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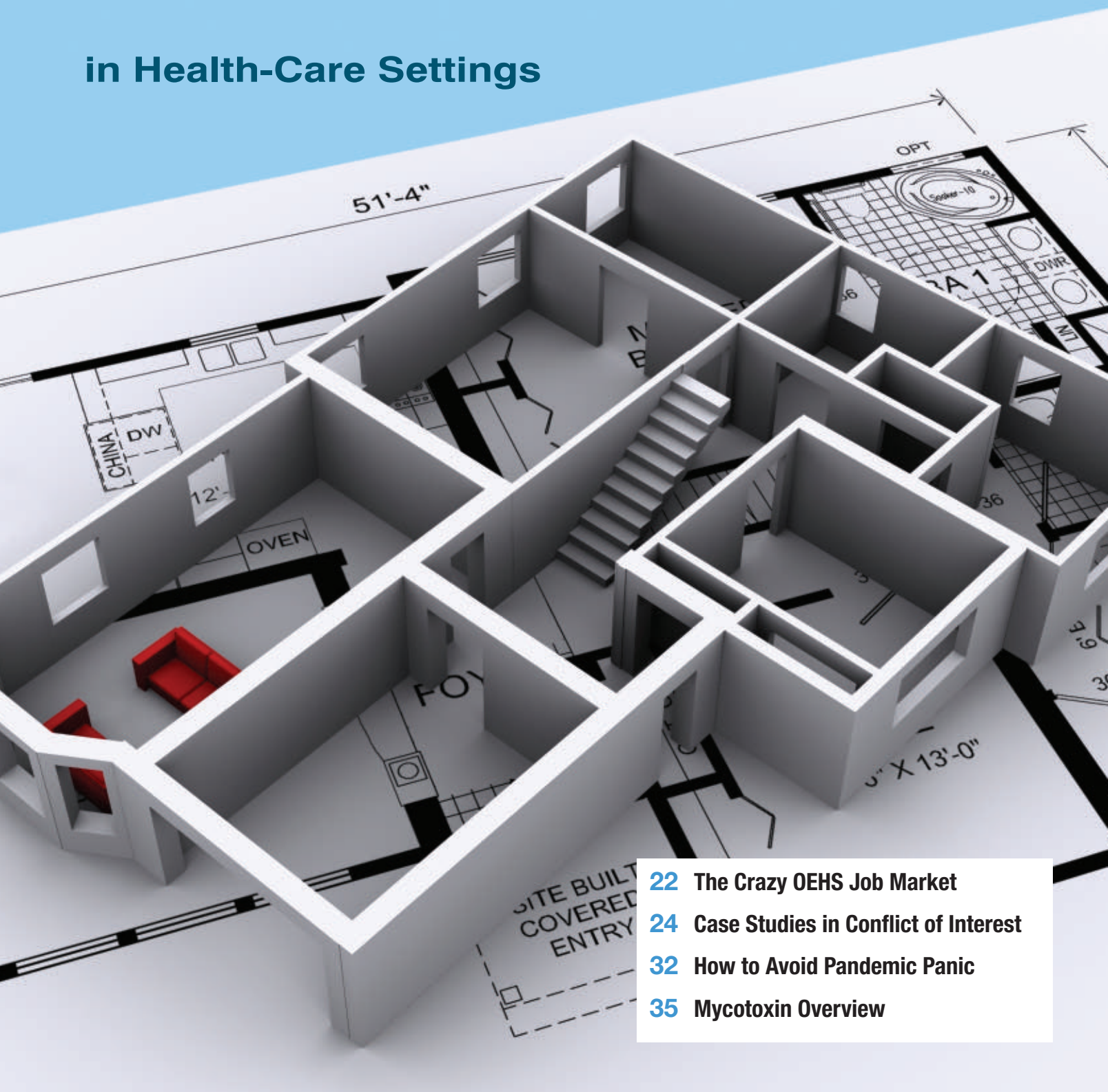

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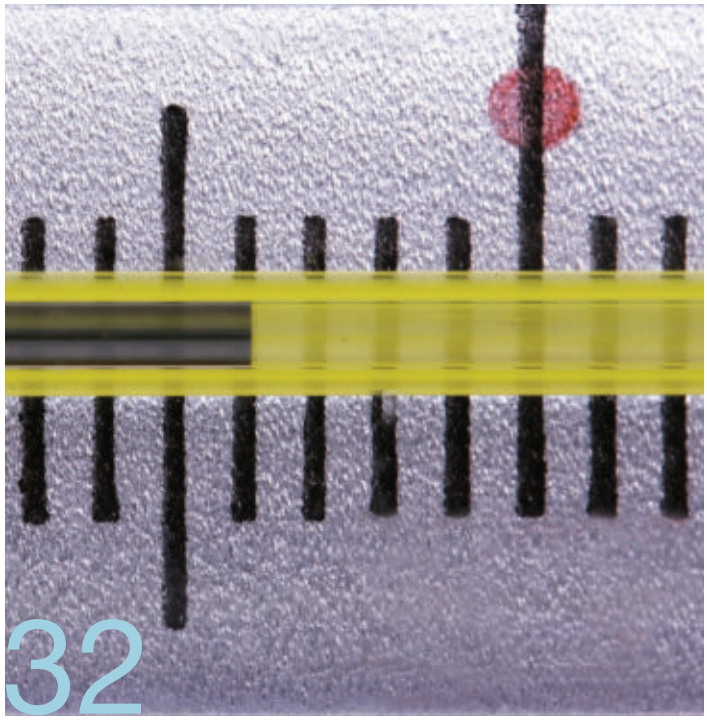

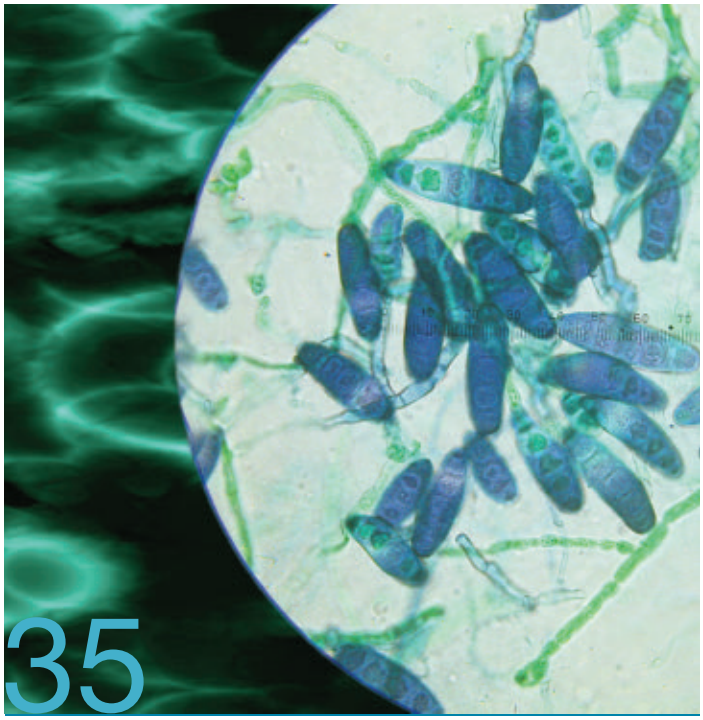

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Columns & Departments

THE Synergist®

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COMING IN DECEMBER • **IH and Web 2.0** • **Netbooks: The Next Computer Revolution?** • **Social Media Job Search**

The Synergist's mission is to provide AIHA members with news and information about the occupational and environmental health and safety fields and the industrial hygiene profession. *The Synergist* focuses on industry trends and news, government and regulatory activities, key issues facing the profession, appropriate technical information and news on association events and activities.

The Synergist's objective is to present information that is newsworthy and of general interest in industrial hygiene. Opinions, claims, conclusions and positions expressed in this publication are the authors' or persons' quoted and do not necessarily reflect the opinions of the editors, AIHA or *The Synergist*.

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President's Message

Rising to the Occasion

BY CATHY COLE, AIHA® PRESIDENT

Health care is the theme of this month's *Synergist*, and it couldn't have been more timely. While members of our profession are always on the front lines of protecting worker health and safety, the first full-scale pandemic in over 40 years has made our role even more urgent.

As of this writing, in early October, the virus still appears relatively mild and continues to affect the younger populations disproportionately. Many industrial hygienists are assisting their companies and others with executing pandemic plans. No doubt some IH professionals have fallen sick themselves or have missed work to care for sick family members.

AIHA has been closely following the pandemic and is actively working to provide professional resources to members. Staff routinely participate in conference calls with the CDC, monitor communications from the WHO and government agencies, and pass on the latest news and developments to members through our social media channels, the AIHA website, and *The Synergist*.

But the response of our volunteer groups to this latest public health crisis has demonstrated once again what longtime members know about our association: we always rise to the occasion to provide the best possible protection to our workers.

Rapid Response

Earlier this year, AIHA responded to the rapid spread of H1N1 by adding a late forum on pandemic planning to the program at AIHce. The forum included a presentation by Tom Fuller of AIHA's Infection Control Project Team, who led an interactive session on current issues in infection control practices in the workplace. Tom walked attendees through an exercise that tested their skills in putting on and removing PPE. David Hicks of the AIHA scientific and technical initiatives staff also participated, leading a discussion of how U.S. government agencies handled communications with professional and healthcare communities during the early stages of the H1N1 epidemic.

Needless to say, AIHA volunteer groups have been in the thick of all things H1N1. On page 32 you'll find a fine article by Joselito Ignacio, past chair of the Incident Preparedness and Response Working Group, that suggests a method for conducting exposure assessment for the virus. In early October, AIHA again benefited from the expertise of Tom Fuller, a member of the Health Care Working Group (HCWG), who copresented with John Murphy the AIHA TeleWeb "H1N1 The Second Wave—Are You Ready?" The TeleWeb helped attendees sort through the sometimes confusing advice of various government and nonprofit organizations. And in September, soon after the Institute of Medicine published its recommendations for protecting health care workers from H1N1, the HCWG drafted a thorough and informed position statement, which is currently under review by the AIHA Board of Directors.

Beyond the Crisis

Of course, our members' involvement in health care and related issues extends far beyond the current pandemic. The HCWG is developing presentations for AIHce 2010, including sessions on whole-room decontamination and issues surrounding emergency response and preparedness, as well as a roundtable session that will focus on health care.

The HCWG was also very helpful in suggesting topics and authors for this issue of *The Synergist*. Committee member Erica Stewart coauthored this month's cover article, "Prevention through Design in Health Care Settings." As mentioned in the article, evidence suggests that the NIOSH-led PtD effort has contributed to a significant drop in occupational injuries for health-care workers.

In recent years, AIHA has cultivated a strong, mutually beneficial relationship with NIOSH. This year, AIHA member Lisa Iverson-Leirmo began serving on the NIOSH Health Care and Social Assistance Sector Council. The Council helps set the agency's research agenda for occupational health and safety issues that affect the nearly 16 million health-care providers and related workers in the U.S.

Snapshots

This article contains just a few snapshots of our members' efforts to protect worker health. An article describing all of the valuable work done by our committees and volunteers would far exceed the space available in this magazine. That work is the foundation of our association, and its importance cannot be understated or adequately recognized. I am very grateful to all of you for being part of AIHA and for making it the vibrant and essential community of professionals it is today.

Cathy Cole, CIH, CSP, is president of AIHA and director of corporate occupational health at The Sherwin-Williams Company in Cleveland, Ohio. She can be reached at (216) 566-3096 or cathy.l.cole@sherwin.com.

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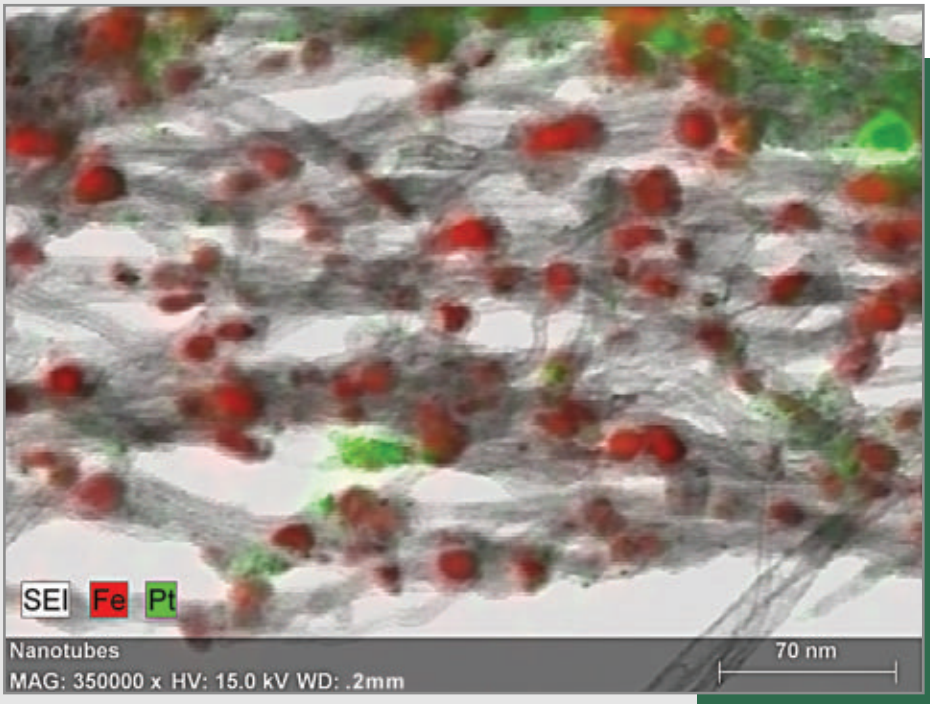

▲ *High resolution elemental map illustrating residual iron and platinum catalysts associated with carbon nanotube growth.*

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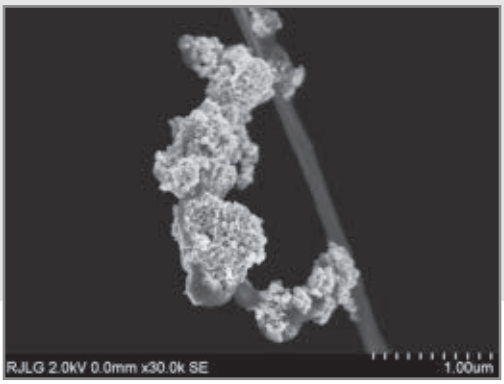
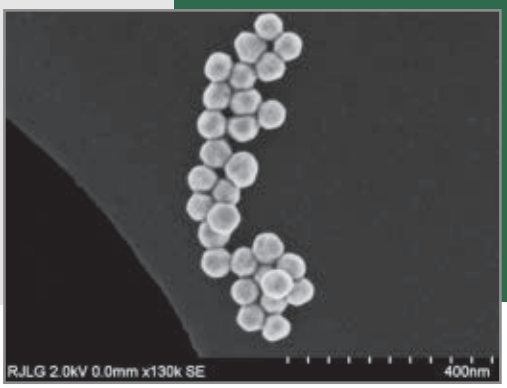
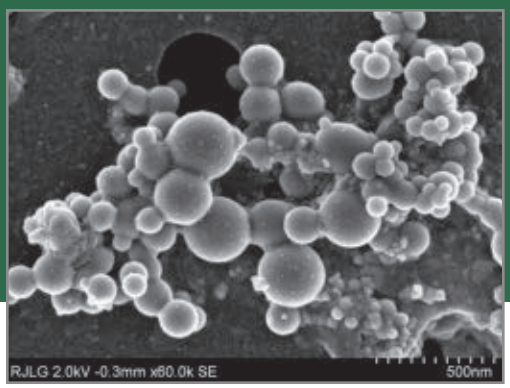


▲ 5 nm TiO_2 NANOPARTICLE AGGLOMERATION
Secondary electron image at 30 kX and 2.0 kV



▲ GOLD NANOPARTICLES
Secondary electron image at 130 kX and 2.0 kV



▲ AIR PARTICULATE FROM WELDING
Secondary electron image at 60 kX and 2.0 kV

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Board Perspective

Proactive PR: IH on the Air

BY ELIZABETH PULLEN, AIHA® VICE PRESIDENT

For some reason, I've always thought that doing public relations for industrial hygiene is a difficult thing. We all know that our profession is not well known, and we've talked about raising awareness of industrial hygiene.

