1606b ENVIRONMENTAL SAMPLING AND HUMAN BIOMONITORING FOR HAZARDOUS DRUGS: IMPLICATIONS FOR WORKER HEALTH AND RISK OF HARM

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The DNA damaging effects of treatment with hazardous, anti-cancer drugs (HD) resulting in therapy-related leukaemia and other cancers have been recognised for more than thirty years. Health concerns for cancer caregivers handling these drugs has also been raised as scores of environmental monitoring studies documented drug contaminated work areas including some linking these results to drug levels in workers' urine, documenting drug uptake. Biomarkers of cytogenetic effect have also been examined, including chromosomal damage and micronuclei frequency, both of which may be prognostic of an increased cancer risk, suggesting they are potentially meaningful markers of effect. Importantly, dose-related excesses in 'signature' chromosomal aberrations typically seen in patients treated with specific anti-cancer drug classes have recently been reported in workers, even while 'using' safe handling practices.

Beyond the cancer risk, acute effects such as skin disorders and respiratory compromise from allergic sensitisation have also long been described in workers, as has reproductive loss, reflecting the experience of treated patients and the drugs' known mechanisms of action. Of the 184 drugs on the 2014 NIOSH HD list, about 80% are classified as harmful to reproduction. In the most recent large, epidemiology study on this topic, investigators found a statistically significant two-fold increased risk of spontaneous abortion in nurses reporting first-trimester HD exposure.

While safe drug handling practices have been promoted since the 1980s, concern has persisted that the risk has not been fully addressed. The findings above amplify that concern and suggest that biologically important exposure and health risks persist for oncology workers. This presentation will review the evidence documenting hazardous drug exposure and will argue the need to enforce safe handling as the standard of practice in clinical oncology.

1606c THE PRESENT AND FUTURE NEED OF CLOSED SYSTEM TRANSFER DEVICES (CSTD)

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For decades health care workers (HCWs) have dedicated themselves in order to improve their knowledge and understanding of diseases and their treatments in order to help their patients. At times, they have donated their bodies and caused harm to their health, when using new technologies or drugs with unknown side effects, as did Marie Curie when she was researching treatment with radium.

Antineoplastic drugs are largely used in the world today and, because of their activity, there is much concern about the exposure to health care workers during preparation, distribution and administration to the patient. Many studies have

clearly proven contamination of preparation surfaces and absorption, metabolism and excretion of these chemicals in HCWs.

Many other studies have shown severe health hazards on HCWs including chromosomal defects.

In the last year, closed systems (CSTD) were developed in order to avoid exposure and protect HCWs from contamination. We will present a few of the existing and future closed systems. We will also address and the implication of new fields like immunotherapy, biological treatments and nanoparticles.

1606d REPORT OF TASK FORCE ON HANDLING HAZARDOUS DRUGS

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Every year millions of Health Care Workers (HCWs) are exposed to carcinogenic, mutagenic and repro-toxic hazardous drugs, and in particular, cytotoxic drugs. These drugs represent the most dangerous chemical risk factors in healthcare and some of the most hazardous chemicals ever developed. The workplace exposure to dangerous drugs and the resulting health risks for healthcare personnel are well known yet, adequate education and training in handling hazardous drugs is both under appreciated and inadequate in many health care facilities. The SCOHHCW established a Task Force on Handling Hazardous Drugs in 2017 to address these issues. This session will report on the progress of this Task Force to date.

1621 INFECTIOUS RISKS IN PROVIDING HEALTH CARE: PREPARE FOR THE UNEXPECTED

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Aim Discuss procedures for evaluation, responses, and treatment of occupational infectious diseases in health care facilities and health care workers.

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1621a LEARNING FROM EXPERIENCE: IDENTIFICATION OF RISKS AND CONTROL MEASURES

