch. He is involved in respirator testing and certification. He holds a BS degree in biology and chemistry from the State University of NY at Binghamton and a MS degree in toxicology from St. John's University in NY. He has worked continuously in the field of respiratory protection and PPE for 36 years and is certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene. Jay is currently the past Chair of the AIHA Respiratory Protection Committee.

B. Hearing Loss Workshop Presenter Biographies

Bob Randolph is an industrial psychologist and manager of the Hearing Interventions Team at the NIOSH Office of Mine Safety and Health Research. He has an M.S. degree in Organizational Behavior and Theory from Carnegie Mellon University. He has been researching behavioral and psychological aspects of mining safety and health since 1986, and his publication topics include internet-based training, worker reactions to automation, and worker involvement in innovation. He currently leads a research team investigating new procedures and technologies to solve long-standing behavioral issues with effective use of noise controls and other protective technologies to prevent noise-induced hearing loss. He is on the Executive Committee of the Joseph A. Holmes Safety Association and is a recipient of that organization's Man of the Year award.

David Byrne has been a Research Audiologist with NIOSH for the past 13 years, and is currently assigned to the Robert A. Taft Laboratories in Cincinnati, Ohio. He received a B.A. in Physics from the University of Pittsburgh and an M.S. in Audiology from the Pennsylvania State University, with additional graduate study in acoustics. Mr. Byrne's previous work history includes being on active duty in the U.S. Army and working at the Bio-Acoustics Division at the U.S. Army Environmental Hygiene Agency. He also has worked for an acoustical consulting firm doing industrial noise control projects. At NIOSH, his primary responsibilities include formulating and conducting both field and laboratory research involving the effects of exposure to noise. David holds the Certificate of Clinical Competence in Audiology (CCC-A) from the American Speech-Language-Hearing Association, and an Audiology license from the State of Pennsylvania. He is also certified as a Course Director by the Council for Accreditation in Occupational Hearing Conservation (CAOHC).

Workshop Presenter Biographies

C. Heat Stress Presenter Biographies

Aitor Coca, PhD, Dr. Aitor Coca has spent the last 12 years studying the human physiological responses to environmental stresses; first at the Laboratory for Health and Human Performance in Extreme Environments (University of Minnesota), and now for the National Personal Protective Technology Laboratory (NPPTL) at the National Institute for Occupational Safety and Health (NIOSH), after he finished three years NRC Postdoctoral Fellowship. He is an Exercise-Environmental Physiologist and is an author or co-author of 14 articles in peer-reviewed journals. He received M.A. and Ph.D. degrees in Exercise Physiology from the University of Minnesota. He has worked on several projects funded by NASA and the Department of Defense (DoD). His focus is on cooling strategies within protective equipment and has previously served as project officer for the project titled: "Optimization of cooling strategies for personnel in firefighting ensembles". Other projects he is working on include ergonomic evaluation of PPE, thermoregulatory and physiological responses to occupational performance in the heat, as well as the physiological validation of the Total Heat Loss test.

John Williams, PhD, Dr. W. Jon Williams, Senior Physiologist, has more than 22 years of experience studying the human physiological responses to environmental stresses first at the NASA Johnson Space center and currently for the National Personal Protective Technology Laboratory at NIOSH. He received B.S. and M.S. degrees in Biology (emphasis: Genetics and Physiology, respectively) from San Diego State University and M.S. and Ph.D. degrees in Cardiovascular Physiology from the University of Illinois at Urbana-Champaign. He also completed a three-year NASA/National Research Council Resident Research Associateship at the Johnson Space Center in Space/Cardiovascular Physiology. Dr. Williams has served as Principle or Co-Investigator of 18 physiological research studies and published numerous abstracts, peer-review journal articles, and reports describing the results of those studies.

F. Selcen Kilinc, Ph.D., is a Senior Service Fellow at the National Personal Protective Technology Laboratory (NPPTL) of Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH). She works in the area of protective clothing and ensembles, including personal protective equipment for healthcare workers, mine rescue ensembles, fire fighter turnout gear, and chemical protective garments. Prior to joining NIOSH in February 2010, she worked as a senior engineer at DuPont Protection Technologies. Her work at DuPont focused on product development, product testing and certification, and promotional claim validation in personal protective clothing. She has more than 10 years of experience in protective fabrics and garments, fabric comfort and modeling, textiles testing/evaluation, and antibacterial applications. Dr. Kilinc received her Ph.D. degree in Polymer and Fiber Engineering from Auburn University and worked as a post-doctoral research associate at the same university for four years. She holds B.S. and M.S. degrees, both in Textile Engineering, and an MBA degree. She has worked on several projects funded by National Textile Center, NASA, USDA, and U.S. Air Force in a variety of innovative topics in fiber/polymer science, including fabric comfort, high performance fibers/fabrics, advanced materials, fiber extrusion, and antibacterial applications. She has authored one book in statistics and authored or coauthored four book chapters and more than 15 peer reviewed publications. She also holds one U.S. Patent and has two U.S. Patent applications submitted. She is a member of ASTM International, AATCC and AAMI technical committees. Dr. Kilinc serves the Journal of Engineered Fibers and Fabrics as the area editor and the reviewer and the Textile Research Journal as the reviewer. She is currently editing a book titled "Flame Resistant Textiles" for Woodhead Publishing. Dr. Kilinc also currently serves TAPPI Materials, Characterization, and Modeling Committee as president.

Workshop Presenter Biographies

D. CBRN Respirators Presenter Biographies

Terry Cloonan is a physical scientist in the National Personal Protective Technology Laboratory, NIOSH, Pittsburgh, PA. He has 23 years of federal service that includes the Cold War, Operation Desert Shield, Operation Desert Storm, Operation Urgent Democracy, and the 2001 World Trade Center response. For the past ten years, he has conducted occupational safety work for NIOSH stakeholders in CBRN respirator evaluation, testing, and user guidance development. Since 2007, he has been a federal liaison to the training and exercises subgroup of the InterAgency Board (IAB) and actively participates in consensus standards development with the NFPA and NIJ. In 2009, he was made an honorary member of the National Tactical Officers Association (NTOA). On May 12, 2011, he was identified as the lead NIOSH/NPPTL federal liaison to the DHS FEMA CDP CBRN program update project.

Officer Scott Hurley has been with the San Francisco Police Department, San Francisco, California, since 1998. He worked in the law enforcement patrol division for seven years, the special operations tactical unit (SWAT) for six years and is currently assigned to the bomb squad as a certified bomb technician for the past 18 months. Since 2007 he has been involved with updating the police department's respiratory protection program. This effort has been a joint effort with the assistance of the city department of public health. The goal has been to create a law enforcement department respiratory protection program that is accurate, represents current capabilities, and is consistent with NIOSH standards and the laws the department is governed by under Cal-OSHA. The selection of NIOSH-approved respirators which meet the current and potential missions the police department may encounter has required a tremendous amount of learning. Purchasing approved respirators and tactical protective ensembles which offer the best protection for the officers of the San Francisco Police Department has always been the focal point of equipment purchasing and updating the respiratory protection program.

Chief Robert T. Edmiston is the fire chief for the Fort Indiantown Gap fire department. The department is the primary fire safety response organization assigned to the Joint Force Headquarters, Pennsylvania Army National Guard, Annville, PA. He is directly responsible for leading and managing the military installation fire and emergency services department of federal and state firefighters. Fort Indiantown Gap is an Eastern Army Aviation Training site (EAATS) that accommodates over 10,000 Army and Air Force reserve and national guard trainees, law enforcement personnel, and government civilians per year on 140 training areas covering over 17,000 acres. Chief Edmiston has been a member of the Pennsylvania fire service community since 1978 and a former certified municipal police officer per Pennsylvania ACT 120 for ten years. He is certified by the National Fire Service Professional Qualification Board, the International Fire Service Accreditation Congress, and the Department of Defense Fire and Emergency Services certification programs.

Martyn Nevil is a task force leader with Pennsylvania Task Force One (PATF-1) U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Urban Search and Rescue (US&R). PATF-1 is currently headquartered in Harrisburg, Pennsylvania. Officer Nevil serves as a co-chair of the FEMA US&R technology work group and as a Type 4 incident management team member with the Pennsylvania South Central Terrorism Task Force (SCTF), Harrisburg, Pennsylvania. Mr. Nevil received his certified fire protection specialist (CFPS) certificate from the National Fire Protection Association in the spring of 1998. He holds national certifications as a fire fighter I, II, & III; a building inspector I, & II; a fire service instructor I, II, & III; and a fire officer I, II, & III, as well as an emergency management professional certification from the Pennsylvania Emergency Management Agency (PEMA). Mr. Nevil is an adjunct instructor with the Harrisburg Area Community College (HACC), Harrisburg, PA, in the areas of hazardous materials, municipal fire protection, industrial fire suppression, incident management, and urban search and rescue/terrorism response. He also serves as an adjunct instructor with the Pennsylvania State Fire Academy and in the spring of 2011 was appointed as an adjunct instructor at the National Fire Academy in Emmitsburg, Maryland.

Workshop Presenter Biographies

Chief Robert Anthony is a 29+ year veteran of the Chicago Fire Department, Chicago, Illinois, serving in various capacities throughout his career and is currently a Deputy District Chief overseeing the Division of Equipment and Supply. He is responsible for all aspects of the repair and maintenance of the SCBA, SCUBA, gas detection, thermal imaging cameras, and air and oxygen equipment. He also oversees the current Chicago Fire Department respiratory protection program. Along with his responsibilities, he maintains state licenses in paramedic and physician assistant medicine. He resides in Chicago along with his wife and two children.

