Infectious Occupational Agents

1069 HEALTH RISK MANAGEMENT: APPRAISAL OF TWO MCP MODELS FOR NON-IMMUNE EXPATRIATE WORKERS WITHIN NIGERIA'S OIL INDUSTRY

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Introduction Malaria remains a major occupational health concern accounting for several deaths per year and numerous lost work days among expatriate population, working and living in high malarious areas. Approximately 1% of all non-immune travellers who acquire *P. falciparum* infection die. Nigeria is a malaria endemic country with high transmission throughout the year. Employers within the oil industry usually adopt a malaria control program (MCP) which in generic terms consists of awareness, bite prevention, use of chemoprophylaxis and early diagnosis and treatment. It is clear that no single approach will sufficiently reduce this risk.

Methods Primary data was gathered through self-administered anonymised questionnaires to 35 non-immune expatriate respondents attending a clinic in Lagos. The questionnaire, completed at spot, sought to gather information on awareness and uptake of various employers' corporate malaria control programs – chemoprophylaxis use vs CMK/SBET approach.

Results Awareness to the malaria risk is high in the population at risk and this increased risk perception is significantly associated with risk-averse behaviours ($\chi^2=6.13$, CI 99%). Take-up of chemoprophylaxis (91%) while at work is encouraging as is compliance, post-travel. 60% of respondents that use chemoprophylaxis also carry Curative Malaria Kits (CMK). However, this risk perception did not seem to be significantly associated with acceptance of employer's policy contractually obligating use of chemoprophylaxis. ($\chi^2=0.73$, CI 50%).

Conclusion The most crucial aspect of any MCP is awareness. When non-immune employees are properly aware of the malarial risk, they are normally motivated to take responsibility for their own health and safety, and exhibit this motivation by demonstrating flourishing positive attitudes to preventative measures and advice given by employers. The study shows that although non-immune employees seem to be aware of the malarial risk, gaps in knowledge still exist. Long-term occupational travellers, rotational and offshore workers present some of the biggest challenge to the oil industry's effort at controlling malaria.

1198 MICROBIOLOGICAL AIR QUALITY ASSESSMENT OF PUBLIC HEALTH HOSPITALS, SOUTH AFRICA

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Introduction Bioaerosols and infectious patients in various departments within health facilities can be a risk of airborne infections. Concentration profiles of airborne bacteria including *Mycobacterium tuberculosis* (MTB) in hospitals have not been well characterised. This study assessed the levels of

airborne bacteria and evaluated whether carbon dioxide (CO₂) could be an indicator of airborne bacterial concentration.

Methods A cross-sectional study was conducted at four public sector hospitals in South Africa, two with ultraviolet germicidal irradiation (UVGI) fixtures (A and D) and two without (B and C). Risk areas included respiratory isolation rooms, TB wards, respiratory wards, general medical wards, outpatient consulting rooms and waiting areas. Air samples (n=316, A=106, B=30, C=58, D=122) were collected in the morning and afternoon using the MAS-100 sampler. Personal (4 l/s) and stationary (20 l/s) airborne TB samples were collected and quantified by real-time qPCR. Environmental parameters (temperature, relative humidity (%RH), air velocity and CO₂) were also measured. The data was analysed using Stata version 11.1.

Results The results revealed differences ($p<0.05$) in air quality within and between hospitals. The average bacterial levels ranged from 20–1380 cfu/m³, with hospital C having the highest average counts (611 cfu/m³) followed by hospital B with 365 cfu/m³. Detectable airborne TB was reported in the waiting area of hospital B. Hospitals with UVGI fixtures had significantly ($p=0.0001$) lower airborne microbial loads (181 cfu/m³) than those without (528 cfu/m³). The Kruskal Wallis test showed no bacterial count variability over a three day period or between morning and afternoon. A meaningful correlation ($r=0.51$, $p<0.05$) was found between airborne microbial levels and CO₂ levels (401–2398 ppm).

Conclusion CO₂ may be a predictor of microbial air quality however low bacterial counts may contain pathogens which may cause infection. Non-TB areas such as waiting areas pose a risk of exposure for health workers.

1599 OCCUPATIONAL HEALTH ASPECTS OF EMERGING INFECTIONS – THE EXPERIENCE FROM DEVELOPING COUNTRIES

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Aim of special session This session will cover occupational health aspects of emerging infections among healthcare workers and other occupational groups in developing countries. Presenters from Brunei, Singapore, Thailand and the United Arab Emirates will share their firsthand and contemporary experiences on the subject, and the strategies to manage this important issue in occupational health.

