

Occupational Health Hazards Among Health Care Workers

Md Tipu Sultan^{1*}

Health care workers are the peoples engaged in works where primary intent is to enhance health. They make important contributions critical to the functioning of most health systems. Worldwide the health care work force represents 12% of the working population¹. Health Care Workers (HCW) operate in an environment that is considered to be one of the most hazardous occupational settings². In addition to the usual workplace related exposures, HCWs encounter diverse hazards due to their work related activities³. Because their job is to care for the sick and injured, they are often viewed as immune to injury or illness. They are often expected to sacrifice their own well-being for the sake of patients. Indeed protecting HCWs has the added benefit to contribute the quality patient care and health system strengthening.

HCWs face a wide range of hazards on the job. These hazards were broadly classified as-

(a) Non-biological (b) Biological.

a) Non-biological hazards were defined to include physical, ergonomic and risk of accidents:-

- i) The physical risks related to exposure to noise, ionizing and non-ionizing radiation and temperature.
- ii) The ergonomic hazards are musculoskeletal injuries related to improper posture, monotony, repetitiveness, works shifts and situations causing stress.
- iii) Risk of accidents includes inappropriate arrangements of work environment, improper way of use of the instrument, insufficient lighting, and potential accidents with electricity and fire.

1. Professor of Microbiology
Rangamati Medical College
Rangamati, Bangladesh.

*Correspondence to:

Professor (Dr) Md Tipu Sultan

Mobile : +88 01714 10 71 44

Email: drtipusultan2003@yahoo.com

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b) Biological hazards were defined as biological substances that may cause injury to the human health. They include direct contact with any biological specimens or medical waste which may contain microorganism like bacteria, viruses or toxins.

Physical Risks:

Ionizing radiation is emitted by X-ray and radio-active isotopes that release gamma rays or α and β particles⁴.

Ionizing radiation promotes formation of free radicals in irradiated tissues, ionized molecules and cell destruction as well as possibility of chromosomal changes and development of malignant tumors⁵.

Protection from radiation is mandatory through measures such as education about the risks related to radiation. Use of barriers such as lead aprons down to the knees, glasses with protective lenses and cervical collars and maintaining a minimum distance of 90 cm from the primary source of ionizing radiation emission promotes a complete reduction of primary radiation exposure⁵.

Ergonomic Risks:

Awkward postures during work are responsible for developing spinal diseases such as herniated discs and lumber muscle contractions. Stresses and strains arising from awkward or static postures when treating patients can also give raise the problems⁶. HCWs show a higher prevalence of low back pain than many other occupational groups⁷.

Technical factors include- poor ergonomic design of the building, adverse working environment, insufficient space for working activities, unsuitable design of the workplace such as workplace arrangement, height and arm reach.

Organizational factors include tasks are too strenuous, tasks are carried out too frequently or for too long a time or workers work too long without breaks, lack of training.

Factors due to work task include- manual handling of patients or loads, awkward postures or movements such as bending and or twisting, raised arms, bent wrists, over reaching and over exertion.

Risk of Accidents:

The use of greater number of electrical appliances increases the risk of accidents with electricity. Inappropriate electrical installations increase the possibility of electric shocks. Correct planning of the number and distribution of electrical outlets and avoiding extensions and outlet plugs minimize the occurrence of such accidents.

Biological Hazards:

Biological risks exist throughout all healthcare settings and include airborne and blood borne pathogens such as the agents that cause Tuberculosis, Severe Acute Respiratory Syndrome (SARS) Hepatitis B/C infection and HIV infection/AIDS. HCWs also subject to exposures to hazardous chemicals such as disinfectants and sterilizing agents. They cause dermatitis and occupational asthma. Others act as carcinogens or also reproductive toxins.

The World Health Organization (WHO) estimates that about 2.5% of HIV cases among HCWs and 40% of Hepatitis B and C cases among HCWs worldwide are the result of these exposures⁸. Globally, Needle Stick Injuries (NSIs) are the most common source of occupational exposures to blood and the primary cause of blood borne infection of HCWs⁹. The risks of transmission of infection from an infected patient to the HCW following a NSI are Hepatitis B 3-10%, Hepatitis C 3% and HIV 0.3%¹⁰.

Determinants of NSIs include- over use of injection and unnecessary sharps, lack of supplies of disposable syringe, safer needle device and sharp disposal containers; lack of access to or failure to use sharp containers immediately after injection, inadequate or short staffing, recapping of needles after use, passing instruments from hand to hand in the operation theatre, lack of awareness of hazards and Lack of training¹¹.

Effective measures to prevent infections from occupational exposure of HCWs to blood include immunization against HBV, eliminating unnecessary injections, implementing universal precautions, eliminating needle recapping and disposing of the sharp into a sharp container immediately after use, use of safer devices such as needles that sheath or retract after use, provision and use of personal protective equipment and training workers in the risks and prevention of transmission. Post-exposure prophylaxis with anti retroviral medications can reduce the risk of HIV transmission by 80%¹². Universal precautions, elimination of needle recapping and use of sharps containers for safe disposal have reduced NSI by 80%¹³.

Since identification of patients infected with blood borne pathogens cannot be made by medical history and physical examination, universal precautions are recommended by the

Centre for Disease Control to be used on all patients¹⁴. Every patient is considered to be infected with a blood borne pathogen regardless of the known sero-status. A negative test provides a false sense of security to HCWs. Seroconversion to HIV or HCV positive can be delayed up to nine months following infection, so a negative test does not necessarily mean that the individual is not infected. In addition medical treatment of emergency patients and first-aid do not provide any opportunity for testing prior to treatment. The level of practice of universal precautions by HCWs may differ from one type of HCW to another. The differences in knowledge of universal precautions by HCWs may be influenced by their varying type of training¹⁵. The absence of enabling environment in the health institution, such as a lack of constant running water or a shortage of Personal Protective Equipment (PPE) would lead to poor compliance with universal precautions. It, therefore, becomes important to assess the level of compliance with universal precautions by the various types of HCWs who make direct contact with patients, and level of compliance by HCWs in the various types of health facilities.

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