E. Pesticide Handler Presenter Biographies

Erin Bauer works as the Extension Associate in the Pesticide Education Office at the University of Nebraska—Lincoln. Her educational background includes earning her bachelor's degree from the University of Nebraska at Omaha in 1995 and her master's degree in Library and Information Science from Rosary College (now Dominican University) in River Forest, IL, in 1996. She is currently working on her Masters in Entomology at the University of Nebraska--Lincoln. Erin joined the Pesticide Education Office staff in 2004 and has been involved in Integrated Pest Management (IPM) and Pesticide Education since that time. She has worked on revising pesticide training manuals and videos, developing web-based IPM learning modules, visiting IPM pilot schools, and doing scriptwriting and voice work for a "Pest Private Eye" video game, which teaches children about IPM.

Amy Brown is a Professor in the University of Maryland Department of Entomology, where she has led the Maryland Extension Pesticide Education & Assessment Program since the 1980s. Dr. Brown's extension program delivers research-based pesticide information to pesticide users, health care professionals, and the general public to protect human health and the health of the environment. Her research centers on identifying and implementing strategies to improve pesticide users' adoption of recommended handling practices to minimize potential risks of pesticides to applicators and users, their families, and the general public. She has served on numerous state and federal pesticide advisory committees, and was elected a Fellow of the American Association of Pesticide Safety Educators.

Kit Galvin is a Certified Industrial Hygienist working at the Pacific Northwest Agricultural Safety and Health (PNASH) Center, University of Washington. Ms Galvin has 23 years experience as an industrial hygienist practicing in diverse work environments. She joined PNASH in 2003 to conduct research focused on minimizing on worker and family exposures pesticides. Her interest in personal protective equipment started in 1985, studying respirator workplace protection factors. Current studies are looking practical pesticide safety solutions. Fluorescent tracers are one key method in evaluating exposures and pesticide safety measures.

Ronald D. Harrison, PhD, is the Director of Technical Services Orkin Pest Control for 4 years. Prior to that Ron was a Director and Manager of Orkin Training Center; Atlanta, GA (1998 – 2008). Before that he was an Assistant professor of Medicine at Mercer University in Macon GA. Ron is a certified trainer and coach and media consultant on entomology and pest control.

Darrell Kilgore is currently a video producer/director for the Edward R. Murrow College of Communication and Washington State University Extension. He has been at WSU since 1990, and has been working on documentaries, informational and educational programs, and producing satellite and videostream broadcasts. During his time as a producer, Darrell has been part of a team that has produced many award-winning programs on topics including recruitment for the CAHNRS College, innovative agricultural practices, stormwater and watershed management techniques, pesticide safety training, food safety and many others.

Workshop Presenter Biographies

Bob Kincaid is a Technical Product Support Manager for Gemplers, a distributor of commercial grade supplies such as PPE, Spray Equipment and Landscape supplies. He has a BS in Education from UW Whitewater Wisconsin with a major in Safety. He has been in the Safety industry for over 35 years with the last 7 years associated with Gemplers.

Carol Ramsay is the Pesticide Education Specialist at Washington State University and has worked in Pesticide Safety Education since 1987. Carol is responsible for the Urban Integrated Pest Management and Pesticide Safety Education Program in Washington, serving both pre-license and recertification aspects; including Internet delivery. Annually the Urban Integrated Pest Management and Pesticide Safety Education Program teaches more than 4,500 applicators in person and over 1,000 via internet training. Carol is a national leader in pesticide safety education and has authored 15 journal articles and book chapters, over 56 extension training manuals and materials, 12 videos/DVDs, 7 databases, and an Internet course database. She is a consultant for the National Association of State Departments of Agriculture Research Foundation and a founding member of the American Association of Pesticide Safety Educators, and one of its Fellows. She served as both, President-Elect and Treasurer, for American Association of Pesticide Safety Educators, President for The Pesticide Stewardship Alliance, Co-Chair of the National Certification and Training Assessment Group, and Chair and Secretary/Treasurer of Pacific Northwest Integrated Vegetation Management Association. Carol is a member of the Environmental Protection Agency's Pesticide Program Dialogue Committee and NIOSH's National Pesticide Personal Protective Equipment Training Solutions Committee

Ann Rivers is an Industrial Hygiene and Safety Manager for the US Department of Agriculture, Center of Plant Health Science and Technology (CPHST). She is responsible for the safety and health of USDA employees that perform a variety of activities in plant health research. She reviews plant pest treatment technologies to ensure safety for agriculture workers and the public. She has twelve years of experience working in occupational health and safety.

Carolyn Sheridan oversees and is responsible for clinical operations of the non-profit AgriSafe Network. She is responsible for achieving the mission of the organization while continually improving AgriSafe Network protocols, screening tools, standing orders, and educational materials based upon current practices/recommendations. The development of agricultural health clinics providing specific occupational health services to the agricultural community is a main focus area in which Ms. Sheridan has worked in the past 20 years as a registered nurse. Currently she is the Clinical Director for twenty-two of these types of clinics across the state of Iowa and several other states in the nation. Ms. Sheridan assists in the development and instruction of agricultural health training for health care providers and assures clinics understand operations, quality assurance, and extent of compliance to Network standards. She received specialized training in agricultural health through the University of Iowa and is now an instructor for portions of the training course sponsored by I-CASH. Carolyn's speaking engagements on a local, state, regional and national level have included informing others about the need and availability of specific agricultural health services, the development of similar programs in other states, and the need for sustainability of the agricultural specific health programs.

Matthew Peterson is the Director of Government & Environmental Affairs for Rollins, Inc. which is the parent company of Orkin Pest Control, Western Pest Control, Hometeam Pest Control, Industrial Fumigant Company and various other entities. Matt received his Bachelors Degree in Medical and Veterinary Entomology from the University of Florida. Upon graduation, Matt began his career in the pest control industry with Terminix International. After a six year period in operations at Terminix, Matt transitioned to Rollins in order to move back into the technical side of the pest control industry, where he now oversees regulatory matters along with environmental remediation. Matt spends much of his time in state capitals and Washington DC and works with various government agencies such as the Department of Agriculture, Department of Health, the EPA and others in addressing the safety and regulation of pesticides in the US.

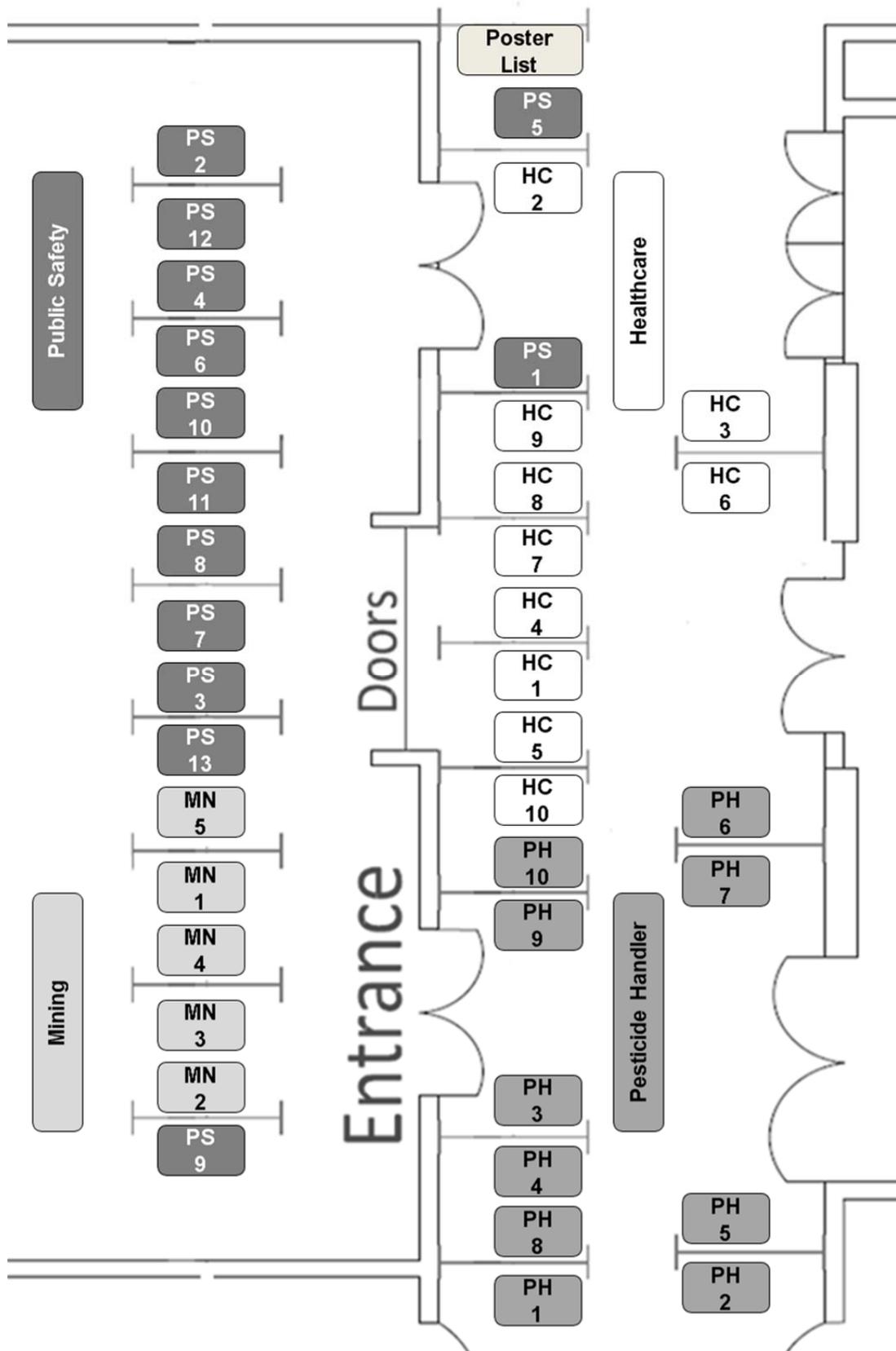
PPT Stakeholder Meeting Mar 20, 2012 (Poster List)