A few months ago, a great PR opportunity fell into my lap. Now I know that I didn't have to wait for this chance event to occur.

Work and Motivation

While attending a play in June, my husband David and I sat next to Mike Collins, the host of a daily local talk radio show called "Charlotte Talks" on WFAE 90.7 FM. Mike asked David what he does for a living. After telling Mike about being an electrical engineer, David turned to me and said, "Why don't you tell Mike what you do for a living?" I started talking about industrial hygiene and some of the topics we address, such as lead, asbestos, mold, and nanotechnology. Mike said that he'd never done a show about occupational health and asked me if I'd be interested in being on the show.

I followed up with an e-mail to Mike, which he forwarded to his producer. His producer e-mailed back and forth with me regarding logistics, and I suggested other industrial hygienists to participate on the show, including John Henshaw, Brian Kasher and Carter Ficklen. My goal was to have a variety of expertise in our panel.

Preparation

One key piece of preparation for each of us was to write a brief biography and include several "talking points." During the interview, Mike directed questions to each panelist that referred to our talking points. I was amazed by how quickly an hour goes by when you're on the air! It was exciting to talk about our work and our motivations to be in this profession. I also tried to share information with the audience that might help them in their daily lives, such as how to find an MSDS. (To download a free podcast of the Aug. 10 show, visit the WFAE website at www.wfae.org.)

I was amazed by how quickly an hour goes by when you're on the air! It was exciting to talk about our work and our motivations to be in this profession. I was nervous at first, but after a few minutes I calmed down and really enjoyed the experience.

AIHA was very helpful in giving me support for this event. If you have questions or ideas about public relations, contact Melissa Hurley Alves, AIHA's manager of strategic communications, at mhurley@aiha.org. Melissa has CDs on "Educating the Media about Industrial Hygiene" and an "AIHA Local Action Media Kit."

Finally, I thank my colleagues at Clariant, both in my Toastmasters Club and in corporate communications, for helping me prepare for the interview. I highly recommend Toastmasters to anyone who would like to become more comfortable with public speaking. This skill certainly does not come naturally to me, and participating in two-minute impromptu "table topics" each week has helped me learn how to think and speak on my feet and reduced my nervousness about speaking in front of people. Our corporate communications director at Clariant helped me practice handling possible questions, which made me feel more assured going into the interview. I was nervous at first, but after a few minutes I calmed down and really enjoyed the experience.

Afterwards, I learned that Charlotte Talks is always looking for new ideas. Anyone is welcome to submit an idea in writing to the producer. I recommend that all AIHA members check the websites of local radio shows to see whether they solicit suggestions from the community. And if you do get on the air, it will be an experience you'll never forget. Just think how many people might choose to enter our profession because they first heard about it on the radio.

Elizabeth Pullen, CIH, is vice president of AIHA and industrial hygiene manager for Clariant Corporation in Charlotte, N.C. She can be reached at (704) 331-7736 or elizabeth.pullen@clariant.com.

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Washington Insider

States in the Forefront of OHS

BY AARON TRIPPLER, DIRECTOR, AIHA® GOVERNMENT AFFAIRS

Some people think that occupational safety and health regulation in America revolves around Washington. But these days, the real action is taking place in the states.

Consider what states have accomplished this year. California addressed the airborne transmissible disease issue and has one of the better plans for using N95 respirators to protect against the H1N1 virus. Illinois became an OSHA state plan state to provide agency coverage for its public employees. Texas attempted to adopt an OSHA state plan, and several states introduced legislation to drop their state plan recognition. States have successfully addressed mold abatement and methamphetamine laboratory cleanup. The list goes on and on.

Yes, things are harder to accomplish on the federal level, partly because many more people are affected. But progress at the federal level usually stalls because politics plays too large a role. When was the last time both sides of the aisle agreed on an occupational safety and health issue? Sometimes I think that OHS legislation would receive considerable support from both parties if only the sponsors were anonymous. Yet every OHS issue encounters divisions between Republicans and Democrats, labor and industry, liberal and conservative. The partisan divide on OHS issues may explain why EPA receives more than $10 billion in annual funding while OSHA survives with just over $500 million.

Progress toward eliminating workplace illnesses and injuries requires effort from everyone. Labor must understand that industry is not the enemy, and industry must understand that labor is on the front line and deserves a place in the debate. And federal policymakers might think about using their next recess to see how things are done in their state capitol.

Congress and OHS

Despite the lack of progress in Congress on OHS issues, plenty of work on the OSHA reform measure—the Protecting America's Workers Act—is taking place behind the scenes. Labor supporters want a simplified bill that has a chance of passing in the Senate, but they are intent on keeping sections of the current bill that address whistleblower protection and victim's rights.

OSHA Pursuing Many Issues

Following are brief descriptions of the most important issues OSHA has addressed recently.

GHS. The September 30 *Federal Register* contained a proposed rule for the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). At press time AIHA was still reviewing the proposal. GHS will provide a single, consistent system for classifying chemicals, labels and safety data sheets. The proposed rule is available at http://edocket.access.gpo.gov/2009/E9-22483.htm. Comments are due December 29.

PPE. Both industry and labor have filed court briefs addressing the OSHA policy of setting penalties based on the number of employees affected by employer responsibility to provide training and personal protective equipment. OSHA issued a direct final rule in early September that revised PPE sections of several standards to include the most recent national consensus standards. The rule applies to general industry, shipyards, longshoring, and marine terminals.

H1N1. Debate continues over guidance on how health-care workers and others can be protected from contracting the H1N1 virus. CDC guidelines recommend health care workers wear respirators with ratings of N95 or better; however, others believe surgical masks will do the job.

Silica. OSHA's latest guidance document addresses the control of worker exposure to dust containing crystalline silica and includes methods for controlling silica. OSHA published a final rule on silica and a proposed rule at the same time, so unless the agency receives negative comments, the final rule takes immediate effect.

NIOSH

OHS stakeholders received great news in early September when Dr. John Howard was reappointed to a six-year term as the head of NIOSH. Dr. Howard had the support of nearly every stakeholder during his previous time at NIOSH and is expected to pick up right where he left off. In early statements, Dr. Howard indicated that some of his agenda will involve a closer look at risk assessment, continued research into nanotechnology and an effort to collaborate more with OSHA.

Aaron Trippler directs government affairs for more than 70 local sections and serves as AIHA's chief liaison with Congress and federal agencies. He can be reached at (703) 846-0730 or atrippler@aiha.org.

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AIHA and ACGIH are searching for an editor-in-chief (EIC) for the *Journal of Occupational and Environmental Hygiene* (*JOEH*). The journal provides a written medium for the communication of ideas, methods, processes and research in the areas of occupational, industrial and environmental hygiene; exposure assessment; engineering controls; occupational and environmental epidemiology; ergonomics; medicine and toxicology; and other related disciplines. EIC candidates should possess a comprehensive knowledge and broad perspective of the fields of occupational and environmental hygiene (OEH) as well as an understanding of its many disciplines. Additionally, the EIC should possess:

- Professional accomplishment and identity within the fields of OEH, including a respected standing among peers, combined with a network of professional contacts.
- Research skills as demonstrated by a record of publication in relevant peer-reviewed journals and a firm grounding in a field of scientific inquiry.
- Demonstrated writing, reviewing and editing skills.
- Working knowledge of both AIHA and ACGIH.

In general, the EIC responsibilities include:

- Establishing, revising and maintaining editorial guidelines for contributions to the JOEH.
- Taking an active part in pursuing the JOEH's goals and editorial coverage, and in developing new ideas for improvement of the JOEH.
- Creating goodwill for the JOEH through respectful interactions with current and potential authors, reviewers and readers.
- Soliciting, receiving, peer-reviewing, selecting and editing contributions to the JOEH, including actively seeking out relevant articles from both OEH and allied disciplines; managing the review process within designated timelines guaranteed to minimize delays in decisions and publications; and, with the assistance of JOEH staff, actively monitoring status of manuscripts and prompting reviewers to work in a timely manner.

This is a one-year renewable contract position. This position will remain open until filled; however, applications received prior to Nov. 20, 2009, will receive priority consideration by the search committee. Application materials may be downloaded at www.aiha.org/JOEHeditor.

The AIHA and the ACGIH are Equal Opportunity Affirmative Action employers and are committed to promoting diversity in the workplace.

CEC Gears Up for AIHce 2010

AIHA's Continuing Education Committee (CEC) met in late September to review 113 AIHce 2010 Professional Development Course (PDC) proposals. After a rigorous and competitive bi-level review, about 60 percent of the proposals submitted were selected for presentation in Denver. PDCs are evaluated by the CEC and technical committee members to help guarantee overall satisfaction. The result is an excellent educational experience most participants rate as very good/excellent.

On average, over 2,700 OEHS professionals attend PDCs annually, maximizing their AIHce experience by earning additional certification maintenance points, networking with experts, and continuing their education. The preconference weekend for AIHce 2010—Saturday, May 22, and Sunday, May 23—will feature half-day, full-day and two-day PDCs. A symposium titled "The Green Building as an Ecosystem" and several special PDCs (Management, Time Management and CSP Exam Prep) will also be offered.

With benefits and value-added items ranging from hands-on demonstrations and workshops to copies of essential publications and software, PDCs provide practical skills and tools that can be applied immediately. Registration will open in December 2009, and full-course descriptions will be available at that time.

Important Information:

- Complete list of AIHce 2010 PDCs: www.aihce2010.org.
- Additional information about the CEC and PDC selection process: www.aiha.org/insideaiha/volunteergroups/Pages/ContinuingEducation.aspx.

Back row, left to right: Judith L. Healy, Melissa M. Osborne Rupert, Camille Carraway, Kenneth R. Talley, Kaleb Grittner, Diane Zerbe, Randal J. Keller, and Penelope E. Pietrowski. Front row, left to right: Henry (Hank) C. Woodcock, Stephanie R. Carter, and Dennis P. Bridge. Not Pictured: David S. Abrams, Rebecca (Becky) Brown, and Carl O. Sall.

IOHA Calls for Paper Submissions

The International Occupational Hygiene Association (IOHA) will hold its 8th Annual International Congress in Rome, Italy, Sept. 28–Oct. 2, 2010. The conference will feature an international panel of occupational health and safety experts who will discuss current occupational risks related to emerging technologies.

IOHA welcomes abstract submissions on traditional industrial hygiene issues, such as risk assessment and indoor air quality, and new topics emphasizing innovation and proficiency. The deadline for abstract submissions is Dec. 1. Topics will be posted to the IOHA web site. For additional information on submitting abstracts or general conference details, visit www.ioha2010.org.

Membership Renewal Notifications E-mailed in October

As part of its effort to adopt greener, more efficient processes, AIHA® has changed to an online-only membership renewal notifications process. The change took effect in October 2009 with the first 2010 renewal notification e-mail.

[Continued: 16]

[From: 15]

Eliminating paper membership renewal notifications is expected to increase efficiencies and save time for AIHA office staff. And without the expense of sending paper dues invoices through the mail, the new process will also be more cost-effective.

To avoid delays in receiving renewal notifications, members should make sure that their e-mail address is updated in AIHA membership records. Members can update their e-mail address through the AIHA Member Center at www.aiha.org or by contacting AIHA Member Services at (703) 849-8888 or infonet@aiha.org.

Membership dues payments, participating local section dues payments, special interest groups payments and AIHF donations may be made quickly and securely through AIHA's website. Members may also choose to pay by check or money order by mailing payments to:

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Here are just five reasons why you should renew:

Professional advancement—Employ cutting-edge education courses, seminars and hot topic symposia to soar to the top of your field.

Professional credibility—Boost your credibility when you join the leader in the occupational and environmental health and safety profession.

Industry information—Stay on top of the latest trends, industry standards and regulations through AIHA's many publications and its website.

Networking opportunities—Exchange ideas and solve challenges through a national network of OEHS professionals that's 10,460 members strong.

Knowledge—Gain priceless information and expertise from involvement in some of AIHA's volunteer committees, task forces, working groups or special interest groups.

AIHA has the benefits and services you need—start using them today! For additional information or to renew, visit www.aiha.org/aboutaiha/AIHAMembership/Pages/MemberBenefits.aspx.

Membership renewal information was e-mailed in October. If you have not received a membership renewal e-mail, please contact AIHA member services at (703) 849-8888.

Call for Fellow Nominations

The AIHA® Awards Committee is requesting nominations for the 2010 Fellow Awards. The Fellow designation has been established to recognize members who have been full members in good standing for a minimum of 15 years and have made recognized contributions to industrial hygiene or related disciplines, either through research, leadership, publications, education or service to AIHA. The number of Fellows is limited to no more than five percent of the membership.

Each committee, local section, special interest group and other formal AIHA entity may nominate, each year, a maximum of two individuals for the Fellow Award. At-large nominations will also be accepted with the exception that individuals may not self-nominate.

The deadline for submissions for 2010 is Dec. 31, 2009. Nomination forms were sent to all local section presidents and presidents-elect, chairs and vice chairs of committees and special interest groups, and other formal AIHA entities. All nominations will be evaluated by the Awards Committee and recommendations made to the AIHA Board of Directors for approval.

