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.
dangerous, dirty and discriminatory" are women. Addressing occupational and ergonomic hazards is very important, especially when designing inclusive workplaces.

Materials and Methods: Data was collected by a systematic review of the literature in the past 30 years and retrospectively from our 30 years of practice our Occupational Medicine Clinic at Bellevue Hospital in New York City.

Results: Although ergonomics and human factors is an anthropocentric science, workplace design in most health sectors have an androcentric tendency excluding women’s needs while at work.

Conclusions: Gender disparity is common when designing workplaces. For men, mainly due to social pressure by a “macho man” culture forcing inappropriate manual handling. For women, who are the most affected, is a combination of neglecting the pregnant workers, lower salaries, double shift and other organizational factors. Our workplace design should be inclusive and participatory in order to prevent occupational diseases and injuries.

Sp20-2

Psychosocial factors and mental health in Mexican women healthcare workers during the COVID-19 pandemic

Arturo Juarez-Garcia

Center for Transdisciplinary Research in Psychology, Autonomous University of the State of Morelos, Cuernavaca, Morelos, Mexico

Introduction: WHO has estimated a significant increase in mental disorders due to COVID-19 pandemic and has identified women healthcare workers as a vulnerable group. In Mexico, the impact of this pandemic on the mental health of healthcare workers and the psychosocial factors associated with it remains unknown. The objective of this work is to identify levels of stress, burnout, anxiety, and depression and their relationship with negative psychosocial stressors and positive psychosocial resources in women healthcare workers in Mexico during the COVID-19 pandemic.

Materials and Methods: 203-woman health workers from various Mexican clinics and hospital centers initially participated in a non-experimental, cross-sectional correlational design. Participants were recruited by targeted sampling. Various ultra-brief measures were used to measure symptoms of depression, anxiety, burnout, and stress and a mixed-methods exploration technique was used to identify associated psychosocial factors.

Results: We found high levels of depressive and anxiety symptoms (56.9% and 74.7%), as well as burnout and stress (49.8% and 46.8%). Although the stressors “infection of self” and “family infection” (38.3% and 30.9%) and the resources “family” and “personal protective equipment” (34.6% and 24.5%) were the most frequent, there were more than 20 factors in each category differentially associated with mental health.

Conclusions: The increased risk in mental health for women health care workers is confirmed in a preliminary way and the stressors and resources to be considered in preventive strategies to address COVID-19 pandemic are identified.

Sp20-3

Ergonomic redesigning the Radiologists Workstation at De La Salle University Medical Center (DLSUMC)

Alma Jennifer Gutierrez, Arah Asensi, Denise Chua and Charlene Sayson

Industrial and Systems Engineering Department, De La Salle University, Manila, Philippines

Introduction: Six ultrasound workstations were evaluated in order to verify and validate whether the Radiologic Technologists are comfortable and satisfied with their working environment. Symptoms associated with LongCOVID have increased the rate of use.

Materials and Methods: The physical components of the workstation include the ultrasound machine, bed, chair, monitor, and keyboard. The environmental components that could also affect their work performance are illumination and noise. A total of 7 radiologic technologists were studied; 6 female and 1 male which constitutes the population of the radiologic technologists. Their posture while performing the ultrasound procedure were observed and captured using RULA.

Results: Illumination measurements averages from 25-63 lux. The average noise level for all the ultrasound workstations ranges from 58-60 dBA. It was found that the grand RULA scores while performing the abdomen and thyroid procedure are 5.43 and 4.86. Based on the results of the Nordic Questionnaire, female participants experienced discomfort on their neck, shoulders, wrists, upper back, and lower back.

Conclusions: Based on the ergonomic assessment, the current ultrasound workstation does not comply with the ergonomic standards obtaining a RULA score of 5.43 (abdomen procedure) and 4.86 (thyroid procedure). These results to pain and discomfort on their upper limbs and lower back which were being experienced by the participants based on the Nordic Questionnaire. The study aims to improve the existing workstation being used by the radiologic technologists.

Special Session 21 Updates on Protections against Infectious Agents in Health Care

Chair: Gwen Brachman

Session introduction

A major risk to health workers is exposure to infectious agents. Use of engineering, administrative and personal protective controls for airborne, droplet spread and blood borne pathogens will be reviewed. PPE inequalities will be discussed. Controversies regarding particular vaccinations will be discussed: booster vaccines for Hepatitis B, mandatory versus non-mandatory annual influenza vaccination, update regarding the development and dosing of COVID-19 vaccines. Particular issues re: Covid-19 vaccination will include vaccination inequities and covid vaccine mandates.

Work restrictions for health workers infected with active Hepatitis B, Hepatitis C and HIV and the acceptance of certain diseases and/or vaccine side effects as occupational (workers comp) will be discussed.

Sp21-1

Review of Respiratory Protections for Health Workers: Environmental, Administrative and Personal Protective Measures and the Controversies Surrounding These

Sophia Kisting-Cairncross

School of Public Health and Family Medicine Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa
Introduction: The advent of the Covid-19 pandemic has increased the longstanding need for adequate protection of health workers from respiratory infectious agents such as tuberculosis. This is more evident in resource poor countries where the inconsistencies in the recommendations of guidelines between different countries and different organizations may result in greater stress and uncertainty for health about the efficacy of available respiratory protection. Similarly, the unequal access to appropriate PPE exacerbates the uncertainties.