Sector	#	Name	Poster Topic
HC	1	Cline, Kari / Univ of Minnesota	Relationship between safety climate, demographics and respiratory protection policies and practices in acute care hospitals
HC	2	Coyne, Judi / NIOSH NPPTL	Know It's NIOSH Approved
HC	3	D'Alessandro, Maryann / NIOSH NPPTL	Developing the Nonrespiratory Personal Protective Equipment Conformity Assessment Framework for the Nation
HC	4	Lindsley, Bill / NIOSH Held	Respiratory Protection and Influenza-laden Cough Aerosols in a Simulated Medical Examination Room
HC	5	Sietsema, Margaret / Univ of Illinois at Chicago	Scoring hospitals using written respiratory protection programs and survey responses based on the OSHA respiratory protection standard
HC	6	Taormina, Deborah / Univ of CA SF	Occupational Health Nurses and Respiratory Protection Competency
HC	7	Vo, Evany / NIOSH NPPTL	Development and Characterization of a New Test System to Challenge Personal Protective Equipment with Virus-Containing Particles
HC	8	Yarbrough, Mary / Vanderbilt University	6-Year Trends in Healthcare Personnel Exposures to Respiratory Infectious Hazards
HC	9	Yarbrough, Mary / Vanderbilt University	Metrics for Use in Evaluation of Hospital Respirator Programs
HC	10	Zhuang, Ziqing / NIOSH NPPTL	Laboratory Study to Assess Causative Factors Affecting Temporal Changes in Filtering-Facepiece Respirator Fit: Part III – Two Year Assessment of Fit Changes
MN	1	Kilinc-Balci, F. Selcen / NIOSH NPPTL	Mine Rescue Ensembles for Underground Coal Mining
MN	2	Kyriazi, Nick / NIOSH NPPTL	Comparison of current versus proposed SCSR regulations
MN	3	Metzler, Rich / NIOSH NPPTL	Closed-Circuit Escape Respirator (CCER) breathing gas capacity - uses and limitations
MN	4	Murray, David / NIOSH NPPTL	Advancing Respiratory Protective Device Technology through Breathing Gas Chemical Research
MN	5	Srinivas, Girish / TDA Research, Inc	CO Oxidation Catalysts for Respiratory Protection
PH	1	Blando, James / Old Dominion Univ	Utilization of Poison Control Center data and local health department infrastructure to address improper use of PPE among migrant workers: A proposed approach
PH	2	Cooke, Garnet / Oregon OSHA	Oregon OSHA's Pesticide Emphasis Program: Personal Protective Equipment for Pesticide Handlers
PH	3	Fong, Harvard / CA Dept. of Pesticide Regulation	Respiratory Protection Regulation for Pesticide Handlers: The California Model
PH	4	Hoffman-Richards, Kerry / Penn St	Pesticide Education Program

Sector	#	Name	Poster Topic
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PH	6	Roy, Natalie / AgriSafe Network	Predictors of Personal Protective Equipment Compliance among Farm Youth
PH	7	Tharp, Cecil / Montana state Univ. Extension	Pesticide Safety on the Farm: Montana Private Applicator Behavioral Trends
PH	8	Tutor, Robin / NC Agromedicine Institute	Current Pesticide Education Trends Across North Carolina
PH	9	Tutor, Robin / NC Agromedicine Institute	Personal Protective Technology Use Among North Carolina Farms Applying Soil Fumigants
PH	10	Wyckoff, Sherry / NEC	Fit Testing of Pesticide Applicators Respiratory Protection
PS	1	Browne-Barbee, Latoya / RKB FEMA	Responder Knowledge Base – The Emergency Responder Decision Support Tool For PPE
PS	2	Cloonan, Terrence / NIOSH NPPTL	NIOSH Assistance to the FEMA Center for Domestic Preparedness
PS	3	Coca, Aitor / NIOSH NPPTL	Thermal manikin testing and thermal model predictions as tools to assess the physiological impact of the Total Heat Loss Test
PS	4	Delaney, Lisa / NIOSH OD	Update on Personal Protective Equipment Recommendations for Responses to Bacillus anthracis (anthrax)
PS	5	Delaney, Sheli / NIOSH EID TREB	Web-based Marketing of Alternative-sized PPE for a Diverse Workforce
PS	6	Gao, Pengfei / NIOSH NPPTL	A Magnetic Passive Aerosol Sampler for Measuring Particle Penetration through Protective Clothing Materials
PS	7	Hsiao, Hongwei / NIOSH DSR	Firefighter Anthropometry for Fire Apparatus and Equipment Design
PS	8	Lofin, Murrey / NIOSH DSR SFIB	NIOSH Fire Fighter Fatality Investigation and Prevention Program
PS	9	Roberge, Raymond / NIOSH NPPTL	Limitations of Current NIOSH/OSHA Decompression Tables For Caission and Tunnel Workers
PS	10	Shepherd, Angie / NIOSH NPPTL	The Effects of Flow Rate, Back Pressure, and Cell Design on Permeation Testing Result
PS	11	Sublet, Virginia / NIOSH OD	Assessing Safety Behaviors in Florida Firefighters
PS	12	Turner, Nina / NIOSH NPPTL	Physiological Evaluation of Air-Fed Ensembles during Treadmill Exercise
PS	13	Srinivas, Girish / TDA Research, Inc	Cooling System for Hazmat Suits

Sector ID: HC = Healthcare / MN = Mining / PH = Pesticide Handler / PS = Public Safety

PPT Stakeholder Meeting Mar 20, 2012 (Poster Locations)



PPT Stakeholder Meeting Mar 20, 2012 (Healthcare Poster Abstracts)

HC# 1: Relationship between safety climate, demographics and respiratory protection policies and practices in acute care hospitals

Authors and Organization: K. Cline,¹ L.M. Brosseau,¹ L.M. Conroy², M. Sietsema²; University of Minnesota¹ / University of Illinois at Chicago²

Abstract

As part of a 6-state NIOSH-funded investigation of respiratory protection programs for infectious diseases in acute healthcare settings, a total of 363 healthcare workers (HCW), 82 unit managers (UM) and 88 hospital managers (HM) in 28 acute care hospitals in Minnesota and Illinois were interviewed about respirator policies and practices. Each participant was also asked to complete a short written survey with 11 safety climate questions. Contingency tables and chi-square analyses were used to examine whether differences existed in responses between each group, as well as to examine the relationship between safety climate and respirator policies and practices. Responses to the 11 safety climate questions were generally very positive, with means ranging from 1.01 (almost total agreement) to 1.53. Safety climate was not found to be associated with any demographic variable; HCW and HM had statistically significantly lower attitudes toward safety than UM. For all personnel combined, the safety climate score was worse for people who said that employees were not trained in how or when to wear a respirator, employees could wear respirators without training, employees were not asked to provide input on policies and respirators were not located near the point of use. These results suggest that the following actions will improve safety climate measures in a hospital: 1) ask personnel for their input on respirator policies, 2) locate respirators near where they will be needed, 3) provide training in how and when to wear a respirator, and 4) require training before respirators can be worn.

HC# 2: Know It's NIOSH Approved

Authors and Organization: Judi Coyne and Jackie Krah, NIOSH NPPTL

Abstract

NIOSH NPPTL initiated a public service campaign to inform / alert healthcare workers to the issues of misleading advertising, counterfeit respirators, and false claims of certification for filtering face piece respirators.

Materials created include a video made in conjunction with OSHA, a brochure outlining what to look for on a respirator, packaging, and where to verify certification as well as learn what other brands / labels products may have been marketed under.

HC# 3: Developing the Nonrespiratory Personal Protective Equipment Conformity Assessment Framework for the Nation

Authors and Organization: Maryann D'Alessandro, NIOSH NPPTL

Abstract

There is no nationally recognized central authority for certifying or overseeing the certification of non-respiratory personal protective technologies (PPT). The National Academies (NA) in its 2008 review of the NIOSH PPT Program defines this as one of the most significant weaknesses of the national efforts concerning worker health and safety protection. One of the report's primary recommendations specifically addressed this situation. It recommended that NIOSH oversee all PPT certification in order to ensure a minimum uniform standard of protection and wearability. The expansion of NIOSH's responsibilities to overseeing certification activities of non-respiratory PPT through development of a conformity assessment consensus standard and/or an audit/oversight function are feasible options to provide safer and healthier workplaces across the nation. This poster will describe the strategy underway to address Personal protective equipment conformity assessment for the nation.

PPT Stakeholder Meeting Mar 20, 2012 (Healthcare Poster Abstracts)

HC# 4: Respiratory Protection and Influenza-laden Cough Aerosols in a Simulated Medical Examination Room

Authors and Organization: WG Lindsley, JD Noti, WP King, FM Blachere, CM McMillen, RE Thewlis, JS Reynolds, JV Szalajda and DH Beezhold; NIOSH

Abstract

A closed environmental chamber was equipped to simulate a patient coughing aerosol particles into a medical examination room and a healthcare worker breathing while exposed to these particles. In our first study, the penetration of cough aerosol particles through 9 models of surgical masks and respirators was measured at 32 and 85 L/min flow rates. Our results showed that cough aerosol particles spread rapidly and that within 5 minutes a worker anywhere in the room would be exposed. The aerosol exposure is highest with no personal protective equipment, followed by surgical masks, and the least exposure is seen with N95 FFRs. In our second study, NIOSH aerosol samplers collected cough aerosols containing influenza virus for 60 minutes at the mouth of the breathing manikin, beside the mouth, and at 3 other locations in the room. Infectious influenza was recovered in all three aerosol size fractions. Tightly sealing a surgical mask to the manikin's mouth blocked entry of 94.5% of total virus and 94.8% of infectious virus. A tightly sealed N95 respirator blocked 99.8% of total virus and 99.6% of infectious virus. Poorly fitted N95 respirators blocked 64.5% of total virus and 66.5% of infectious virus. An unsealed surgical mask blocked entry of 68.5% of total virus and 56.6% of infectious virus. These results support the hypothesis that aerosol particles may play an important role in influenza transmission and represent the first reported laboratory study of the efficacy of surgical masks and respirators in blocking inhalation of influenza in cough-generated aerosols.