For more information on the Fellow Award, or to get a nomination form, please visit www.aiha.org or contact Judy Keithline at (703) 846-0702 or keithline@aiha.org.

AIHA Exhibits at 2009 Healthy Buildings Conference and Expo

The International Society of Indoor Air Quality and Climate (ISIAQ) and the

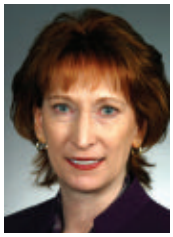
Syracuse Center of Excellence hosted the Ninth International Healthy Buildings Conference and Exhibition in Syracuse, N.Y., Sept. 13–17, 2009. This international meeting brought together over one thousand researchers, professionals, academics and exhibitors from around the globe to discuss built environments and ways to make them healthier, more productive and more sustainable places to live, work and learn.

Through the efforts of the AIHA Central New York Local Section and local section members Paul Tranchell and Holly Loset, AIHA was on hand to exhibit at the meeting. Additional New York Local Section members Alan Rossner, Arpad Kolzsvary, Jonathon Haney and Beth Bidstrup, along with David Hicks, AIHA manager of technical initiatives, manned the AIHA booth and provided regional information as well as broader information of national and international scope. The event was successful in building a better understanding of the indoor environment and furthering the knowledge and recognition of AIHA in the area.

Staff Members Celebrate Milestone Anniversaries with AIHA

Three long-time AIHA staff members recently celebrated important milestones:

This summer, **Carol Tobin**, AIHA director of meetings and education, marked her 20th year with AIHA. As director, Tobin has worked with the Continuing Education Committee, Permanent Conference Committee and various volunteer groups to add variety to the AIHce technical programs and other educational programs offered by the association. Tobin was involved in the addition of EHS Crossover Programs and many of the technical advancements AIHA has made, including the online AIHce submissions process, electronic bi-level peer review, computer generated slides and TeleWebs. "It's been a pleasure over the years to work with so many dedicated, talented, smart people who care about this association and moving forward," Tobin says.



Vicky Yobp, director of operations, has been with AIHA 15 years this November. Yobp started at AIHA as a laboratory accreditation specialist. After two years in the labs department, Yobp became manager of what is now member services. She recently transitioned from director of member services to her new role as director of operations. In member services, Yobp was a staff liaison for members and local sections, and was involved in two association management system conversions. When asked about the benefits of working at AIHA, Yobp says, "Working at AIHA has given me a real appreciation for the nice office environment in which

I work. I feel very fortunate that I don't come to work each day and have to worry about my safety or whether I will be going home at night. I have a great appreciation for all that our members do to protect the health of workers and promote healthy and safe work environments."

Wanda Barbour, manager of customer service, celebrated 15 years with AIHA this September. Barbour came to the association in 1994 as a customer service representative. After five years, she became the customer service coordinator and was then promoted to customer service manager. She helped implement the career and employment service job board on the AIHA website and assisted with three database conversions and a new telecom system. She also helped establish the business center facility at AIHA headquarters. "AIHA is one of the best associations that I've ever worked at," Barbour says. "I love working with our members and other customers."

AIHA Releases Position Statement on Ergonomics

In a position statement on ergonomics issued in October, AIHA expresses support for the development of ergonomics regulations and standards to protect workers. The statement also recommends that publicly and privately funded ergonomics research focus on refining dose-response relationships between workplace exposures and the risk of musculoskeletal disorders, improving exposure assessment tools, identifying best practices for controlling ergonomic risk, and clarifying case management practices for treating MSDs. To read the full paper, visit www.aiha.org/news-pubs/govtaffairs/Pages/PositionStatements.aspx.

People

Ed Bishop Reappointed to Acute Exposure Guideline Levels Committee

Ed Bishop, PhD, PE, CIH, director of project delivery for HDR Engineering, Inc.'s environmental and resource management department, was recently reappointed to another three-year term on the National Academy of Sciences/National Research Council (NAS/NRC) Committee on Toxicology Subcommittee on Acute Exposure Guideline Levels (AEGLs). The committee comprises professionals from a variety of fields and includes several international members. Committee members review research related to diverse chemicals of concern, provide independent assessments of AEGLs recommended by the Environmental Protection Agency/ National Advisory Committee, and determine appropriate exposure levels.

Dr. Bishop also serves as a member of the National Academy of Sciences Committee on Toxicology and AIHA's Construction and Real Time Detection Systems committees.

AIHA Welcomes Chinese Delegates

This September, AIHA senior staff met with members of a Chinese delegation to discuss how the association could collaborate with various OHS organizations in China. Delegation members included:

Zhao Jingjian, deputy director of Hongkou District, Shanghai Safety Production Supervision Authority

Lu Weijia, director of Yangpu District, Shanghai Safety Production Supervision Authority

Wang Zhubing, vice president of Shanghai Chemical Industry, Institute of Occupational Disease Prevention

Zhou Ming, section officer of Luwan District, Shanghai, Safety Production Supervision Authority

Yu Huaming, director of Shanghai Institute of Work Safety Science

Wang Jinbao, minister of Shanghai Institute of Work Safety Science

Topics discussed at the meeting included an overview of the IH profession and an open forum about how the organizations could work together.

To learn more about AIHA collaborations with other organizations, visit www.aiha.org/aboutaiha/Pages/Collaborations.aspx. For information on AIHA's Affiliate Laboratory Programs, visit www.aiha.org/labs/Pages/default.aspx.

Delegates from Chinese OHS organizations visited AIHA in September. From left to right: Zhao Jingjian, Lu Weijia, Wang Zhubing, Peter O'Neill, Zhou Ming, Mary Ann Latko, Cheryl Morton, Yu Huaming, and Wang Jinbao.

Journal of Occupational and Environmental Hygiene

November JOEH Now Available

November's JOEH addresses issues surrounding different exposures in the workplace and various indoor and outdoor facilities. Members can access the following articles through www.aiha.org:

Benzene Exposure in Industries Using or Manufacturing Paint in China—A Literature Review, 1956–2005
By Hong Liu, Youxin Liang, Stephen Bowes, Hongzhi Xu, and Yimei Zhou, Thomas W. Armstrong, Otto Wong, A. R. Schnatter, Jinbin Fang, Laiming Wang Liping, Nie Hua Fu, and Richard Irons

Molds and Mycotoxins in Indoor Environments—A Survey in Water-Damaged Buildings
By Erica Bloom, Eva Nyman, Aime Must, Christina Pehrson, and Lennart Larsson

Modeling of Oil Mist and Oil Vapor Concentration in the Shale Shaker Area on Offshore Drilling Installations
By Magne Bråtveit, Kjersti Steinsvåg, Stein Atle Lie, and Bente E. Moen

Beryllium Aerosol Characteristics in the Magnesium and Aluminum Transformation Industry in Quebec: A Comparison of Four Different Sampling Methodologies
By A. Dufresne, C. Dion, S. Viau, Y. Cloutier, and G. Perrault

Assessment of Exposure to Secondhand Smoke at Outdoor Bars and Family Restaurants in Athens, Georgia, Using Salivary Cotinine
By J. C. Hall, J. T. Bernert, D. B. Hall, G. St. Helen, L. H. Kudon, and L. P. Naeher

A Historical Review of Additives and Modifiers Used in Paving Asphalt Refining Processes in the United States
By Diane J. Mundt, Robert C. Adams, and Kristin M. Marano

A Review of Changes in Composition of Hot Mix Asphalt in the United States
By Diane J. Mundt, Kristin M. Marano, Anthony P. Nunes, and Robert C. Adams

EPA Recommends Hiring CIHs for Methamphetamine Laboratory Cleanup

A new EPA guidance document advises state and local governments to hire certified industrial hygienists to help clean up methamphetamine laboratories. The language pertaining to CIHs appears in the section titled "Hiring a Contractor" and reads as follows:

> It may also be appropriate to involve a certified industrial hygienist (CIH) in cleanup operations. Some states require that a CIH or experienced industrial hygienist (IH) conduct the preliminary assessment and post-remediation sampling. A CIH is trained in the assessment and control of chemical hazards and can play a significant role in ensuring that working conditions are safe during the remediation process. It is recognized that a CIH may not be available to accompany contractors to every cleanup site and that the use of a CIH can be expensive if he/she is involved in the entire remediation process. Therefore, contractors may consult a CIH to establish a general meth lab cleanup strategy.

AIHA Government Affairs recommended that the agency adopt similar language and has been instrumental in shaping the state regulations on which the EPA guidance is based.

For more information about Voluntary Guidelines for Methamphetamine Laboratory Cleanup, visit www.epa.gov/oem/methlab.htm.

PROFESSIONAL GROWTH

What's Going On in This Crazy Job Market?

The Good and the Bad in EHS Hiring

BY RICHARD N. FIORE

The current EHS jobs market is a good news/bad news scenario. First, the good news: More jobs are available than you would think if you paid attention only to the news media's reports about the economy. I can't give you numbers from the whole EHS job marketplace in the United States, but my educated guess is that roughly half the number of jobs are available in 2009 compared to 2007, which was by all measures the peak year in the last up-cycle in hiring. My company, a recruiting firm in Houston, has compiled statistics for valid EHS job orders we received during the first eight months of 2007, 2008 and 2009. These findings show that, compared to 2007, 2008 was 78 percent as active and 2009 was 44 percent as active. Considering the magnitude of this recession and the unprecedented structural problems with our economy, that's not bad.

Now the bad news:

Competition is greater. More good candidates are on the market than in years past.

Job offers are going only to the best candidates. Some of those candidates are getting multiple offers, while many are not getting any offers at all. This year, one of our candidates had four job offers in writing within a two-week period. Other candidates for the three jobs he didn't accept had to wait until he made his decision. The lesson is that you can never get lazy about advancing your career credentials. A lot of people are probably kicking themselves right now for not getting the CIH or CSP or finishing their bachelor's or master's degree.

Companies are taking their time to make a hiring decision. Why? Because they think the perfect candidate should be available in this sort of economy, and they'll usually keep looking until they either find one or realize—after maybe six months of trying—that one doesn't exist.

The perfect candidate sets the bar too high. When a top-drawer candidate turns down an offer, rather than make an offer to the second-place candidate, the company will spend months looking for another "perfect" candidate.

Where Is the Job Market?

As you might expect—and this is always the case—single sites have many more job openings than corporate offices. A recession exaggerates this trend; in other words, corporate openings are now a luxury. Many of our clients are hiring only in critical positions, most of which are associated with production operations.

IH jobs have constituted only 3 percent of our job orders this year. On a broader scale, a review conducted in August of 159 jobs posted this year on a national EHS-focused job board revealed that only five (about 3 percent) required an IH focus.

A number of job titles for open positions include the words "health and safety," but those employers are looking for much more occupational safety experience than occupational health or hygiene. In other words, if you don't have a strong safety background, you're not getting that job. This trend has been going on for many years. Plant IH programs are generally well established; many are monitored by technicians, and program oversight is assigned to a local or corporate manager. By comparison, occupational safety jobs have proliferated.

Another smaller but still noticeable trend over the last decade or so is the migration of IH professionals into chemical product safety/product stewardship roles. This has been a good career move in light of the EU's Registration, Evaluation and Authorization of Chemicals (REACH) legislation and the Globally Harmonized System for the labeling of chemicals (GHS). This year, however, we have received only one job order to date in this subject matter. For the purposes of this article, I visited the "jobs page" of a well-known website dedicated to product safety and found only 5 jobs posted—not many for a nation of 300 million people. Monster.com had 6 relevant jobs posted. Because of this paucity of positions, product safety/stewardship does not appear to be a viable outlet for most in the near future.

Crunch Time

One of the great career ironies is that when you have time to do "extra" things to advance your career—for example, when you're unemployed—you often don't have the money, and when you've got the money you're usually employed and don't have the time. However, it's crunch time now, and you need to do what you have to do:

- If you don't have the CIH, study to get it—having it never hurts your chances.
- If you've done occupational safety work, get the CSP to validate your experience. The CIH and CSP demonstrate not only a certain level of competency but—more importantly—a commitment to your profession.
- Revise your resume to include specific career achievements with each job you've had: examples of times when you made or saved the company money, bettered measurable health/safety criteria, or otherwise added value to an organization. Be honest, but don't be shy—a resume is not intended to demonstrate your modesty.

Above all else, you must never develop a negative attitude, which often shows when you get a meaningful interview. If detected by the interviewing team, a negative attitude is always fatal. You will find a better job—it's just going to take more time.

Richard N. Fiore is a recruiter with Search Consultants International, Houston, Texas. He specializes in the environmental, health and safety professions. He can be reached at rich@searchconsultants.com.

ETHICS

Case Studies in Conflict of Interest

Moral Questions for Industrial Hygienists

BY NICK RICE

As professional industrial hygienists, we put our skills and judgments into the service of workers, employers, clients, and the public. In turn, we are trusted to carry out our duties to protect worker health with professional integrity. Failures to avoid, disclose, or appropriately manage conflicts of interest violate professional relationships and may tarnish the trust placed with the industrial hygiene profession.

The Joint Industrial Hygiene Associations Member Ethical Principals and the American Board of Industrial Hygiene (ABIH) Code of Ethics have provisions related to conflict of interest and the appearance of impropriety. A conflict of interest is a situation in which one has a personal or financial interest sufficient to appear to influence the objective exercise of his or her duties as a professional, public official, or employee. A conflict of interest involves actual, apparent, or potential abuse of trust. It does not necessarily indicate impropriety or wrongdoing; rather, it raises a moral question. Possible responses include disclosure of the conflict, recusing oneself from the conflict, or managing the conflict.

The scenarios presented below explore conflicts of interest that industrial hygienists may face.

Scenario 1: Choosing a Lab

Jack, an industrial hygienist working for Chemo Pharmaceutical Manufacturing, is tasked with selecting an industrial hygiene lab to conduct analysis of air and surface samples related to a new chemotherapy drug. Jack has narrowed the lab selection to two vendors—IH Analysis Lab and NJ Pharma Labs.

Jack's evaluation reveals that IH Analysis has new liquid chromatography tandem mass spectrometry equipment, which is necessary to conduct the specialized analysis and is able to exceed the minimum detection limit required. Jack knows of IH Analysis Lab's exceptional technical expertise because his niece is a laboratory technician there. A small company—just seven employees—that rewards staff with quarterly bonuses based on profit and business growth, IH Analysis Lab is competitive in price and turnaround time.

NJ Pharma Lab, a vendor that Chemo Pharmaceutical Manufacturing has used for three years, has older liquid chromatography tandem mass spectrometry equipment that could be used for the specialized analysis. Nonetheless, NJ Pharma is able to meet the minimum detection limit required. NJ Pharma is competitive in price and turnaround time.

