Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Health Organization (WHO) was ahead of their time with the Healthy Workplace definition and action model (2010). This quality improvement model aligns well with Te Whare Tapa Wha a Maori model of health. Does Total Worker Health align? Materials and Methods: Opinions have been formed through many years of OHN practice. Through executive membership of the NZOHNAA, academic study, ongoing learning and global networking have guided practice. Results: A growing evidence base shows challenges and opportunities. The global pandemic has shown how workplaces play a critical role on the wider influence of health and wellbeing of individuals, organisations, societies, economies and sustainability. Conclusions: Multiple factors are influencing and impacting workplaces. Adaptability, agility, flexibility, collaboration, innovation and creative ways of working are needed. An evidence-informed, practical strategic approach is essential, using a common language and sharing experiences. Psychosocial risks are critical to workers health and wellbeing, we need to focus more on these. It is time to stand up, have a stronger voice, so let’s do this and embrace our changing world of work. Our future is in our hands.

**Sp27-4**

*The work of an occupational health nurse in South Africa during COVID-19*

Kim Davies

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Introduction: Occupational Health by advanced nurse practitioners is the backbone of health within Industry, even more so during the Civid19 pandemic. This was further propelled to the forefront when the WHO recognised 2020 as the year of the Nurse and Midwife. It was imperative to explore how OHNs in a developing country had risen to the challenge of this new landscape in order to refine national workplace guidelines. Materials and Methods: Semi-structured interviews were conducted with (15) Occupational Health Nurses based in Gauteng on how they experienced the work within their clinics over the last year and a half, and what they recommend with regards to managing return to work and/or managing prolonged COVID in the changing workplace approaches. Thematic analysis using Clarke and X is still underway. Results: Participants felt that initial workplace guidelines needed to be implemented by skilled professionals to address the considerable gaps from primary health care at the centre to higher care in hospital settings. There has been a growing acceptance of flexi hours and working in an office as we know might be a thing of the past. Conclusions: The interviews added valuable lessons learnt and how health should be delivered to all workers within Industry. The speed at which legislation was developed to include COVID-19 as a reimbursable Occupational disease shows that changes do not have to be slow and cumbersome.

**Special Session 25 Benzene: toward a lowering of occupational limit values and its impact on risk assessment and biomonitoring**

Chair: Silvia Fustinoni

**Session introduction**

Benzene is among the most produced chemicals around the world and it is classified as a known human carcinogen, recently reviewed also by the International Agency for Research on Cancer (monograph 120, 2018). To deal with the risk for workers, new regulations tend to decrease occupational limit values. Understanding the rationale for setting new limits and the possibility to apply biomonitoring for risk assessment is relevant for those practitioners who deal with chemical risk assessment and medical surveillance of benzene exposed workers.

**Sp25-1**

*Increasingly lower Occupational Limit Values (OELs) for benzene: what do they mean and what are the implications for exposure assessment?*

Peter Boogaard

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Background: The first OEL of 100 ppm was set in 1947, soon lowered to 50 ppm, and then to values of 10 to 25 ppm, until in 1982 the International Agency for Research on Cancer confirmed that benzene was a human carcinogen. This led to lower OELs in most countries and in the European Union an OEL of 1 ppm was set.

Material and Methods: Benzene was evaluated under the Existing Substances Regulation and a final risk assessment report was issued in 2008 concluding that the OEL of 1 ppm is not sufficiently protective.

Results: In 2014 the Dutch Expert Committee on Occupational Safety advised an OEL of 0.2 ppm based on epidemiology and mechanistic information. This value was accepted as a national OEL in 2017 and is considered a safe value: exposures below this value are not considered to invoke any additional cancer risk. This is a fundamental change from previous OELs which are essentially risk numbers assuming no safe level for benzene exposure. In 2019, the Risk Assessment Committee proposed an OEL of 50 ppb, considering no additional risk of exposures below this value.

Conclusions: The most recent scientific assessment, based on a thorough quality evaluation of the available human studies, concludes that an OEL of 0.25 ppm is sufficiently protective (Schnatter et al., 2020). Human biomonitoring is the best way to assess current exposures to benzene. However, most available methodologies cannot be applied as there is interference from backgrounds or because the methods have not been validated for these concentration ranges. The most promising methods are urinary benzene and 5-phenylmercaptoic acid.

**Sp25-2**

*Overview on biomarkers of exposure useful for risk assessment*

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Background: Until 1980, urinary phenol was used as biomarker of benzene exposure, as the major metabolite of benzene (~ 70% of the adsorbed dose). Later on, the lowering of occupational limit values prompted to identify new biomarkers with higher specificity.