HC# 5: Scoring hospitals using written respiratory protection programs and survey responses based on the OSHA respiratory protection standard

Authors and Organization: M. Sietsema,¹ L.M. Conroy¹, L.M. Brosseau,² K. Cline²; University of Illinois at Chicago¹ / University of Minnesota²

Abstract

The respirator evaluation in acute care hospitals (REACH) study provided the opportunity to survey hospital managers, unit managers, and healthcare workers in 13 hospitals in Illinois. Using the survey data and the written respiratory protection programs provided by the hospitals we were able to score hospitals on how well they follow the OSHA respiratory protection standard (1910.134). Written programs were scored looking at 11 characteristics (presence of a written program, program administrator, risk assessment, medical evaluation, fit testing, maintenance and use, training, information, availability, recordkeeping, and program evaluation). Survey data was scored based on 7 categories that had clear answers based on the OSHA standard. Using the scores hospitals could be compared with regard to their implementation of their respiratory protection program as well as on their policies. It was also possible to identify best practices and opportunities for improvement. Results: All of the hospitals scored above 70% overall from the survey data. All hospitals scored lowest in program evaluation and highest in knowledge that a written policy exists. Written hospital scores ranged from 3-16 out of 22 possible points. There was no correlation between hospital score and score of the hospital's written respiratory protection program. Conclusions: The implementation of respiratory protection procedures in hospitals seemed to better reflect following of the OSHA standard than a hospital's written policy. On average, hospital managers scored higher than unit managers and healthcare workers.

PPT Stakeholder Meeting Mar 20, 2012 (Healthcare Poster Abstracts)

HC# 6: Occupational Health Nurses and Respiratory Protection Competency

Authors and Organization: Deborah Taormina,¹ Barbara Burgel,¹ Candace Burns,¹ Annette Byrd,¹ Holly Carpenter,¹ Mary Ann Gruden,¹ Anne Lachat,¹ Patty;Quinlan,¹ Novak, Debra,² Ed Fries,² University of California San Francisco School of Nursing¹ / NIOSH NPPTL²

Abstract

The Institute of Medicine (IOM) report, Occupational Health Nurses (OHNs) and Respiratory Protection: Improving Education and Training (2011) outlined seven recommendations to improve the competency of OHNs in respiratory protection. An advisory board was convened in December 2011, with stakeholder representation from the CDC/NIOSH/NPPTL, American Association of Occupational Health Nurses, American Board for Occupational Health Nurses, Association of Occupational Health Professionals in Healthcare, the American Nurses Association, and the Institute of Medicine Standing Committee on Personal Protective Equipment for Workplace Safety and Health. Two recommendations are guiding the initial work of the advisory committee, including a) conducting focus groups and administering a survey to assess current OHN roles and responsibilities relevant to respiratory protection, and education and training needs; and, b) determining how OHNs achieve and maintain knowledge and skills in respiratory protection, and how OHNs motivate employees to use respirators appropriately. Strategies for addressing the letter report will be presented as well as preliminary survey development. The work of the advisory group will be used to develop innovative curricular materials to augment the education of OHNs regarding all aspects of a respiratory protection program. Future goals include a) educating all levels of nurses in respiratory protection, and b) developing interdisciplinary core competencies in respiratory protection for occupational health and safety professional education.

HC# 7: Development and Characterization of a New Test System to Challenge Personal Protective Equipment with Virus-Containing Particles

Authors and Organization: Evanly Vo and Ronald Shaffer, NIOSH NPPTL

Abstract

The aims of this study were to develop and characterize a new test system to challenge personal protective equipment (PPE) with virus-containing particles (VCPs). The new system was designed to achieve two specific research objectives: 1) to be capable of delivering VCPs uniformly onto air permeable PPE such as filtering facepiece respirators (FFRs) and surgical masks (SMs) and 2) to be capable of performing simple VCP filtration tests. The test system consists of two aerosol generators, an exposure chamber, a breathing simulator/head form, and several aerosol detection systems.

The test system was validated against the two objectives using two experimental scenarios involving “dry” and “wet” VCPs (for simplicity, termed droplet nuclei and droplets, respectively). The size distribution of the viral droplet nuclei was 0.02-10.3 μm , with 96% of particles between 0.2-4.0 μm . The size distribution of the viral droplets was 0.54-100 μm , and 88% of droplets centered in 0.73-18.5 μm . The amount of viable MS2 deposited on the respirators met ASTM E2720 and E2721 requirements, with > 97% found on the outer and middle filtering layers of the N95 FFR models. Average filtration efficiencies were highest for the P100 FFRs (99.91-99.94%), followed by N95 FFRs (96.57-98.18%) and SMs (78.69-80.43%). These data indicate that the test system was able to meet the study objectives and will serve as a versatile tool for standards development and for research studies related to PPE reuse and handling.

PPT Stakeholder Meeting Mar 20, 2012 (Healthcare Poster Abstracts)

HC# 8: 6-Year Trends in Healthcare Personnel Exposures to Respiratory Infectious Hazards

Authors and Organization: Mary Yarbrough,¹ Michele Bruer,¹ Paula McGown,¹ Melanie Swift,¹ Charles Oke,² Vanderbilt University¹ / NIOSH NPPTL²

Abstract

Objective: In order to evaluate the efficacy of respiratory protective interventions for healthcare personnel (HCP), it is necessary to understand the types of hazards endemic to the medical work environment, and the disease outcomes related to those hazards. In this paper, we assess the frequency and outcomes of occupational exposures to respiratory infectious illnesses in a large academic medical center. **Methods:** Vanderbilt University Medical Center HCP Exposure Events to respiratory infectious hazards were analyzed over a six year period for frequency and disease outcomes.

Results: There were 1844 HCP exposed to tuberculosis, with 9 tuberculosis outcomes; 17 HCP exposed to measles, with 0 disease outcomes; 1434 HCP exposed to varicella, with 0 disease outcomes; and 818 exposed to pertussis, with 2 disease outcomes. **Conclusion:** Tuberculosis remains the most common respiratory infectious hazard for healthcare personnel, and the only hazard with significant risk of disease development secondary to a known patient exposure. HCP with unprotected exposures to measles, varicella and pertussis are the next most common, but the risk of secondary disease development is low.

HC# 9: Metrics for Use in Evaluation of Hospital Respirator Programs

Authors and Organization: Mary Yarbrough,¹ Michele Bruer,¹ Paula McGown,¹ Melanie Swift,¹ Charles Oke,² Vanderbilt University¹ / NIOSH NPPTL²

Abstract

Objective: The respirator is used in the hospital setting as a component of the master occupational infection prevention and control programs that protect healthcare personnel from workplace hazards. These multi-tiered programs address the hazards at all levels through administrative policies, engineering controls and PPE. This study asks what information to gather: (1) to monitor respirator use in hospitals as part of a national pandemic response, and (2) from a broader perspective, to create a foundation for PPE systems research for the purpose of informing policy, certification, and standard setting. **Methods:** To provide the context for data recommendations hospital respirator surveillance activities were superimposed upon patient care and healthcare personnel workflow. Data was identified from associated systems. Metrics were then created from the data that were representative of selection, availability, training, fitting, use, disease outcomes, and confounding factors. Recommendations for the surveillance metrics most representative of respirator programming are made based upon data quality, availability, and representativeness. **Results:** The sample data set recommended as a starting point for national surveillance of hospital respirator use is presented. For hospitals, metrics to serve as a foundation of a surveillance system are recommended that would answer questions regarding agents, respirators, healthcare personnel, organizational factors and work tasks. **Conclusion:** A national system of respirator surveillance capable of monitoring respirator utilization should be created with the capability monitoring respirator activities and confounders necessary to evaluate respirator program effectiveness and therefore inform policy.

PPT Stakeholder Meeting Mar 20, 2012 (Healthcare Poster Abstracts)

HC# 10: Laboratory Study to Assess Causative Factors Affecting Temporal Changes in Filtering-Facepiece Respirator Fit: Part III – Two Year Assessment of Fit Changes

Authors and Organization: Ziqing Zhuang, Andy Palmiero, Michael Bergman, and Raymond Roberge; NIOSH NPPTL

Abstract

NIOSH is conducting a three year study to assess changes in respirator fit and facial dimensions as a function of time to improve the scientific basis for the periodicity of fit testing. This poster will present some preliminary results through year two. A sample of 229 subjects was initially enrolled and tested every six months. On each visit, subjects performed nine fit tests from the same filtering facepiece respirator model and anthropometric data (height, weight, 3-D head/face scans, and 13 traditional facial measurements) were obtained. Inward leakage and filter penetration were measured for each donned respirator to determine face seal leakage (FSL). To date, 130 subjects have completed their fifth visit.

The mean FSL for Visit 1 (baseline) was 0.69% (SD=0.36) with a range of 0.11% to 2.13%. The mean FSL for Visit 3 (one year visit) was 0.90% (SD=0.86) with a range of 0.05% to 7.7%. The mean FSL for Visit 5 (two year visit) was 0.64% (SD=0.80) with a range of 0.06% to 7.7%. The mean change in FSL between Visits 1 and 3 was 0.21% (SD=0.78), and between Visits 1 and 5 (one year later) was -0.04% (SD=0.67). For Visit 3, 10.2% of the subjects had unacceptable fit (90th percentile FSL > 0.05%). For Visit 5, 2.3% of the subjects had unacceptable fit.

However, it is too early to draw any conclusions from this work as the anthropometric data from the five visits are still being analyzed to better understand why subjects had unacceptable fit.

