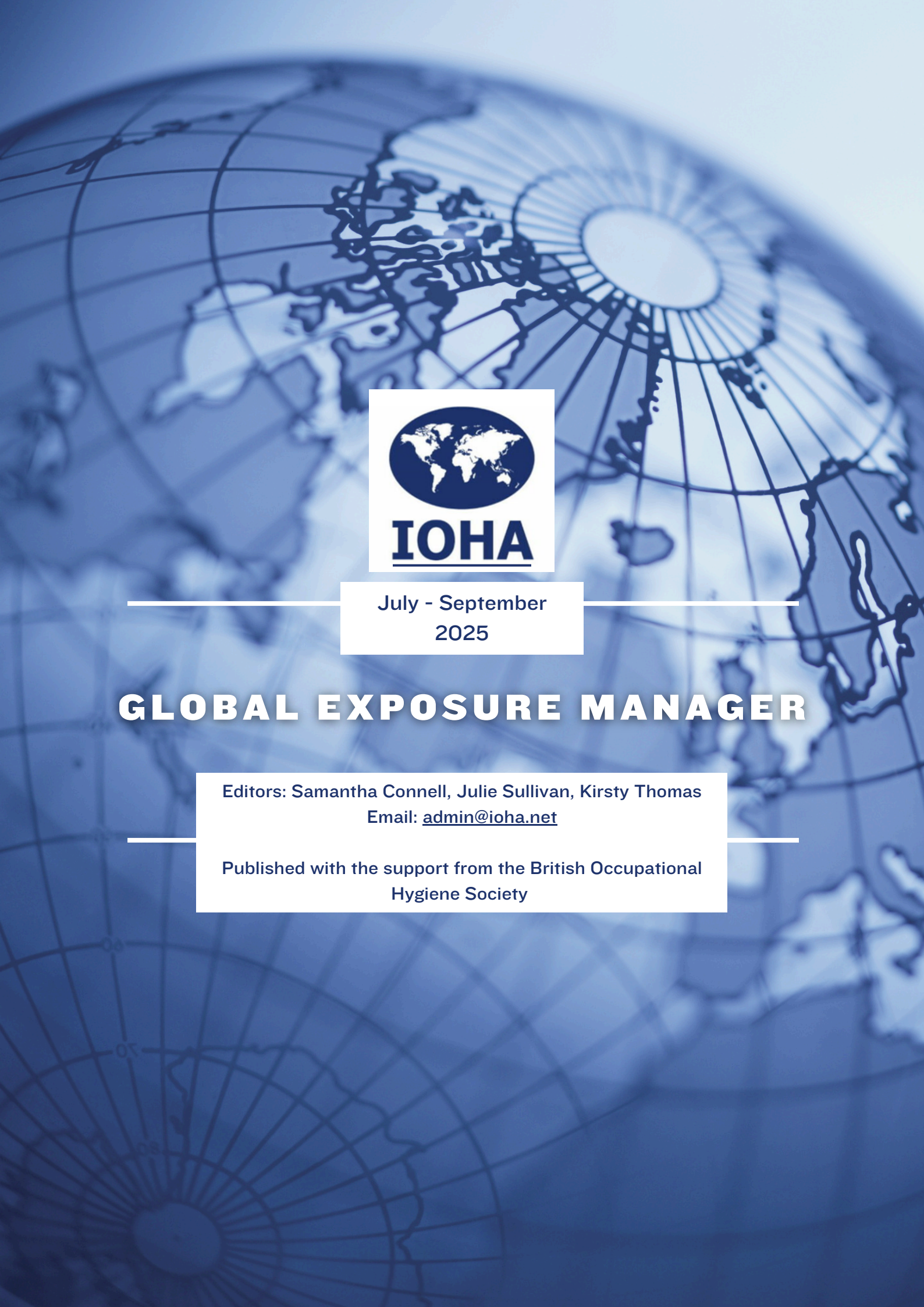

IOHA

July - September 2025

GLOBAL EXPOSURE MANAGER

Editors: Samantha Connell, Julie Sullivan, Kirsty Thomas
Email: admin@ioha.net

Published with the support from the British Occupational Hygiene Society

IOHA

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EDITOR'S LETTER

Dear readers,

As IOHA's global community continues to grow, so does the responsibility of this magazine. GEM has always been a space to share science, insight, and expertise, but it is also a space to connect us as people. Whether you are a senior hygienist, a student, a technician, an educator, a health & safety professional, an occupational health nurse, an engineer, or someone dipping into occupational hygiene from a neighbouring discipline, this magazine is for you.

Our profession has its roots in science, measurement, and evidence. But it is driven by something just as important: people.

The people we protect, the people who make up our workforce, and the people who choose to share their knowledge, time, and passion with this community. IOHA's values (collaboration, integrity, scientific excellence, and global connection) come to life because of the diversity and generosity of those who engage with us.

This issue reflects that diversity. You'll find advanced technical content sitting comfortably alongside human stories, student innovation, national society milestones, and global partnership updates. It shows who we really are: a profession that thrives at the intersection of science and humanity.

As GEM evolves, we are committed to making it accessible and relevant to everyone. Not just those with decades of expertise, but those starting out. Not only researchers, but practitioners. Not only occupational hygienists, but colleagues across health & safety, occupational medicine, risk management, environmental science, public health, and every discipline that touches worker wellbeing. Worker health is not owned by a single profession, it is strengthened when we learn from each other.

If this issue sparks ideas, experiences, or reflections of your own, we would love to hear from you. GEM is built by it's community, and it grows stronger every time a new voice joins the conversation. Whether you want to share research, a project, a case study, a practical tool, or simply a story from the field, your contribution is welcome here.

I hope you find something in these pages that informs you, inspires you, or simply reminds you why this work matters. Thank you to all who contributed, and to all who continue to support IOHA's mission of creating safer, healthier workplaces across the world.

Samantha Connell
Editor, GEM Magazine

MEET YOUR EDITORIAL TEAM

Samantha Connell

Kirsty Thomas

Julie Sullivan

IOHA

July - September 2025

Lee Kelly-Burkett

Joe Mott

GEM READERSHIP SURVEY

IOHA WANTS TO HEAR FROM YOU! HELP SHAPE THE FUTURE OF GEM BY SHARING WHAT CONTENT AND TOPICS MATTER MOST TO YOU.

TAKE A FEW MINUTES TO COMPLETE OUR SHORT SURVEY AND MAKE YOUR VOICE HEARD!

Genetic Insights into Workplace Hazards The Role of Mendelian Randomization in Occupational Exposure Research

By David Lowry, David.Lowry@riotinto.com

What's important about this article?

This article shows how genetics and Mendelian randomization can reveal which workplace exposures genuinely cause harm. These insights could eventually lead to personalized exposure limits for workers, offering new opportunities for prevention as well as new ethical challenges.

This article was originally published in the November 2025 issue of The Synergist®, the magazine of AIHA®. Submission provided to IOHA by Kay Bechtold, Managing Editor, Periodicals, AIHA.

Imagine a scenario sometime in the future where two workers—let's imaginatively call them Worker A and Worker B—arrive at a large manufacturing facility to attend to an equipment breakdown. There is visible particulate in the air. Soon, Worker A's wearable sensor indicates that they are exposed to a harmful level of inorganic dust, activating controls that prevent the worker from ongoing exposure. But Worker B's sensor remains in stasis, suggesting no such hazard for that worker.

Is this a case of a faulty sensor, or perhaps a piece of equipment out of calibration? What if, six months prior to this event, genetic testing completed as part of Worker A's routine workplace medical checkup had identified the presence of an Asp299Gly polymorphism in the Toll-like receptor 4 (TLR4) gene, a unique variation in a DNA sequence that has been linked to altered TLR4 signaling, potentially influencing immune responses to respiratory infections and diseases like chronic obstructive pulmonary disease (COPD) and occupational asthma? As a result of this finding, Worker A was assigned a lower, personalized exposure standard for the inorganic dust in question, and their personal wearable sensor was set to this threshold. In effect, the scenario played out as planned.

Currently, no widely accepted framework for personalized workplace exposure standards exists.

Regulations typically establish uniform exposure limits intended to protect most workers; however, what if exposure standards were personalized to a worker's own physiology, allowing for individualized factors such as genetic profiles, health statuses, or susceptibilities? This idea may sound a little farfetched, but the central premise is rooted in a concept that has

been in the scientific zeitgeist since the mid-20th century: Mendelian randomization, or MR.

MR takes its name from the work of Gregor Mendel, who discovered the fundamental laws of inheritance in 1865. In the 1940s and 1950s, as more was understood about inheritance patterns, scientists began to appreciate that genetic variation could be used to explore complex traits and their relationship with disease. However, the formalization of MR as a research method didn't begin until the 1990s, when Sir Richard Doll and colleagues acknowledged the potential for genetic variants to act as instruments for investigating causality in epidemiological research.

MR uses genetic variation as a "natural experiment" to investigate causal relationships between risk factors, such as modifiable exposures, and health outcomes. The idea is based on the natural random assignment of alleles, which are alternative forms of agene, during meiosis (cell division).

MR mimics a randomized controlled trial (RCT), the gold standard for establishing causality.

The term genetic polymorphism refers to the presence of two or more alleles that occur within a population at a frequency greater than a certain threshold, often 1 percent. An allele that exceeds this threshold is common enough to be considered a normal variation rather than a rare mutation. These alleles can result, for example, in the production of different enzymes. Polymorphisms can interact with environmental factors, such as the type and concentration of dust, to influence the degree of health impacts on individuals. Identifying these genetic markers could help increase understanding of individual risks and lead to the tailoring of preventive and therapeutic strategies for workers.

Take dust as an example. Certain genetic polymorphisms can influence an individual's susceptibility to health impacts from dust exposure. Some relevant examples are listed in Table 1.

Table 1. Genetic Polymorphisms Associated with Dust Exposures

Genetic Polymorphism	Overview
Glutathione S-transferases (GSTs) - GSTT1, GSTM1, and GSTP1	These enzymes play a crucial role in detoxifying reactive oxygen species and other harmful substances. Polymorphisms, particularly deletions in GSTM1 and GSTT1, and specific variants in GSTP1 (for example, Ile105Val), have been associated with increased respiratory issues and impaired lung function following dust exposure.

TECHNICAL FEATURE	
TNF-α gene polymorphisms	Variants such as -308 G>A have been linked to elevated levels of Tumor Necrosis Factor-alpha (TNF-α), a cytokine involved in inflammation, which can exacerbate respiratory conditions like asthma and chronic obstructive pulmonary disease (COPD) when exposed to dust.
IL-13 gene polymorphisms	Variants of the cytokine Interleukin-13 (IL-13), such as Arg130Gln, have been associated with an increased risk of asthma and allergic reactions, which can be triggered by dust exposure.
N-acetyltransferase 2 (NAT2) - NAT2 gene polymorphisms	NAT2 is an enzyme involved in the metabolism of various xenobiotics, including those found in dust. Polymorphisms that result in slow acetylator phenotypes have been linked to higher susceptibility to respiratory conditions due to prolonged exposure to harmful compounds.
Toll-like receptor 4 (TLR4) - TLR4 gene polymorphisms	Variants such as Asp299Gly have been associated with altered immune responses to environmental particulates, potentially affecting the severity of respiratory and systemic inflammation due to dust exposure.
Surfactant protein genes (SFTPA and SFTPB) - SFTPA1, SFTPA2, and SFTPB gene polymorphisms	Variants in these genes, which are involved in lung surfactant production and function, can influence susceptibility to dust-induced respiratory disorders.
Matrix metalloproteinases (MMPs) - MMP9 gene polymorphisms	Variants such as -1562 C>T have been implicated in tissue remodelling and inflammation, affecting the severity of lung damage and respiratory issues following dust exposure.

