

YPSW AIHA 2020 Meeting Summary

The 45th meeting of the Yuma Pacific Southwest (YPSW) section of the American Industrial Hygiene Association (AIHA) was held January 22-24, 2020 at the Bay Club Hotel and Marina in San Diego. Fifty six people attended the technical sessions, including speakers and guests.

President Barbara Dawson opened the event with the annual business meeting on Wednesday. Fred Boelter was elected President-Elect. Anna Davis and Bob Leickfield were elected Co-Secretary-Treasurer. (Bob is Secretary-Treasurer-in-training). Frank Hearl (3rd year of 3-year term) will continue his term as Director. He will be joined by Bob Nocco, who was elected to a 3-year term and Ben Heckman, who was elected to fill the remaining two years of the Director position left vacant by Fred Boelter's move to President Elect.

The technical portion of the meeting began on Thursday morning. Tom Slavin gave a brief overview of the meeting theme, **2020 Vision – A Critical Look at Key IH Issues**, and reviewed the agenda and speakers. The industrial hygiene profession is facing many new or developing challenges, and this program was intended to examine several of the most compelling issues with the potential to impact the IH profession. These include occupational robotics, psychosocial effects of technology, climate change, the health impact of the microbiome, health metrics, and cannabinoids and the workplace. Risk management was a particular focus, including a presentation on talc, a critique of the linear-no-threshold theory, a presentation on risk assessment tools and a group discussion on risk management. The presentations were intended to provide new insights, tools and perspectives for IH professionals.

Chuck Geraci, NIOSH Division of Science Integration (DSI), opened the session with a talk on **The future is now – occupational robotics**. The session explored what an increasing amount of human-robot interaction means for workers and the field of industrial hygiene. Gone are the days when robots operated in isolation, away from humans, or in cages, and sales of both traditional and collaborative robots are on the rise. More and different kinds of robots are being introduced to businesses around the world and they need to be managed, controlled, and programmed. It's also important to understand the potential hazards and implications of these emerging technologies. The NIOSH Center for Occupational Robotics Research, or CORR, a virtual center that was created in 2017 to evaluate potential benefits and risks of robots in the workplace; monitor trends in injuries related to robots; and prepare for the safe and responsible introduction of advanced robotics in industry. CORR partners with researchers, trade associations, robotics manufacturers, employers using robotics technology, and other stakeholders to advance research in the field.

Naomi Swanson, also of the NIOSH DSI, followed with **Psychosocial health trends**, linking the "4th industrial revolution" to a transformation of the workplace bringing old and new health and safety risks. These include H&S effects of nonstandard work arrangements. The session discussed the projected impact of technology on jobs, as well as the benefits for workers from automation. Automation will cause jobs to change and create higher demand for more

educated workers and new specialist roles (e.g., big data, AI, and machine learning specialists, robotics engineers). Automation will create a need for “lifelong learning,” reskilling and upskilling.

Next up was Eric Miller, Cardno ChemRisk, who presented ***A primer on Talc***. He explained that talc is a hydrated silicate magnesium mineral that has been used extensively in a variety of industrial, pharmaceutical, and cosmetic products. These uses correspond to three grades that generally differ with respect to their level of purity and the degree to which accessory minerals are present. Accessory minerals and silicates, such as serpentines and amphiboles (tremolite and anthophyllite), may be present in some talc mines. Concerns have been raised over potential asbestos exposures resulting from the use of historical and current cosmetic talcum products. Analysis of any accessory minerals present in a given talc sample must be conducted appropriately, given that cleavage fragments, and talc itself, may be microscopically misidentified as asbestiform fibers, as they both may meet the OSHA size definition of fibers ($\geq 5 \mu\text{m}$ in length with an aspect ratio $\geq 3:1$). Further analysis of such particles is required to definitively confirm the mineralogy and habit of potential asbestos minerals. Such distinction is critical as the body of scientific evidence (toxicological and epidemiological studies) indicates that exposure to elongate mineral particles (EMPs), such as non-asbestiform cleavage fragments, do not increase the risk of asbestos-related disease. Additionally, several exposure studies have presented data, which can be utilized to assess the potential for inhalation exposure to fibers during the use of cosmetic talc. In conclusion, a thorough understanding of mineralogical and analytical principles, toxicology, and industrial hygiene, are necessary to evaluate the concerns regarding the potential for asbestos exposure from cosmetic talc.

In the final session of the morning, Ed Calabrese, University of Massachusetts, provided a fascinating overview of ***Limits of the linear no threshold model***. This presentation summarized historical revelations, which challenge the history of cancer risk assessment, showing scientific errors and incorrect interpretations, mixed with deliberate misrepresentations by leading ideological radiation geneticists. These findings demonstrate that the scientific foundations of LNT were seriously flawed and should not have been adopted for cancer risk assessment.

The Thursday afternoon technical outing was a visit to ***Levitate Technologies*** in San Diego. Levitate designs and makes the Airframe exoskeleton used in a variety of applications in manufacturing and construction including at Toyota and John Deere. Staff presented information on applications and data showing results on ergonomic stress reduction. Dr Gillette, Iowa State University, joined by phone to discuss some of the research. The highlight of the tour was the opportunity for each participant to try on an exoskeleton and experience the benefits of the device.