PPT Stakeholder Meeting Mar 20, 2012 (Mining Poster Abstracts)

MN# 1: Mine Rescue Ensembles for Underground Coal Mining

Authors and Organization: F. Selcen Kilinc, William D. Monaghan, Jeffery B. Powell, Angie M. Shepherd, Nina L. Turner, Raymond J. Roberge, and Edward J. Sinkule; NIOSH NPPTL

Abstract

The mining industry is among the top ten industries nationwide with high occupational injury and fatality rates. While improved technology such as wireless warning and communication systems, lifeline pulleys, and lighted vests have been developed for mine rescuers over the last 100 years, very little research in the area of personal protective ensembles has been conducted. Personal protective ensembles used by mine rescue teams consist of helmet, cap lamp, hood, gloves, protective clothing, boots, kneepads, facemask, breathing apparatus, belt and suspenders. Today, mine rescue teams perform several tasks, such as, exploration, rescue, recovery, and firefighting. It is vital that members of the teams have the capability and proper protection to immediately respond to a wide range of hazardous situations. Currently, there are no minimum requirements, best practice documents, or nationally recognized consensus standards for some ensemble components such as the protective clothing (e.g., coveralls or pants and jacket), boots, hoods, and gloves used by mine rescue teams in the United States. The lack of these requirements results in individual teams entering into an emergency situation while wearing significantly different levels of protection. NPPTL has undertaken a laboratory-based research project to test the performance characteristics of key mine rescue ensemble components to assess possible minimum design and performance requirements. Expected outcomes of the project include the use of project outputs by mine rescue teams to select ensembles; use of project data by manufacturers to improve designs; and use of recommended performance requirements by consensus standards development organizations and government agencies to develop standards and/or guidance documents.

PPT Stakeholder Meeting Mar 20, 2012 (Mining Poster Abstracts)

MN# 2: Comparison of current versus proposed SCSR regulations

Authors and Organization: Nicholas Kyriazi, NIOSH NPPTL

Abstract

This poster contrasts the differences between the present and proposed regulations listing the technical reasons for the changes and why they will result in superior respiratory protection equipment. In addition, since currently approved apparatus will be permitted to remain in use for the natural lifetime of the units, the users should know if and why their apparatus would fail the new regulations as an incentive to buy apparatus certified under the new regulations. A listing is given of the technical failures for each apparatus.

MN# 3: Closed-Circuit Escape Respirator (CCER) breathing gas capacity - uses and limitations

Authors and Organization: Richard Metzler,¹ Jon Szalajda,¹ Tim Rehak,¹ N. Kyriazi,¹ J. Kravitz,² NIOSH NPPTL¹ / MSHA²

Abstract

NIOSH is in the process of updating the requirements of Title 42 CFR Part 84 which it will employ to test and approve closed-circuit escape respirators (CCER) used to escape from atmospheres considered to be immediately dangerous to life and health, including such respirators required by the Mine Safety and Health Administration (MSHA) for use in underground coal mines. CCERs are presently approved as providing a specified duration of breathing gas based on test subjects performing specific laboratory exercises known as Man test 4. This can be misleading since the actual durations of breathing gas required by users during escapes can differ substantially depending on the user's weight, physical condition, and activity. It is important to remember that a CCER contains a fixed quantity of oxygen; the duration of the oxygen it ultimately supplies will be inversely proportional to its rate of use. The new regulations will replace the measurement of the duration of breathing gas supplied with the measurement of the volume of breathing gas supplied (in liters of oxygen) as a principal approval parameter.

This poster provides information which will enable respirator users to protect themselves during an emergency escape by informing them of the CCERs breathing gas capacity rating; its uses and limitations. This information will enable employers to readily compare differences in respirator capacity; more closely match a respirator model to their particular needs, and choose the respirator model that best serves their needs to plan to select a CCER for their specific escape plan.

PPT Stakeholder Meeting Mar 20, 2012 (Mining Poster Abstracts)

MN# 4: Advancing Respiratory Protective Device Technology through Breathing Gas Chemical Research

Authors and Organization: David K Murray,¹ Crystal Forester,¹ Ziqing Zhuang,¹ Rohan Fernando,² NIOSH NPPTL¹ / OMSHR²

Abstract

Closed-circuit respiratory protection devices incorporate chemical cartridges or canisters that provide oxygen, remove expired carbon dioxide and/or remove uncomfortable heat and moisture from recycled breathing air. The chemical performance of these components has a direct bearing on the device size, weight, comfort, and the length of time they can be safely used, which are critical metrics in evaluating overall device performance. These devices are essential to miners and mine rescue personnel involved in escape, rescue, and firefighting activities in mine emergencies. In addition, filtering self-rescuer devices used mainly in metal/non-metal mines contain cartridges or filters that remove particulates as well as hazardous mine gases such as CO, CH₄, or H₂S. Escape type devices currently provide 10-60 minutes of safe breathing air and canisters for CO₂ absorption, while rescue (or entry) breathing devices provide up to 4 hours safe breathing air. The Mine Improvement and New Emergency Response (MINER) Act of 2006 requires that every miner working underground is provided with not less than two hours breathing protection for self-rescue.

This poster will provide an overview of a new 2012 proposed chemical research program at NPPTL to address breathing device improvements to meet MINER Act requirements. The program will focus on two areas- (1) demonstrating improved chemical performance using newly developed catalysts/ molecular sieves or distributed adsorbents in a bench scale test system, and (2) standardizing analytical test methods for evaluating breathing gas chemical processing to enable development or improvement of products that conform to Miner Act requirements.

MN# 5: CO Oxidation Catalysts for Respiratory Protection

Authors and Organization: Girish Srinivas, Rita Dubovik, Drew Galloway, Steve Gebhard
TDA Research, Inc.

Abstract

TDA Research Inc. has developed a low temperature CO oxidation catalyst for personal protection from carbon monoxide poisoning in atmospheres containing up to 4000 ppm CO. The catalyst is very active at 0oC and below, making it a good choice for CO protection in all but the coldest environments.

During the past year TDA has scaled up catalyst synthesis to the multi-kilogram level. We now have the ability to load and test full-size gas filters. The ability to load and test cartridges allows TDA to test its catalysts under NIOSH/NFPA certification test conditions and take advantage of the cartridge configuration.

We have begun to work with companies in the respiratory protection sector to schedule field tests to demonstrate the excellent activity and low pressure drop of TDA's CO oxidation catalyst.

PPT Stakeholder Meeting Mar 20, 2012 (Pesticide Handler Poster Abstracts)

PH# 1: Utilization of Poison Control Center data and local health department infrastructure to address improper use of PPE among migrant workers: A proposed approach

Authors and Organization: James D. Blando, Mark Robson, Daniel Yacykewych; Old Dominion University, School of Community and Environmental Health

Abstract

It has been recognized that migrant workers represent a difficult to reach population that experiences many barriers to effective public health interventions. These barriers make instruction and awareness about the proper use of personal protective equipment (PPE) among pesticide applicators especially difficult to implement. Standard surveillance methods were used to identify occupationally-related pesticide poisoning cases. We identified 260 sentinel occupational pesticide poisoning cases using poison control center data and 49 cases using Uniform Billing (UB) data. The data were also broken down into broad categories of pesticides used. However, the data represented a fragmented picture of pesticide poisonings because the state of NJ did not have a systematic pesticide surveillance system within the state health department. Furthermore, these data sources did not include any detail or information about PPE usage among these poisoned workers. Therefore, we propose to build on this approach to identifying sentinel cases of migrant workers and use this information about migrant workers on the Eastern Shore of Virginia. The VA Eastern Shore is unique in that migrant worker camps are readily identified and accessed. We propose to further develop the approach used in NJ by conducting fieldwork among identified migrant worker labor camps along the Eastern Shore of VA. The approach will allow the targeting of PPE interventions among this group of workers. We will assess knowledge, attitudes, and beliefs among migrant workers with regard to proper PPE usage when applying pesticides.

PH# 2: Oregon OSHA's Pesticide Emphasis Program: Personal Protective Equipment for Pesticide Handlers

Authors and Organization: Garnet R. Cooke, Oregon OSHA

Abstract

In a concerted effort to reduce pesticide exposures in Oregon, Oregon OSHA launched the Pesticide Emphasis Program (PEP) in FY 2000. Oregon administers a state-run OSHA plan and has promulgated its own regulations for Agriculture. These regulations address personal protective equipment under Oregon Administrative Rules 437, Division 4. Oregon OSHA is unique as an OSHA state plan in that it also has full enforcement authority of the EPA's Worker Protection Standard, which includes personal protective equipment requirements specific to pesticides. This enforcement authority was coordinated through Memorandums of Understanding with the Oregon Department of Agriculture. EPA Region 10, Pesticides Division has oversight authority over the pesticide program through an unfunded agreement with Oregon OSHA.

Oregon OSHA's PEP applies the following regulations which address the various ways in which pesticide exposures can occur: the Worker Protection Standard, Hazard Communication, Respiratory Protection, personal protective equipment, pesticide storage, emergency eyewash, fumigation requirements, Thiram requirements, and supervision. This poster highlights the findings of 11 years of enforcement activity on the specific component of personal protective equipment. It addresses selection, use, care and storage, as well as the subsequent outreach efforts made as a result of those findings.

PPT Stakeholder Meeting Mar 20, 2012 (Pesticide Handler Poster Abstracts)

PH# 3: Respiratory Protection Regulation for Pesticide Handlers: The California Model

Authors and Organization: Harvard R. Fong, California Department of Pesticide Regulation

Abstract

With respiratory protection; as Yoda said, there is another.

In most cases, the regulatory approach on pesticide labels dealing with respiratory protection when handling pesticides has been either unmoored from any recognized standard (“Wear a full face respirator when using this material”); insufficiently detailed and/or obsolete (“Wear a respirator approved for pesticides.”); or simply dumped into the OSHA Standard 29 CFR 1910.134. The major problem with using the OSHA Standard is that it was designed for “...general industry, construction, shipyard, longshoring, and marine terminal workplaces (Fed. Reg. V63 No5, pg 1152) and specifically exempted agricultural operations governed under FIFRA (ibid, pg 1157). The California Department of Pesticide Regulation reviewed 1910.134 and developed respiratory protection regulations specific to the pesticide-handling industries (primarily agricultural and structural treatment) that take into account the nature of the use environments, the diversity of the potential users and the variability and unknowns of the pesticides themselves.