Jack decides to hire IH Analysis as the exclusive provider of industrial hygiene lab services based on their newer analytical equipment and ability to exceed the requirement for the minimum detection limit. IH Analysis Lab's business volume will increase 25 percent with the new business from Chemo Pharmaceutical Manufacturing. Jack has not disclosed that his niece works for IH Analysis Lab.

Questions:

Is a conflict of interest present? If so, is it a real conflict or a perceived conflict?

Is the relation of Jack and his niece and their respective employment a concern for either company?

Would the conflict be any different if IH Analysis Lab employed Jack's wife instead of his niece?

Would the conflict be any different if IH Analysis Lab employed Jack's neighbor?

What is the financial cost/gain to Chemo Pharmaceutical with respect to Jack's conflict?

What is the financial cost/gain to IH Analysis Lab with respect to the conflict?

Was Jack's professional judgment influenced by the conflict?

Would Jack be happy if his colleagues or the local paper became aware of the conflict?

Should Jack inform his employer even if he doesn't believe the situation violates his employer's guidelines?

Is disclosure sufficient?

How could the conflict of interest have been prevented?

Scenario 2: Moonlighting

Martha, a full-time industrial hygienist for Metals Manufacturing Inc., has published several papers and become an expert in the area of palladium toxicology, exposure assessment, and control. She has been contacted by Electronic Parts Company, which manufactures parts in a business sector unrelated to Metals Manufacturing Inc. Electronic Parts Company is looking for technical assistance in controlling occupational exposure to palladium and has offered to hire Martha as an independent consultant. Electronics Parts Company offers to pay Martha an hourly rate four times the equivalent hourly pay she receives from Metals Manufacturing Inc. Metals Manufacturing Inc. does not have a policy that addresses moonlighting or outside employment.

Martha estimates that she could complete the consulting job for Electronic Parts Company with 40 hours of work. She could use the additional income to boost her dwindling retirement account. Her proposal to Electronic Parts Company is to conduct the consulting project with a three-day on-site assessment, which will require her to take vacation from Metals Manufacturing Inc. She plans to complete the remainder of the consulting project over two weekends.

In the course of the project, Martha has to call and e-mail Electronic Parts Company during business hours and while she is at work for Metals Manufacturing Inc. As a whole, the calls and e-mails are incidental to her work at Metals Manufacturing Inc. She takes care not use the laptop computer provided by Metals Manufacturing Inc. while preparing the report for Electronic Parts Company.

At the conclusion of the project, Martha receives a frantic call from Electronic Parts Company requesting that she make a presentation the next morning to the company president, who is flying in from New York. Martha has a scheduled meeting at Metals Manufacturing during the time that Electronics Parts Company wants to schedule the presentation to its president.

Questions:

Is the conflict of interest real or perceived?

Do Martha's decisions amount to a conflict of commitment or a breach of loyalty?

Is the consulting arrangement a concern for Martha's employer, Metals Manufacturing Inc., even though she is conducting the work after hours or while on vacation?

Would the situation be any different if Martha's consulting client was a competitor to Metals Manufacturing Inc.?

What is the financial cost/gain to Metals Manufacturing Inc. with respect to Martha's consulting arrangement?

What actions can Martha take to better manage or eliminate the situation?

Is disclosure sufficient?

Conflict Avoidance

There are several avenues for dealing with the conflicts in the two scenarios presented. Conflict of interest situations are best managed with transparency. Failure to act with transparency attracts suspicion of impropriety and fosters mistrust of the professional and profession. At a minimum, perceived or actual conflicts of interest must be disclosed to employers and/or clients. The industrial hygienist should actively work to avoid conflict of interest situations, and, when appropriate, recuse themselves if such conflicts arise. Avoiding conflict of interest situations ensures that professional judgments affecting workers, employers, and clients is not compromised.

Nick Rice, CIH, is manager of industrial hygiene services at Intermountain Healthcare in Salt Lake City, Utah. He can be reached at (801) 442-3613 or nick.rice@imail.org.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Prevention through Design in Health-Care Settings

NIOSH Program Makes Strides in Protecting Workers

BY DONNA S. HEIDEL, JAMES W. COLLINS AND ERICA J. STEWART

The persistence in the United States of a large occupational morbidity, mortality, and injury burden demonstrates the need for a more concerted effort to reduce workplace risks than has been attempted in the past. The NIOSH Prevention through Design initiative, or PtD, provides a vital framework for saving lives and preventing work-related injuries and illnesses by applying hazard elimination and risk minimization methods in the design of work facilities, processes, equipment, tools and work methods.

Although the goal of PtD is to "design out" potential hazards rather than deal with problems inherent in completed systems, PtD methods can be applied to existing processes and equipment. Eliminating hazards and minimizing risks during the design, redesign and retrofit of facilities, work processes and equipment may ultimately save money and, more critically, will protect workers (Schulte et al. 2008).

Benefits for Workers and Patients

Health care is the second-fastest-growing sector of the U.S. economy, employing more than 12 million workers. Health-care workers are exposed to infectious agents; chemical agents, including hazardous drugs and anesthetic gases; physical agents, including ionizing radiation; ergonomic hazards associated with lifting and repetitive tasks; and workplace violence. Health-care workers also experience higher rates of occupational injuries and illnesses than workers in all private industry. Recordable and lost-time injury rates for health-care workers in hospitals and nursing and residential care are particularly high.

A number of initiatives provide compelling evidence that the health care and social assistance sector presents significant opportunities for injury and illness reduction from PtD.

Mechanical Lifting

Tests in real-world settings show that mechanical lifting equipment, when used as part of a safe patient handling and movement program, significantly reduces musculoskeletal injuries among health-care workers in nursing homes and hospitals. The elements of a comprehensive safe patient handling and movement program include:

- Ergonomic assessment for patient-care environments
- An enthusiastic peer leader to promote and sustain the program
- Mechanical patient lifts and repositioning aides
- Patient-care assessment protocols to prescribe the best patient transfer methods
- Written safe lifting policies
- Training on the proper use of patient handling equipment
- Management support

A six-year field study conducted by NIOSH demonstrated that a comprehensive safe resident handling program significantly reduced workers' compensation injury rates by 61 percent, lost workday injury rates by 66 percent, and restricted workdays by 38 percent (injuries attributed to resident-handling only) (Collins et al. 2004). Additionally, the number of workers suffering repeat injuries was significantly reduced.

Safe Patient Handling and Movement Curriculum

In 2004, NIOSH, the American Nurses Association, and the Veterans Administration (VA) Patient Safety Center of Inquiry in Tampa collaborated to develop a new safe patient handling curriculum that could be used by schools of nursing to change the way student nurses are taught to move and handle patients (Waters et al. 2006). The project evaluated a "train-the-trainer" program for safe patient handling and movement, targeting faculty at 26 schools of nursing.

In designing the study, it was agreed that a clinical component was needed that would provide students with hands-on practice on the proper selection and use of patient handling equipment. To equip the clinical skills laboratories, equipment vendors loaned or donated equipment to participating schools of nursing. The safe patient handling and movement (SPHM) training presentation can be downloaded from the NIOSH website (www.cdc.gov/niosh/review/public/safe-patient/), and the SPHM algorithms, didactic materials, and quiz can be downloaded from the VA Patient Safety Center of Inquiry website (www.visn8.med.va.gov/visn8/patientsafetycenter/safePtHandling/default.asp).

Progress in Reducing Injuries

Data from the U.S. Department of Labor, Bureau of Labor Statistics (BLS) indicate that the incidence rate for sprains and strains involving days away from work in nursing homes steadily decreased by 67 percent (from 482.7 to 159.7 per 10,000 workers) between 1992 and 2005 (BLS 2006). Similarly, the incidence rate for sprains and strains in hospitals decreased 52 percent (from 222.4 to 106.1 per 10,000 workers) between 1992 and 2005.

The BLS data identified lifting health-care patients as the leading source of injury. The BLS data from 1992 to 2005 indicate a 70 percent reduction in injury rates (from 397.8 to 121.2 injuries per 10,000 workers) in nursing homes where health-care patients were listed as the source of injury. Similarly, a 52 percent reduction in lost workday injuries (from 110.8 to 53.5 per 10,000 workers) occurred between 1992 and 2005 in hospitals where health-care patients were listed as the source of the injury. (See Figure 1.)

Rubber flooring on a nursing ward. Copyright 2003 Erica Stewart

Figure 1: BLS data show significant decreases in patient-lifting injuries since 1993.

Slip, Trip, and Fall Prevention

NIOSH and a diverse team of international researchers designed, implemented and evaluated a comprehensive slip, trip, and fall (STF) prevention program for hospital workers (Bell et al. 2008). Analyses of historical STF work-injury data, interviews of injured workers, lab studies evaluating the slipperiness of hospital flooring and shoes, and field studies in three hospitals demonstrate that a comprehensive "best practices" STF injury prevention program could reduce STF workers' compensation claims rate by 59 percent after the intervention. A user-friendly document is in development for distribution to all hospitals in the U.S. This study provides evidence that a "best practices" STF prevention program can be highly effective for reducing injuries associated with slips, trips, and falls. The full details of this research and how to minimize STF hazards are described in a chapter in the Handbook of Modern Hospital Safety (Collins and Bell 2009).

Sustainability and Patient Safety

Two examples that demonstrate how PtD fits into patient, worker and environmental health and safety are the choice of resilient flooring and the design of the general dilution ventilation system.

Flooring Materials

Flooring materials affect not only slips, trips and falls for patients and staff, but also fatigue in the lower extremities, perception of noise, impact air quality, chemical exposure, waste and operating costs. At Kaiser Permanente, the selection of alternatives to polyvinyl chloride (PVC) sheet-and-tile flooring material was initially motivated by the desire to eliminate PVC (wherever safer alternatives exist) because of the environmental impacts of its manufacture and disposal and the emerging evidence of asthma in children linked to vinyl flooring. One of the byproducts of PVC manufacturing is dioxin, a class of potent carcinogens, reproductive and fetal development toxins and endocrine disruptors. The burning of plastic during disposal, either intentionally in an incinerator or accidentally in a landfill, also releases dioxins.

Alternatives to PVC flooring include synthetic styrene butadiene rubber, polyolefinic laminate and linoleum. According to an analysis by the Health Care Research Collaborative, from a purely public health chemical exposure and environmental perspective, linoleum is the best alternative, with high marks for manufacturing, absence of heavy metals, flame retardants, and phthalates, as well as having bio-based, non-pesticide treated raw materials. Polyolefin and synthetic rubber come in second and third, respectively (Mazzetti & Associates 2007).

Operational considerations relate directly to PtD issues and are important to consider as well as the life cycle costs. Rubber absorbs sound and is supportive underfoot, reducing lower back and leg stress. Sound absorption is important in patient settings because noise interferes with neonatal brain development, sleep interruption delays healing in adults, and speech recognition and the ability to understand verbal orders is a key factor in safely debriefing staff at shift change (Kerr 2009; Joint Commission 2009).

Another consideration is the maintenance of the flooring surface. Vinyl flooring requires periodic stripping, waxing and buffing with harsh chemicals (floor strippers usually contain phenolic compounds) to maintain its bright and shiny appearance. The area being worked on must be taken out of service, which may be difficult if a facility has a full census, and the off-gassing from drying wax may adversely impact patient and staff air quality. Vinyl flooring shrinks over time, which can lead to gaps that encourage microbial growth and may also pose a tripping hazard. Even the shiny appearance of a freshly waxed floor can be a safety hazard, as elderly patients may have trouble gauging the distance to the floor surface under low light conditions.

The alternative products require only a mild neutral cleanser and occasional buffing to maintain the finish, reducing chemical use and saving labor. The surface may offer greater slip resistance than a waxed vinyl floor as well. The full lifetime costs analyzed by Kaiser Perma-

NIOSH PtD and Health-Care Resources

For more information on PtD in health care, visit www.cdc.gov/niosh/programs/PtDesign/ and www.cdc.gov /niosh/programs/hcsa/.

