

YPSW AIHA 2019 Meeting Summary

The 44th meeting of the Yuma Pacific Southwest (YPSW) section of the American Industrial Hygiene Association (AIHA) was held January 23-25, 2019 at the Bay Club Hotel and Marina in San Diego. Forty nine people attended the technical sessions including speakers and guests.

President Frank Renshaw opened the event with the annual business meeting on Wednesday. Tom Slavin was elected President-Elect. Anna Davis was re-elected Secretary-Treasurer. Denise Daggett (final year of 3-year term) and Frank Hearl (2nd year of 3-year term) will continue their terms as Director with Fred Boelter elected to serve the open three-year term.

The technical portion of the meeting began on Thursday morning. Barbara Dawson gave a brief overview of the meeting theme, **Total Worker Exposure**, and reviewed the agenda and the speakers. Total Worker Exposure takes into account all of the exposures a person experiences, both occupational and non-occupational, which could impact that person's health and well-being. The speakers during the meeting explored how we got to this point and the role of the industrial hygienist, risk assessment, the legal and ethical implications, sensor technology, big data and artificial intelligence. The goal of the meeting was to get participants thinking about all of the different factors that influence a person's exposures, along with advances in technology, to gain a better understanding of what our role as industrial hygienists should be in protecting worker health.

Kyle Dotson, Dotson Group, LLC, opened the session with a talk on the evolution of industrial hygiene entitled, **A Long Strange Trip Historically For Industrial Hygiene to Total Worker Exposure**, in which he provided a brief history of the development of industrial hygiene as a profession up to the current state.

Next up was Fred Boelter, RHP Risk Management, with a talk, **Protecting Worker Health and Total Worker Health: A Vision for Our Profession**, which presented the thought-provoking challenges of managing both business and personal health risks and understanding the business value of keeping people healthy and productive. Fred shared that we are currently in the 4th Industrial Revolution (per Klaus Schwab) which is robotics as well as acknowledging that the rules and regulations for this revolution are lagging. He also pointed out the challenges of not having a job versus having a job with health risks. He also posed the following questions about how far our profession should go to protect worker health:

1. Perhaps Total Worker Health fulfills our profession's mission: Protecting Worker Health.
2. How do we meet the challenge in this globalized and nebulous place of work?
3. What additional skills do we need to learn and master beyond our historical core skills?
4. With more than 30% contingent workers in the US labor force today, are they adequately covered by laws and regulations?
5. How can the science of choice help forward looking industrial hygienists build healthy places of work?

6. Are the topics of “residual risk” and “safe” the best lens through which we can provide the greatest value to employers, workers, the public, and the environment?
7. Perhaps challenges can be addressed by mastering risk science: 1) Assessment, 2) Characterization, 3) Communication, 4) Benefit/Cost, and 5) Management.

Steve Lacey, Indiana University Fairbanks School of Public Health, was the next speaker with ***Precision Health Protection: Barriers and Opportunities For Industry***. During this talk, Steve talked about work currently underway in the military to understand the genetic predisposition to certain occupational illnesses using as an example knowledge of a gene which makes people who have it more susceptible to noise-induced hearing loss.

Following Steve’s presentation, Herschel Hobson, of Hobson & Bradley, led an interactive discussion on the legal and ethical concerns of the industrial hygienist (and management) getting involved in total worker exposure including non-occupational exposures and genetic risk factors.

The Thursday afternoon technical outing was a visit to White Labs in San Diego. White Labs is the primary supplier of yeasts for the home brewing industry. Erik Fowler and the staff gave an overview of the science behind production of different strains of yeast and how different kinds of beer are brewed. We had the opportunity to taste different types of beer to better understand the role of the yeast in the brewing process. Following the classroom session, we had a tour of the manufacturing operations and concluded with a visit to the tasting room. Many thanks to Denise Daggett for suggesting it!

On Friday morning, we had updates from the industrial hygiene professional organizations. Larry Sloan, AIHA CEO and Cindy Ostrowski, AIHA President, briefly reviewed the AIHA organizational structure and the updated strategic plan including the revised mission and vision. They shared highlights of AIHA’s Content Priorities, the new marketing program, ***I am IH***, and the ***IH Professional Pathways™*** career planning tool. Their portion of the program concluded with an interactive discussion about the merits and downside of a single slate ballot for officer elections and a possible by-laws change. Mark Ames, AIHA Director of Government Relations, provided a summary of current regulatory activity highlighting both the federal and state level activities. Denise Daggett, AIHA Local Sections Pacific Region Representative, gave a brief update on what is happening in the region and also had a chance to let people know that the Local Sections Regional Representatives will no longer be in place. The group thanked Denise for her service as our regional representative. Denise will continue in her last year of her term as YPSW director. Jeff Miller, Past Chair of ABIH, gave an update on the ABIH. He reviewed the 2018-2021 Strategic Plan and the top accomplishments for 2018. He also reported that the new CAPs system is working and that applicants and certificants can keep and submit their information on-line. He also let everyone know that ABIH is working on a Product Stewardship certification credential and that they have reinstated the CIH (Retired) status. Torey Nalbone, ACGIH® Director, gave an update on ACGIH® including an overview of the organizational structure. He also shared that ACGIH® is planning to introduce TLV®-Surface Limits and will provide an overview in a seminar later this year. Another change will be the