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1599a FLU VACCINATION FOR HEALTH CARE WORKERS – WHY AND WHY NOT?

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Influenza is a common infection affecting the general population. It has various implications on both patients and health care workers (HCWs). HCWs can acquire influenza from the

patients and their co-workers or vice versa. It is a major cause of sickness absenteeism among HCWs.

Influenza vaccination is one of the effective means of preventing influenza illness. It is usually carried out once or twice each year, depending on the predicted virus strains. Guidelines from the World Health Organisation (WHO) and many countries recommend influenza vaccination for HCWs. More importantly, as an infection control practice, vaccination can reduce transmission of influenza in healthcare settings, including protecting elderly and immunocompromised patients, who have higher mortality from complications of influenza. However, influenza vaccination rates among HCWs are universally low in many countries.

This study was conducted among nursing staff in two hospitals in Singapore. The aims were to understand the knowledge, perceived benefits, cultural values and behaviour of nursing staff towards influenza vaccinations. This study will help us understand the gaps and barriers towards influenza vaccination rates and in designing an effective influenza immunisation program in future.

1599b EMERGING INFECTIONS AND HEALTH CARE WORKERS IN THAILAND

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Thailand's population to doctor, dentist, registered nurse ratio in 2015 were 1 to 2035, 9352 and 436 respectively; with 117 infectious medical specialists and 63 occupational physicians.

In 2015, 89 hospitals had negative pressure rooms for Avian and other Influenza, Ebola and MERS.

The strategy to prevent emerging diseases among health care workers (HCWs) stresses on screening of patients who have fever and respiratory symptoms and who travelled from surveillance countries e.g. Africa for Ebola, Middle East for MERS; those who have chicken livestock at home or who had travelled in surveillance countries for Avian Flu.

During the first outbreak of Avian Influenza, HCWs did not know much about the illness and so there was fear among them. Subsequent release of information from the Ministry of Public Health, provision of Airborne Infection Isolation Rooms in almost every hospital, and assistance from occupational physicians and OH nurses allowed HCWs to work with greater confidence.

There were 25 cases of Avian influenza in with 17 fatalities.

In 2016 when there was outbreak of MERS-CoV, HCWs were given information on these diseases and generally did not fear to work with patients. However, a 2016 survey of nursing competency among final year nursing students showed that the lowest point in competency level was coping with emerging diseases. A report of 43 HCWs with patient contact in a private hospital popular among Middle East patients stated that all used N-95 respirators (after respiratory fit testing) and other protective gears during their entire working period. All their serum specimens tested negative for MERS-CoV antibodies.

1599c MONKEYING AROUND WITH MALARIA – BRUNEI DARUSSALAM'S EXPERIENCE

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With the last local case of malaria reported in 1972, Brunei Darussalam has been declared 'Malaria-Free' by the World Health Organisation in 1987. In order to maintain the status attained, Brunei Darussalam has continued its surveillance through the Malaria Vigilance and Vector Control Unit in the Ministry of Health.

From the year 2000 until now, only indigenous cases of zoonotic Simian Malaria have been detected in people who are exposed in the line of duty namely border patrol officers, Armed Forces personnel and Department of Forestry officers.

Sixty four such cases have been reported in the past decade. The incidence has been minimised with the recommended use of prophylaxis for all personnel going on duty into the jungles, application of mosquito/insect repellants, and use of impregnated uniforms by Armed Forces personnel and impregnated bed nets in the camp sites.

1703 TRAVEL MEDICINE: MIGRANT WORKERS AND INTERNATIONAL SPREAD OF EMERGING INFECTIONS IN THE GLOBAL ECONOMY

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Aim of special session Discuss how globalisation results in emerging infections among migrant workers and how to prevent its transmission.

Globalisation may be defined as the transfer of businesses from the established markets to the developing economic markets. It is also evident that it has contributed to wider opportunities and enhanced equity in employment. However, there are effects of globalisation on occupational health such as in export processing zones, migrant workers, notification of work-related diseases, effects on health beyond the workplace and the under-recognition of the burden of occupational disease. This session will discuss the situation of travel medicine in the hiring of migrant workers.

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1703a DISPROPORTIONATELY AT RISK: IMMIGRANT WORKERS IN THE U.S. CONSTRUCTION INDUSTRY

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