Mendelian randomization has been utilized in public and occupational health research to explore the causal relationships between various exposures and health outcomes.

Several notable examples are:

Long-term air pollution and cardiovascular disease.

Genetic proxies related to exposure pathways—for example, genes affecting lung function—help strengthen causal inferences where observational studies might be confounded. The MR studies conducted in this area provide evidence of a causal relationship between air pollution exposure and an increased risk of cardiovascular disease, including heart disease and stroke. Refer to papers published in *Global Heart, Journal of Stroke*, and *Scientific Reports* listed in the Resources section at the end of this article.

Noise exposure and cardiovascular disease, mental health outcomes, and hearing loss.

Several MR studies have examined noise exposure as it relates to outcomes in cardiovascular diseases, such as hypertension, stroke, and cardiovascular mortality; mental health, including depression and anxiety; and hearing impairment. These studies typically use genetic variants associated with noise exposure to estimate causal relationships, a more robust method than traditional observational studies, which may be confounded by reverse causality and other biases. Refer to papers listed in the Resources section that appeared in *Toxics and Science of the Total Environment*.

Asbestos exposure and mesothelioma, lung cancer, and pleural diseases.

MR studies on asbestos exposure have focused on the causal link to mesothelioma and lung cancer, showing strong evidence that higher genetic susceptibility to asbestos exposure increases the risk of these diseases. Some MR studies have examined how genetic predisposition to asbestos exposure affects the development of pleural diseases, such as plaques and fibrosis, which are early indicators of asbestos-related health risks. These studies typically use genetic variants associated with increased susceptibility to asbestos exposure as instruments, providing more robust evidence of causality compared to traditional observational studies. Additionally, the studies provide crucial insights into the genetic basis of asbestos-related diseases and highlight the role of genetic susceptibility in determining risk. Refer to papers published in *Respiratory Research* and *Cancer Letters*.

Respirable silica exposure and silicosis, pulmonary fibrosis, and lung cancer.

Not many MR studies have focused directly on silica exposure, but all of the research previously mentioned highlights the potential role of genetic susceptibility in the development of silica-related diseases such as silicosis, pulmonary fibrosis, and lung cancer. These studies suggest that genetic predisposition, when combined with silica exposure, can significantly increase the risk of these occupational diseases. In particular, refer to papers published in *Inhalation Toxicology, Annals of Occupational Hygiene,* and *Frontiers in Immunology*.

The findings from these studies highlight the potential applications of MR. The approach is centered around three key steps:

1. Identification of genetic instruments. This includes finding genetic variants, such as those in Table 1, associated with the response to the hazardous substance.
2. Data collection from large biobanks, such as the CSIRO Biobank in Australia, the "All of Us" Biobank in the United States, and the U.K. Biobank, or from occupational cohorts where data on both genetic and health outcomes are available.
3. Completion of MR analysis. This entails the use of statistical methods to test the causal relationship between genetic variants as proxies for exposure and health outcomes, adjusting for potential confounders.

If the genetic variant is associated with the exposure and the outcome, it can be used to infer the causal effect of the exposure on the outcome.

From an academic perspective, MR studies provide additional controls and are more reliable than conventional observation studies, where control conditions can be challenging. MR can also provide evidence for causal relationships that are difficult or impossible to study using traditional methods, such as RCTs.

Researchers can use MR data to provide actionable advice to occupational health practitioners. For example, MR can identify causal risk factors that are potentially modifiable, aiding in the prioritization of workplace policies and public health interventions. These insights may also inform targeted interventions that can lead to significant productivity and cost benefits. Some examples are:

Improving workforce health to reduce absenteeism. Integrating MR findings into industrial hygiene programs can help prioritize and target interventions more effectively, reducing the burden of exposure-related illness, lowering absenteeism, and ultimately improving workforce productivity.

Adjusting occupational exposure limits for hazardous substances. MR can help strengthen the scientific basis for adjusting OELs by providing causal, human-based evidence linking specific exposures to adverse health outcomes. MR enables regulators and policy makers to refine dose-response thresholds, incorporate genetic susceptibility, and prioritize substances with the highest verified risk, ultimately supporting more protective and targeted industrial hygiene standards.

Optimizing OELs for hazardous substances. MR can help determine whether low-level exposure to air pollutants, heavy metals, or chemicals has a causal link to diseases. If MR confirms a lower-than-expected

threshold for harm, policy makers and individual workplaces may adjust workplace exposure limits before costly litigation, regulatory fines, or health crises arise.

Reducing long-term healthcare liability. MR could help researchers investigate if and how early-life occupational exposures, such as shift work, noise exposure, and chemical handling, could impact chronic disease development like cardiovascular disease or neurodegenerative disorders. This research may help companies proactively modify work environments, reducing future disability claims and long-term pension liabilities.

More cost-effective health and safety interventions. MR can help industry prioritize investments that yield real productivity gains.

MR is not without limitations. It requires well-characterized genetic instruments that are strongly associated with the exposure. As occupational hygienists, we know that occupational exposures are often complex and multifaceted, making it challenging to isolate specific effects. MR study results should be considered alongside other evidence, not as definitive proof of causality.

Another drawback may be the potential for unethical behaviors linked to the use of MR data. For example, unscrupulous workplaces may "screen out" candidates for job roles based on MR data or use MR findings to distance themselves from culpability for the development of a disease. These behaviors would need to be planned for if MR is to be truly integrated into workplace programs.

Multidisciplinary partnerships that leverage science and technology to protect worker health will be essential.

Technological advancements are changing work and diversifying the responsibilities of occupational hygienists. Environmental, social, and governance (ESG) strategies encourage the corporate sector to act responsibly and disclose related policies and actions. Company leaders realize that healthy workplaces are essential for global development and that occupational hygienists will play an important part in this effort.

Multidisciplinary partnerships that leverage science and technology to protect worker health will be essential. Genetic profiling may help increase understanding of individual risks, and occupational hygienists may soon have the ability to tailor preventive and therapeutic strategies for workers. Such a tool could benefit industry by lowering workers' compensation and insurance premiums, reducing lost workdays, increasing productivity, minimizing legal risks and regulatory compliance costs, and improving worker well-being, retention, and morale. Our profession typically attracts a fiscal commitment from industry through measuring,

monitoring, analysis, and implementation of controls, so any commercial or productivity benefits we can offer would be warmly welcomed.

DAVID LOWRY, PhD, MAIOH, COH, the principal occupational hygienist at Rio Tinto, works across mining, supply chain, projects, and exploration activities within Western Australia. David is a Certified Occupational Hygienist and holds a PhD in public health. David has published several peer-reviewed articles, has presented original research at various scientific conferences, and holds an adjunct appointment as associate professor at Edith Cowan University's School of Medical and Health Sciences.

Resources

Annals of Occupational Hygiene: "Significance of Genetic Information in Risk Assessment and Individual Classification Using Silicosis as a Case Model," bit.ly/aohmccanlies0206 (June 2002).

Cancer Letters: "Molecular and Genetic Changes in Asbestos-Related Lung Cancer," bi

Frontiers in Immunology: "Silica, Silicosis, and Autoimmunity," bit.ly/foipollard1603 (March 2016).

Global Heart: "Causal Associations of Environmental Pollution and Cardiovascular Disease: A Two-Sample Mendelian Randomization Study," bit.ly/ghgao2401 (2024).

Inhalation Toxicology: "Is Individual Genetic Susceptibility a Link Between Silica Exposure and Development or Journal of Stroke: "Causal Relations Between Exposome and Stroke: A Mendelian Randomization Study," bit.ly/jsli2205 (May 2025).

Respiratory Research: "Integrative eQTL and Mendelian Randomization Analysis Reveals Key Genetic Markers in Mesothelioma," bit.ly/rrli2504 (April 2025).

Science of the Total Environment: "Causal Effects of Noise and Air Pollution on Multiple Diseases Highlight the Dual Role of Inflammatory Factors in Ambient Exposures," bit.ly/stema2411 (November 2024).

Scientific Reports: "Two-Sample Mendelian Randomization Analysis Investigates Ambient Fine Particulate Matter's Impact on Cardiovascular Disease Development," bit.ly/srliang2311 (November 2023).

Toxics: "Causal Effects of Air Pollution, Noise, and Shift Work on Unstable Angina and Myocardial Infarction: A Mendelian Randomization Study," bit.ly/toxicsma2501 (January 2025).

Meet the Swiss Society for Occupational Hygiene (SSOH)

Ludovic Vieille-Petit, PhD, Swiss Certified Occupational Hygienist, President of SSOH, info@sgah.ch

What's important about this article?

This article highlights the Swiss Society for Occupational Hygiene's central role in advancing occupational hygiene in Switzerland, from professional certification and continuing education to legislative collaboration and community events like the 2025 General Assembly in Winterthur. It shows how SSOH strengthens the national OH network and supports professionals working to protect worker health.

The Swiss Society for Occupational Hygiene (SSOH) serves as Switzerland's leading professional association for occupational hygiene (OH). It unites and connects professionals in OH from across the country, as well as experts in workplace health and safety. Its members are occupational hygienists and other specialists who devote at least part of their work to protecting workers' health. The SSOH advances OH through the professional activities of its members, continuing education opportunities, and the exchange of expertise among professionals.

International Role and Education

The SSOH is the official Swiss delegate of the International Occupational Hygiene Association (IOHA), representing Switzerland within this global network. As such, the SSOH is responsible for awarding and monitoring the title of Certified Occupational Hygienist in Switzerland, based on the IOHA-recognized certification system managed by the National Accreditation Recognition Committee (NAR Committee).

One of the key requirements for certification is the completion of the "Diploma of Advanced Studies (DAS) in Work & Health," a formal postgraduate program jointly offered by the Universities of Zurich and Lausanne. This program is widely recognized as the standard pathway to becoming a qualified occupational health professional in Switzerland, whether as an occupational hygienist or physician. Graduates receive a postgraduate diploma, which, combined with relevant professional experience in occupational health, meets both Swiss and IOHA certification criteria. For IOHA certification specifically, candidates must also pass a written exam.

Candidates that have not completed the DAS but hold other credentials recognized by IOHA can apply for

recognition by taking a course on the Swiss legal system and completing the application along with all required documentation.

Professional Development and Continuing Education

The SSOH is deeply committed to supporting the ongoing professional development of its members. The society regularly provides professional development courses to help members meet both Swiss and IOHA continuing education requirements. Recent courses, delivered by recognized experts and organizations, both internal and external, have addressed key topics such as industrial ventilation, maternity protection, management of carcinogenic and mutagenic substances, and statistical analysis of chemical exposure data. Through these initiatives, the SSOH ensures that its members remain up to date with the latest developments and best practices in the field.

Contribution to Swiss Legislation and Best Practices

The SSOH is actively involved in the development and enhancement of Swiss legislation related to health protection in the occupational environment. Our society collaborates closely with government authorities, industry stakeholders, and other professional associations to help shape legal frameworks and promote best practices, both within Switzerland and internationally.

