



Editorial

Occupational Health and Hazards among Health Care Workers

Tirthankar Ghosh

Health care workers define to be all people engaged in actions whose primary intent is to enhance health. They make important contributions and are critical to the functioning of most health systems.

Health care workers face a wide range of hazards on the job; including needle stick injuries, back injuries, latex allergy, violence, and stress. Health-care workers (HCWs) need protection from these workplace hazards just as much as do mining or construction workers. Yet, because their job is to care for the sick and injured, HCWs are often viewed as “immune” to injury or illness. Their patients come first. They are often expected to sacrifice their own well-being for the sake of their patients. Indeed health protecting health-care workers has the added benefit to contribute to quality patient care and health system strengthening.

The 2006 World Health Report Working Together for Health on human resources reported on a global shortage of health personnel which had reached crisis level in 57 countries and called for the support and protection of the health workforce. Unsafe working conditions contribute to health worker attrition in many countries due to work-related illness and injury and the resulting fear of health workers of occupational infection, including HIV and Tuberculosis. The 2006 World Health Report Working Together for Health reported on a severe health workforce crisis in fifty-seven countries, most of them in Africa and Asia.

The WHO Global Plan of Action on workers health calls on all member states to develop national programmes for health worker occupational health and to develop national campaigns for immunizing health workers against hepatitis B. WHO global burden of disease from sharps injuries among health workers,

showed that 37% of the hepatitis B among health workers was the result of occupational exposure. Infection with the hepatitis B virus is 95% preventable with immunization but less than 20% of health worker in some regions of the world have received all three doses needed for immunity. While less than 10% of the HIV among health workers is the result of an exposure at work. Needle stick injuries, the cause of 95% of the HIV occupational seroconversions, are preventable with practical, low-cost measures and have the co-benefit of preventing exposure to other blood borne viruses and bacteria.

A National Institute for Occupational Safety and Health (NIOSH) report indicated that an estimated 600,000 to 800,000 percutaneous injuries occur annually to HCWs [1]. The Association of Peri Operative Registered Nurses (AORN) says in its position statement on workplace safety, “Nurses practicing in the perioperative environment are at distinct risk for percutaneous injury due to prolonged exposure to open surgical sites, frequent handling of sharp instruments, and the presence of large quantities of blood and other potentially infectious body fluids.”[2]

Particular concerns to an aging nursing population are ergonomic-related injuries. Back injuries pose a significant risk to perioperative nurses and are the most prevalent occupational injury in the healthcare industry 5. Direct costs associated with occupational back injuries of HCWs average \$37,000, while indirect costs associated with back injuries can range from \$147,000 to \$300,000. [3]

According to AORN’s workplace-safety position statement, “Key indicators to an organization’s culture and commitment to ensure a safe workplace include maintaining safe equipment, providing adequate nurse staffing levels, and fostering safe work practices. An unsafe workplace contributes to work-related injuries and diseases that often result in physical, emotional, and

financial difficulties for perioperative nurses. Occupational injuries resulting from an unsafe workplace impact the healthcare organization by increased costs and a reduced ability to provide services. Occupational hazards in the workplace have been identified as a major contributor to nurses leaving the profession, contributing to the growing nursing shortage.”[4]

The Different Type of Hazards Prevalent Among the HCWs.

Musculoskeletal disorders:

Over 5000 manual handling injuries are reported each year which occur in health services. Approximately half of these happen during the handling of patients. The handling of patients is a major cause of these injuries, but it is not the only one. Ancillary staff can also suffer from injuries related to manual handling of loads. Stresses and strains arising from awkward or static postures when treating patients can also give rise to problems [5]. Some staff may have to adopt and hold awkward postures as part of their work, such as ultrasound operators and operating theatre staff.

Extensive evidence suggests that the numbers of workplace injuries and illnesses reported annually by the U.S. Department of Labor, Bureau of Labor Statistics, are underestimated for all private employers. Several states have passed safe patient handling legislation to reduce work-related musculoskeletal disorders (WMSDs) among health care workers. Research is needed to improve accurate reporting of these types of injuries to allow assessment of the effectiveness of this legislation and to enable hospitals and nursing homes to better target interventions to areas at high risk for WMSDs [6]. Health care workers show a higher prevalence of low back pain (LBP) [7] than many other occupational groups [8-10]. The annual prevalence of LBP among health care workers is as high as 77% [10]. Health care workers are generally characterized by having a high physical work load and high prevalence of overweight [11-12].