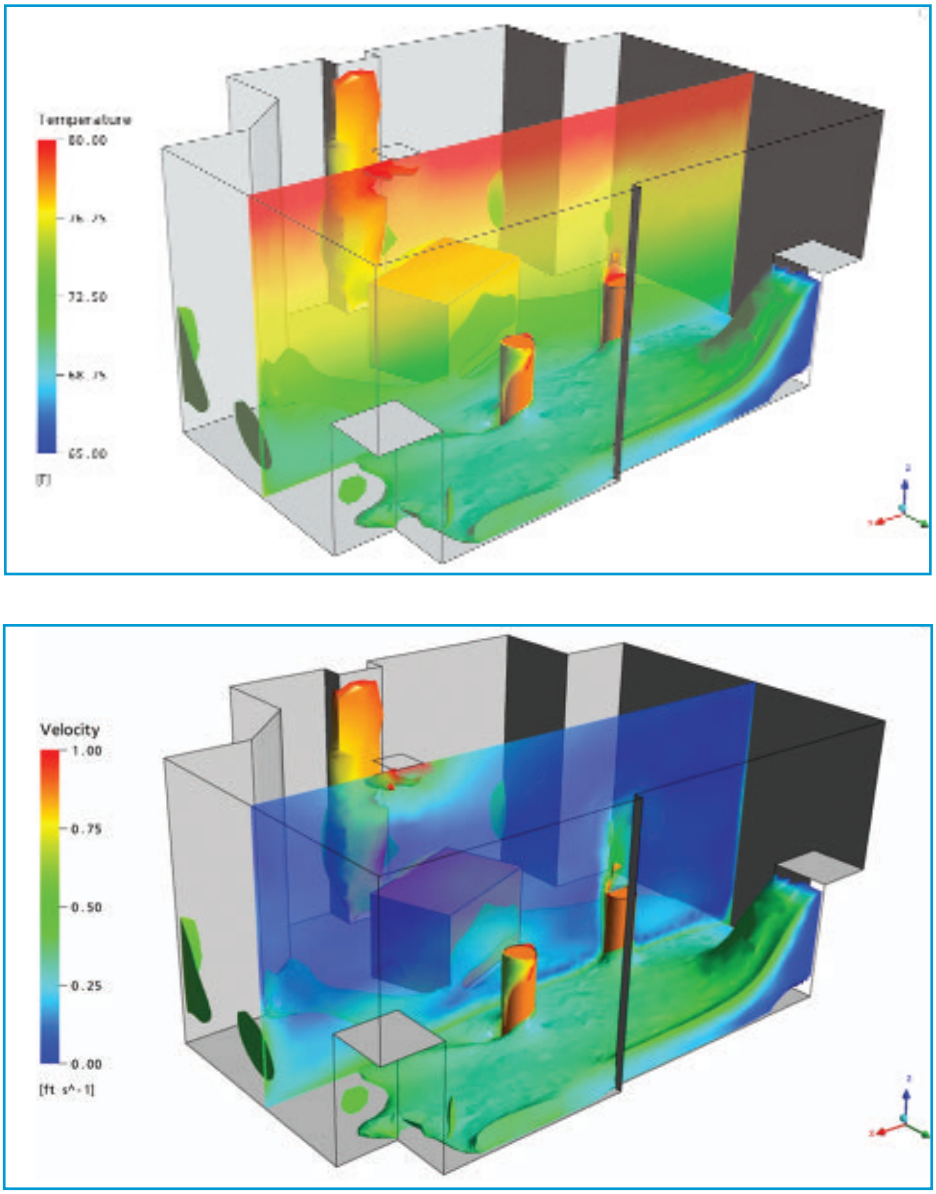


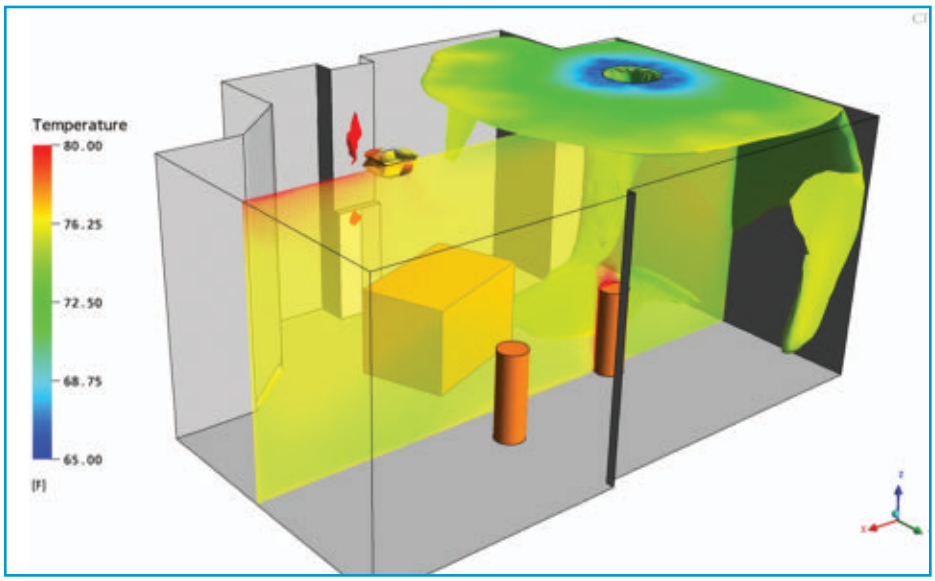
Figure 2: Displacement Temperature Profile (top) and Displacement Velocity Profile.

nente demonstrated that rubber or polyelfinic alternatives have a payback of five to ten years when compared to vinyl because annual maintenance is about one third that of vinyl (Lent et al. 2009).

Ventilation Design

Typically, hospitals use general dilution ventilation throughout their functional spaces, supplemented by low-velocity non-dispersive supply arrays and High Efficiency Particulate Arrestance filtration or local exhaust ventilation capture devices in sensitive areas. Many hospitals do not recirculate the exhaust air in order to reduce the likelihood of airborne infection transmission. This design is energy intensive, especially in sensitive areas such as surgical suites or pharmacy sterile compounding.

Displacement ventilation is an alternative strategy that can be employed in patient rooms, even in airborne infection isolation rooms, to reduce energy use while increasing measures of comfort and effectiveness as measured by ASHRAE Standards 55 and 62. In laboratory and field testing, displacement ventilation at four air changes per hour performed better than general dilution ventilation with six air changes per hour (Mazzetti & Associates 2007).



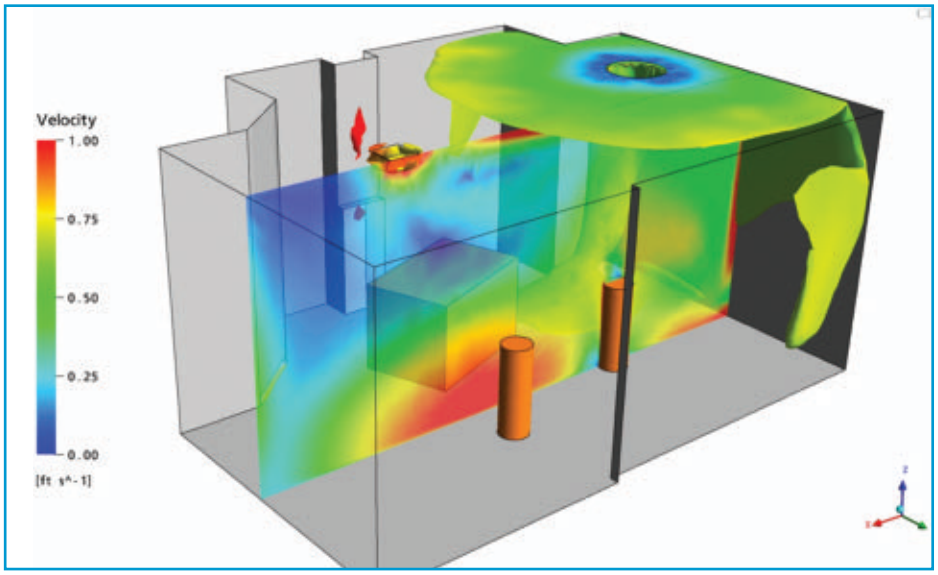


Figure 3: Dilution Temperature Profile (top) and Dilution Velocity Profile.
Copyright 2007 Mazzetti & Associates

In one model of displacement ventilation, air is introduced at floor level at 55 degrees Fahrenheit. Radiant heaters are installed at the opposite corner or a radiant heat flooring system is used. As the cool air moves across the warm floor, it rises in thermal bands and is exhausted at the ceiling by passive diffusion. The air does not mix in the room for a while before being exited, so the "age of air" is much less for displacement systems. Because this model decouples heating from air movement, less air is needed to achieve better air quality (as measured by ASHRAE 62.1), and because the age of air is less with displacement ventilation, any particles exhaled or ejected by an infectious patient are theoretically more likely to be taken up by the ventilation system sooner. The temperature stratification provides better occupant comfort (as measured by ASHRAE 55), and energy is not wasted cooling the waste heat from warm surfaces because it rises quickly and is exhausted from the room.

However, alternatives to traditional general dilution ventilation are constrained by what is allowed by code. Local authorities having jurisdiction may not be willing to sign off on an alternative design in sensitive areas. California is expected to allow displacement ventilation design in the next mechanical code revision cycle. With an efficient building envelope, displacement ventilation can use approximately 30 percent less energy than traditional dilution ventilation design; the smaller heating and cooling loads require less pumping power, air handling units and duct work can be significantly downsized, and even with the new first cost of radiant heaters and displacement diffusers, the system is still approximately 15 percent cheaper than dilution ventilation. The workers get a safer environment, the patients have a more comfortable thermal environment, and the facility saves energy and money.

Future Directions

During a workshop held in July 2007, NIOSH gathered input about PtD needs in the health care and social assistance sector. Stakeholders identified their most compelling PtD issues (Fisher 2008):

The Business Value of PtD Interventions

How much does it cost to implement a safe patient lifting program, and is it possible to recover the cost? Cost-benefit analyses demonstrate that the initial investment in equipment and employee training can be recovered in two to three years through reductions in workers' compensation expenses for self-insured facilities (Collins et al. 2004). A 100-bed facility can expect to spend $25,000 to $30,000 on portable (not ceiling-mounted) mechanical lifts, depending on how many residents in the facility require its use.

As a general rule, one full-body lift should be provided for every eight to ten non-weight bearing residents and one stand-up lift should be provided for every eight to ten partially-weight bearing residents. The average cost of a mechanical lift can vary from $3,000 to $6,000 per lift; the average cost for a ceiling-mounted lift is approximately $4,500 per room. An effective combination of both floor and ceiling lifts is generally accomplished with a $50,000 to $60,000 investment per 100-bed facility.

In a six-year longitudinal study conducted by NIOSH, the initial investment of $158,556 for lifting equipment and worker training was recovered in less than 3 years based on post-intervention savings of $55,000 annually in workers' compensation costs (Lent et al. 2009).

Investigate and promote the interrelationship of patient safety, worker safety and environmental safety. Health-care workers place the needs of the patient first, often before their own needs for protection against occupational injuries and illnesses. Also, the public pays more attention to issues of patient safety and environmental protection. Efforts to promote the connection among the safety of the patient, the worker and the environment are essential for reducing the occupational injury and illness rates among health-care workers.

Integrate PtD into the healthcare management culture by aligning it with sustainability and patient safety. PtD seeks to address the safety and health needs of the health-care worker by assessing risk to hazards that cannot be eliminated and applying the hierarchy of controls to minimize those risks. Adapting the health-care management culture to find solutions to patient safety risks that also meet the safety and health needs of the worker is essential. Integrating the needs for protecting the environment into these solutions will result in a sustainable approach to health care—for the patient, the worker and the environment.

Include health-care workers in design decisions. Health-care worker education must include the need for workers to advocate on their own behalf; integrate the elimination of occupational hazards and minimization of risks into the design of each job task and each new procedure; and provide input into the design of medical equipment and facilities to minimize occupational risks.

Successful implementation in the health care and social assistance sector cannot be achieved by any single organization or occupational discipline. Success will come through collaborative efforts of the health-care industry, labor, professional organizations, healthcare educators, and government agencies working with architects, engineers, health-care companies, purchasing, finance, and human resource professionals to find PtD solutions that will protect workers, patients, and the environment while demonstrating business value.

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References

Bell J.L., J.W. Collins, L. Wolf, R. Gronqvist, S. Chiou, W.R. Chang, G.S. Sorock, T.K. Courtney, D.A. Lombardi and B. Evanoff: "Evaluation of a Comprehensive Slip, Trip, and Fall Prevention Programme for Hospital Employees." *Ergonomics 51*(12) 1906–1925 (2008).

BLS: Injuries, Illnesses, and Fatalities. Industry Injury and Illness Data. Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, Safety and Health Statistics Program. [Online] Available at www.bls.gov/iif/oshsum.htm (2006).

Collins, J.W., and J.L. Bell: "Prevention of Slip, Trip, and Fall Hazards for Workers in Hospital Settings." Chapter in *Handbook of Modern Hospital Safety, Second Edition*. Boca Raton: CRC, 2009.

Collins, J.W., L. Wolf, J. Bell and B. Evanoff: "An Evaluation of a "Best Practices" Musculoskeletal Injury Prevention Program in Nursing Homes." *Injury Prevention 10*:206–211 (2004).

Fisher, J.M.: "Healthcare and Social Assistance Sector." *Journal of Safety Research 39*(2):179–181 (2008).

The Joint Commission Perspectives: "Top 10 Standards Compliance Issues for 2008" (July 2009).

Kerr, R.L.: "Resilient Flooring Standard: Results of Kaiser Permanente's Research and Implementation of the PVC-Free Resilient Flooring Standard." Kaiser Permanente internal white paper, May 8, 2009.

Mazzetti & Associates: Unpublished data from a study conducted in collaboration with the National Institute of Health, the Army Corps of Engineers, several leading universities and engineering firms (2007).

Lent, T., J. Silas and J. Vallette: "Resilient Flooring and Chemical Hazards: A Comparative Analysis of Vinyl and Other Alternatives for Health Care." Health Care Research Collaborative, April 2009.

Schulte, P.A., R. Rinehart, A. Okun, C. Geraci and D.S. Heidel: "National Prevention through Design (PtD) Initiative." *Journal of Safety Research 39*(2):115–121 (2008).

Waters, T., J. Collins, T. Galinsky and C. Caruso: "NIOSH research efforts to prevent musculoskeletal disorders in the healthcare industry." *Orthopaedic Nursing, 25*(6), 1-11 (2006).

How to Avoid Pandemic Panic

Develop Mission Essential Ratings to Sustain Operations

BY JOSELITO S. IGNACIO

In December 2005, when the National Strategy for Pandemic Influenza was published by the Bush administration, significant preparedness efforts focused on prioritizing the risk of viral exposure among the workforce. Because the previous three influenza pandemics lasted eighteen to twenty-four months, an additional criterion was added: the degree to which a worker is essential to an organization. Due to limited resource availability over what is anticipated to be a prolonged pandemic, industrial hygiene, safety and environmental health professionals will need to work much more closely with management and operational planning staffs to perform effective risk assessment strategies and prioritize and implement workplace controls.

The Conventional Exposure Assessment Methodology

Exposure assessment is the heart of any industrial hygiene program. The process includes establishing an exposure assessment strategy, characterizing and assessing exposures, implementing prioritized exposure monitoring and control strategies, reassessing exposures, and communicating or documenting exposure assessment efforts (Bullock, Ignacio 2006).

In planning for or responding to a current communicable disease threat such as pandemic H1N1, our profession must make judgments in the absence of sound qualitative or quantitative data. We must also confront three additional challenges:

1. Except for the possible exceptions of health-care facilities and emergency medical service personnel, the biological agent does not necessarily originate from workplace processes. Infections can come from exposed family members, customers or members of the public.
2. Once exposure occurs, further human-to-human transmission of the agent will not necessarily follow a predictable pattern. The agent may find entry into critical functions from multiple venues. A loading dock, shipping/receiving, common meeting spaces, or customer reception areas are prime settings for human-to-human transmission.
3. We are short on time. The U.S. Centers for Disease Control and Prevention (CDC) estimates the H1N1 incubation range from 1 to 7 days, and more likely 1 to 4 days (Interim Guidance 2009).

Patients with uncomplicated disease due to confirmed novel influenza A (H1N1) virus infection have experienced fever, chills, headaches, upper respiratory tract symptoms (cough, sore throat, rhinorrhea, shortness of breath), myalgias, arthralgias, fatigue, vomiting, and diarrhea (Interim Guidance 2009). The unpredictable exposures and estimated relatively rapid onset require us to plan with management and first-line supervisors instead of reacting when illness occurs.

An Integrated Approach

OSHA's guidance on workplace preparations for a pandemic defines four levels of exposure risk classification among employees:

- *Very high exposure risk* occupations are those with high potential exposure to high concentrations of known or suspected sources of pandemic influenza during specific medical or laboratory procedures.
- *High exposure risk* occupations are those with high potential for exposure to known or suspected sources of pandemic influenza virus.
- *Medium exposure risk* occupations include jobs that require frequent, close contact (within 6 feet) exposures to known or suspected sources of pandemic influenza virus such as coworkers, the general public, outpatients, school children or other such individuals or groups.
- *Low exposure risk* occupations are those that do not require contact with people known to be infected with the pandemic virus or frequent close contact (within 6 feet) with the public. Even at lower risk levels, however, employers should be cautious and develop preparedness plans to minimize employee infections (OSHA 2007).