For example, the SSOH served as an active member of the task force responsible for revising the Swiss Ordinance on the Qualification of Occupational Safety & Health Specialists. Additionally, the SSOH holds annual meetings with both the Swiss National Accident Insurance Fund (Suva) and the State Secretariat for Economic Affairs (SECO) to exchange insights on specific topics, clarify emerging issues, and remain up to date on current developments.

Community and Annual Events

With approximately 200 members spanning industry, public administration, government authorities, and consulting, SSOH offers a vibrant and diverse professional network. Each year, the SSOH organizes its general assembly (GA), which brings together many of its members. Traditionally, the GA is hosted by an external organization and includes a visit to the host site, whether in the industrial, administrative, or public sector, fostering strong relationships between the SSOH and key organizations across Switzerland.

The most recent GA was hosted by the municipality of Winterthur (canton of Zurich) in March 2025. Discussions addressed various aspects of occupational and organizational health, such as the management of hazardous materials in workshops and the unique challenges of winter operations, including road

maintenance during icy and snowy conditions.

In addition to the GA, the SSOH has been organizing an annual Technical Exchange Day for decades. This event offers members valuable opportunities to share practical experiences and insights across a wide range of occupational health topics, further strengthening the community and fostering knowledge exchange. Each year's program typically includes 6–8 presentations along with more interactive formats, such as a speaker's corner. The day concludes with a social hour, providing members with additional time to network and exchange ideas in an informal setting.

The most recent Technical Exchange Day took place in Bern in September 2025. Topics included health protection in tunnel environments, protection against cytotoxic agents, handling highly potent compounds, and fit testing of tight-fitting respirators. The program also featured panel discussions, notably on the expected education and competencies of industrial hygiene professionals in the country.

Multidisciplinary Collaboration

SSOH is a member of suissepro, Switzerland's umbrella association of professional societies dedicated to workplace health protection and safety. Our association actively promotes multidisciplinarity and collaborates with other professional organizations in the field, particularly with specialists in occupational safety, occupational medicine, toxicology, and ergonomics.

Through these activities, the SSOH continues to strengthen the field of occupational hygiene in Switzerland and to support those working to protect health in the workplace.

Current SSOH Board

- **Dr. Ludovic Vieille-Petit** (president, industry)
- **Dr. Iris Schilling** (vice-president and secretary, transportation sector)
- **Mr. Christophe Iseli** (treasurer, federal authority)
- **Dr. Thomas Eiche** (board member, consulting)
- **Mr. Matthieu Perrenoud** (board member, occupational insurance)
- **Mr. Kaspar Schmid** (board member, federal authority)
- **Ms. Samantha Connell** (board member, industry)
- **Ms. Silke Büchl** (board member, consulting)

General Assembly of SSOH 2025 hosted by the municipality of Winterthur (canton of Zurich, Switzerland)

The Norwegian Occupational Hygiene Association's (NYF) 40th Anniversary

Ellen Katrine Jensen, PhD, Senior Advisor Working Environment, Equinor Expert Centre, IOHA Board Director NYF

What's important about this article?

This article highlights NYF's 40th anniversary celebration, a three-day conference that reflected on the association's history, showcased key achievements, and featured expert presentations, awards, and the launch of a new memorial prize. It captures how NYF continues to shape the future of occupational hygiene in Norway.

The Norwegian Occupational Hygiene Association (NYF) marked its 40th anniversary this autumn, celebrating four decades of advancing worker health protection and professional competency in Norway.

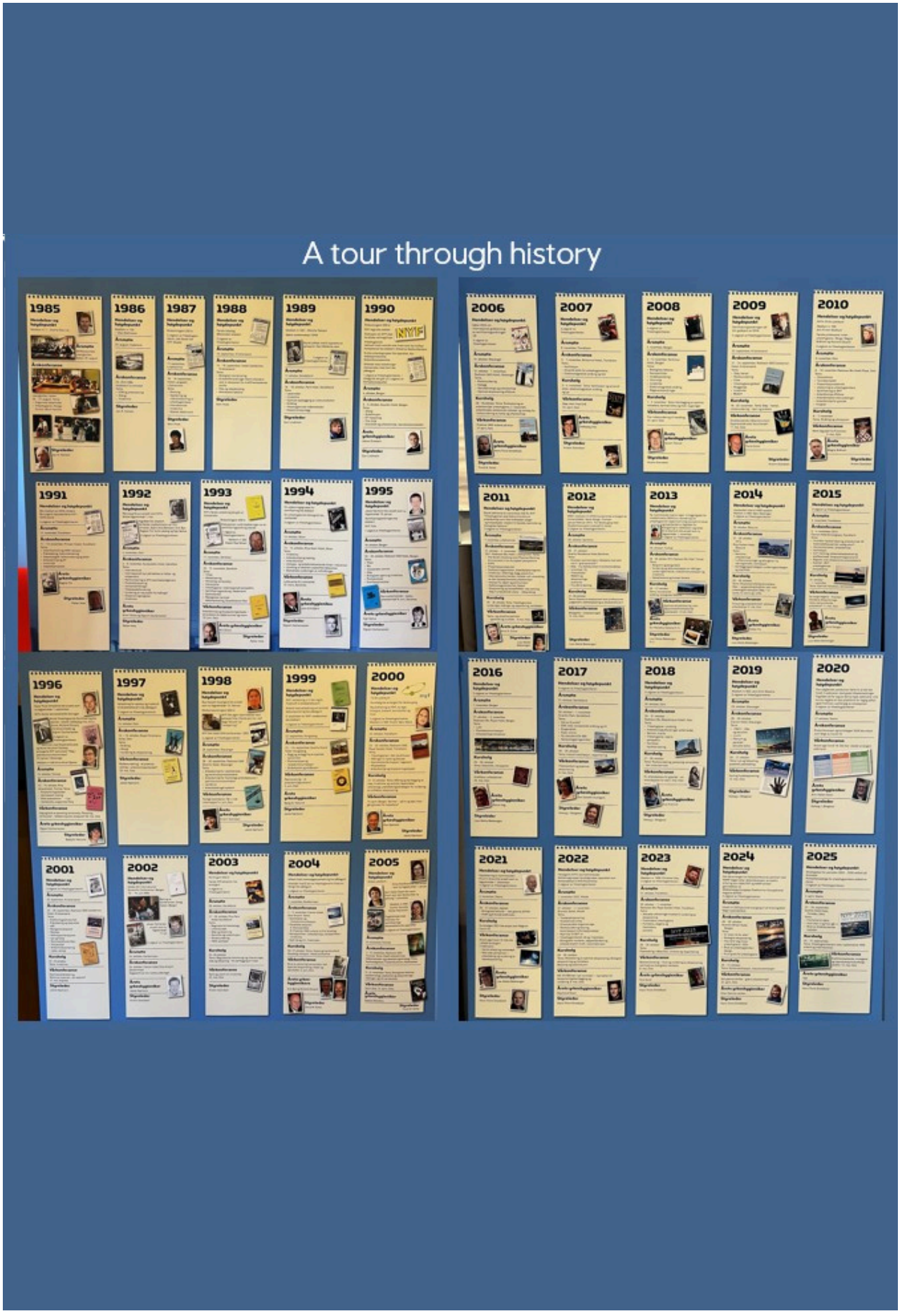
A three-day conference, themed "*Honoring the past, discussing the present*, and *looking ahead to the future of the profession*", brought together occupational hygienists and international guests to reflect on past achievements and explore future challenges.

The NYF currently has **400 members**, with approximately **170 attending the anniversary conference** held in Oslo from September 22 to 24, 2025.

A Historical Summary

An exhibition titled "*A tour through history*" was presented at the conference, featuring posters that highlighted each of the past 40 years. For every year, the display included key events and milestones, details of the annual meeting and conference, the course weekend, and the spring conference (introduced in 1993). It also recognized the "*Occupational Hygienist of the Year*" (established in 1990) and listed the serving President for each year.

A notable milestone came in 1995, when the NYF appointed its first secretary and introduced its certification scheme-an initiative which remains a cornerstone in professional recognition in Norway.


A tour through history
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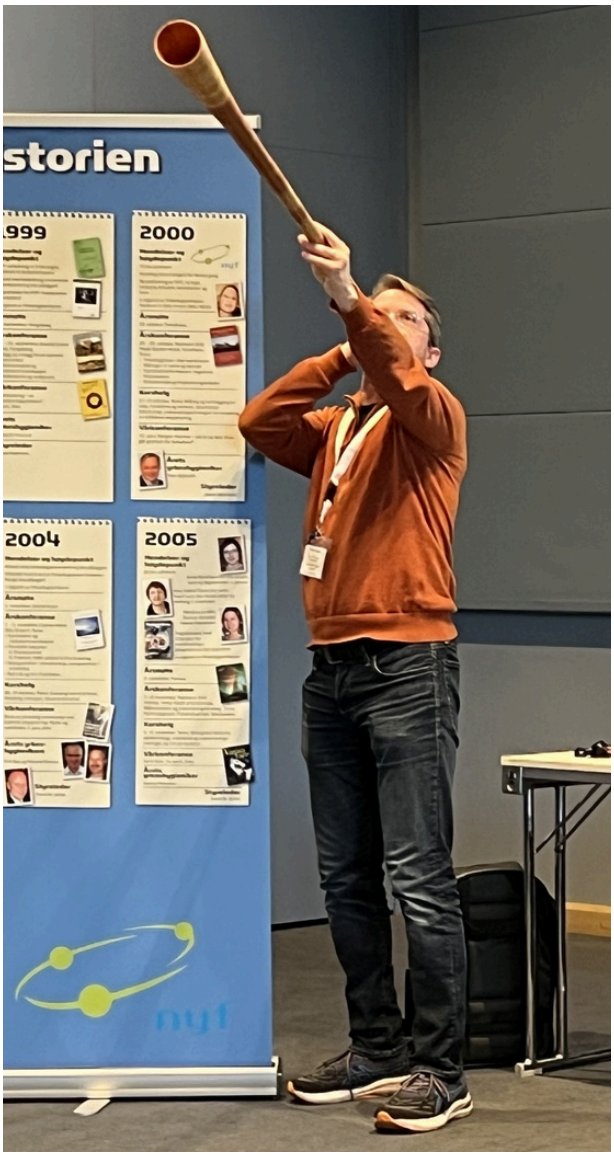
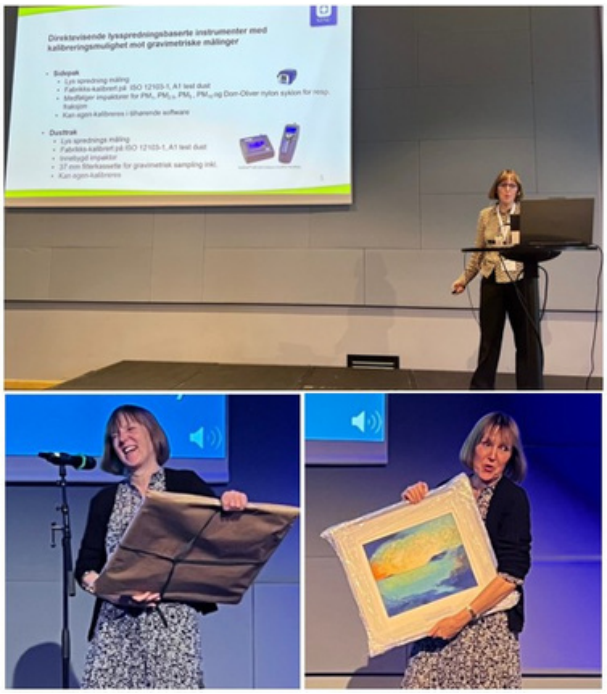
Conference Highlights

The opening ceremony featured music performed on the “neverlur” - a traditional long wooden horn used in Norwegian folk music - by occupational hygienist, Kasper Solbu.