Materials and Methods: Various national and international guidelines for respiratory protection will be reviewed. The appropriate use of engineering, administrative and personal protective controls for airborne and droplet spread of different infectious agents will be reviewed. The need for a risk-based approach and adequate scientific information to help inform recommendations will be assessed. More equal access to appropriate PPE will be discussed. Results and Conclusions: Health workers face an enormous risk of acquiring preventable respiratory diseases. This potentially impacts both their physical and mental health. Greater collaboration and a quest for greater equity should facilitate greater consistency with regards to the effective implementation of protective recommendations and guidelines.

Sp21-2

Protections against Blood Borne Pathogens

Gwen Brachman

Scientific Committee for Occupational Health for Health Workers, International Commission on Occupational Health, Westfield NJ, USA

Introduction: There are 16 billion injections worldwide annually. There is an increased burden of Hepatitis B, Hepatitis C and HIV through exposures to blood borne pathogens (BBPs). The main causes of blood borne pathogen exposures are the reuse of injection equipment, accidental needle-stick injuries (NSIs) in health care providers (about 3 million annually), overuse of injections and unsafe sharps waste disposal. The institutional and individual causes leading to BBP exposures will be discussed. Remediations including the standard protections, the use of safety injections, decreasing the number of injections and waste management programs (following WHO and ILO guidelines) will be discussed. Materials and Methods: Data from WHO on BBP exposures/infections in health workers and WHO and ILO guidelines will be presented. Conclusions: There is a huge global burden of BBP infections from occupational exposures in health workers which can be greatly decreased if appropriate workplace education and conditions were instituted.

Sp21-3

Long-term vaccine immunity against Hepatitis B virus in Health workers: issues and proposed solutions

Antoon De Schryver 1 and Wim Van Hooste 2

1 Department of Family Medicine and Population Health, University of Antwerp, Antwerp, Belgium, 2 Mediivet Occupational Health Services, Gent, Belgium

Introduction: A major risk to health workers is exposure to infectious agents, including Hepatitis B virus (HBV). For prevention of HBV, vaccination is the key. HBV vaccines have been commercially available since 1982, and many HWs may have received their primary HBV vaccine series 20-25 years ago. With the introduction of universal vaccination, large cohorts of youngsters vaccinated against HBV at birth or adolescence are currently entering healthcare training, not knowing their immunity status to HBV. Two main questions appear on the horizon. First, how long does the immune memory last? Second, is a booster dose necessary and if yes for which groups? Material and methods: Current national and international guidelines for HBV vaccination as well as the relevant literature on long-term immunity will be reviewed. The role of pre-vaccination testing of student HWs as well as the role and significance of an anamnestic response will be discussed. Strategies to detect HWs with persistent HBV infection will be discussed. Results and conclusions: Duration of effective long-term protection against acute disease and development of HBsAg carriage will be discussed. Current recommendations state that a booster is not needed in healthy, fully vaccinated, immunocompetent adults, but, as HWs have a high risk of HB exposure, special recommendations may be necessary. Additional long-term follow up studies are needed to explore life-long protection conferred by HBV vaccine, moreover, the need for a booster after a number of years should also be evaluated.

Sp21-4

Consensus and Controversies: Managing Vaccine Preventable Respiratory Diseases for Healthcare Personnel in the Era of COVID-19

Amy Behrman

Perelman School of Medicine - Occupational Medicine, University of Pennsylvania, Philadelphia, USA

Introduction: In many countries, illness and deaths from vaccine-preventable infections are now more common in adults than children. Healthcare personnel (HCP) comprise an adult population at particular risk of occupational exposure and nosocomial transmission if they are not immunized to an array of respiratory pathogens. There is broad consensus nationally and internationally on which vaccines are appropriate for HCP, but substantial controversy on how to provide them and whether to mandate them. In addition, there are ongoing inequities in burden of illnesses, vaccine access, and vaccine mandate impacts between groups of HCP. COVID-19 has hugely exacerbated all these concerns. Materials and Methods: Current recommendations for immunizing HCP will be reviewed including national and WHO guidelines, and evidence for their impact on worker and patient safety. Interventions to optimize vaccine safety and effectiveness for HCP will be reviewed. Experience and ethical controversies related to vaccine mandates will be discussed with particular attention to COVID-19 vaccines. Results and Conclusions: There is a huge global burden of community-acquired and occupational infections from vaccine-preventable infections among HCP. This requires on-going efforts to provide equitable, ethical and effective remediation. Workplace vaccine programs and vaccine mandates are crucial interventions to control current and future epidemics.

Special Session 22 Responsible Care and Corporate Citizenship

Chair: Murray Coombs and Steffen Hitzeroth

Session introduction

The Chemical Industry’s support for Sustainability - a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity will be enhanced if we build onto the successes of the Responsible Care and Corporate