Integrating this OSHA methodology into the familiar AIHA exposure assessment model has many benefits. The integrated approach continues to recognize the usual workplace exposure hazards and does not require reprioritizing controls just to meet the new threat. In other

words, as for other workplace hazards, a separate and distinct prioritized control plan is needed for pandemic H1N1. Part of this plan requires adding a mission-essential rating to define an employee's exposure profile in response to a pandemic. One benefit of this rating is that it aids planning—for example, management will know how many disposable filtering facepieces (or other limited resources) it will need.

In light of the current pandemic, a suggested revised exposure methodology involves identifying similar exposure groups; defining processes, jobs and tasks; evaluating employees' risk of exposure to H1N1; determining employees' mission essential rating; and determining employees' prioritized control rating. As in the AIHA Exposure Assessment Model, the revised method should identify a particular control action that will provide the most protection against human-to-human transmission. (The other factors involved, such as the Heath Risk Rating or Information Gathering Priority, although essential to day-to-day exposure assessments, cannot be assessed or identified fully in light of the current biological threat.)

Defining exposure risk can involve assigning a numerical value to each of the four OSHA exposure classification risks. For example, very high exposure risk occupations would be assigned a value of 4; high exposure risk occupations would be assigned a 3; medium exposure risk occupations would be assigned a 2; and low exposure risk occupations would be assigned a 1.

Because the current pandemic will likely impact resources and cause significant worker absenteeism, determining mission-essential personnel is vital and should involve key stakeholders at the management and worker levels. The primary planning assumption, based on the 1918 pandemic influenza outbreak, is a 40 percent worker absenteeism rate (Homeland Security Council 2005). This rate, however, is an assumption for planning at the individual government and private sector entity level, not the entire United States working population. Therefore, employers should determine the mission essential rating using a semi-quantitative approach—or, at least, a qualitative approach validated or agreed to by key stakeholders and decision-makers. Because determining such a rating involves operational planning functions of a business or government entity, industrial hygiene, safety and environmental health professionals should not conduct this rating alone.

The following criteria can be used to define mission essential personnel:

- the decrement in a particular process, job or task
- the operational impact to the overall business or government entity because of the decrement in a process, job or task
- the ability to replace the absent personnel within an acceptable time period

Table 1 shows an example of a mission-critical classification system. A worker with a high mission essential (ME) rating would be one whose prolonged absence would result in a significant decrement of 80 to 100 percent in an organization's overall operation and for whom a replacement cannot easily be found. A medium-high ME rating could be used for a worker whose absence results in a moderate decrement in an entity's overall operation by 40 to 79 percent. Workers who have a medium-low ME rating are those whose loss would result in a moderate decrement in an entity's operation by 25 to 39 percent, and those with a low ME rating are those whose absence results in any decrement that affects an entity's operation by less than 25 percent.

Table 1. Mission Essential Rating Classification

ME Rating	Effects of Absence
4 (High)	80–100% Decrement in Production/Services
3 (Medium-High)	40–79% Decrement in Production/Services
2 (Medium-Low)	25–39% Decrement in Production/Services
1 (Low)	< 25% Decrement in Production/Services

The key difference between this integrated approach and the conventional exposure assessment methodology is that the latter does not classify workers according to similar exposure groups. Instead, the basis for the conventional exposure assessment is the process, job or task and whether exposure to the virus and subsequent illness impacts an organization's operational ability.

Table 2 is an example of a revised exposure assessment model that could be used for the current pandemic. The model provides an exposure risk rating using the OSHA classification methodology as well as a mission essential rating.

How to Measure Effectiveness

In a globally distributed pandemic, organizations must anticipate illness, death, or absenteeism as a result of illness or death among workers' family members. All employees are vulnerable to human-to-human transmission in the workplace, at home, or elsewhere. Investigating the source of these transmissions may not be practical in a pandemic.

Instead, several methods can track the effectiveness of the exposure assessment process and controls. For example, a survey of employees and management—if conducted without reprisals—can help determine whether the organization is taking the correct measures. The survey should solicit additional recommendations on how to prevent exposures, and the results should be published organization-wide to provide an opportunity for individual and internal organizational improvements.

Another method is determining organizational impacts. Regardless of the reasons for absenteeism, either due to pandemic H1N1 or other factors, a worker's functions must be performed well and on time. Organizational impacts can be reflected through already existing mechanisms for measuring production and service outputs. Decreased production and service outputs could reflect significant worker absenteeism, failure

of engineering controls that results in shutdown of key areas or workstations, or fear of exposure—despite the presence of workplace controls—that causes delays or circumvented processes for performing required tasks.

A third approach involves qualitative assessments of an organization's response to the pandemic. These assessments could help organizations decide whether additional measures are needed. For example, knowledge of the effects of past decreases in an organization's output could help management decide whether or not to bring in additional personnel, reassign personnel to other key functions, set up telecommunications from alternate sites, shut down a production line in order to sustain other essential lines, or change work shifts to make up for lost production.

Industrial hygiene, safety, and environmental health professionals should perform exposure assessments as organizational functions change to meet the new threat environment and ensure that no other additional and significant risks of exposure are introduced into the workplace.

Bring the Art into the Science

Most hazards are present and measurable, and require conventional exposure assessment methods and controls. But preparations for pandemic H1N1 should begin before the virus is present in your organization. In the absence of hard data on communicable disease threats, our profession must use the available epidemiological data to predict sound control policies and processes.

The perception that the disease is too far away or belongs in another community or organization is dangerous. In a pandemic, our role is two-fold: to preserve the health of our workforce, and to determine how best to perform predictive and rational exposure assessments—even if doing so requires us to revise our methods to face the threat head-on.

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References

OSHA: Guidance on Preparing Workplaces for an Influenza Pandemic. OSHA 3327-02N (2007).

Bullock and Ignacio: *A Strategy for Assessing and Managing Occupational Exposures, Third Edition.* Fairfax, Va.: AIHA (2006).

Department of Health and Human Services, Centers for Disease Control and Prevention: Community Strategy for Pandemic Influenza Mitigation (2009).

Department of Health and Human Services, Centers for Disease Control and Prevention: Interim Guidance for Clinicians on Identifying and Caring for Patients with Swine-origin Influenza A (H1N1) Virus Infection. [Online] Available at www.flu.gov. Accessed May 4, 2009.

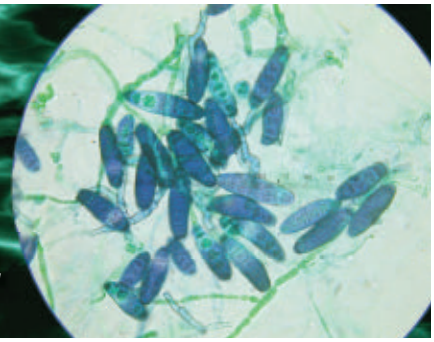
Homeland Security Council: National Strategy for Pandemic Influenza, December 2005.

Table 2. A Revised AIHA Exposure Assessment Matrix for Pandemic Influenza

Process/Job	Exposure Risk to a Pandemic	Mission Essential Rating	Prioritized Control Rating (ER and ME Ratings)	Specific Control Action to be Taken (*)
Security functions	High – 3	High – 4	7	Social distancing (6 feet or greater); N-95 respirators/ gloves for performing searches of people with influenza-like illness
Administrative assistants manning customer service areas	Low – 1	Medium Low – 2	3	Provide window shields and intercom system between assistant and customers
Operations manager	Low – 1	Medium High – 3	4	Social distancing within office spaces
Maintenance team	Low – 1	Medium High – 3	4	Social distancing
EMS responders	Very High – 4	High – 4	8	N-95 respirators; gloves; universal precautions
Trucking operations	Medium – 2	High – 4	6	Social distancing when performing load/off-load operations; use N-95 respirators only if encountering customers or members of public when social distancing is not possible

(*) All personnel will remain at home if sick with influenza-like illness. While at work, all personnel will maintain personal hygiene such as hand washing, use of hand-sanitizing gel, and sneeze/cough etiquettes.

Mycotoxin Overview



Sketches of some mycotoxins produced by indoor fungi.

BY JOHN NEVILLE AND KRISTINE KURTZ

Mycotoxins are included in a range of secondary metabolites produced by growing fungi that have varying degrees of toxicity. Significant deficiencies exist in the scientific knowledge of the health effects of mycotoxins. Limited information is available regarding acute toxic responses of various mycotoxins from animal studies. The rate of production of an individual mycotoxin, or even the ability of a specific species to produce a particular mycotoxin, is subject to a wide number of environmental variables. And although environmental stimuli for mycotoxin production have been well characterized for certain fungi, this information is still needed for other common indoor fungi. The presence of a specific species of fungi growing in a building does not automatically equate to either the production of a mycotoxin or exposure of a building occupant.

Presently, more than 1,000 mycotoxins are reported in the literature. New mycotoxins are being found as research continues. Current knowledge of mycotoxin health effects is primarily focused on ingestion of contaminated foods. Research pertaining to health effects of mycotoxin exposure from breathing spores and other fungal structures in contaminated buildings is currently underway in Canada, Europe, the United States, and Japan.

Following are brief descriptions of several mycotoxins.

Aflatoxin

Aflatoxin was discovered in 1960 when an outbreak of "Turkey X Disease" occurred in England, which resulted in over 100,000 turkey deaths. Aflatoxin was found to be the common suspect of death and originated from animal feed that had mold-contaminated Brazilian peanut meal. The aflatoxin-producing mold was *Aspergillus flavus*. The "Turkey X Disease" was so severe that it initiated investigations in mycotoxin research.

Aflatoxin has been shown to produce liver cancer in many animals, including calves, pigs, rabbits, cats, rats, sheep, and various birds. Aflatoxins are acutely toxic, carcinogenic, mutagenic, and teratogenic. Of all the different types of aflatoxins, aflatoxin B1 is the most toxic. Other fungi that produce aflatoxin include *Aspergillus parasiticus* and *Apergillus nomius*. Aflatoxin has been found in cereal grains, cotton, and milk.

Chaetoglobosins

Chaetoglobosins are produced by *Chaetomium globosum* (the most common Chaetomium species found indoors). Chaetoglobosin A, B, and C are cytotoxic to HeLa cells. They inhibit cytoplasmic cleavage and, thereby, cause cells to be polynucleate. Toxicity information on the chaetoglobosins is sparse.

Citrinin

Citrinin is a yellow mycotoxin that was first isolated in 1931 from a culture of *Penicillium citrinum*. In 1951, yellow-colored rice imported from Thailand to Japan was contaminated with *P. citinum* that was producing citrinin. Citrinin and Ochratoxin A often co-occur. It is thought that citrinin caused nephrotoxicosis in pigs in Denmark, Ireland, Norway, and Sweden. It is also believed that citrinin was associated with Balkan Endemic Nephropathy, a human kidney disease (see Ochratoxin A). It is also implicated in causing renal damage, vasodilation, bronchial constriction, and increased muscular tone. Citrinin is produced by various *Aspergillus* and *Penicillum* species.

Cyclopiazonic Acid

Cyclopiazonic acid was first isolated from *Penicillium cyclopium*. This mycotoxin is suspected to be the cause of kodua poisoning in people of India who consumed kodo millet seed. Cyclopiazonic acid caused necrosis in the spleen and lymph nodes of dogs. It is believed to be a neurotoxin and to cause necrosis in the liver, spleen, and kidneys. Cyclopiazonic acid is produced by various *Aspergillus* and *Penicillum* species. Toxicity properties of cyclopiaznic acid have not been thoroughly appraised.

Griseofulvin

Griseofulvin was first isolated from a *Penicillium* species in 1939. Griseofulvin is thought to be potentially hepatotoxic, neurotoxic, tumorgenic, and teratogenic. Griseofulvin may block mitotic division in cells within bone marrow, intestinal lining, and tumors. It is produced by *Memnoniella echinata* and various *Penicillium* species. Dechlogriseofulvin and epidechlorogriseofulvin were first isolated from *Memnoniella echinata* in 1996. This is the first record for griseofulvins to be isolated from other fungi outside of *Penicillium*. Toxicity properties of griseofulvins have not been thoroughly investigated.

Mycophenolic Acid

In 1983, mycophenolic acid was the first fungal metabolite to be purified and crystallized. Mycophenolic acid is produced by various *Penicillium* species. In one study, 35 people received oral doses of 2.4 to 7.2 g of mycophenolic acid daily for 52 to 104 weeks. Reactions included cramps, diarrhea, and nausea.

Mycophenolic acid may have some anti-cancer properties. This compound is considered to be a mycotoxin because it displays toxic effects on mice and rats. Mycophenolic acid toxicity has not been thoroughly assessed but is believed to be relatively low.

Ochratoxin A

Ochratoxin A was first discovered and isolated from a strain of *Aspergillus ochraceus* in 1965, at which time it was not considered a cause of mammal disease. Subsequent investigations revealed that ochratoxin A is produced by other fungi as well, including *Aspergillus carbonarius, A. niger, A. ostianus, A. sclerotiorum, A. sulphureus, Penicillium nordicum, P. verrucosum*, and *P. viridicatum*. Ochratoxin A has been found in many food products, such as cereal grains, coffee, beer, wine, grape juice, raisins, bread, peanuts, soybeans, rice, beans, peas, meat, cheese, and powdered milk.

The toxicity of ochratoxin A was revealed in 1966 when it was found to cause a disease called "porcine nephropathy" (kidney deterioration in pigs), which dated back to 1928 in Denmark. Further studies have shown ochratoxin A to be carcinogenic. Ochratoxin A is thought to be associated with Balkan Endemic Nephropathy (BEN), a serious kidney disorder in people inhabiting areas near the Danube River system in Bulgaria, Romania, and Yugoslavia during the early 1950s. Presently, Ochratoxin A appears to be the most toxic and widespread of the ochratoxins. Rabbits inhaling air with *Aspergillus ochraceous* containing ochratoxin A have shown kidney failure.

Patulin

Patulin was first isolated in the 1940s from *Penicillium griseofulvum* as part of an antibiotic scanning study. During the 1950s and 1960s, its apparent toxicity to plants and animals prohibited its clinical use as an antibiotic that subsequently lead to its reclassification as a mycotoxin. Patulin is produced by various species of *Aspergillus, Byssochlamys, Paecilomyces*, and *Penicillium*. It has been reported to be carcinogenic and to impact cell mitosis and has also been shown to be toxic to protozoa and HeLa cells. Patulin is thought to be a nephrotoxin and an inhibitor to protein synthesis. Its toxicity has not been fully examined.