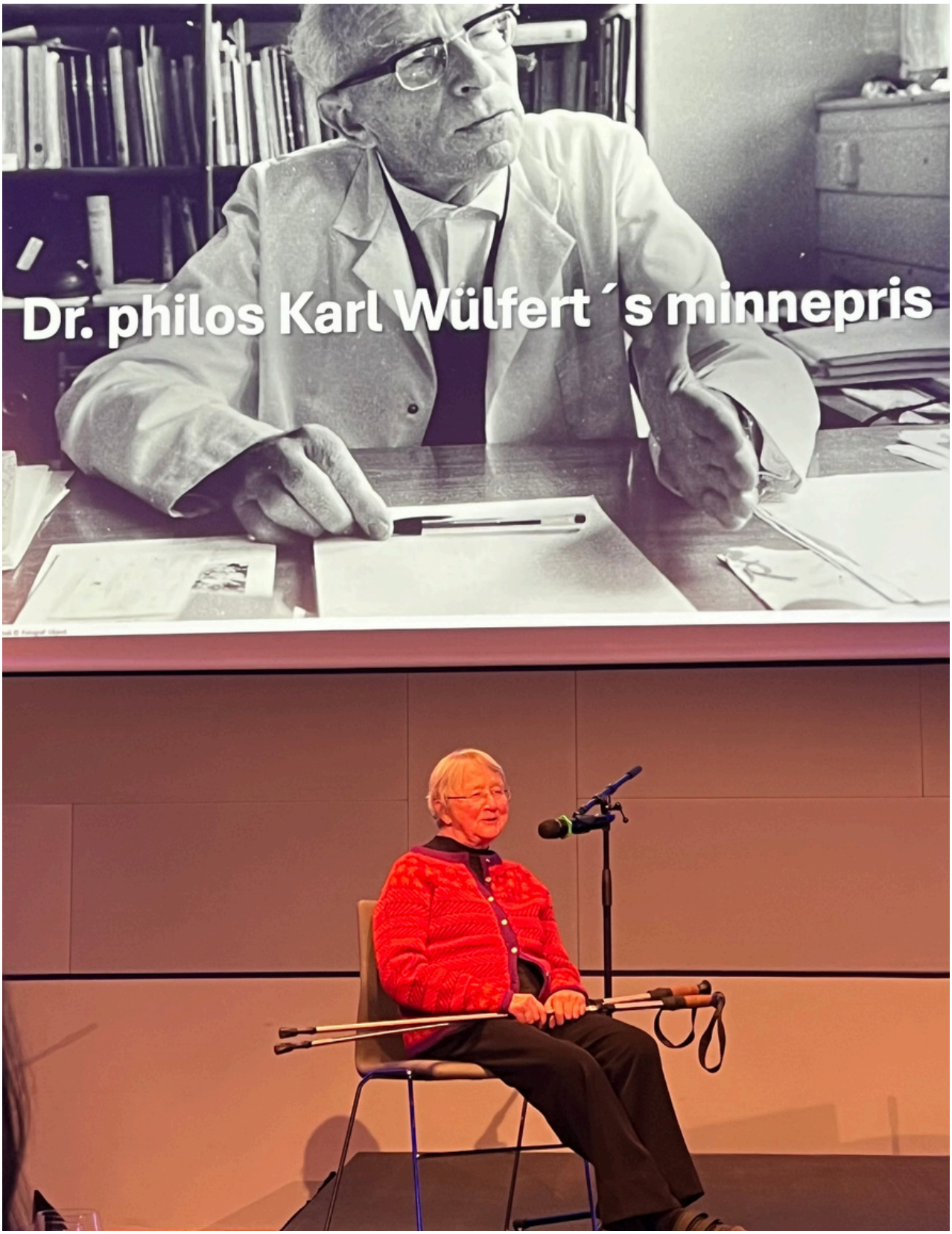


Rikke Jørgensen, Professor at the Norwegian University of Science and Technology (NTNU), presented “Technology that provides real-time or near real-time data” and “Use of direct-reading dust samplers”. She was awarded Occupational Hygienist of the Year 2025 at the anniversary dinner.



Kevin Bampton, CEO of the British Occupational Hygiene Society (BOHS), delivered a presentation titled “Chartered for change: Reflections on building a profession for worker health protection”. His reflections on the differences and similarities between the development of occupational hygiene in Britain and Norway were warmly received by the audience.

A new memorial award was also introduced at the anniversary in honour of Karl Wülfert, one of the founders of modern occupational hygiene in Norway. The first recipient was Ebba Wergeland, a specialist in occupational medicine and a researcher known for her lifelong commitment to preventive measures and her influential publications on work environment and social medicine.



Meet IOHA's newest Executive Committee member: President-Elect Kerry Cheung

Kerry Cheung, IOHA President-Elect, IOHA Executive Committee 2025-2028, kerry.cheung@outlook.com

Connect with Kerry on LinkedIn

Kia ora koutou katoa (greetings to you all), from Aotearoa, New Zealand!

My name is Kerry Cheung, and I am honoured to serve as IOHA's new President-Elect. I'm excited to contribute to the IOHA Executive Committee and to our various committees and working groups as we continue to enhance IOHA's vision of "a safe and health working environment for all".

My passion for occupational hygiene began almost 20 years ago in my first role at the Centre for Public Health Research, Massey University. Through field work, I spent time with workers and learned about their hobbies, families, and lives beyond the job. Seeing these workers I had come to know as people, rather than SEGs, operating in hazardous environments changed the way I viewed occupational health. It inspired me to dedicate my career to improving working conditions so that every worker can return home healthy and safely to enjoy life beyond work.

After academia, I went on to practice occupational hygiene in the healthcare sector in Canada. Later, I returned home to New Zealand to work in a global consultancy where I implemented occupational hygiene programmes across the Asia-Pacific region. I now work at WorkSafe New Zealand as the Principal Advisor Occupational Health, focusing on designing interventions to improve national occupational health outcomes.

I've also been an active member of the New Zealand Occupational Hygiene Society (NZOHS), serving on various committees and the board, and currently as Secretary.

Along the way, I completed my Masters in Work Health and Safety (Occupational Hygiene) with Distinction at the University of Wollongong and became a Certified Occupational Hygienist (COH)®.

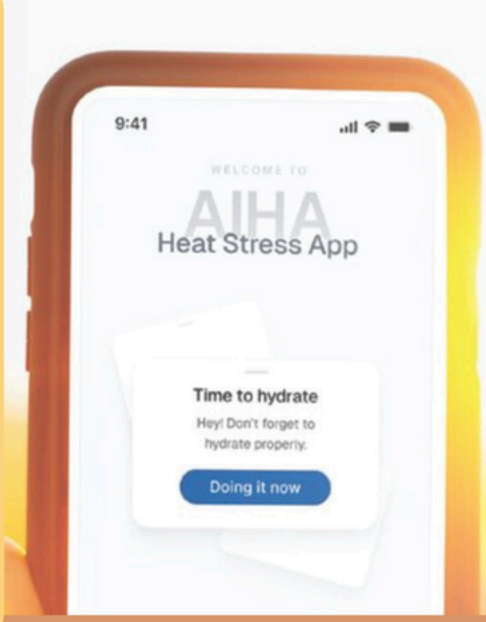
I feel incredibly fortunate to have found occupational hygiene as a career. It's taken me to many places, taught me invaluable skills, and introduced me to a community of passionate and generous professionals. I look forward to working alongside you all to strengthen those global connections, share knowledge across borders, and continue to elevate the profile of occupational hygiene as an essential part of worker health, safety and wellbeing.

Ngā mihi nui (with warm regards),

Kerry Cheung
IOHA President-Elect

FREE HEAT STRESS APP

- Workers exposed to extreme heat, especially those engaged in strenuous physical activities, may be at risk for heat stress.
- Occupational exposure to heat can result in injuries, disease, reduced productivity, and death.
- The AIHA Heat Stress App uses the preferred environmental heat metric for Heat Related Illness (HRI) prevention, the Wet Bulb Globe Temperature Index (WBGT).



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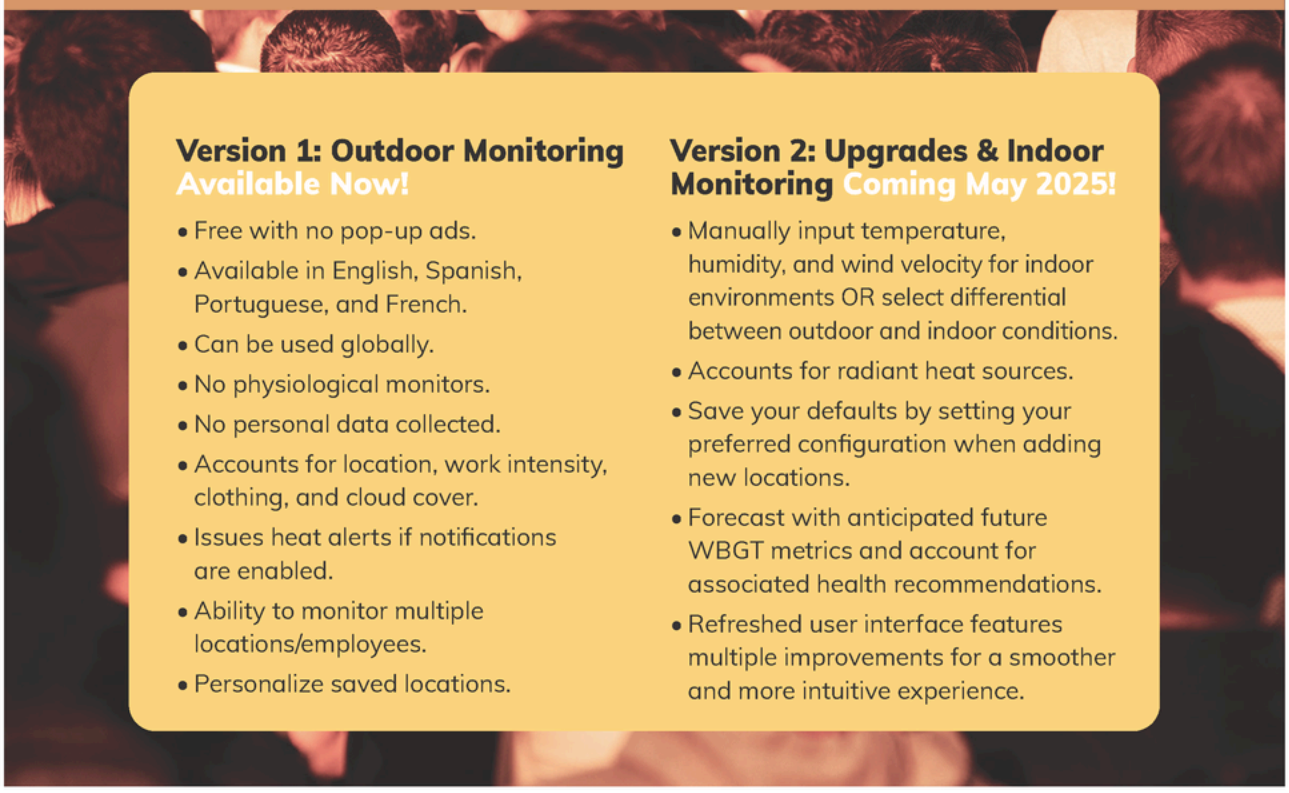

Version 1: Outdoor Monitoring Available Now!