PH# 4: Promoting pesticide applicator exposure reduction through outreach education.

Authors and Organization: Kerry Richards, William Riden, Jim Harvey; Penn State Pesticide Education Program

Abstract

The poster will highlight the efforts of the Penn State Pesticide Education Program and the Pennsylvania Rural Health Farm Worker Protection Safety Program to educate growers, pesticide handlers. Special emphasis will focus on efforts to reach and those who work in areas treated with pesticides to encourage use of personal protective equipment and other safety practices. This will include, but is not limited to Worker Protection training, Anabaptist training, and related training materials developed and distributed by these programs.

PH# 5: Emphasizing the need to select different PPE for different pesticide products and their uses during training

Authors and Organization: Ann Rivers, US Department of Agriculture

Abstract

The US EPA Worker Protection Standard requires that pesticide labels list the types of personal protective equipment that must be worn with each product. Because there are many pesticide products with varied toxicity levels, each with specific PPE requirements, proper selection of protective equipment can be difficult. Proper training for pesticide handlers should emphasize there is no single assembly of personal protective equipment that can be used for all pesticides or all applications of a single pesticide, rather PPE should be selected based on the requirements of a specific product label and how the product will be used.

While many pesticide labels require the use of chemical-resistant PPE, some fumigants prohibit the use of chemical-resistant PPE. Methyl bromide and other fumigant gases can become trapped inside chemical protective gloves or boots and can cause chemical burns to the skin. Since some pesticide handling activities increase the chance of exposure, such as mixing and loading, the label may require higher levels of protection during these activities. Levels of respiratory protection also vary among different pesticides and different levels of exposure for a single pesticide. Wearing inappropriate PPE can lead to overexposure. Adequate training is needed to ensure pesticide handlers properly select the PPE that must be worn with each product and each product use.

PPT Stakeholder Meeting Mar 20, 2012 (Pesticide Handler Poster Abstracts)

PH# 6: Predictors of Personal Protective Equipment Compliance among Farm Youth

Authors and Organization: Natalie Roy, Carolyn Sheridan, AgriSafe Network

Abstract

Purpose: It is well documented that pesticide handlers do not consistently use Personal Protective Equipment (PPE). Young farmers commonly handle pesticides on their farm even if they are not certified as “pesticide handlers”. Therefore, they are considered an important population to target at an early age with accurate information on preventing pesticide poisoning. AgriSafe is a national non-profit that advances the delivery of occupational health care to farm families. Strategies to increase use of PPE are an important component of AgriSafe’s efforts to protect those working in agriculture. **Methods:** The AgriSafe Network collected quantitative data to assess PPE compliance among 930 FFA farm youth during the 2007 FFA convention. The survey tested PPE knowledge, PPE usage, and predominate high exposure farm tasks. The survey also assessed PPE usage in relation to stages of behavior change as described in the Transtheoretical Model. The data includes exposures to various farm hazards in addition to pesticides. Among the youth who stated they mix and apply agricultural pesticides, only 51% stated they always wear chemical protective gloves.

PH# 7: Pesticide Safety on the Farm: Montana Private Applicator Behavioral Trends

Authors and Organization: Cecil I. Tharp, Montana State University Extension

Abstract

The goal of this investigation was to assess the behavioral trends of certified Montana private (farm) applicators when applying pesticides. By understanding these behaviors, the MSU Pesticide Education Program has catered programs and developed tools to address fundamental deficiencies to promote better pesticide stewardship. A total of 474 applicators were asked various pesticide drift and/or pesticide safety questions within 21 pesticide education programs throughout Montana from 2009 - 2011. Audience members were polled using the Turning Point Technologies Audience Response System (TARS). This system was selected due to ease of use, anonymity, and instantaneous results which increased dialogue by audience members. Results of this study may be used to stimulate audience participation.

PH# 8: Current Pesticide Education Trends Across North Carolina

Authors and Organization: Robin Tutor-Marcom, Annette Greer, Esther Musu SeisayAdam-Samura, NC Agromedicine Institute

Abstract

In 2009, the NC Department of Agriculture formed an Interagency Pesticide Workgroup to address recommendations from the North Carolina Governor’s Task Force on Preventing Agricultural Pesticide Exposure. The Workgroup initially identified two key areas on which to focus: pesticide education and knowledge of farm labor contractors relative to pesticide regulations and resources for ensuring farmworker safety and health. For the purposes of this poster, we will focus on findings from a survey conducted with pesticide educators across North Carolina to determine current trends in pesticide education. Specifically, the Pesticide Education subcommittee sought to determine: 1) who pesticide educators are; 2) who is receiving pesticide education; 3) in what languages education is being delivered; 4) what educational materials and/or strategies are being used; 5) what key messages are being included; 6) which materials and/or strategies are felt to be most or least effective; and 7) what if anything is needed to make delivery of pesticide education easier and more effective. Results of the survey will be used to develop recommendations, materials, and strategies that can be used across the state to ensure that pesticide education meets the needs of both pesticide educators and recipients while also ensuring that information being shared is in compliance with state and federal regulations and shares important health messages.

PPT Stakeholder Meeting Mar 20, 2012 (Pesticide Handler Poster Abstracts)

PH# 9: Personal Protective Technology Use Among North Carolina Farms Applying Soil Fumigants

Authors and Organization: Robin Tutor-Marcom, Fred Wright, NC Agromedicine Institute

Abstract

On December 31, 2010, the United States Environmental Protection Agency issued new risk mitigation measures (RMMs) for soil fumigants. RMMs require that individuals who are applying and/or handling soil fumigants be medically cleared and fit tested to use respiratory protection in the event they have a sensory detection of fumigant exposure. In 2011, the NC Agromedicine Institute, with funding from the NC Tobacco Trust Fund Commission and in conjunction with community partners, coordinated medical clearance, fit testing and respirator education with more than 700 farmers across North Carolina. Following completion of these activities, a follow-up survey was sent to participants to determine current practices and future plans for using respiratory protection and other personal protective equipment necessary for fumigant use. This poster will discuss survey results and similarities/differences to nationally identified barriers to personal protective equipment use as well as to risk mitigation measure requirements.

PH# 10: Fit Testing of Pesticide Applicators Respiratory Protection

Authors and Organization: Sherry Wyckoff, Samantha Park, John May, Northeast Center for Agricultural and Occupational Health (NEC)

Abstract

Inhalation of particulate and mist is a common entry route of pesticides into the body. In addition to modifications of work practices, inhalation exposure can be prevented by use of personal protective equipment.¹ Disposable dust respirators and cartridge/canister respirators can provide adequate respiratory protection in these situations. Both of these models require a proper fit for maximum protection. OSHA respiratory standard 1310.134 Appendix A outlines accepted fit test protocols for qualitative fit testing. This poster will present the results of a survey of select NY pesticide applicators. Among the data gathered are: knowledge of OSHA requirements; extent of quantitative fit testing in this population; alternative approaches to fit testing in these applicators; medical clearance obtained by equipment users; types of respirators used for specific tasks; and maintenance of this equipment.

1. <http://www.cdc.gov/niosh/topics/respirators> accessed 1/11/12

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 1: Responder Knowledge Base – The Emergency Responder Decision Support Tool For PPE

Authors and Organization: Latoya Browne-Barbee, Responder Knowledge Base/FEMA

Abstract

The Responder Knowledge Base's (RKB) mission is to provide emergency responders, purchasers, and planners with a trusted, integrated, online source of information on products, standards, certifications, grants and other equipment-related information. The poster will depict what type of information RKB provides regarding personal protective equipment and how all of it is linked and found in one place. Some examples of the information provided include certified PPE products, relevant standards, FEMA Preparedness Grants, AEL, SEL, and safety notices.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 2: NIOSH Assistance to the FEMA Center for Domestic Preparedness

Authors and Organization: Terrence K. Cloonan, NIOSH NPPTL

Abstract

On May 12, 2011, NIOSH and National Center for Environmental Health (NCEH), CDC, entered into a federal inter-agency agreement with the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA)'s, Center for Domestic Preparedness (CDP). The purpose of the agreement was to assist the CDP in the development of guidelines applicable to three areas of personal protective technology applications: 1) use and reuse of NIOSH-approved chemical, biological, radiological, and nuclear (CBRN) air-purifying respirators (APR) and accompanying personal protective equipment (PPE), 2) increase the CDP analytical laboratory analytical capacities and 3) support the enhancement of worker and trainee public safety protection in support of the training objectives of the CDP emergency responder live-agent facility known as the chemical, ordnance, biological, and radiological training facility or "COBRA TF" located in Anniston, Alabama. NIOSH's NPPTL serves as the NIOSH signatory authority in the CDC-FEMA agreement and is charged with providing assistance to the FEMA CDP in technical areas such as NIOSH respirator selection criteria, review of test data, addressing procedures that are expected to/may result in the development of FEMA CDP-NIOSH concept and final standard test procedures for the decontamination and reuse of pristine NIOSH-approved CBRN APR. This academic poster will provide a snapshot on the progress achieved in addressing the tasks and projected needs of the inter-agency agreement.