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The protection of healthcare workers (HCWs) from occupational infections developed in parallel with that of patients from healthcare-associated infections. In 1915, Richardson wrote that nurses avoided the care of patients with infectious

diseases because they realised their insufficient training and feared the possible consequences. These obstacles could be removed by 'a thorough training in fever nursing, which embraces a knowledge of the nature of infectious diseases, their modes of transmission and methods for their prevention.' HCWs' concerns did not change greatly over the following 100 years, nor did the validity of the proposed solution: but scientific and technical knowledge progressed. Several life-threatening pathogens were increasingly identified as causing epidemics involving HCWs and patients in the successive decades, including tuberculosis, 'serum' hepatitis and smallpox: recommendations and codes of practice for hospitals and laboratories were issued, but many institutions and HCWs were still not taking adequate precautions to reduce infection risks. HIV gave an unprecedented impulse to HCWs' safety, promoting Universal Precautions against bloodborne infections, and airborne precautions against the HIV-associated resurgence of tuberculosis. With the decrease in the fear of occupational HIV, however, HCWs' compliance with preventive measures dropped, and SARS hit. The risk of communicable disease lost its historical significance to acquire practical relevance, claiming many lives before an effective reaction ended the epidemic. SARS stimulated developments in alert systems, isolation precautions, design of barrier garments, training in donning and doffing, pre and post-exposure management. Nonetheless, Ebola found international organisations ill-prepared and frontline workers under-equipped and untrained, which sometimes advocated dramatic choices between the lives of patients and HCWs' safety. If we want to learn from experience, HCWs' safety standards must be global: promoting renewed understanding and prompt identification of risks and precautions, and concentrating efforts and resources to strengthen preparedness in areas where pathogens emerge, are our inextricable priorities.

1621b PROTECTING THE HEALTHCARE WORKER FROM NEEDLESTICK INJURIES: A HIERARCHICAL APPROACH

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Needlestick injuries (NSI) continue to pose a significant risk to healthcare workers (HCWs) worldwide. Though the risk of acquiring bloodborne viral infection is low, it is not negligible. The psychological consequences of exposure can also be significant. Many exposures are entirely preventable. Applying the hierarchy of risk controls, a much used concept in the discipline of occupational hygiene, is important in addressing all occupational hazards. Elimination or isolation of a microbial hazard, though possible in the laboratory, is not an option in the clinical setting. However, engineering controls have been evolving in recent decades. In the 1990s, the safety technology advocated was costly and impractical so that prevention of exposure largely relied on education and training to optimise human behaviour in handling sharps. A decade later, safety engineered devices (SEDs) had become more technically sophisticated. However, diverse mechanisms of action ensure that their correct use is not always intuitive so training and supervision are required. These activities are administrative controls, and, though costly, are less effective in the hierarchy than are engineering controls. Personal protective equipment

has a lesser role to play in protecting HCWs from NSI but is useful for preventing mucocutaneous exposures.

The scientific literature has confirmed the efficacy of engineering controls and this has been underpinned by legislation, led by the United States in 2001, followed by the European Council Directive on Sharps in 2010.

However, technical solutions alone are insufficient to mitigate this hazard. In working to reduce injury in our organisation, we identified significant systemic obstacles within the hospital which when addressed, helped to reduce our injury rates. We also suggest that an understanding of the psychology of behaviour change at both individual and organisational levels is helpful in providing support for NSI prevention programmes.

1621c ADDRESSING INFECTIOUS – RELATED CONCERNS IN HCWS: AN INTEGRATED APPROACH

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Promoting best practices for safe and high quality patient care and extending the principle that patient and worker safety are intimately linked are basic objectives of the Quality Plan of the Spanish Ministry of Health. This presentation focuses on those initiatives aimed at the creation and implementation of safe and quality care for patients in hospitals and safe working procedures for health personnel. There are specific issues considered of vital importance in order to achieve safe and quality care in hospitals in a bidirectional way. These include:

1. establishing a Culture of Safety,
2. creating a Patient Safety Plan,
3. addressing the Health Care Workers perception of risks,
4. performing Risk Assessments,
5. creating protocols for the handling of dangerous drugs,
6. establishing protocols for Infection Control,
7. establishing protocols for handling adverse events and
8. establishing bidirectional channels for the communication of information.

The purpose of the presentation is to serve as a reference of experiences, suggesting practical and viable ways that allow for the implementation of these concepts.

1621d MANAGING EXPOSURES: WHEN THE UNDESIRABLE HAPPENS

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Health-Care Personnel (HCP) are at increased risk of acquiring occupational infections in the health care setting. A series of prevention strategies can be implemented to reduce the risk of those exposures, but it is agreed that education, training, personal protective equipment, safe procedures and work practices will not prevent all exposures and that there is a need of a number of interventions to further reduce the risk of acquiring an infectious disease after an exposure and in reducing the risk of secondary spread of infection. Postexposure prophylaxis (PEP) could be recommended following exposure