addition of an ototoxicant notation on the TLV® list and Torey noted that they will also be offering a seminar on co-exposure to ototoxicants and noise. He reported that there are 20 new or revised substances on the Notice of Intended Changes for 2019.

Upon completion of the association updates, the technical program continued. Dan Anna, Johns Hopkins Applied Physics Laboratory, shared a presentation entitled, ***Challenges with Development and Implementation of Sensors***. He highlighted some of the applications for which sensors are being used and showed some brief video clips demonstrating the use of the sensors in prosthetic devices and advances which allow direct communication with the brain. He also highlighted that we interact with sensors in many aspects of our everyday lives.

Samir Menon, from ERM, followed Dan with ***Collection Interpretation of “Big Data”***. Samir shared that oil is no longer the world’s most valuable resource – it’s data. Samir also referenced the fourth industrial revolution that Fred had introduced in his talk. He stressed the importance of “curating” data and the challenges of integrating data from discrete sources, cleaning data and then transforming it to knowledge to enable insight and improvement. He described this process as the “virtuous cycle of analytics.” He addressed concerns analyzing data including sample size, biases, and privacy concerns.

John Howard, NIOSH Director, presented an informative and entertaining talk on ***Artificial Intelligence and Worker Safety***. Todd Niemeier, also from NIOSH, presented a talk on ***Cumulative Risk***, defined by the National Academies of Science as “The combination of risks posed by aggregate exposure to multiple agents or stressors in which aggregate exposure is exposure by all routes and pathways and from all sources of each given agent or stressor,” and by the Environmental Protection Agency as ““An analysis, characterization, and possible quantification of the combined risks to human health or the environment from multiple agents or stressors.”

Jenn Sahmel then wrapped up the technical program with a presentation on ***The Role of the IH in Total Worker Exposure*** and then led an interactive discussion in which the group attempted to define what is meant by the term, “Total Worker Exposure.” In her presentation, she reviewed the interface between Total Worker Health and Total Worker Exposure and shared on-going research from various institutions including Harvard, Indiana University and the Colorado School of Public Health. Jenn introduced the concepts of the external (exposures outside of the body) and internal (exposures within the body) exposomes.

Summary of Participant Discussion

Possible Definitions of Total Worker Exposure and Our Role:

To focus on that fraction of the exposome that originates from work and/or is in the workplace. The science of assessing those exposures that originate from or interact with exposures from the job.

We need to understand what the workers bring to the workplace. If we focus on the receptors – how do we incorporate this into our exposure assessment?

Total Worker Exposure is a subset of Total Worker Health – industrial hygienists can contribute with our skill set. Integrating health promotion (wellness) with health protection (injury/illness prevention) can contribute to a healthier workforce. For example:

- Giving smoking cessation education during respirator fit-testing and training
- Addressing psychosocial issues
- Accommodating aging workers
- Addressing personal risk factors
- Addressing occupational risk factors
- Developing a strategy to protect people who are taking therapeutic drug agents

ASSP has a task force on Total Worker Health – it's a cross-functional team. Chris L-D is a member. Representatives from the NIOSH TWH Centers of Excellence include nurses, physicians, industrial hygienists, and safety professionals. Larry Sloan reported that he has begun discussions with ASSP on collaborating with them.

Safety definitions are changing (past: no injuries, acceptable risk, freedom from unacceptable risk). New definition is becoming an emergent property that comes from the capacity to be productive. The analogy to the health side is total productivity – the capacity to be all you can be at work, at home and in retirement – “being the best you can be”.

Wellness = cost savings

Total productivity = investment

Factors that need to be taken into account include:

- Extrinsic – occupational environment
- Intrinsic factors have been historically addressed on a case-by-case basis rather than by a management system.

One way to look at total worker exposure is a visual example – put a bubble around a person and measure everything to which the person is exposed.

The occupational paradigms are changing so we need to adapt what we are doing so we are not left behind. (e.g REACH, TSCA reform). How many systems can we look at simultaneously? Truth, lies and beliefs are influencers.

How do IHs address mental health issues?

- We need to be part of the team

How do diversity and inclusion impact the workplace? There are obvious ergonomic impacts:

- Impact of shiftwork
- Impact of fatigue
- Impact of aging workforce
- Impact of different size individuals

Shiftwork is a health risk – circadian rhythm mismatches with assigned shifts.