PS# 3: Thermal manikin testing and thermal model predictions as tools to assess the physiological impact of the Total Heat Loss Test

Authors and Organization: Aitor Coca, Jung-Hyun Kim, Jeff Powell, NIOSH NPPTL

Abstract

The National Fire Protection Association sets requirements in their standards for the certification of protective ensembles (PE) based on testing of the thermal characteristics of the fabric (thermal resistance and vapor permeability). A typical method to determine the thermal characteristics of fabric is the Total Heat Loss (THL) test using a sweating hot plate (SHP). The overall aim of this project is to assess if the SHP test-determined THL value is a valid predictor of human thermo-physiological responses to working while wearing PE. In this sub-task of the project, we compare the results of the SHP test with two other methodological approaches (sweating thermal manikin and thermal model predictions) using two PE with the same design, but made of fabrics with different THL values. The two PE fabrics were first tested by an independent laboratory to acquire the SHP THL test value. Then the two PE constructed with each of the two fabrics were tested using a sweating thermal manikin (STM) to predict THL values. Finally, the responses of humans working while wearing the PE were estimated with a thermal simulation model. The SHP test showed a 78% difference between the two PE, the STM showed a 54% difference and the simulation showed a 28% difference for similar environmental conditions. Based on these preliminary results, STM testing and thermal model simulation could help explain the real physiological impact of the THL value measured by the SHP test. Future experiments will include actual human subject testing of the two PE.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 4: Update on Personal Protective Equipment Recommendations for Responses to Bacillus anthracis (anthrax)

Authors and Organization: Lisa J. Delaney, Chad Dowell, NIOSH/OD/EPRO

Abstract

During the anthrax response in 2001-2002, NIOSH issued guidance on selection and use of protective clothing and respirators against biological agents and provided specific PPE recommendations to responders conducting environmental sampling for Bacillus anthracis. General NIOSH guidance for the selection and use of PPE against biological agents was updated in 2009 to include NFPA and CBRN certification standards but the 2001 anthrax-specific guidance was never updated. Currently, NIOSH recommends environmental samplers wear a full facepiece air purifying respirator or a full facepiece powered air purifying respirator, both equipped with P100 or N100 filters. Disposable hooded coveralls, gloves, and foot coverings are also recommended. Higher levels of protection, such as CBRN rated self-contained breathing apparatus, were only recommended when there may be an ongoing release using an aerosol-generating device or when the agent is unknown. Additionally, a Federal inter-agency working group is currently developing broader responder protection guidance for a wide area anthrax attack that will include recommendations on a variety of protective measures including medical countermeasures (i.e., drugs, vaccine), PPE, and other work practices. Once this inter-agency document is cleared, NIOSH intends to update its anthrax responder PPE guidance to reflect current standards and guidance. It will also be expanded to apply to all responders performing highest risk tasks during an event.

PS# 5: Web-based Marketing of Alternative-sized PPE for a Diverse Workforce

Authors and Organization: Sheli C. DeLaney, MA
NIOSH/EID/TREB

Abstract

Women's and unisex PPE is now widely available on the market, but it is still not reaching all of the workers who need it. One theory proposes that alternative-sized PPE is not well marketed to the people with purchasing authority. A web-based review of ten brand-name PPE distributors investigated how alternative-sized PPE was advertised on websites and online product catalogues. The criteria used to evaluate the websites included 1) if alternative-sized PPE was offered by the distributor, 2) if the products were clearly labeled as unisex or women's, and 3) if models pictured on the website represented a diverse array of people. Results found that women's and unisex products were offered by most distributors, but rarely featured prominently or displayed on a model. Many items were not labeled as a women's product, but were simply marked "W" or labeled with taglines such as "ideal for smaller faces." In order to increase the use of alternative-sized PPE for women workers and workers of small stature, it is recommended that PPE distributors feature these products more prominently in their catalogs and websites, label them clearly, and use models that represent a diverse workforce.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 6: A Magnetic Passive Aerosol Sampler for Measuring Particle Penetration through Protective Clothing Materials

Authors and Organization: Pengfei Gao, Tony Rozzi, and Peter Jaques, NIOSH NPPTL

Abstract

Particle penetration through moderately porous non-woven fabrics was measured with a magnetic passive aerosol sampler (MPAS) housed in a bench-scale cone-shaped penetration cell (P-Cell) that was 20 mm high with a fabric-air inlet diameter of 40 mm. The MPAS is a 8.6 mm high 28 mm disc that consists of 186 small square magnets, arranged in an alternating N and S pole pattern to collect magnetically susceptible iron oxide particles. The P-Cell was designed with smooth internal and external surfaces with sufficient annular space (6 mm) to allow air to pass freely around the MPAS. A 60 mm (axial length) shrouded exhaust unit with a 10 mm diameter outlet was attached behind the P-Cell to prevent entrance of particles carried by the exterior air stream into the outlet-end by eddies. The P-Cell was collocated with several others across a multi-cell holder and placed in a recirculation aerosol wind tunnel for exposure to the Fe₃O₄ aerosol. 20,000 particles/cc, between 0.1 and 0.8 µm, were continuously recirculated for ~20 minutes. Both, the effect of wind speed and distance between the fabric and the MPAS on penetration were evaluated. A P-cell without fabric served as the control. A computer controlled scanning electron microscope was used to quantify size-dependent particle penetration. Preliminary results show that penetration ranged from less than 10% to greater than 90%. The test method simulates the conditions under which protective garments operate in the work place.

PS# 7: Firefighter Anthropometry for Fire Apparatus and Equipment Design

Authors and Organization: Hongwei Hsiao, NIOSH DSR

Abstract

This poster reports a comprehensive national survey of firefighter anthropometry for updating fire apparatus design criteria and standards, conducted by NIOSH through partnership with firefighter associations, fire apparatus manufacturers, and other stakeholders.

The survey used a stratified sampling plan (3-age x 3-race/ethnicity x 2-gender combinations) to collect anthropometric data across the U.S. It took into account the geographic density of racial/ethnic distributions calculated from U.S. Census 2000. A total of 951 subjects participated in the study to complete traditional anthropometry data and 3-dimensional face scans while they were seated and standing with and without protective gear. One hundred ninety-five firefighters, representing the various combinations of body size and shape of the 951-subject pool, were identified to participate in the second-phase study which involved 3-dimensional whole body scans and digitization for cab workspace, seat belt, and bunk gear design applications.

Preliminary results suggest (1) minimum seat cushion width of 498 mm (currently 460 mm in the National Fire Protection Association 1901 standard), (2) back cushion width of 663 mm at shoulder height (currently 460 mm), and (3) seat height adjustment range of 415~516 mm to accommodate 95% of the current firefighters. Minimum seating space (including seat cushion width) of 678 mm and back cushion space of 796 mm at shoulder height is suggested. More detailed results for various fire apparatus and equipment design applications, such as respirator, seat belt, and egress step, will be discussed.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 8: NIOSH Fire Fighter Fatality Investigation and Prevention Program

Authors and Organization: Tim, Merinar, Paul Moore, Matt Bowyer, Virginia Lutz, Murrey Loflin, Steve Miles, Jay Tarley, Stacy Wertman, NIOSH DSR SFIB

Abstract

The United States depends on approximately 1.1 million career and volunteer fire fighters to protect its citizens and property from losses caused by fire and other disasters. On average, 100 fire fighters die each year in the line-of-duty. In 1998 Congress recognized the need to address this significant occupational issue and directed NIOSH to implement a fire fighter safety initiative.

The NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) conduct investigations of fire fighter line-of-duty deaths to formulate recommendations for preventing future deaths and injuries. The FFFIPP is a public health practice investigation program. NIOSH investigations are not conducted to enforce compliance with State or Federal occupational safety and health standards and do not determine fault or place blame on fire departments or individual fire fighters. Recent FFFIPP investigations in Houston, TX; Baltimore County, MD; and other locations have identified concerns that SCBA facepiece lenses can degrade under expected fire-fighting conditions. The facepiece lens currently represents the weakest component of a fire fighter's protective ensemble in high heat conditions. Also, the FFIPP has identified uncontrolled SCBA emergency issues as another contributing factor in recent fire fighter fatality cases in Shawnee, KS; Asheville, NC; and other locations.

The FFFIPP has worked with National Fire Protection Association (NFPA) standards making committees and testing laboratories to develop and implement changes for performance requirements as well as use requirements for NFPA-certified SCBA facepieces. These enhanced test and certification requirements will result in better respiratory protection for fire fighters.

PS# 9: Limitations of Current NIOSH/OSHA Decompression Tables For Caisson and Tunnel Workers

Authors and Organization: Ray Roberge, NIOSH NPPTL

Abstract

Compressed air tunneling and caisson (tunnel) workers engage in work activities at ambient pressures that can be many times that of atmospheric pressure. This work environment results in breathing air at higher pressures that subsequently causes an increase in the partial pressure of the body's dissolved gases (oxygen, carbon dioxide, nitrogen). At the work shift's end, if decompression back to atmospheric pressure occurs too rapidly, there is not enough time for body tissues saturated with gases to off-gas in a normal fashion through exhalation. Gas molecules can then coalesce to form bubbles that can impinge on tissues or cause blood vessel obstruction. These physiological effects of bubbles lead to various disorders such as decompression illness ("the bends"), cardiorespiratory decompression syndrome ("chokes"), arterial emboli leading to strokes or cardiac malfunction, dysbaric osteonecrosis (bone infarction), etc. To ameliorate the occurrence of these pressure-related disorders, tables have been developed in industrialized nations that incorporate timed periods at specified pressures of gradual decompression for workers to allow for "off gassing". The mandated Occupational Health and Safety Administration (OSHA) Decompression Tables were first introduced in 1971 and continue (unchanged) in use today. However, the OSHA Tables only allow a maximum pressure of 50 psi (modern tunnel-boring equipment can utilize pressures > 110 psi) and are considered outdated in that they do not employ stepped decompression or use of oxygen and have been shown to be associated with an unacceptable degree of dysbaric osteonecrosis at pressures >36 psi. The National Institute for Occupational Safety and Health (NIOSH) has previously funded research projects that resulted in the development of improved tables, but these have not been put into effect. There is a clear need in the U.S. construction industry for updated OSHA decompression tables that better address the protection of current compressed air tunneling and caisson workers. The purpose of this poster is to provide an overview of the deficiencies in the current OSHA decompression tables and present alternate decompression tables that have been developed with NIOSH funding.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 10: The Effects of Flow Rate, Back Pressure, and Cell Design on Permeation Testing Result

Authors and Organization: Angie Shepherd,¹ Chris Mekeel,² and Matt Horvatin,² NIOSH NPPTL / URS²

Abstract

Permeation testing is used to evaluate the protection afforded by chemical protective equipment (CPE). Current permeation test methods require strict specifications for temperature and relative humidity. Changes in either of these environmental conditions can greatly impact testing results. This project aims to reduce these effects by precisely holding temperature and humidity constant. In addition to temperature and humidity, other variables were investigated to show their effects on permeation testing results. Back pressure caused by high flow rates as well as the sorbent tubes used in the collection of permeant, attribute to material distention which increases the total testing surface area. Such an increase in surface area decreases the challenge density specified in the test method. Also, conventionally designed permeation cells may affect permeation results by not effectively removing permeant from the collection side of the test material. Such ineffectiveness decreases the concentration gradient across the test material, directly impacting permeation results. A new cell was designed to efficiently collect permeant at lower flow rates, thus maintaining a proper concentration gradient across the test material while simultaneously decreasing back pressure. Preliminary results from the new cell design will be presented.