A risk may arise from anything — whether work materials, equipment, work methods or practices — that have the potential to harm. Workers can be at risk of MSDs in virtually every workplace. The risks in the healthcare sector are related to the following aspects of work

Technical factors include:

- Poor ergonomic design of the building;
- Adverse working environment (e.g. hot, cold, draughts from air conditioning);

- Insufficient space for working activities which may lead to awkward postures and unsafe displacement of goods;
- Unsuitable ergonomic design of the workplace, such as workplace arrangement, height and arm-reach;

Organisational factors may include:

- Tasks that are too strenuous; the tasks are, for example, carried out too frequently or for too long a time or workers work too long without breaks;
- Lack of training and follow-up training;
- Non-provision of suitable personal protective equipment, such as footwear and working gloves.

Factors due to the work task include:

- Manual handling of loads carried out by one or more workers such as lifting, holding, lowering, pushing, pulling, carrying or moving loads.
- Manual handling of patients which covers all activities where the weight or part of the patient's weight is raised, pushed, pulled, transferred or carried.
- Awkward postures or movements such as bending and/or twisting, raised arms, bent wrists, over reaching and over exertion;
- Repetitive activities/handling (not likely to be found in healthcare);
- Prolonged standing such as in the operating theatre at the operating table, often combined with a bent over or awkward position;

Biological:

Biological exposure causes due to the exposure to blood borne pathogens from percutaneous injuries, splashes, and other contact; exposure to infectious microorganisms; exposure to biological components of surgical smoke from use of lasers and electrosurgical units; and exposure to the chemical and protein allergens in latex gloves.

Biological agent means one that causes severe human disease and is a serious hazard to workers; it may present a high risk of spreading to the community; there is usually no effective prophylaxis or treatment available. [13]

Blood borne pathogens are microorganisms that are present in blood, tissue, blood products, and other potential infectious materials (OPIM) defined as semen, vaginal secretions, cerebrospinal fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, synovial fluid, breast mils (not all authorities agree) and saliva in dental procedures. Workers who have occupational exposure to blood and OPIM are at risk for acquiring blood borne infections. Workers in many different occupations are at risk of exposure these include: first aid team

members, laboratory personnel, housekeeping personnel in some settings, and nurses. The level of risk depends on the number of infected patients in the facility, the frequency and duration of exposure to contaminated material, and the likelihood that a single exposure will result in infection.

OSHA estimates that 5.6 million workers in the health care industry and related occupations are at risk of occupational exposure to blood borne pathogens, including HIV, hepatitis B virus (HBV), hepatitis C virus (HCV), and other potentially infectious materials (OPIM). In 1991, OSHA issued the Blood borne Pathogens Standard to protect workers from this risk.

Blood borne diseases with an occupational exposure potential include hepatitis B and hepatitis C as well as syphilis, malaria and human immunodeficiency virus. Many of these diseases currently have no cure, emphasizing the need for worker protection. The three most significant are hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV).

Exposure to blood borne pathogens occurs in many ways. Although needle stick injuries are the most common means of exposure for health care workers, blood borne pathogens can also be transmitted through contact with eyes, nose, and mouth or through broken skin. Based on data from EPINet, NIOSH (2000) also estimated that, on average, 30 needle stick injury events occurred in U.S. hospitals per 100 beds in 1999 [14]. Finally, a study conducted in Washington used numbers of filed workers' compensation forms as its primary source of data and found that, from 1996 to 2000, 3303 claims were filed. HCWs are at risk of exposure to blood and OPIM due to unsafe needle devices and improper handling and disposal of needles. Other contaminated sharps, including scalpels, broken glass, or broken capillary tubes, are a hazard to HCWs. For example, glass capillary tubes may break when handled incorrectly, resulting in a penetrating wound to the HCW, or used disposable razors could be contaminated with blood. Studies have demonstrated that most needle stick injuries result from unsafe needle devices rather than carelessness by HCWs. Safer needle devices have built-in safety control devices, such as those that use a self-sheathing needle, to help prevent injuries before, during, and after use through safer design features. In 2000, the CDC estimated that 62 percent to 88 percent of sharps injuries in the hospital setting could be prevented by using safer medical devices.