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- Available in English, Spanish, Portuguese, and French.
- Can be used globally.
- No physiological monitors.
- No personal data collected.
- Accounts for location, work intensity, clothing, and cloud cover.
- Issues heat alerts if notifications are enabled.
- Ability to monitor multiple locations/employees.
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- Manually input temperature, humidity, and wind velocity for indoor environments OR select differential between outdoor and indoor conditions.
- Accounts for radiant heat sources.
- Save your defaults by setting your preferred configuration when adding new locations.
- Forecast with anticipated future WBGT metrics and account for associated health recommendations.
- Refreshed user interface features multiple improvements for a smoother and more intuitive experience.

IOHA at the Global Initiative for Safety, Health, and Well-being's Safety, Health and Well-being Days

Samantha Connell, IOHA Board Director for SSOH and IOHA Past President (2023 – 2024), samantha.connell.cih@outlook.com

What's important about this article?
This article details IOHA's participation in the Safety, Health & Well-being Days at EXPO2025, where occupational hygiene took center stage on a global platform. It summarizes IOHA's leadership across symposiums, workshops, and policy discussions, highlighting issues such as global hygienist shortages, climate-driven risks, capacity building, and the growing importance of interdisciplinary partnerships in advancing worker health worldwide.

EXPO2025, Osaka, Japan

The Global Initiative for Safety, Health, and Well-being (GISHW) was formed following the Vision Zero conference in Japan in 2020, with the goal of promoting safer, healthier, and more sustainable workplaces worldwide. Over the past five years, GISHW has brought together governments, businesses, worker organizations, and occupational safety and health (OSH) professionals to address emerging workplace risks and foster global collaboration.

Thanks to the dedication of our colleagues at the International Global Safety Alliance Partners (IGSAP) — a coalition of Japanese OSH experts and iinstitutions who led planning and coordination for EXPO2025 — the naugural Health, Safety, and Well-being (SHW) Days were held in conjunction with EXPO2025 in Osaka, Japan. EXPO2025, running from April 13 to October 13, 2025, featured a week dedicated to SHW from July 16 to 19, marking the first time in over 170 years of World Expo history that safety, health, and well-being were highlighted as a central theme. This recognition reflected the critical importance of OSH in shaping a sustainable and inclusive society for today and the future.

During SHW Week, professionals from

around the globe participated in six core activities: a High-Level Summit, a World Assembly, a Youth Congress hosted by the International Labour Organization (ILO), an International Symposium, a Festival, and a Theme Park/Exhibition. Together, these events provided a platform for dialogue, innovation, and knowledge exchange across disciplines and sectors. Expo visitors were welcome to attend several of the events, which took place within the EXPO venue and were open to all participants.

The Event: EXPO2025 / SHW Days

For IOHA, participation in GISHW SHW Days was both historic and inspiring. As a partner organization, IOHA was deeply involved in the Executive Committee and working groups for the International Symposium and the World Assembly, enabling IOHA to influence the agenda, contribute expertise, and showcase occupational hygiene's (OH) essential role in worker health and well-being. Partnering with GISHW brought multiple benefits for IOHA members, including opportunities to engage with leaders from across the globe, participate in high-level policy discussions, and co-lead sessions with other major OSH organizations such as the International Commission on Occupational Health (ICOH) and the International Network of Safety and Health Professional Organizations (INSHPO). These partnerships elevated the visibility of OH and reinforced our global commitment to safe and healthy work environments.

A complete list of GISHW partners can be found on the website at www.gishw.com.

IOHA's Contributions to Advancing Occupational Hygiene Globally

Our contributions at EXPO2025 were extensive, spanning both the International Symposium and the World Assembly. These sessions provided a platform to address critical global challenges in occupational hygiene, from policy priorities to practical interventions and partnership strategies. Beyond workshops and symposium sessions, IOHA's engagement included booths, presentations, panel participation, and networking with other organizations, highlighting the breadth of our role in advancing occupational hygiene and fostering global partnerships.

International Symposium

Policy Track: Addressing Occupational Hygiene Priorities Globally
Chaired by Samantha Connell

Samantha Connell opened the session by emphasizing the role of OH in preventing work-related diseases and framing the session topics as critical to realizing safety and health as a fundamental right.

Matthew Olota highlighted the urgent need for more occupational hygiene education and global capacity building. With just over 20,000 hygienists worldwide, distribution is highly uneven: per million workers there are 2 globally, 0.5 in Africa, 0.15 in Asia, 2 in Europe, 36 in North America, 10 in Oceania, and nearly 0 in South America. He stressed opportunities in strengthening regulation, stewardship (internal and external), national data reporting, funding initiatives, and leveraging partnerships to grow OSH communities.

Haruo Hashimoto discussed Japan's journey to strengthen competency through credentialing. Since 2005, the number of certified hygienists has grown from 0 to 130, driven largely by regulatory reforms in chemical management since 2022. Despite progress, Japan still faces a significant shortfall with an estimated need for around 1,000 certified hygienists. Japan is looking to the world for opportunities to advance technology and operational practices.

René Leblanc underscored the urgency of addressing risks among informal and vulnerable workers. He noted impacts of globalization, supply chain compliance, and funding requirements from institutions like the World Bank and IMF. A tripartite approach has proven effective. Priorities include ensuring respect and dignity for all workers, advancing OSH education, framing OSH as an investment, reducing informality, expanding universal healthcare, and committing to long-term systemic change.

Nancy Wilk spoke on advocacy and partnerships as drivers of systemic change. She highlighted the Global Occupational Safety and Health (GOSH) Coalition, which brings

together 21 organizations including IOHA, the International Commission on Occupational Health (ICOH), the International Ergonomics Association (IEA), the Institution of Occupational Safety and Health (IOSH), and Workplace Health Without Borders (WHWB). With OSH often under-recognized and recent global health funding cuts, unified action is critical. Priorities include integrating OSH into all policies and plans; urging governments to advocate at the United Nations; restoring the ILO/WHO Joint Committee on Occupational Health; supporting OSH-related SDG targets; promoting ratification and implementation of ILO conventions by ILO member states; and demonstrating that investment in OSH saves lives and costs.

Dr. Amir Wolfe emphasized the need for holistic prevention programs by integrating ototoxic chemical exposure into hearing conservation. He recommended including ototoxicants in risk assessments, enrolling exposed workers in hearing surveillance, documenting chemical exposure in hearing loss cases, and applying the precautionary principle when evidence is limited.

SESSION LINK

Speakers from left to right:
We could also list speakers. Olota, Nancy Wilk, Rene Leblanc, Samantha Connell

Practice Track: Advancing Social Sustainability through Occupational Hygiene

Chaired by Matthew Olota

This symposium brought together international experts to highlight how occupational hygiene drives safer, fairer, and more equitable workplaces. The session explored how science, ethics, and professional collaboration contribute to sustainable development and worker well-being worldwide.

Dr. Stephanie Lynch, PhD, CIH, CSP, COHC, and Chair of the ACGIH Board, opened with a presentation on *The Science Behind Our Practice*. She underscored how occupational exposure standards are grounded in toxicological evidence, rigorous peer review, and transparent decision-making. Her insights reaffirmed the profession's ethical duty to ensure that science remains at the core of worker protection and social sustainability.

Guillaume Lachapelle, ROH, CIH, Chief Examiner of the Canadian Registration Board of Occupational Hygienists, discussed *The Evolving Role of the Occupational Hygienist in Heavy Industry*. He emphasized the growing importance of data analytics, digital technologies, and professional ethics in addressing emerging workplace challenges. He also outlined Canada's robust certification framework, promoting competence and credibility.

Dr. Amir H. Wolfe, MD, MPH, MBA, Vice Chair of CAOHC, presented New Horizons in Hearing Safety, calling attention to the global burden of noise-induced hearing loss. He advocated for the integration of Hearing Protection Fit Testing (HPFT) into hearing conservation programs, aligning with new NIOSH recommendations.

Concluding the symposium, Maharshi Mehta, CIH, CSP, FAIHA, Past President of IOHA, explored Occupational Hygiene Priorities Globally, stressing the need for capacity building, ethical data practices, and international collaboration—particularly in emerging economies where professional resources remain limited.

Across all sessions, a shared vision emerged: advancing social sustainability means advancing occupational hygiene. Through science-based standards, professional competence, and global partnerships, the profession continues to shape a healthier, fairer, and more sustainable world of work.

SESSION LINK

Practice Track: Advancing Social Sustainability through Occupational Hygiene

Speakers from left to right:
Amir Wolfe, Guillaume Lachapelle, Maharshi Mehta, Stephanie Lynch, Matthew Olota

World Assembly Workshops

Workshop 3: Climate Change and the Future of Work (ICOH partnership)

Chaired by Andrea Hiddinga-Schipper and Dr. Martin Hogan; Rapporteur Role: Andrea Holloway

This workshop explored the intersection of climate adaptation and occupational safety and health (OSH), highlighting the interconnectedness of workplace challenges and sustainable solutions. The event featured expert presentations and interactive discussions on health effects and government and industry perspectives.

Dr Jason KW LEE (FACSM) from Singapore introduced the physiological responses to heat stress and the Heat Safe Project, which translates research into policies and audits to protect workers from extreme heat.

Dr Seichi Horie from the University of Occupational and Environmental Health in Kitakyushu Japan discussed climate change impacts on Japan's aging workforce, noting rising heat-related illnesses. He highlighted the Industrial Safety and Health Regulation Amendment, requiring employer response protocols when Wet Bulb Globe Temperature (WBGT) reaches ≥28 °C or ambient temperature ≥31 °C for ≥1 hour with heatstroke signs.

Vidhya Venugopal, Professor NIHR EC-NCD India and member of La Isla network addressed extreme heat exposure in India's informal sector, where millions face life-threatening conditions. She emphasized the need for Heat-Health Action Plans (HHAPs) with early warnings, rest cycles, shade, hydration, and stronger integration of health, labour, and climate policies.

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The second part of the workshop was on emergency preparedness in relation to climate change

Dr. Yoko Tsurugi (Kikuchi Public Health Centre) focused on occupational health during disasters, using the 2020 Kuma River flood as a case study. Public workers, who are both responders and victims, face overwork, poor rest, emotional strain, and weak occupational health support systems.

Bonnie Yau (OSH Council, Hong Kong) outlined preparedness strategies for extreme weather in the Greater Bay Area, including subway flood defences,

power infrastructure protection, landslide prevention, and robot use in high-risk areas. Public awareness and village-level preparedness were shown to reduce fatalities.