Penicillic Acid

Penicillic acid was the earliest described mycotoxin (1913). It was produced by *Penicillium puberulum*, which colonized Nebraska corn. Toxic effects were observed in domestic animals that fed on blue-eye kernels of corn containing penicillic acid. It is believed that penicillic acid is nephrotoxic, hepatotoxic, and carcinogenic. Penicillic acid has also been shown to dilate blood vessels. Various species of *Aspergillus, Paecilomyces*, and *Penicillium* produce penicillic acid. More studies on penicillic acid need to be performed.

Roquefortine C

Various species of *Penicillium* produce roquefortine C. Roqufortine C is believed to be carcinogenic, neurotoxic, and nephrotoxic and able to inhibit protein synthesis. It is considered to have relatively low toxicity. Roqufortine C needs to be more completely examined.

Sterigmatocystin

Sterigmatocystin is produced by *Aspergillus versicolor, Emericella nidulans*, and a few species of *Chaetomium*. *Aspergillus versicolor* is the main fungus of concern because of its widespread distribution. Sterigmatocystin is the precursor of aflatoxin formation. Like the aflatoxins, sterigmatocystin is also a liver carcinogen. It has been reported that the toxicity of sterigmatocystin is about 1/150th as potent as aflatoxin B. Sterigmatocystin is also considered to be a potent mutagen, teratogen, and nephrotoxin. Unlike the aflatoxins and ochratoxins that are typically produced in field crops, sterigmatocystin is typically produced in stored cereal grains, coffee beans, and cheese.

Aspergillus versicolor produces 5-methoxysterigmatocystin, a compound with similar molecular characteristics to sterigmatocystin and which has been reported to be cytotoxic. Toxicity of 5-methoxysterigmatocystin has been poorly described and documented.

Trichothecenes

Tricothecenes are produced by various species of *Fusarium, Stachybotrys, Memnoniella, Myrothecium*, and *Trichoderma*. Presently, 148 trichothecenes have been described.

The first tricothecene mycotoxicosis, Alimentary Toxic Aleukia (ATA), was recognized between 1942 and 1947. ATA affected the people of Siberia and was characterized by nausea, vomiting, haemorrhaging in many organs, bloody diarrhea, and low leucocyte count. It appears that ATA was caused from ingestion of spring (not autumn) harvest grain that had high levels of a trichothecene called T-2 toxin. *Fusarium poae* and *Fusarium sporotrichioides* were the two fungi responsible for T-2 toxin.

Researchers linked the deaths of large numbers of Ukrainian horses in the 1930s to fodder contaminated with *Stachybotrys chartarum* that produced highly cytotoxic macrocyclic trichothecenes. The disease was called stachybotyotoxicosis. Some macrocyclic trichothecenes include Satratoxin H, Satratoxin G, Iso-satratoxin F, Roridin E, Roridin L-2, Iso-roridin E, and Epi-iso-roridin E. Trichothecenes can inhibit protein and DNA synthesis. Satratoxin H has been shown to decrease lymphocyte activity and suppress immunoglobin and antibody production. Simple trichothecenes include trichodermal and trichodermin. These tend to be less toxic than macrocyclic trichothecenes.

Research has shown that toxicity by inhalation of trichothecenes is an order of magnitude greater than that by ingestion or intravenous pathways, though this data is species dependent.

Pigs appear to be sensitive to the trichothecene Deoxynivalenol (DON), also called vomitoxin. DON appears to reduce feed consumption and decrease weight gain in pigs that have eaten naturally contaminated feed (wheat and corn). DON is produced by *Fusarium graminearum*.

Synergist Web-only Exclusive: Mycotoxin LD_{50} Data

To view median lethal dose data for the mycotoxins discussed in this article, visit www.aiha.org/news-pubs/synergist.

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GHS

OSHA Issues Proposed Rule to Adopt GHS

In September, OSHA proposed a rule that would align its hazard communication standard with the Globally Harmonized System for Classification and Labeling of Chemicals (GHS). GHS will be phased in over three years.

In a Sept. 29 teleconference with reporters, Acting Assistant Secretary for OSHA Jordan Barab indicated that there is no estimated date of release for the final rule and that other OSHA standards would be revised as necessary to maintain consistency with GHS. The comment period for the proposed rule ends Dec. 29, 2009.

The proposed rule was published in the Sept. 30 issue of the *Federal Register* and can be viewed at www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGISTER&p_id=21110.

DERMAL DISEASES

NIOSH Publishes Indexed Bibliography

In September, NIOSH published the Indexed Dermal Bibliography (1995–1997), a resource on occupational dermal issues. The document includes an overview of dermal exposures, hazard identification, exposure characterization, health effects surveillance, risk assessment and risk control management. The bibliography is intended for audiences of varying technical abilities and contains mostly review articles and an overview of educational information.

To access the Indexed Dermal Bibliography (1995–1997), visit www.cdc.gov/niosh/docs/2009-153.

STANDARDS

ISO Publishes Draft Standard on Social Responsibility

In September, the International Organization for Standardization Working Group on Social Responsibility (ISO SR) announced the publication of a draft international standard Guidance on social responsibility (ISO 26000). The standard establishes common guidance on social responsibility concepts, definitions, and methods of evaluation. If voting on the draft standard is positive, ISO 26000 will be on course for publication as an International Standard in late 2010, the ISO stated in a press release.

According to the ISO, the document "provides guidance on the underlying principles of social responsibility, the core subjects and issues pertaining to social responsibility, and the ways to integrate socially responsible behavior into existing organizational strategies, systems, practices, and processes."

More information about ISO 26000 is available at www.iso.org/iso/pressrelease.htm?refid=Ref1245.

NANOTECHNOLOGY

Workshop: Standard Risk Assessment Methods OK for Nanomaterials

Speakers at a September workshop on nanotechnology stated that traditional methods can be used to identify the hazards and risks of nanomaterials, according to the Sept. 24 issue of *Occupational Health and Safety Reporter*. The workshop, organized by the Organization for Economic Cooperation and Development, was held Sept. 16–18.

Speakers also suggested that more data on the environmental, health and safety effects of certain nanomaterials is available than people realize. *Occupational Health and Safety Reporter* stated that one speaker discussed decades of data for nanoscale silver, which has been used as an antimicrobial.

NANOMATERIALS

EPA Research Focuses on Hazards, Benefits

EPA laboratories and grant recipients have initiated research on the potential hazards and benefits of nanomaterials. According to an agency press release, EPA is focusing on the possible health effects of titanium dioxide, which is used in paints, cosmetics and sunscreens; carbon nanotubes, used in vehicles, sports equipment and electronics; and other widely used nanomaterials. Researchers will also explore ways that nanotechnology might be used to help clean up toxic chemicals in the environment.

For more information about the EPA's Nanotechnology Research Program, visit www.epa.gov/nanoscience.

PPE

PPE Standards Updated

Updated OSHA standards for personal protective equipment (PPE) went into effect on Oct. 9. The new standards revise requirements for eye, face, head and foot protection in general industry, shipyard employment, longshoring and marine terminals, according to an OSHA press release. Among the revisions is a requirement that eye protection meet a test for transmission of radiant energy.

The revisions are part of an OSHA effort to bring existing regulations into compliance with current national consensus standards.

The text of the final rule as published in the September 9 *Federal Register* is available at http://edocket.access.gpo.gov/2009/E9-21360.htm. Technical inquiries should be directed to Ted Twardowski, OSHA directorate of standards and guidance, at (202) 693-2070.

WATER POLLUTION

New York Times Finds Routine Violations of Clean Water Regulations

A study of EPA records by the *New York Times* shows an alarming increase in violations of clean water laws, the paper reported. According to an article by Charles Duhigg published Sept. 13, EPA has documented over 500,000 violations by workplaces in the past five years. Duhigg reports that about 60 percent of violations were serious, including illegal dumping of carcinogenic chemicals, and that approximately 10 percent of Americans have been exposed to drinking water containing dangerous chemicals. The *Times* study indicates that only 3 percent of Clean Water Act violations have resulted in fines or other punishment by EPA.

The article, part of a *Times* series on water pollution, is available at www.nytimes.com. The *Times* website also includes an interactive database that contains data from over 200,000 facilities that discharge pollutants.

WORKER HEALTH

Study Identifies Job Insecurity as Major Health Threat

Researchers at the University of Michigan and the University of California at Los Angeles have found that job insecurity is more detrimental to worker health than actual job loss, according to an Aug. 31 article from United Press International. The researchers based their findings on an analysis of data collected from approximately 1,700 men and women over a period of several years. People who were employed but worried about job loss demonstrated more significant health difficulties than people who had lost their jobs. The study was published in the journal *Social Science and Medicine*.

TECHNOLOGY

Handheld Electronic Nose Shows Promise

Researchers have developed a prototype of an inexpensive electronic "nose" that can sense the presence of toxic chemicals. Using LED indicators, flatbed scanners, and an inexpensive camera, the device can detect within minutes a range of industrial toxins by recognizing their unique molecular fingerprints. A marketable device is expected within a few years.

The research team was led by Kenneth S. Suslick of the University of Illinois at Urbana-Champaign and supported by the National Institute of Environmental Health Sciences. The device was featured in the Sept. 13 advanced online edition of *Nature Chemistry* and the Sept. 28 issue of *NIH Research Matters*.

TOXIC SUBSTANCES

Obama Administration Reveals Goals for Chemicals Management Legislation

In September, EPA Administrator Lisa Jackson announced the Obama administration's goals for reform of the 1976 Toxic Substances Control Act (TSCA). The administration supports reform that gives EPA authority to establish safety standards based on scientific risk assessments, requires manufacturers to provide hazard, exposure and use data for chemicals, gives EPA authority to set priorities for conducting safety reviews on existing chemicals, encourages green chemistry, and provides sustained funding for implementation.

Legislation to strengthen TSCA was expected to be introduced in the current session of Congress.

To read the "Essential Principles for Reform of Chemicals Management Legislation," visit www.epa.gov/oppt/existingchemicals/pubs/principles.html. More information on EPA's chemical management plan can be found at www.epa.gov/oppt/existinchem icals/ index.html.

OEHS REGULATIONS

HSE Commemorates 35th Anniversary

Since the establishment of the British Health and Safety Executive (HSE) in 1974, worker fatalities have dropped 73 percent and worker injuries have fallen 70 percent, the HSE announced in a press release. Statistics from 2006, the most recent available, show that the U.K. rate of 1.3 fatalities per 100,000 workers is the lowest of all European Union member states. In a press release, HSE attributed the decline to new health and safety laws as well as a reduction in heavy industry in the U.K.

A timeline describing key events in the history of health and safety regulation in the U.K. is available on the HSE website at www.hse.gov.uk/aboutus/timeline/index.htm.

GREENHOUSE GASES

EPA Proposes Regulation of Large Facilities

A new EPA proposal would require large facilities that plan to construct or modify existing plants to obtain construction and operating permits that would demonstrate the use of best practices for curtailing emissions. The new rule would apply to facilities that emit 25,000 tons of greenhouse gases per year, such as power plants, refineries, and factories. Small businesses would not be required to obtain the permits.

The agency stated in a September press release that the largest facilities targeted by the rule account for nearly 70 percent of U.S. stationary source greenhouse gas emissions. The rule would affect approximately 14,000 facilities.

For more information, visit www.epa.gov/ nsr/actions.html.

ILLNESS AND INJURY DATA

OSHA Initiates Emphasis Program on Recordkeeping

A new OSHA National Emphasis Program (NEP) will examine the accuracy of

occupational injury and illness data recorded by employers. The NEP will involve inspection of employer records, interviews with employees, inspection of facilities, and enforcement actions for employers that are found to be under-representing worker injuries and illnesses. According to an agency press release, the NEP will focus on industries with high illness and injury rates.

SILICA

OSHA Document Addresses Exposures in Construction

A new OSHA guidance document released in September provides information employers can use to reduce worker exposures to silica on construction sites. The document includes discussion of methods such as wet cutting and vacuum dust collection.

"Controlling Silica Exposures in Construction" is available for download at www.osha.gov/Publications/3362silica-exposures.pdf. For more information, visit OSHA's Safety and Health Topics page on crystalline silica at www.osha.gov/SLTC/silicacrystalline/index.html.

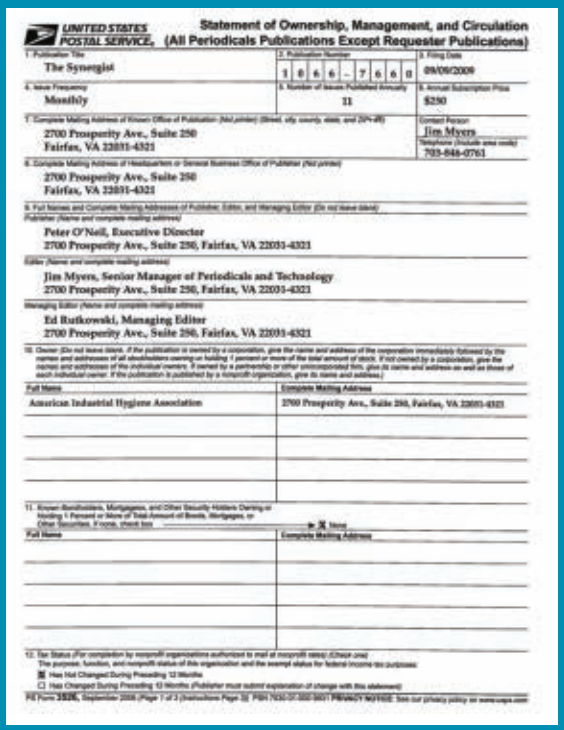
H1N1

Federal Agencies Respond to H1N1

In mid-October, the U.S. Centers for Disease Control and Prevention (CDC) issued "Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel" (www.cdc.gov/h1n1flu/ guidelines_infection_control.htm). CDC recommends respiratory protection at least as protective as a fit-tested disposable N-95 respirator for health-care personnel who are in close contact with patients with suspected or confirmed 2009 H1N1 influenza.

OSHA announced in mid-October that it would soon issue a compliance directive intended to ensure uniform H1N1-related inspection procedures for workers in high to very-high risk occupations. The directive would closely follow the CDC's interim guidance. OSHA inspectors would be responsible for ensuring that workplaces implement a hierarchy of controls, the agency said in a press release. Workplaces that distribute respirators to employees must follow the OSHA Respiratory Protection standard, which includes worker training and fit-testing.

