

32nd Triennial Congress of the International Commission on Occupational Health (ICOH)

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Opening Keynote Session

1759 THE IARC MONOGRAPHS AND THE BURDEN OF OCCUPATIONAL CANCER

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This presentation will be about the triad of historical insights, scientific evidence and preventive action. By way of introduction, the history of chemical carcinogenesis (from Pott's soot to the IARC evaluation of benzo[a]pyrene as a Group 1 carcinogen based on a mechanistic upgrade) showcases the important role of occupational carcinogens in understanding the causes of cancer and related paradigm shifts, primarily over the last century. Similarly, the history of radiation carcinogenesis has significantly learned from occupational exposures and served as a foundation of environmental epidemiology.

The IARC Monographs programme is not only the longest running program of cancer hazard identification, it is also on the cutting edge of the latest scientific developments. A short history of the evolution of the program with a focus on causal inference and changing contributions from the different scientific domains (cancer bioassays, epidemiology and toxicology) will be followed by the latest developments in terms of systematic review, key characteristics of carcinogens, high through-put/high content data, and quantitative risk characterisation. The integration of evidence streams into an overall evaluation will be illustrated with a selected carcinogen.

The Monographs' evaluations often serve as the basis for the estimation of the burden of occupational cancer. Important milestones in burden estimates (from Doll and Peto, 1981, to the ongoing joint WHO/ILO undertaking) will be presented. These results are not for debates in an ivory tower of science, but here to inform public health actions, and particularly a vision of zero occupational cancers. Data on the adverse economic impact of occupational cancer together with evidence that out-phasing of occupational carcinogens like asbestos does not have negative economic impact will further support implementation of control measures and should be employed more often.

Finally, the presentation will name significant challenges on our roadmap, such as the need for better exposure data and exposure assessment, shift of funding to prevention research including occupational cancer prevention, access to data for research and management of conflict of interests.

Plenary Sessions

1773 ENVIRONMENTAL IMPACT ON WORKER HEALTH – HONG KONG EXPERIENCE

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Worker health is determined not only by occupational hazards but also by environmental factors. Chronic diseases, such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are the leading causes of mortality worldwide, accounting for almost two-thirds of all deaths. Chronic diseases have a multifactorial etiology, such as only 10% of overall lung cancer in men and 5% in women are attributable to occupational hazards, while a majority of etiology comes from smoking and other environmental exposures. Many environmental exposures of chronic diseases are common in workers, while some of them are related to job nature and working schedule, and these may have a large impact on worker health.

This presentation focuses on some common environmental risk factors among workers and discusses their impacts on burdens of chronic diseases based on Hong Kong experience, covering the following topics (1) tobacco smoking and workplace environmental tobacco smoke and health impacts (e.g., lung cancer, metabolic syndromes); (2) environmental exposure to bisphenol A and health impacts (e.g., metabolic syndromes, prostate cancer); (3) changed sleep and diet patterns related to shift work schedule/long working hours and the health impacts based on our ongoing prospective shift worker cohort in China and Hong Kong breast cancer study. This presentation also emphasizes the importance of integrating the prevention of chronic diseases and improving worker health with the promotion of a healthy environment beyond the workplace.

1747 WHEN OCCUPATIONAL HEALTH BECOMES PUBLIC HEALTH: OCCUPATIONAL LUNG DISEASE IN MINERS

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Despite a century of surveillance of silicosis and tuberculosis in the South African gold mining industry, black gold miners were afflicted with a triple epidemic of silicosis, tuberculosis and HIV at the turn of the 21st century. Fertile ground for this new co-epidemic was provided by a migrant labour system that linked rural areas in South Africa and surrounding countries with the gold mining industry. A surge in the employment of miners and the stabilisation of employment contracts from the 1970s shifted the cumulative service curve, and hence silica exposure, upwards. Despite the availability of treatment for tuberculosis, elevated rates of tuberculosis had

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persisted in the industry, while the known relationship between silica and tuberculosis had faded from memory. The arrival of HIV, another cofactor for tuberculosis, in the 1980s found a large population of men living in single sex accommodation far from their families.