PS# 11: Assessing Safety Behaviors in Florida Firefighters

Authors and Organization: Virginia Sublet, Sunshine Education and Research Center (ERC) at the University of South Florida (USF)

Abstract

There are over 1,000,000 firefighters in the United States (U.S.). One of the serious conditions that can develop for firefighters is heat stress due to extreme heat exposure on-the-job. Heat stress can result in heat rash, progress to exhaustion, cardiac effects and ultimately death. Although this condition is largely preventable, it remains a serious problem in the fire service. The objective of the study described here was to assess the safety behaviors of firefighters in Florida. It is well known that the percent of high humidity and elevated temperatures experienced in Florida may put these firefighters at greater risk of heat stress than fire professionals in other regions of the U.S.

The methodological approach for this study was qualitative and used focus groups as the data collection method. The focus groups concentrated on the perceptions, opinions, behaviors and attitudes of firefighters in 4 fire departments in north, central and south Florida. One of the groups was a volunteer fire department and the other three were composed of paid firefighters. The size of fire departments ranged in size from small (10 firefighters) to medium (60 firefighters) to large (1500 firefighters).

Study findings indicated that many firefighters do not fully comprehend the seriousness and potential lethal effects of heat stress, are significantly influenced by the opinions of fellow firefighters and management, and tend to ignore symptoms of heat stress until they are so severe they are forced to leave the hot environment. This poster will describe the design, methods, and future direction of the research. (The author would like to acknowledge NIOSH for funding this research.)

In this project, a prototype Real-Time Ensemble Inward Leakage (REIL) testing system was developed to replace the Overall Ensemble Inward Leakage Test from National Fire Protection Association (NFPA) 1991 and the Man In Simulant Test from NFPA 1994. The system uses a sensor array to measure the concentration of the challenge analyte (Methyl Salicylate) within the interior of a test ensemble. The REIL testing system employs real-time, wireless telemetry for the transfer of sensor data. The data is then expressed both numerically and graphically. By not requiring any posttest analysis and limiting required consumable supplies, the REIL testing system has the potential to reduce the cost of evaluating Chemical, Biological, Radiological, Nuclear (CBRN) ensembles against inward leakage. This poster will describe the design of the REIL testing system and preliminary data demonstrating proof-of-concept for this application.

PPT Stakeholder Meeting Mar 20, 2012 (Public Safety Poster Abstracts)

PS# 12: Physiological Evaluation of Air-Fed Ensembles during Treadmill Exercise

Authors and Organization: N Turner, J Powell, D Novak, E Sinkule and A Shepherd, NIOSH NPPTL

Abstract

An air-fed ensemble (AFE) is an encapsulating suit with an external source of breathing air which provides respiratory protection without the use of a tight-fitting face piece. These ensembles were originally developed in the 1960's to protect nuclear plant workers from respiratory and dermal hazards. Today they are being sold as replacements for suits which include airline respirators with face pieces and are being advertised as providing a high degree of comfort, mobility, visibility, and respiratory protection. They are currently worn by government employees at the Department of Defense, Department of Energy, and the Centers for Disease Control and Prevention, as well as by workers in the nuclear, chemical, and pharmaceutical industries. However, human subject test data from currently available AFEs are needed for updating/revising NIOSH certification requirements for these types of devices.

The goal of this study was to evaluate the respiratory and metabolic stresses of AFE use in wearers during rest, low-, and moderate-intensity treadmill exercise. Subjects wore two different AFEs and one two-piece supplied-air suit at rest and while walking for six minutes at two treadmill settings (low and moderate). Inhaled O₂, CO₂, pressure and temperature were measured continuously breath-by-breath. In a previous presentation, we reported preliminary data from 14 male subjects. Preliminary results show that inhaled O₂ is decreased and inhaled CO₂ is elevated in AFEs during low- and moderate-intensity treadmill walking. In this presentation, updated results, which include 6 additional female subjects, will be discussed.

PS# 13: Cooling System for Hazmat Suits

Authors and Organization: Girish Srinivas, Bob Copeland, Joe Fredrickson, Drew Galloway, Georgia Mason, Steve Gebhard, TDA Research, Inc.

Abstract

When responding to a chemical spill or other hazardous cleanup operation, first responders must frequently wear a level A hazardous materials (HAZMAT) suit. These suits protect the first responder from chemical exposure by completely sealing the wearer against external vapors and liquids. Along with the SCBA, the impermeable suit provides contaminant free air and a barrier to the chemical hazard. Unfortunately, because the suits are sealed, they quickly get very hot and humid because the water vapor from sweating is trapped inside the suit. Given the fact that a first responder can be in the suit from 30-60 min, overheating is not just a source of discomfort, but is dangerous because of the risk of heat exhaustion.

TDA Research, Inc. (TDA) is developing a lightweight, portable system that will both cool and dehumidify the air that is circulated through a level A HAZMAT suit. Breathing air is supplied to the first responder inside the suit by the usual SCBA. To cool the wearer, TDA's system circulates clean, dry, breathable air. Evaporation of perspiration is the main heat transfer mechanism that cools the first responder in the suit. The water vapor generated by sweat evaporation is removed using a lightweight bed of desiccant. The dry air exiting the bed is then cooled using a specially designed heat exchanger that rejects heat to the outside environment. The heat exchanger transfers heat from the inside of the suit to the dirty environment, while keeping the clean and contaminated air streams completely separate.

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Institute of Medicine Committee on PPE (COPPE)

Institute of Medicine Committee on PPE (COPPE)

In response to a request from NIOSH, the Institute of Medicine formed a standing Committee on Personal Protective Equipment (COPPE) for Workplace Safety and Health in 2005. The committee provides a forum to discuss scientific and technical issues relevant to the development, certification, deployment, and use of personal protective equipment (PPE), standards, and related systems to ensure workplace safety and health. The reports generated by these committees have served and continue to serve as significant inputs to NPPTL and PPT Program annual and long-term planning.

The following reports have been generated as of March 2012:

PPT Program Evaluation Committee Report

Institute of Medicine and National Research Council, *The Personal Protective Technology Program at NIOSH. Committee to Review the NIOSH Personal Protective Technology Program. Rpt. No. 5, Reviews of Research Programs of the national Institute for Occupational Safety and Health*, ed. Committee to Review the NIOSH Personal Protective Technology Program. 2008, Washington, DC: The National Academies Press. Available from: http://www.nap.edu/catalog.php?record_id=12203

COPPE Spin-off Committee Reports

Institute of Medicine (IOM), *Occupational Health Nurses and Respiratory Protection: Improving Education and Training - Letter Report*, Linda H. Clever, M.E. Bonnie Rogers, Andrea M. Schultz, and Catharyn T. Liverman. 2011, Washington, DC: The National Academies Press. Available from: <http://www.iom.edu/Reports/2011/RespiratoryProtectionNurses.aspx>

Institute of Medicine (IOM), *Preventing transmission of pandemic influenza and other viral respiratory diseases: Personal protective equipment for healthcare personnel - update 2010*. 2011, Washington, DC: The National Academies Press. Available from: <http://www.iom.edu/Reports/2011/Preventing-Transmission-of-Pandemic-Influenza-and-Other-Viral-Respiratory-Diseases.aspx>

Institute of Medicine (IOM), *Certifying Personal Protective Technologies: Improving Worker Safety*, ed. Committee on the Certification of Personal Protective Technologies, Howard J. Cohen and Catharyn T. Liverman. 2011, Washington, DC: The National Academies Press. 190. Available from: http://www.nap.edu/catalog.php?record_id=12962

Institute of Medicine (IOM), *Preparing for an influenza pandemic: Personal protective equipment for healthcare workers*. 2008, Washington, DC: The National Academies Press. Available from: http://www.nap.edu/catalog.php?record_id=11980

Institute of Medicine (IOM), *Measuring Respirator Use in the Workplace, Dec.* 2006, Washington, DC: The National Academies Press. Available from: <http://www.iom.edu/Reports/2007/Measuring-Respirator-Use-in-the-Workplace.aspx>

Institute of Medicine (IOM), *Assessment of the NIOSH Head-and-Face Anthropometric Survey of U.S. respirator users*. 2007, Washington, DC: The National Academies Press. Available from: <http://iom.edu/Reports/2007/Assessment-of-the-NIOSH-Head-and-Face-Anthropometric-Survey-of-US-Respirator-Users.aspx>

Institute of Medicine (IOM), *Reusability of Facemasks During an Influenza Pandemic: Facing the Flu, Apr 27*. 2006, Washington, DC: The National Academies Press. Available from: <http://www.iom.edu/Reports/2006/Reusability-of-Facemasks-During-an-Influenza-Pandemic-Facing-the-Flu.aspx> (funded by HHS)

Institute of Medicine (IOM), *Occupational Health Nurses and Respiratory Protection: Improving Education and Training: Letter Report*. 2011 Washington, DC: The National Academies Press. Available from: http://www.nap.edu/catalog.php?record_id=13183

The committee roster is provided in this packet.

The current activities of the IOM COPPE and reports generated by the relevant committees are available at:
<http://www.iom.edu/Activities/PublicHealth/PPEinWorkplace.aspx>



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