Finally, Candice Dix (Rio Tinto, Australia) and Jaime Lim (MOM Singapore) discussed the integration of OSH within Environmental, Social, and Governance (ESG) frameworks, emphasizing the need for interdisciplinary, data-driven approaches to embed health, safety, and well-being into ESG strategies and sustainability reporting. The presentation concluded with a call to action for individuals and businesses to drive sustainability initiatives and envision a future that prioritizes safety, health, and well-being for current and future generations.

The main insights or conclusions reached during the workshops:

Promote interdisciplinary partnerships to anticipate climate-related health risks (policy, governance, urban planning, public health, medical).

Promote a two-pronged approach (both educational initiatives and regulatory enforcement) targeted particularly toward countries with low - and middle-income levels.

Locations with resource constraints and systemic challenges may make these strategies especially impactful. Develop culturally appropriate, context-sensitive heat health alerts.

These need to be tailored so they make sense, are trusted, and are doable for the specific community i.e. limited electricity, listen to radios and don't have mobiles.

Inexpensive interventions such as worker education and appropriate heat warning can have significant positive impacts on morbidity and mortality.

Improve disaster preparedness for public employees and emergency responders. In many LMICs, infrastructure is weaker, and disasters can overwhelm systems quickly. Well-prepared public employees and responders can reduce casualties, protect essential services, and restore order faster. It also builds public trust, since people see the government as reliable in times of crisis.

SESSION LINK

Workshop 3

Workshop 8: The Future of OSH Partnerships and Relationships with Other Professionals (INSHPO partnership)

Chaired by Matthew Olota and Nathan Winter; Rapporteur Role: Nathan Winter

This workshop brought together international experts to highlight how OSH partnerships and relationships with other professionals can get us closer to workplace injury and illness free world.

Matthew Olota (IOHA President-Elect) who moderated the session set the context for the workshop, engaging participants through interactive polling on partnership awareness, barriers, and enablers. He underscored the need for shared frameworks, practical collaboration, and evidence-based leadership in advancing OSH outcomes.

Prof. Doo Yong Park (Hansung University, Korea) explored the intersection of industrial hygiene and artificial intelligence, calling for proactive leadership in AI-integrated monitoring, standard setting, and data-driven exposure control.

Nancy Wilk (IOHA President) addressed global OSH challenges including chronic occupational disease, weak regulation, and rapid industrial change. She championed Total Worker Health, stronger alignment with SDGs (3, 8, 13), and global coalitions to expand accredited hygienist networks and advance ILO conventions.

Greg Dearsly (First 4 Safety Ltd, New Zealand) introduced the concept of Cultural Intelligence (CQ) as a vital capability for future OSH leaders, enabling effective communication and collaboration across diverse cultural and organizational contexts.

Hirohiko Nakahara (NAOSH Consulting) & Dr. Takahiro Kishi (University of Tsukuba, Japan) showcased Japan's shift toward autonomous, risk-based OSH management and innovations supporting SMEs, such as DIY tools (CREATE-SIMPLE, multilingual manga/anime training) developed through government-academia-industry partnerships.

The workshop also featured various working groups that discussed the role of partnerships in advancing worker health and wellbeing; participants concluded that effective OSH advancement demands interprofessional collaboration, technological adaptation, and inclusive leadership. Secondly, strengthening partnerships across academia, industry, and policy is pivotal to capacity building and global consistency. And lastly, the future of OSH depends on embracing innovation, cultural awareness, and collective accountability to protect every worker, everywhere.

SESSION LINK

Additional Engagements and Highlights

Workshop 8

Speakers left to right: Takahiro Kishi, Hirohiko Nakahara, Matthew Olota, Doo Yong Park, Nancy Wilk, Greg Dearsly, Nathan Winter.

IOHA hosted two booths shared with the Council for Accreditation in Occupational Hearing Conservation (CAOHC), the American Conference of Governmental Industrial Hygienists (ACGIH), International Society for Respiratory Protection (ISRP), and OHD, serving as a hub for information and networking.

Dr. Dino Pisaniello and Dr. Stephanie Lynch

IOHA held a 45-minute session in the Expo Hall titled “Get to know IOHA”, co-presented with Japanese members in both English and Japanese, which fostered an intimate discussion and lively Q&A with the audience.

IOHA President Nancy Wilk participated in two additional panel sessions:

Shaping a Future of Work where Safety and Health are at the Heart of Progress, chaired by Joachim Pintado Nunes, ILO Chief of the Occupational Safety and Health and Working Environment Branch.

Female Leadership & Representation in OSH, chaired by Sarah Albon, HSE Chief Executive.

SESSION LINK

The Executive Committee took the opportunity to meet with a new group to discuss a potential cooperation agreement. They also attended the INSHPO board meeting as an opportunity to strengthen partnership and exchange.

Five of IOHA's past, present, and future presidents met for lunch to share learnings and reflections from past experiences, strengthening leadership collaboration and mentorship.

Being involved in these sessions gave IOHA unique opportunities to demonstrate the value of OH in advancing safe and sustainable workplaces globally. It also allowed us to connect with policymakers, academics, business leaders, and other OSH professionals to explore collaborative solutions to shared challenges.

Read below some statements from IOHA Participants.

Nancy Wilk

IOHA Immediate Past President (2024 – 2025)

"On 18 July 2025 in Osaka, Kansai, Japan, the International Occupational Hygiene Association (IOHA), the global network of occupational hygienists representing 43 member associations worldwide, became a founding signatory to the Declaration of the World Assembly of Occupational Safety, Health and Well-being Professionals and Stakeholders in the EXPO Hall at EXPO2025 "Designing Future Society for our Lives". It was a privilege to be present during this historic, ground-breaking event and call to action, marking a new beginning in establishing a road map intended to shape the future of global safety, health and well-being. On behalf of IOHA, we look forward to working together to advance occupational safety, health and well-being for everyone and turning talk into action by 2030."

Samantha Connell

IOHA Past President (2023 – 2024)

“IOHA signed on to the initiative in early 2023 and participated in the first Executive Committee meeting in November 2023. From there, IOHA made several commitments, including co-hosting two workshops at the World Assembly, leading two sessions — a policy and a practice track session — in the International Symposium, speaking in three other sessions throughout the week, and taking part as a supporter of the ILO Youth Congress.

I admittedly was unsure of the appetite for IOHA members to attend and support, but the outcome of overwhelming support was incredible. We were more than 20 IOHA members present, and many of those supported the various IOHA sessions. It was a great week of networking and collaboration on the highest global level while feeling grounded and supported by those closest to us in our profession. I was touched by the support and willingness of IOHA members to volunteer their time and expertise to take part in these events and represent our profession on the global stage.

I truly believe that occupational hygiene has been able to demonstrate its important role in advancing workplace health and safety and will now be invited to further collaborate as a GISHW partner. The signing of the Declaration at the World Assembly was a testament to that. It was encouraging and motivating to see so many partners from around the globe make this commitment together.”

Matthew Olota

IOHA President (2025 – 2026)

“This year’s Health, Safety, and Wellbeing Days during Expo 2025 in Osaka marked a turning point in global conversations on occupational health and safety. Bringing together professionals, policymakers, researchers, business leaders, and worker representatives, the event underscored the urgency of addressing the evolving risks of work and reaffirmed the importance of global standards and collaboration. I had the honor of representing IOHA at this historic gathering. As part of my role, I contributed to Workshop 8 on OSH Partnerships during the World Assembly, a session that explored both the promise and the challenges of advancing occupational hygiene globally. Discussions revealed critical gaps — from the shortage of trained professionals to weak legislative frameworks, to the difficulty of reaching informal and vulnerable workers. Yet, they also highlighted solutions: stronger cross-border collaboration, capacity building, cultural intelligence, and leveraging international instruments such as ILO Conventions 155 and 187 to guide national strategies.

Equally significant was the opportunity to strengthen institutional collaboration. During the event, IOHA and INSHPO met to reaffirm their shared commitment to advancing worker protection worldwide. These alliances are vital to ensure that occupational hygiene expertise is integrated into policy frameworks and professional practice across regions.

For me, Osaka was more than a professional milestone — it was a reminder that the future of occupational health and safety will be shaped not by isolated efforts, but by global partnerships grounded in science, policy, and practice. The challenge before us is clear: to turn dialogue into action, and action into lasting protection for all workers and communities.”

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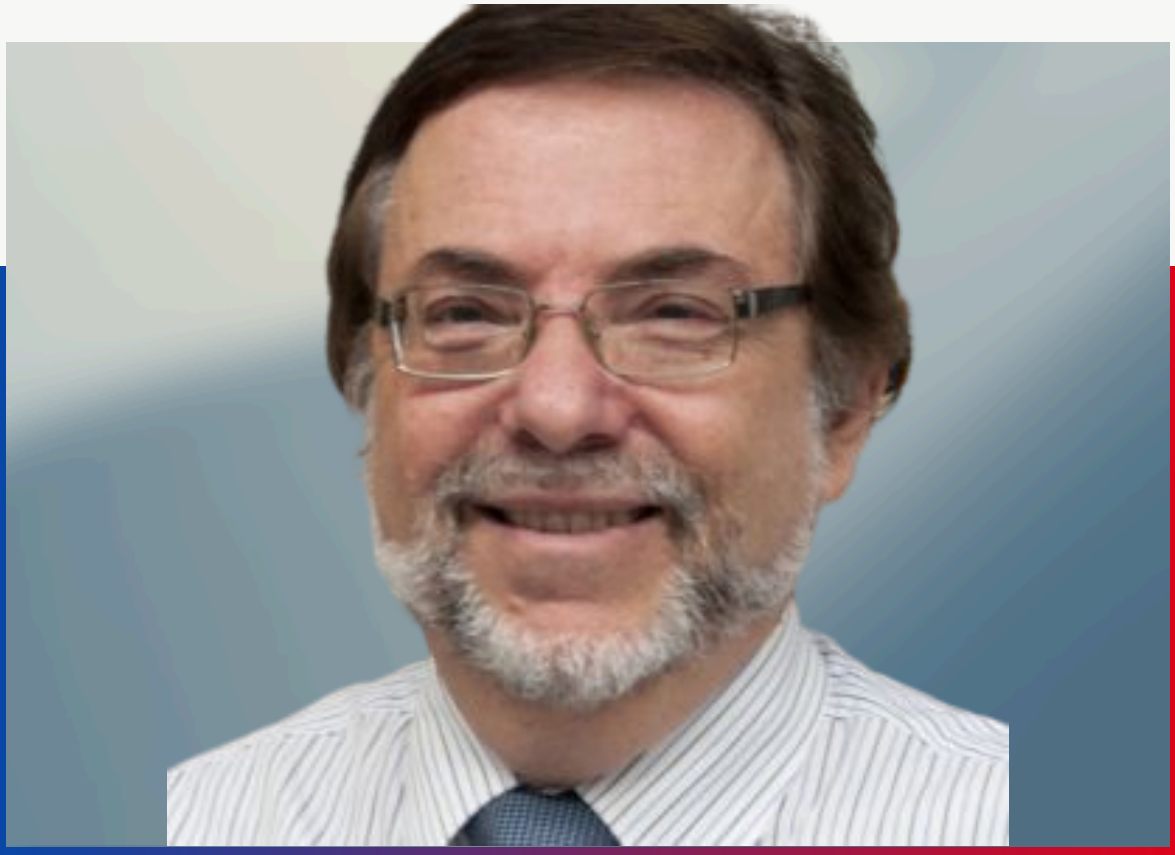


Prof. Dino Pisaniello

Chair AIHS College of Fellows, Past ICOH National Secretary and Past President AIOH

“Although I was there primarily to promote a novel prototype light measuring instrument for risk assessment, GISHW was a networking bonanza at the highest level. My previous and current engagement in ICOH, IOHA, and INSHPO meant that I was able to reconnect with, and meet, SHW leaders. These included the ICOH President and Secretary General, CEO UK HSE, the INSHPO President, and of course the IOHA President. The networking wasn’t just meet and greet — it enabled some specific discussions, for example, engineered stone policy in the UK, climate change research, and funding opportunities. The challenge was deciding which sessions to attend, with the ongoing distraction of EXPO 2025.