Understanding of this co-epidemic was also limited by the migrant labour system, which had resulted in two subpopulations numbering in the millions in dynamic association with each other. The first were those employed and thus under radiological, clinical and post-mortem surveillance for lung disease, and subject to health selection into and out of the industry. The other were ex-miners, dispersed through remote rural areas with poorly developed economies and health services, to which the burden of mining related lung disease was shifted and whose health experience remained hidden. The Southern African experience of silicosis and tuberculosis and related disorders holds lessons for other countries with active and growing extractive industries. More generally it should also direct our attention to areas of the world dependent on large number of migrant workers employed under harsh conditions, whose work related ill health is 'externalised' in various ways. Occupational health needs to regain its public health perspective.

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THE IMPORTANCE OF WORKERS' HEALTH TO ADVANCE THE UNITED NATIONS SUSTAINABLE DEVELOPMENT AGENDA

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Introduction The 2030 Agenda embraces the three dimensions of sustainability – economic, social and environmental. It was adopted by world leaders at the United Nations in September 2015. The 2030 Agenda for sustainable development puts people and planet at its centre and gives the international community the impetus it needs to work together to tackle the formidable challenges confronting humanity, including those in the world of work and for improved health for all.

Discussion WHO has recognised that addressing social determinants of health – the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life – are key for the creation of health; employment conditions are essential in this context.

When examining the situation and role of workers' health in the SDGs, we see that over the last years limited progress has been made; The latest ILO figures show that work-related fatal injuries and diseases have increased from 2.3 million to 2.78 million per year, increasing the global cost of the failure to adequately address occupational safety and health concerns to an estimated 3.94% of global GDP per year, or 2.99 trillion US dollars. Roughly half the world's population still lives on the equivalent of about US\$2 a day, and in many places, having a job does not guarantee the ability to escape from poverty. This slow and uneven progress requires us to rethink and retool our economic and social policies aimed at eradicating poverty.

The 2030 agenda seeks to reduce poverty and to increasing equity. Some specific SDG objectives are achieving Universal Health Coverage (still only 15% of workers worldwide have access to specialised occupational health services) and achieving full and productive employment and decent work for all women and men.

These are very ambitious goals; but they are essential and they are feasible. But in order to meet those goals, the world needs to

focus on *people*, by implementing public policies that improve employment conditions and health of workers, through a very close coordination among government agencies responsible for health, labour, social security and economic development, together with employers and workers' organisations.

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CONNECTED WORKPLACE HEALTH, SAFETY AND WELLBEING IN AN IRISH CONTEXT

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Ireland's industrial heritage is often overlooked. Though not of the same scale as our closest neighbour Ireland has a significant industrial past. The famine not only led to depopulation particularly of rural areas but also to urban drift and the growth of factory labour. Early health and safety legislation focused on extractive, manufacturing and transport industries. Modern Irish legislation has encompassed the terms health, safety and welfare from its inception in 1989. The practical focus has been on the safety component, a reflection of preceding legislation. Over the last 10 years there has been an increased focus on health and welfare and a move toward the concept of wellness. The concept of Total Worker Health though more established overseas and particularly in the United States, is a new arrival in Ireland. This approach attempts to integrate the functions of occupational health, health promotion, and health protection programs with the aim of improving employee health, minimising work-related injuries and illnesses, and reducing employee health care-related costs. It has been embraced to varying degrees by different organisations and with varying levels of success. Prof Gallagher will discuss the reasons behind this and will look at some recent evidence and case examples in Ireland. He will address where occupational medicine fits into the concept of total worker health and how this may develop in the future. This has implications for the discipline of occupational medicine which he will also address. Finally he will look at the challenges and opportunities of connected health approaches.

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PSYCHOSOCIAL CONDITIONS AFTER OCCUPATIONAL INJURY

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Introduction Annually in the world, more than 300 million nonfatal occupational accidents occur requiring at least 4 days of absence from work. Elevated psychiatric disorders and psychological symptoms are reported after occupational injuries. In addition, those with poorer psychological conditions had lower probability of returning to work, and those who with a disability of the upper or lower extremity tended to have higher mortality from self-harm in later life than did the general population. In cases of severe injury, a proportion of workers spent the rest of their life suffering from psychological ailments.

Methods Using the available information on incidence rates of occupational injuries, and related psychological and psychiatric ailments after occupational injuries, overall psychosocial