An entry on the NIOSH Science Blog dated Oct. 14 examines the scientific principles behind surgical masks and respirators. Although these principles apply to all particulate respirators, the discussion focuses on the N-95 filtering facepiece respirator as the most frequently used respirator in health-care settings. To read the entry, visit www.cdc.gov/niosh/blog/.



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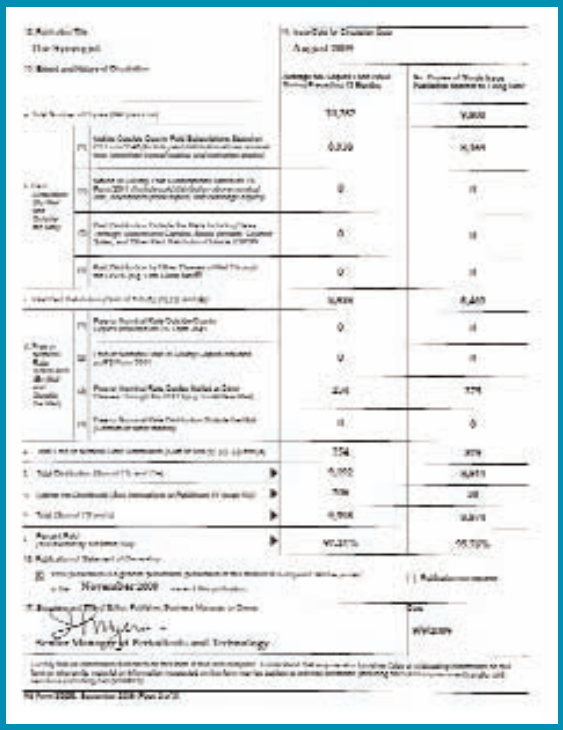

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AIHce 2009 Technical, General and Keynote Sessions are available as DVDs and downloads. Contact: (703) 849-8888; EduAssistant@aiha.org; www.conferencemedia.net/store/stores/aihce.

November 4, 2009
Orlando, Florida
ASSE Central Florida Chapter Ergonomics Professional Development Conference. Contact: www.centralfl.asse.org.

November 5–8, 2009
San Juan, Puerto Rico
8th Annual International Conference on Occupational Stress and Health: Global Concerns and Approaches. Contact: Wesley Baker; (202) 336-6033; WSHConference@apa.org; www.apa.org/pi/work/wsh.html.

November 6, 2009
Warrensburg, Missouri
9th Annual Safety Sciences Fall Symposium. Contact: John Zey; (660) 543-4410; jzey@ucmo.edu.

November 7–11, 2009
Philadelphia, Pennsylvania
American Public Health Association's 137th Annual Meeting and Exposition. Contact: www.apha.org/meetings.

November 8, 2009
Austin, Texas
Texas Hill Country Local Section meeting. Contact: www.texashillcountryaiha.org/THCAIHA_Members.html.

November 9–12, 2009
Atlanta, Georgia
Fundamentals of Industrial Hygiene. Sponsored by AIHA. CEUs: 3.2; CMs: 4.0; COCs: 3.2. Contact: (703) 849-8888; eduassistant@aiha.org; www.aiha.org/education/ce/roadcourses.

November 9–13, 2009
Chapel Hill, North Carolina
Certified Safety Professional Review Course. CEUs 3.5; CMs: 4.5; COCs: 2.9. Contact: Contact: (888) 235-3320; osherc@unc.edu; http://osherc.sph.unc.edu.

November 10–13, 2009
New Delhi, India
Ninth International Mine Ventilation Congress. Contact: www.9thimvc.org/hom.htm.

November 11, 2009
Deadline for abstracts for poster presentations for Agricultural Safety and Health Council of America (ASHCA)-NIOSH joint conference: Be Safe, Be Profitable: Protecting Workers in Agriculture. Contact: ashca@mcrf.mfldclin.edu; www.ashca.com/dotnetnuke/Portals/0/Cincinnati%20flyer_call_8-06-09.pdf.

November 16–19, 2009
Indianapolis, Indiana
OSHA 501: Trainer Course in OSHA Standards for General Industry. CEUs: 2.8. Contact: www.indiana.edu/~hrtland/schedule.shtml.

November 16, 2009
Regina, Canada
Canadian Standards Association (CSA Group): The National Forum on Workplace Electrical Safety. Contact: (800) 463-6727; seminars@csa.ca; www.csagroup.org.

November 17, 2009
Delafield, Wisconsin
Wisconsin Local Section dinner meeting on ethics. Contact: http://aihawi.org.

November 17, 2009
Nashville, Tennessee
Middle Tennessee Local Section meeting. Contact: www.aiha.org/localsections/html/MiddleTennessee/index.html.

November 17, 2009
Phoenix, Arizona
Laser Safety Officer course. CECs: 32; CMs: 4.0. Contact: (800) 94-LASER; www.rli.com/training/course.aspx?CourseID=5.

November 17, 2009
San Antonio, Texas
Alamo Local Section meeting. Contact: www.aiha.org/LocalSections/html/alamo/Events_Calendar.htm.

November 17–19, 2009
Fort Lauderdale, Florida
Personal Protective Equipment (PPE) Conference 2009. Contact: (800) 222-6543; www.cttso.gov.

November 17–19, 2009
BioConference Live: Online-Only Conference for Life Sciences Community. Contact: www.bioconferencelive.com.

November 19, 2009
Gaithersburg, Maryland
Chesapeake and Potomac Local Sections Joint Meeting with ASSE-NCC: Global Issues Facing the EHS Profession. Contact: www.aiha.org/localsections/html/potche/calendar.htm.

November 19, 2009
Houston, Texas
Gulf Coast Local Section meeting: Happenings from the Hill. Contact: www.aiha.org/localsections/html/gulf/gulfcoast.htm.

November 19, 2009
New York, New York
Metro New York Local Section meeting: Globalizing EHS. Contact: www.aiha.org/LocalSections/html/Metro%20NY/default.htm.

November 19–20, 2009
Toronto, ON, Canada
Evaluation of Indoor Air Quality/Indoor Environmental Quality. Contact: (416) 759-9579; info@alara.ca; www.alara.ca.

Opportunities

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November 21, 2009
Phoenix, Arizona
M-145 Concepts for Aesthetic Practices course. Contact: (800) 94-LASER; www.rli.com/training/course.aspx?CourseID=23.

November 30–December 3, 2009
Bloomington, Indiana
OSHA 510: OSHA Standard for the Construction Industry. CEUs: 2.8. Contact: www.indiana.edu/~hrtland/schedule.shtml.

December 1, 2009
Rome, Italy
Deadline for abstracts: IOHA's 8th International Scientific Conference. Contact: Congress Secretariat; info@ioha2010.org; www.ioha2010.org.

December 2–3, 2009
Phoenix, Arizona
Underwriters Laboratories and the Fire Service: Designing Fire Safety into Residential Construction: Perspectives, Ideas, and Trends. Contact: www.ul.com/global/eng/pages/offerings/industries/buildingmaterials/fire/fireservice.

December 3, 2009
Fairfax, Virginia
Potomac Local Section dinner meeting. Contact: www.aiha.org/localsections/html/potche/calendar.htm.

December 3–4, 2009
Chapel Hill, North Carolina
31st Annual Occupational Safety and Health Update. CMs: 1.5; COCs: 0.8. Contact: (888) 235-3320; osherc@unc.edu; http://osherc.sph.unc.edu.

December 4, 2009
New Brunswick, New Jersey
Northeast Regional Industrial Hygiene Conference and Exposition. Contact: www.philaaiha.com.

December 4, 2009
Orlando, Florida
Medical Laser Safety Officer course. Contact: (800) 94-LASER; www.rli.com/training/course.aspx?CourseID=18.

December 7, 2009
Wilmington, Delaware
Delaware Local Section meeting: Ethics and Statistics. Contact: Alan Lloyd; alloyd@pennoni.com; www.aiha.org/LocalSections/html/delaware/delaware.htm

December 7–9, 2009
Indianapolis, Indiana
OSHA 502: Update for Construction Industry Outreach Trainers. CEUs: 2.1. Contact: www.indiana.edu/~hrtland/schedule.shtml.

December 7–10, 2009
San Diego, California
CIH Review Workshop. CMs: 4.0; COCs: 4.0. Contact: www.BowenEHS.com.

December 14–16, 2009
San Francisco, California
California Industrial Hygiene Council (CIHC) Annual Conference: Turning Challenges into Opportunities. CMs: 3.0. Contact: Joel Cohen; jcohen@thecohengroup.com; www.cihconline.com.

December 14–17, 2009
Bloomington, Indiana
OSHA 500: Trainer Course in OSHA Standards for the Construction Industry. CEUs: 2.8. Contact: www.indiana.edu/~hrtland/schedule.shtml.

December 14–17, 2009
San Diego, California
ASP/CSP Review Workshop. CMs: 4.0; COCs: 4.0. Contact: www.BowenEHS.com.

December 16, 2009
Cincinnati, Ohio
Laser Safety Officer Refresher course. Contact: (800) 94-LASER; www.rli.com/training/course.aspx?CourseID=33.

January 11–April 28, 2010
Fundamentals of Industrial Hygiene online. CEUs: 3.4; BCSP: 2.9; CM: 5.0. Contact: (888) 235-3320; osherc@unc.edu; http://osherc.sph.unc.edu/ce/courses/fund_ind_hyg_online.htm.

January 13–15, 2010
Irvine, California
Yuma Pacific Southwest Local Section Annual Meeting. CM: 1.5. Contact: www.ypswaiha.org.

January 27–28, 2010
Fort Worth, Texas
ASHCA-NIOSH Joint Conference: Be Safe, Be Profitable: Protecting Workers in Agriculture. Contact: ashca@mcrf.mfldclin.edu; www.ashca.com/dotnetnuke/NewsEvents/ASHCAConference/tabid/97/Default.aspx.

January 28–29, 2010
San Antonio, Texas
Michael E. Beard Asbestos Conference 2010: Laboratory Issues. CEUs: 1.4. Contact: Jim Milette; jmillette@mvainc.com; Jim Webber; webber@wadsworth.org.

February 3, 2010
Grand Rapids, Michigan
West Michigan Industrial Hygiene Society meeting: Environmental Bacteria Evaluation, Exposure and Health Risks. Contact: www.aiha.org/localsections/html/W.Mich/upcoming%20events.htm.

February 25–27, 2010
Orlando, Florida
National Hearing Conservation Association (NHCA) 35th Annual Conference: Explore the World of Hearing Loss Prevention. Contact: Wendy Grillo; (303) 224-9022; nhcaoffice@hearingconservation.org; www.hearingconservation.org/conf_info2010.html.

May 22–27, 2010
Denver, Colorado
AIHce 2010: New Frontiers in Science and Practice. Contact: www.aihce2010.org.

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Introductions

Bart D. Geyer

Introductions presents profiles of industrial hygienists working to protect worker health worldwide. This month we hear from Bart D. Geyer, CIH, CSP, an industrial hygienist supporting the Chief Health and Medical Office of the National Aeronautics and Space Administration (NASA). Since 1991, Geyer has held various positions at NASA's Kennedy Space Center (KSC), including industrial hygiene manager of the KSC IH services contract. In his present position, Geyer is responsible for providing technical IH guidance and developing policy for the 14 NASA centers and facilities. In this capacity he performs routine program evaluations and audits of the centers' IH programs.

Geyer received his B.S. in environmental health from Purdue University, where he serves on the alumni advisory board for the School of Health Sciences. He has been a member of AIHA's Management Committee and was communications director for the Florida Local Section for three years. He can be reached at Bart.D.Geyer@nasa.gov.

What does the NASA Environmental Health Program do for NASA employees? EH in NASA includes industrial hygiene, health physics and food sanitation. We are akin to a corporate environmental health or industrial hygiene group providing oversight, policy, procedures, technical direction and training initiatives at all 14 NASA sites. We're responsible for everything affecting the health of NASA's 75,000 ground-based work force and provide services, like auditing each NASA center's environmental health programs to ensure compliance with internal NASA directives as well as OSHA requirements. We also strongly promote and support staff efforts to obtain ABIH certification in order to maintain staff competency.

It seems that safety is often the top priority at NASA and in the media, overshadowing environmental health. What is your Agency doing to make environmental health more prominent? Health and safety are very integrated at NASA, and almost half of our centers have become Star Sites in the OSHA VPP Program. In fact, NASA Langley in the Hampton-Virginia Beach area was the very first federal worksite to receive the VPP Star certification in 1998. Additionally, there are many NASA contractor organizations that have gone through the OSHA VPP Program and are individually Star-certified. Right now a big issue that we're concerned about is the H1N1 virus and what the ramifications of a pandemic influenza could be for NASA and the potential impact to the many NASA missions. From an IH perspective, we are concerned about issues such as proper respirator usage and other PPE issues.

How has working with the AIHA Management Committee and the Florida Local Section helped you in your job? My involvement in the Management Committee gave me insight and involvement with people putting together AIHA management publications and consulting in the areas of management most important to my job responsibilities. As the professional development chair for the AIHA Florida Local Section, I was responsible for organizing PDCs for our meetings, and that started my efforts to communicate with speakers in the IH training arena. Part of my job now is to identify and secure speakers for a variety of meetings, training courses and conferences, so I'm constantly trying to maintain contacts with experts in the IH field. My involvement in the local section helped me get more involved with the larger IH community beyond my county and the state. The volunteer work that I have done with AIHA has really aligned well with my job responsibilities.

What do you enjoy most about working for NASA? I would have to say I enjoy working in an agency like NASA where almost everyone recognizes one or many of the NASA missions. Of course there is the more high profile manned spaceflight program involving the space shuttle, but there are many other exciting missions across NASA. NASA is involved with earth observation missions such as monitoring changes in the arctic ice and the ozone layer, science missions like the Hubble Telescope, and exploring the Martian surface for water. There are so many projects going on that are really pushing the edge.

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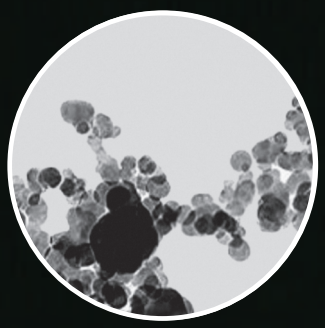
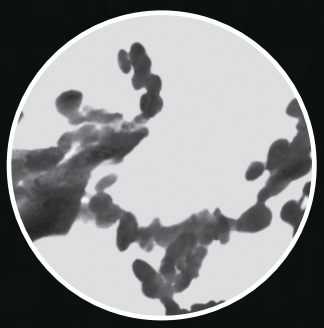
Soot or Soot-Like Particles...

Does your lab know the difference?



Soot



Soot like particles (Titanium Oxide)

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