Latex Allergies:

HCWs face a significant risk of developing latex sensitivity or latex allergy from exposure to latex in products such as

examination and surgical gloves. It has been estimated that 8 percent to 12 percent of HCWs are latex-sensitive, with reactions ranging from irritant contact dermatitis and allergic contact sensitivity, to possibly life-threatening, sensitivity. Many other hospital employees who are not patient-care providers, such as housekeepers or laundry workers, also are exposed to latex products and latex-allergy risks. Employees exposed to latex gloves and other products containing natural rubber latex may develop allergic reactions such as skin rashes, hives, nasal, eye, or sinus symptoms, and asthma.

Considering the importance of occupational risk among health care workers, IJOSH to release a special issue on Occupational Health and Hazards among Health Care Workers to accumulate the current researches in this vibrant field of work. In process of this issue a preliminary selection process was done and submitted and edited articles were passed through proper review process of the journal and among the initially selected articles, six articles are accepted for publication.

These six articles almost cover all types of health care workers and sectors as on Knowledge, attitude and practice of medical students on blood and body fluids; Study on occupational exposure to HIV and the utilization of post exposure prophylaxis (PEP) among health workers; Worker safety in designated microscopy centres and tuberculosis unit; NSI: a major occupational hazards among the health care workers; An ergonomic study of postural stress of nurses working in orthopaedic wards and Stress; Psychological well being status among health care professionals.

References:

1. Department of Health and Human Services, National Institute for Occupational Safety and Health. NIOSH Alert: Preventing needle stick injuries in healthcare settings. 1999. <http://www.cdc.gov/niosh/docs/2000-108/> (accessed 7 dec 2012).
2. Jagger, J., Bentley, M., and Tereskerz, P. Study of patterns and prevention of blood exposures in OR personnel. *AORN Journal*, 1998, 67: 979-996.
3. Blackmon, D. Back injury prevention. *Surgical Services Management*, 1999, 5: 43-46.

4. Clarke, S., et al. Organizational climate, staffing, and safety equipment as predictors of needle stick injuries and near-misses in hospital nurses. *Am J Infection Control*, 2002, 30: 207-216.
5. Health and safety executive (HSE), Moving and handling in health and social care. available at <http://www.hse.gov.uk/healthservices/moving-handling.htm>.
6. Menzel NN. Underreporting of musculoskeletal disorders among health care workers: research needs. *AAOHN J*. 2008 Dec; 56(12):487-94.
7. Andersen LL, Clausen T, Mortensen OS, Burr H, Holtermann A: A prospective cohort study on musculoskeletal risk factors for long-term sickness absence among healthcare workers in eldercare. *Int Arch Occup Environ Health* 2011.
8. Ijzelenberg W, Burdorf A: Risk factors for musculoskeletal symptoms and ensuing health care use and sick leave. *Spine (Phila Pa 1976)* 2005, 30:1550-1556.
9. Johansson JA: Psychosocial work factors, physical work load and associated musculoskeletal symptoms among home care workers. *Scand J Psychol* 1995, 36:113-29.
10. Karahan A, Kav S, Abbasoglu A, Dogan N: Low back pain: prevalence and associated risk factors among hospital staff. *J Adv Nurs* 2009, 65:516-524.
11. Faber A, Giver H, Stroyer J, Hannerz H: Are low back pain and low physical capacity risk indicators for dropout among recently qualified eldercare workers? A follow-up study. *Scandinavian J Publ Health* 2010, 38:810-816.
12. Luime JJ, Kuiper JI, Koes BW, Verhaar JA, Miedema HS, Burdorf A: Work-related risk factors for the incidence and recurrence of shoulder and neck complaints among nursing-home and elderly-care workers. *Scand J Work Environ Health* 2004, 30:279-286.
13. DIRECTIVE 93/88/EEC, European Economic Community, on the protection of workers from risks related to exposure to biological agents at work (seventh individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC), Oct. 1993. available at http://www.biosafety.be/GB/Dir.Eur.GB/Other/93_88/Text.html.
14. OSHA - Safer Needle Devices: Protecting Health Care Workers, Needlestick Injuries 2012 Update Course Number 3461. available at http://www.medceu.com/index/index.php?page=get_course&courseID=3461&nocheck