Friday morning began with updates from the major industrial hygiene professional organizations. Larry Sloan, AIHA CEO and Kathy Murphy, AIHA President reviewed the AIHA strategic plan and activities of the Content Portfolio Advisory Group (CPAG). Current priorities include exposure banding, big data and sensor technology, total exposure health, serving the

changing workforce, communicating IH concepts, technology initiatives and plans for serving developing economies. Mark Ames, Director of Government Relations talked about 2019 accomplishments and preparing for the future, including AIHA's new grassroots engagement strategy. Alan Leibowitz, BGC Vice Chair gave the Board for Global EHS Credentialing (BGC) update. The BGC manages credentials of ABIH (CIH) as well as those from the Institute of Professional Environmental Practice (IPEP) including the QEP and EPI. Frank Mortl III, ACGIH Executive Director introduced himself to the profession and shared his vision for the organization. ACGIH sees its role as serving the professionals, helping them define their science and support their professionalism through publications, webinars and digital resources.

Following the organization updates, Brandy M. Wilson, J.R. Simplot Company, explained ***How climate change impacts health and safety***. From multinational corporate investors to cattle ranchers in Idaho, people are talking about climate change. Companies are increasingly being required by their investors to disclose climate change as a financial and business risk as society begins to experience the acute and chronic effects. Global frameworks have been developed for assessing and reporting upon climate impacts, which depend in part on understanding impacts to workforce health and safety. Companies are called upon to identify not only where they might be able to carry on business in the future, but how that work can be done as the workforce deals with dramatic shifts in employment type and opportunity during the transition to a low-carbon economy. Using examples from industry sectors including agriculture, oil and gas, and chemical manufacturing, as well as local governments, Brandy explored opportunities for understanding, quantifying, and preparing for these risks. Industrial hygiene professionals can—and should—get directly involved in creating a resilient future within their own organizations and companies. Pathways for involvement and additional resources for understanding climate topics were provided.

Alan Leibowitz, EHS Systems Solutions LLC, then returned to the podium for a talk on ***Measuring up – Meaningful Health Metrics***. Occupational Health and Safety (OHS) professionals are committed to the prevention of harm to workers. In service to that commitment these dedicated experts employ many tools that help identify causes of injuries and illnesses. Unfortunately, traditional reported metrics are most often retrospective/lagging indicators that measure the consequences of unintended events. To help identify resources to meet the need for better metrics the Center for Safety and Health Sustainability (CSHS) initiated a project to identify “Leading Health Metrics”. The American Industrial Hygiene Association (AIHA), a founding member of the CSHS assumed the lead in this project and convened a broad working group comprised of interested parties representing professional societies (IH, Safety, Medical etc.), industry, and government to work on the issue. This presentation discussed the use of metrics and the CSHS/AIHA project status.

In the final presentation of the morning John Howard, Director, NIOSH provided the ***NIOSH update: Cannabinoids and the Workplace***. The industrial, medical and recreational use of cannabinoids was reviewed. A summary of the science included types of cannabinoids,

physiological receptors, medical benefits and other consequences of use. Legal issues were also explored along with implications for occupational exposure and safety and health in the workplace, including advances in drug testing and techniques for evaluation of impairment.

Following the NIOSH presentation, the NIOSH-AIHA Alliance agreement was formally signed by Dr. Howard and Larry Sloan.

Friday afternoon began with a presentation from Rob Knight, Pediatrics, Bioengineering, Computer Science and Engineering, University of California San Diego on ***How the microbiome determines health***. We change our microbiomes every day through the foods we eat, the environments we experience, even the people we live and work with. The implications of these changes in the microbiome for our health are just beginning to be understood. Through the American Gut Project, the largest crowdsourced and crowdfunded citizen-science project yet conducted, we now know about the microbiomes of many types of people, from the healthiest (student-athletes, centenarians) to the sickest (cancer patients, ICU patients, those with C. diff). Amazingly, diet has an especially profound effect on our microbiomes, often outweighing the effects of disease or medications. This raises the prospect of a system for real-time analysis of our microbiomes that helps guide our daily decisions in a way that optimizes our microbiomes for life-long wellness.

Scott Dotson, Cardno ChemRisk then gave a talk on ***Beyond risk assessment***. In the last decade, the AIHA Risk Assessment Committee officially changed its name to the Risk Committee. This change is much more than a simple rebranding effort for the committee, but a reflection of the evolving nature and understanding of risk in the profession of industrial hygiene. This evolution is being triggered by numerous factors including scientific and technological advancements, emerging hazards, and ever-more complex public health issues. Scott provided an overview of advancements in our scientific understanding that have facilitated the application of updated and novel risk assessment approaches.

The last technical session was a group discussion facilitated by Charles Redinger, Redinger 360 Inc. on ***Decision Making in Managing Risk***. Charles linked many of the other presentations to the central theme of managing risk. The central challenges for industrial hygiene are to define, explain, and understand risk in context. The main themes of the discussion were that

- Risk is not absolute, it's subjective
- Risk assessment and management are chocked full of paradox and tension.
- Residual risk is ever present
- Risk transfer is often overlooked and not considered.

Communicating effectively about risk requires a new vocabulary and new skills such as were described earlier by Naomi Swanson.

Meeting Wrap-up

Barbara Dawson passed the gavel to incoming YPSW President, Tom Slavin and he adjourned the meeting to the hospitality room and banquet. 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 Frank Hearl gave an entertaining and informative presentation on an Industrial Hygienist's View of Ice Hockey.

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