At the end of the day, GISHW increased awareness and understanding and provided a platform for international collaboration moving forward. The expectation is that SHW leaders will now drive initiatives in their respective organizations individually and collectively.”

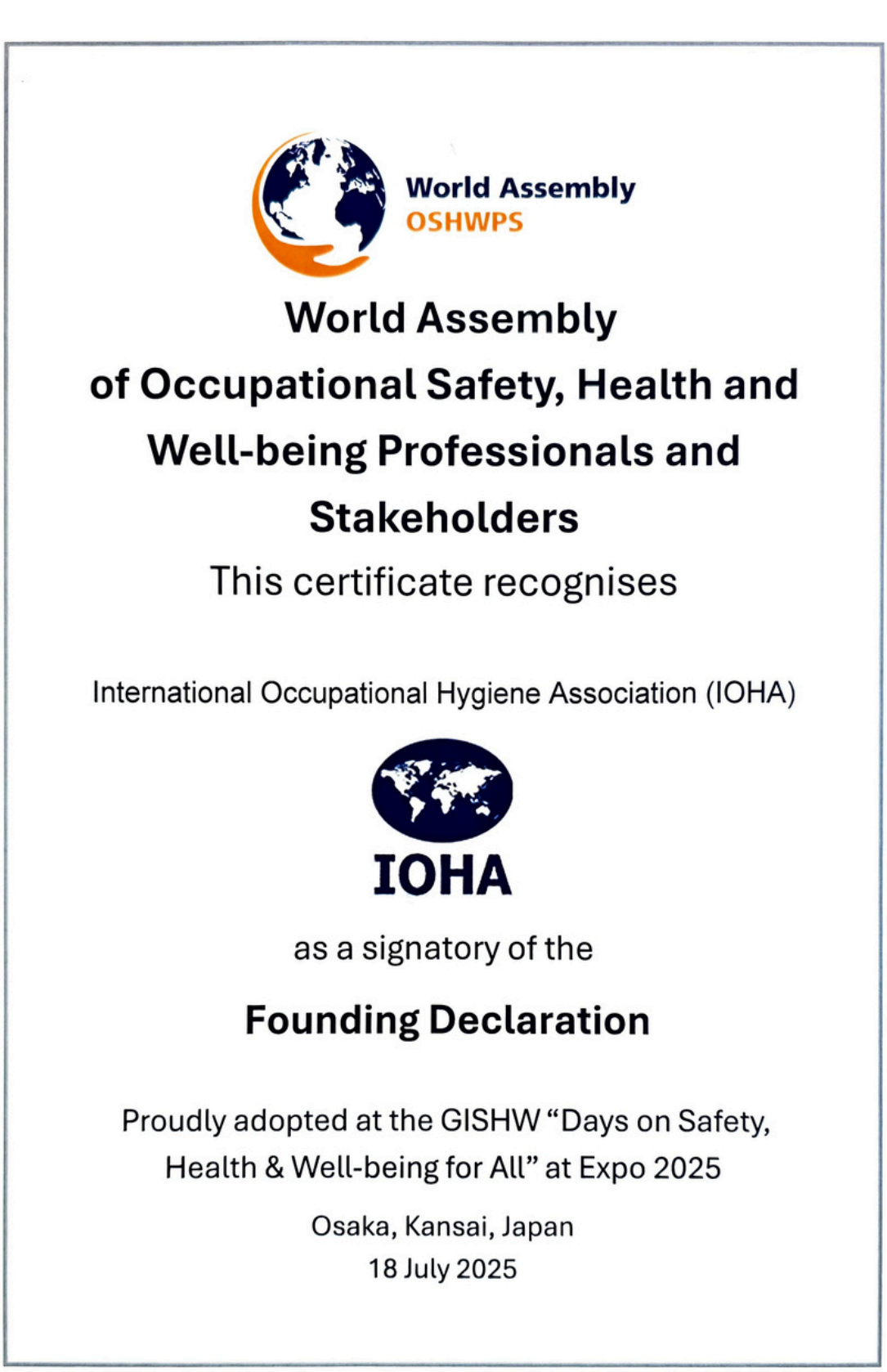
Andrea Hiddinga

World Assembly Workshop Chair and IOHA Past-President (2017 – 2018)

“Looking back at GISHW 2025, I would say ‘A Milestone for Global Occupational Health.’ What began as an idea two years ago became a moment of true global connection. GISHW 2025 reminded us that safe, healthy work is a global responsibility. In the co-created workshop of IOHA and ICOH we jumped from heat stress to flooding and ESG; the message was clear: our challenges are shared — so must be our solutions. This was not just a conference; it was the start of ongoing collaboration. We need to combine our forces so the conversations in Osaka can echo in our work for years to come.”

Legacy and Next Steps

World Assembly Plenary and the World Assembly Declaration




World Assembly
OSHWPS

Outcomes of the aforementioned World Assembly workshops were presented at the World Assembly Plenary. A historic Founding Declaration was signed at the World Assembly to advance safer, healthier, and more sustainable workplaces worldwide. The declaration sets a foundation for collaboration over the next five years and beyond, emphasizing that occupational safety, health, and well-being are essential to building the societies we want to live and work in.

Key commitments include:

- Promoting safety and well-being in workplaces, integrating proactive risk management, inclusive design, and ethical technology use.
- Driving global collaboration to share best practices and expertise, particularly in response to digital transformation, climate change, and demographic shifts.
- Empowering future OSH leaders by ensuring diverse perspectives and fostering innovation.
- Creating a shared 2030 Roadmap to turn commitments into concrete actions.

World Assembly Plenary session recording

IOHA's contribution to the World Assembly is described in the following quote from Marijana Zivkovic Mtegha, Vice-Chair, GISHW Executive Committee and Chair, World Assembly

"The historic GISHW Days at Expo 2025 in Osaka in July 2025 marked the launch of the World Assembly of Occupational Safety, Health and Well-being Professionals and Stakeholders, a new collaborative platform uniting leading OSH organisations and associations around a shared vision for worker health and sustainability.

IOHA's leadership, professionalism, and commitment were instrumental in shaping the Assembly's agenda and outcomes. As one of the founding signatories, IOHA actively contributed to drafting the Founding Declaration and formally joined the World Assembly at the signing ceremony held on 18th July 2025 at the Expo Hall, Osaka. IOHA's engagement exemplified the essential role of occupational hygiene in strengthening global cooperation and in ensuring that safe, healthy, and sustainable workplaces remain at the heart of social and economic progress worldwide.

Today, IOHA continues to play an active role within the growing World Assembly community, helping to advance shared priorities that promote professional excellence, evidence-based practice, and a truly global culture of prevention and well-being."

All GISHW Symposium recordings are now available here, with complete audiovisual versions coming soon.

Session summaries for the GISHW legacy booklet are being collected,

with a Japanese edition in October 2025 and a complete English edition in December 2025.

The next GISHW Executive Committee and Partner Meeting will take place in Tokyo, December 3–5, 2025, alongside iREX 2025. Discussions will focus on new initiatives and continuing the legacy from Osaka toward Riyadh 2030.

Stay tuned for more information on Riyadh 2030!

IOHA supports the ILO Youth Congress at EXPO2025

Samantha Connell, IOHA Board Director for SSOH and IOHA Past President (2023 – 2024), samantha.connell.cih@outlook.com

What's important about this article?

The article highlights how youth involvement is driving fresh, practical solutions to modern occupational health challenges—specifically the growing threat of heat stress. It showcases how a student team identified gaps in existing, one-size-fits-all approaches and proposed a more inclusive, personalised tool to protect vulnerable workers. It also underscores the value of global collaboration, mentorship, and innovation within the profession, emphasising that meaningful advances can come from new voices and unconventional perspectives.

As part of the GISHW, the ILO Youth Congress brought together dynamic student and young professional teams from around the world. Out of many impressive submissions, only eight finalist groups were selected to present their pitches live in Osaka, Japan.

IOHA proudly supported this inspiring event by appointing a representative to attend and engage with the audience during the presentations and with the finalists. Andrea Holloway of the Australian Institute of Occupational Hygienists (AIOH) represented IOHA, offering encouragement and solidarity to the young innovators shaping the future of occupational health.

IOHA celebrates the passion and creativity of all participants and thank Andrea for her outstanding representation. More information and a recording of the session is available here:

ILO Youth Congress - Designing Safety, Health and Well-being at Work in the Digital Age

The following article is a story of the team from Brigham Young University. This article was originally published in the October 2025 issue of The Filter, the magazine of AIOH®. Submission provided to IOHA by Andrea Holloway, MAIOH, AIOH Communications and Marketing Committee Member.

Empowering Youth Voices in Occupational Hygiene - A Global Spotlight on Heat Stress

When four young university students from the United States found themselves presenting at the International Labour Organisation's Youth Congress during Expo 2025 in Osaka, Japan, they carried with them more than research. They brought fresh perspectives, global empathy, and a resourceful approach to one of the most pressing workplace hazards of our time: heat stress.

The team, Jonah Lindsay, Kaylee Packer, Brinley Openshaw, and Parker Willis, first connected through their shared studies at Brigham Young University. Today, they represent a new generation of occupational hygienists spanning institutions across Utah and Michigan. Each brings their own passion: Jonah's love of writing and music, Kaylee's focus on vulnerable populations, Brin's drive to connect occupational health with the medical field, and Parker's quiet but practical energy for finding solutions that empower workers.

From Idea to Osaka - A Journey of Discovery

Their path to Osaka was far from linear. Initially focused on migrant worker conditions broadly, they soon realised their project did not quite align with the scope of the congress. Rather than discard their passion for vulnerable populations, they sharpened their focus.

"As we thought about industries where migrant workers are most often employed such as agriculture, construction, and roadwork, it became clear," recalls Parker. "Heat stress was the common hazard, one that is only intensifying in a warming world."

What followed was a whirlwind of research. The team dove into global literature, consulted with professors, and uncovered how underrepresented groups were disproportionately affected by heat stress. They realised that much of the existing science relied on a "one-size-fits-all" approach, often based on a 70-kilogram male worker, leaving significant gaps in protection for others.

"As I began to see how these vulnerable populations were being overlooked, I felt strongly that we had to focus on them," says Kaylee. "Equity in worker safety means recognising that not everyone faces the same risks in the same way."

The Innovation - Personalised Protection in the Palm of a Hand

Out of this realisation came their solution: a mobile app designed for everyday workers, with no technical knowledge required.

The app would integrate real-time weather data, humidity, and heat indices, while also accounting for individual factors such as body size, gender, clothing, and workload. It would then provide personalised alerts such as rest breaks, hydration reminders, or finding shade, delivered in plain, accessible language.