How do we address the fact that a lot of disease doesn't manifest itself until post-retirement?

IHs are a piece of a much bigger multifunctional challenge. We need to step back and embrace our core competencies – measurement, interactions with workers. Our core competencies should be our starting point and enable us to focus on what we can contribute. We need to understand what the factors are coming into the workplace and what the exposures are – the interface between these and the matrix of who is responsible for dealing with each issue.

We need to be aware of intrinsic factors which could place a person more at risk than another worker exposed to the same external environment. A further challenge is that the worker population is more aware of the environment, their genetic makeup, the hazards of their work, etc.

- Where do we stop on the continuum of worker health?
- How far do we push the envelope?
- We need to ask where we can make the biggest impact. Our roots are in public health.
- What is the missing part of the puzzle? Should we be reviewing death certificates to see how people are dying? How do we address the gap in information around what exposures occurred in the past?
- How do we address the people who are still doing risky work (e.g. coal miners, deep sea fishing, oil fields, etc.)? How do we engage these workers?
- What is our responsibility to the public (non-IH professionals) since we have the experience and expertise to protect people? We need to educate others. The boundaries aren't as clear as they used to be. The CEO of a company won't be interested in total worker health, he/she is interested in total productivity.
- How do we teach people about how to learn from data? Our "sweet spot" is exposure science. As a profession, we can't rely just on exposure limits as we might have done in the past. We need to work with the toxicologists and understand the basis for the limits and what interactions can occur.

We need to know the stressors and the receptors. Our opportunity for expanding our skill set is how to better frame and communicate our message...

- Appeal to the C-suite – total productivity
- Appeal to the worker – stay healthy, make more money, enjoy retirement...

One suggestion is to focus on one issue – e.g. noise – this is ubiquitous and most people would be able to relate to it. Another suggestion was to put together a series of case studies. We need to use technology – e.g. have a camera so equipment won't start unless a person has on the appropriate PPE.

How do we deal with vulnerable populations – in the past, we set uncertainty factors. Now, there is some certainty about those factors (e.g. genetic risk factors) and we need to start to address them.

Exposure as a metric is troublesome. In the past, exposures had been very high. We have done a good job as a profession reducing exposures. Now, we should focus on efficacy. Will the dollars spent result in a measurable improvement? What are the relevant metrics?

What impact do we want to have? We can't solve all health problems occupationally. (e.g. reducing phthalates in water wasn't the problem – cumulative risk assessment needed to be done to understand where the exposures were coming from). Not everyone works in a workplace. To have an impact, we need to expand what we are doing.

In the U.S., we have an employee vs. employer mentality. We need to get away from this approach. We can't use the fear of the victim being blamed (i.e. worker) for everything but recognize that both the employee and employer have a responsibility.

Center for Sustainability – AIHA is a contributor – research money has been approved to develop leading health metrics.

Value of the profession – total worker health road map that shows how all of the different sciences contribute and be clear about what our role is.

Our challenge is that the baseline is changing. e.g. knowing what drugs might be in a person who would be influenced

We have traditionally focused on our technical skills but we need to upgrade our communication skills. We have isolated ourselves with the technical.

Exposure science as it is applied to the exposome.

Lifetime surveillance - Oak Ridge operates a screening program for former radiation workers – the purpose is to identify any disease – either caused by radiation or personal issues.

Total Risk (all of the exposures). If risk is hazard x exposure, our skill set is on the exposure side and this is where we can make the biggest contribution.

People freely share their issues – e.g. “I know it's not work-related but I need an improvement in my workplace (e.g. I have a bad back and need a better chair...)” This will enable them to contribute at a higher level. Maybe we should do some education around what are the external risk factors that people should know about in addition to the workplace risk factors.

Meeting Wrap-up

Frank Renshaw passed the gavel to incoming YPSW President, Barbara Dawson, and she adjourned the meeting to the hospitality room and banquet. The wine for the banquet was generously donated by Chris Laszcz-Davis and The Environmental Quality Organization, LLC. Her son, Grant Davis and a guest, joined the group for the banquet. During the banquet, Bob Lieckfield, YPSW auctioneer, led the group in auctioning off a homemade apple pie made by Anna Davis, a homemade apple cake made by Larry Sloan, and a set of midget impingers donated by Dan Napier, which will be donated to the AIHA industrial hygiene display of historical equipment. Funds from the auctioned items will be donated to the Stephen C. Davis Leadership Institute Memorial Grant of the American Industrial Hygiene Foundation, and to the University of Wyoming in memory of Douglas Davis.

The YPSW Executive Committee thanks all of the speakers and attendees for their support of the YPSW AIHA local section and commitment to the industrial hygiene profession.