The students also looked for ways to encourage engagement. Inspired by modern media, they designed the app to use "streak psychology," encouraging workers to build healthy habits in the same way popular social apps do. Employers could also incentivise safe practices, fostering cultures of prevention rather than reaction.

"We wanted something higher up the hierarchy of controls," explains Brin. "Rather than just PPE solutions like cooling vests, we aimed for an administrative intervention that gives workers autonomy over their own health."

Collaboration, Not Competition

One of the biggest lessons they took home from Japan was the power of collaboration. While they discovered that professional associations such as AIHA already had heat stress apps, they reframed their project not as a competitor but as a complement.
"At first we were a little disappointed," admits Jonah. "But then we realised it was an opportunity. We could contribute to making these tools more inclusive, more multilingual, and more tailored to vulnerable groups."

This perspective reflects the team's broader philosophy: occupational hygiene is not a solitary pursuit but a collective mission. By partnering with professionals and existing organisations, they see the potential to bring their idea from student concept to global solution.

Looking Ahead- Youth, Innovation, and Impact

The Osaka congress was more than a milestone for these students. It was a signal for the profession. It showed how youth voices, unburdened by traditional frameworks, can spot overlooked gaps and propose creative, people-centred solutions.
Their next steps involve exploring collaborations with professional associations, refining the science behind individualised heat stress calculations, and seeking guidance from occupational hygienists worldwide. Most importantly, they are calling on the profession to provide mentorship and feedback "We are students," Parker acknowledges. "We do not yet have the credentials to make these claims alone, but we are eager to learn, and we know that with the support of professionals, this idea could save lives."

A Global Call

As Australia braces for hotter summers and the world reckons with climate change, the urgency of heat stress prevention is undeniable. What this team has shown is that innovation does not only come from labs or boardrooms. It also comes from 3am ideas, from spirited debates in desert heat, and from students daring to imagine better futures.
In their words: "It's about putting health back in the hands of workers."

BYU students on stage at the ILO Youth Congress

BYU students interacting with Nathan Winter in the IOHA-INSHPO co-lead workshop on Partnerships

INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

GLASGOW MARRIOTT 11-14 MAY 2026

In 2026, two globally respected scientific conferences, **Inhaled Particles** and the **International Particle Toxicology Conference**, will come together for the first time. This joint event offers a unique opportunity to explore and share the latest knowledge surrounding particle inhalation and toxicology, both within and beyond the lungs.

Held over four days in Glasgow, the conference will feature two parallel strands, with shared sessions and full flexibility for delegates to attend any session of interest.

Meet the Keynotes!

Dr. Ian Mudway

John Cherrie

Lidia Morawska

Penny Nymark

Jill Belch

Florian Meirer

Mar Gonzales

Find out more about this upcoming conference

International Occupational Hygiene Association

Occupational Health in Action 2026

Date/Time: January 29, 2026 – 0600 to 0730h NZDT / January 28, 2026 – 1200 to 1330h EST; 1300 to 1430h CET

Fees: Complimentary to all members of IOHA Associations. *IOHA is a not-for-profit organization so please consider donating through the QR code below if you are not a member or from a for-profit industry.*
80£ for industry-sponsored and for-profit organization participants

Abstract

As an occupational physician, Dr. Obele sees every day that the future of occupational health depends on the strength of occupational hygiene. Looking toward 2030 and beyond, Dr. Obele is asking occupational hygienists to claim their role not only as technical specialists, but as strategic partners in shaping the health of workforces and communities worldwide. The discipline's power to anticipate, measure, and control exposures anchors prevention, yet prevention must be woven into clinical care, organizational design, and policy to create lasting impact. The vision is integration.

When hygienists co-design with occupational physicians, nurses, ergonomists, mental health professionals, and safety leaders, guided by data science and informed by worker voice, we can deliver outcomes that matter: earlier detection of risk, sharper exposure controls, declining occupational disease, reduced inequities across sectors and regions, stronger organizational resilience and productivity, and measurable contributions to global sustainability goals.

In this session, she will discuss practical steps for 2026 that move us toward that future: shared exposure–illness dashboards; joint medical–hygiene case conferences and walk-throughs; risk-informed medical surveillance and return-to-work pathways; procurement standards that eliminate hazards at the source; and cross-sector advocacy for "healthy work by default". Her call call to hygienists is simple: lead. Bring the science of hygiene to the centre of decision-making so that occupational health becomes not reactive, but transformative, ensuring every worker, everywhere, can thrive in safety, health, and dignity.

Webinar Instructor

Dr. Mary Obele is a physician and specialist in occupational and environmental health, with over two decades of experience advancing worker well-being across diverse sectors. She has held leadership roles in national and international occupational health programs, with expertise in workplace risk prevention, policy development, and integrated approaches to health promotion. Dr. Obele has been a trusted advisor to governments, industry, and professional bodies, contributing to initiatives that bridge science, practice, and policy. She is a Fellow of the Faculty of Occupational Medicine and a recognized advocate for aligning occupational health with global sustainability and equity agendas. Dr. Obele has received awards for her contributions to worker health and community resilience, and she is widely regarded as a thought leader in innovative approaches to occupational health. She holds medical and postgraduate qualifications in occupational health, reflecting her commitment to prevention, practice excellence, and interdisciplinary collaboration.

Register here: IOHA January 2026 webinar

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Vietnam gearing up to lead the next wave of responsible manufacturing

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What's important about this article?
The undergraduate engineering partnership is helping shape the next generation of environmental and occupational health leaders, supporting Vietnam's goal of becoming a top Asian research hub by 2035.

Vietnam's message to the global market is clear with the booming in enrollment of the engineering program in Occupational Safety, Health, and Environment at the Faculty of Environmental Sciences, Hanoi University of Science, Vietnam National University

The undergraduate engineering program in Occupational Safety, Health, and Environment (OSHE) at the Faculty of Environmental Sciences, Hanoi University of Science, Vietnam National University - Hanoi (FES-HUS-VNU) has reached a remarkable milestone in its third year. Enrollment surged by 114% over the annual quota, with 820 applicants vying for just 50 seats. Ultimately, 57 students were admitted, marking a 14% increase over the target and a powerful signal of Vietnam's growing demand for safety and sustainability professionals.

This explosive growth reflects the rising recognition of OSHE as a vital field in Vietnam's industrial and public health landscape. As Prof. Dr. Nguyễn Mạnh Khải, Dean of the Faculty of Environment, noted, "*This is a rare and exciting moment. For the first time, we had to turn away hundreds of qualified applicants.*"

"For the first time, we had to turn away hundreds of qualified applicants."

(Above) Mr. Nguyen Ngoc Tuan at the American Center in Hanoi, talking to potential students regarding the Occupational Safety and Health field.

Photo by Hien Ngo

The program was officially approved in May 2023, following a curriculum development collaboration initiated under the Fulbright Specialist Program. In March of that year, Mr. Tuan Nguyen, President of Workplace Health Without Borders - US branch, was invited by Dr. Khai Manh Nguyen (Dean), Dr. Hang Tran, and Dr. Hien Ngo to co-develop the curriculum. The Fulbright Specialist Program, a U.S. government-funded initiative, enables American experts to work with international institutions to build capacity and share knowledge. Mr. Nguyen's visit included outreach at the American Center in Hanoi, where he engaged with students and parents about the future of Occupational Safety and Health careers.

Since its inception, the program has demonstrated consistent growth: 13 students enrolled in the first year, followed by 32 in the second. In 2025, enrollment surged to 57 students, exceeding the annual quota of 50 by 14%. The gender distribution reveals a compelling trend toward strong female representation. In the first year, 11 out of 13 students were women.

The second year saw 18 female students out of 32. This year, 43 of the 57 admitted students are female. These early patterns suggest a sustained and growing interest among women in pursuing careers in this field. The Dean of FES-VNU shared that approximately 760 enrollment applications were declined this year. Many of the admitted students come from low-income backgrounds, highlighting the

pressing need to expand scholarship support. In response, the university is setting an ambitious goal to fund 20 scholarships this year, doubling the number awarded in previous years. These scholarships represent far more than financial assistance; they are transformative opportunities. They enable students to pursue meaningful careers focused on mitigating occupational risks and environmental hazards in developing economies.

Scholarship ceremonies for the freshmen of Class 68 and Class 69 were successfully held with support from WHWB-US. In January 2024, 13 students were honored with awards, followed by 10 additional recipients in

Students of 2023 class K68 received the scholarship awards
Photo Permission by FES-VNU

February 2025, each receiving a $500 scholarship, amounting to $5,000 in total for each year. These meaningful events were attended by WHWB-US leadership, university administrators, and faculty members, both in person and virtually. Past recipients have expressed heartfelt appreciation and a strong commitment to becoming skilled and impactful OSHE professionals.

Vice Rector Prof. Dr. Lê Thanh Sơn praised WHWB-US's commitment, noting that the scholarships not only support students but also strengthen international collaboration.

Mr. Nguyễn Ngọc Tuấn of WHWB-US emphasized the organization's global dedication to advancing OSHE education and protecting workers in emerging economies.

"This scholarship is not only financial support, it's a source of motivation that helps us continue our journey of learning, research, and pursuing our dreams" said Dương Hoàng Vỹ.

As FES-VNU continues its mission to become a leading research university in Asia by 2035, the OSHE program stands as a beacon of innovation, relevance, and impact. From curriculum design to student support, the collaboration between FES-HUS-VNU and WHWB-US is shaping a new generation of environmental health leaders.

WHWB-US extends heartfelt thanks to its generous benefactors. Their continued support is transforming lives and building a safer, healthier future for workers in Vietnam and beyond. Once again, WHWB-US is calling for support to this year's freshmen. To donate, please follow this link to WHWB's website whwb-us.org/donate, select payment choice and indicate a pledge to this scholarship program.

Thank you.

Workplace Health Without Borders - U.S Branch

WHWB-US is a registered 501(C)(3) charity

CLOSING NOTE & CALL FOR CONTRIBUTIONS

As we close this edition of GEM, we want to thank everyone who contributed their time, expertise, and insight.

Looking ahead, our next issue will focus on four interconnected themes that reflect the breadth of risks affecting worker health today. Although each stands alone, together they highlight how physical, chemical, and biological hazards intersect across workplaces and regions.

We will be inviting contributions relating to:

- Occupational skin health and hygiene
- Carcinogenic exposure prevention
- Infectious disease control in workplace settings
- Noise-related harm and hearing protection

Individually, these topics speak to different facets of occupational hygiene; collectively, they reinforce the need for a holistic approach to worker health. Whether the hazard enters through the skin, lungs, ears, or broader environment, the aim remains the same:

Prevention, Early Intervention, and Safer Workplaces for all.

Whether you are an experienced practitioner, a researcher, a national society, a student, or part of an overlapping sector, your perspective has value.

You can submit:

- Technical articles
- Short thought pieces
- Case studies
- National society updates
- Student or early-career perspectives
- Tools, checklists, or practical guidance
- Partnership stories
- Global project updates
- Photos, quotes, or short reflections

If you're not sure whether your idea fits, get in touch. GEM is here to reflect the full breadth of work happening in and around occupational hygiene.

We are also keen to feature emerging and not-yet-approved technologies, shared responsibly, to spark discussion and future thinking across the profession. Thought-provoking pieces that challenge assumptions or explore what may be coming next are very welcome.