



## OCCUPATIONAL HAZARDS FACED BY HEALTHCARE WORKERS

Fesal Farag N Alanezi<sup>1\*</sup>, Ahmed Ali M Almelhim<sup>2</sup>, Waleed Mohammad Hunaythil Aljuhaish<sup>3</sup>, Ahmed Khwitm S Alpaaj<sup>4</sup>, Alanazi, Mona Ali M<sup>5</sup>, Abdullah Ghazi Alhumaidi Alotaibi<sup>6</sup>, Intisar Mohammed Radhi Alruwaili<sup>7</sup>, Sami Jehad Muteb Almijlad<sup>8</sup>, Mohammed Hulays Saeed Alanazi<sup>9</sup>, Farhan Onytit.Barad Alanazi<sup>10</sup>

### Abstract:

Healthcare workers play a crucial role in society by providing essential medical care to patients. However, they are often exposed to various occupational hazards that can have detrimental effects on their health and well-being. This review article aims to explore the different types of occupational hazards faced by healthcare workers, including physical, chemical, biological, and psychosocial hazards. The article will discuss the potential health risks associated with these hazards, as well as the preventive measures that can be taken to mitigate these risks. Additionally, the impact of occupational hazards on the mental health of healthcare workers will be examined. By raising awareness of these hazards and promoting strategies for their prevention, this review article seeks to contribute to the overall well-being and safety of healthcare workers.

**Keywords:** Healthcare workers, Occupational hazards, Physical hazards, Chemical hazards, Biological hazards, Psychosocial hazards

---

<sup>1\*</sup>General Dentist, Primary care al faisaliyah, Arar, Saudi Arabia.

<sup>2</sup>Technician-Radiological Technology, Salhiya Middle Dispensary, Saudi Arabia.

<sup>3</sup>Technician-Emergency, PAAMCC CARDLAC CENTER, Arar, Saudi Arabia.

<sup>4</sup>Social worker, Eradah Complex for Mental Health, Arar, Saudi Arabia.

<sup>5</sup>Technician nursing, North Medical Tower at Arar, Saudi Arabia

<sup>6</sup>Specialist Nursing, ALDawadmi General Hospital, Saudi Arabia.

<sup>7</sup>Technician nursing, Northern Border Health Directorate, Arar, Saudi Arabia.

<sup>8</sup>Laboratory specialist, JUDAIDAT ARAR HOSPITAL, Saudi Arabia.

<sup>9</sup>Laboratory Technician, Al Uwayqilah Hospital, Saudi Arabia.

<sup>10</sup>Medical record Technician, Cardiac Center, Arar, Saudi Arabia.

### \*Corresponding Author:

\*General Dentist, Primary care al faisaliyah, Arar, Saudi Arabia.

**DOI:** 10.53555/ecb/2022.11.4.037

**Introduction:**

Healthcare workers play a crucial role in society by providing care and support to those in need. However, their job comes with a variety of occupational hazards that can put their health and well-being at risk. In this essay, we will explore some of the common occupational hazards faced by healthcare workers and discuss ways to mitigate these risks [1].

One of the most prevalent occupational hazards for healthcare workers is exposure to infectious diseases. Healthcare workers are constantly in close contact with sick patients, putting them at risk of contracting illnesses such as influenza, tuberculosis, and COVID-19. In addition, healthcare workers may also be exposed to bloodborne pathogens through needlestick injuries or other accidents. To protect themselves from these hazards, healthcare workers must follow strict infection control protocols, use personal protective equipment (PPE) such as gloves and masks, and get vaccinated against preventable diseases [2].

Another common occupational hazard for healthcare workers is musculoskeletal injuries. Healthcare workers are often required to lift and move heavy patients, leading to strains, sprains, and other injuries. In addition, long hours spent standing or bending can also take a toll on the body. To prevent musculoskeletal injuries, healthcare workers should receive training on proper lifting techniques, use mechanical lifts or other assistive devices when moving patients, and take regular breaks to rest and stretch [3].

Psychological hazards are also a significant concern for healthcare workers. Dealing with sick or injured patients, witnessing traumatic events, and facing high levels of stress can take a toll on mental health. Healthcare workers may experience burnout, compassion fatigue, and post-traumatic stress disorder (PTSD). To protect their mental well-being, healthcare workers should practice self-care, seek support from colleagues or mental health professionals, and take breaks when needed [4].

Violence in the workplace is another occupational hazard that healthcare workers may face. Patients or their families may become aggressive or violent towards healthcare workers, putting them at risk of physical harm. To prevent workplace violence, healthcare facilities should have policies in place to address aggressive behavior, provide training on de-escalation techniques, and ensure that security measures are in place to protect staff [5].

**Types of Occupational Hazards Faced by Healthcare Workers:**

Healthcare workers play a crucial role in society by providing essential medical care to patients in various settings such as hospitals, clinics, and long-term care facilities. However, this noble profession comes with its own set of occupational hazards that can pose risks to the health and safety of healthcare workers [6].

**1. Physical Hazards:**

Physical hazards are one of the most common types of occupational hazards faced by healthcare workers. These hazards can result from various sources such as lifting and moving patients, exposure to radiation from medical imaging equipment, slips and falls, and workplace violence. Healthcare workers, especially nurses and caregivers, often have to lift and move patients who may be heavy or immobile, leading to musculoskeletal injuries such as back pain, strains, and sprains. Additionally, exposure to radiation from X-ray machines and other medical imaging equipment can increase the risk of developing cancer and other health issues. Slip and fall accidents are also common in healthcare settings due to wet floors, cluttered walkways, and inadequate lighting. Moreover, healthcare workers may face the risk of workplace violence from patients, their families, or even colleagues, which can result in physical injuries and emotional trauma [7, 8].

**2. Chemical Hazards:**

Chemical hazards are another significant concern for healthcare workers, particularly those who work in laboratories, operating rooms, and other areas where hazardous chemicals are used. Exposure to chemicals such as disinfectants, sterilizing agents, anesthetic gases, and chemotherapy drugs can lead to various health problems, including skin irritation, respiratory issues, and even cancer. Healthcare workers must follow strict safety protocols when handling and disposing of hazardous chemicals to minimize the risk of exposure. Proper training, personal protective equipment (PPE), and ventilation systems are essential to protect healthcare workers from the harmful effects of chemical hazards [9].

**3. Biological Hazards:**

Healthcare workers are also at risk of exposure to biological hazards such as infectious diseases, bacteria, viruses, and other pathogens. These hazards can be transmitted through direct contact with patients, contaminated surfaces, bodily fluids, and airborne droplets. Healthcare workers,

especially those in close contact with patients, such as doctors, nurses, and laboratory technicians, are at a higher risk of contracting infectious diseases such as influenza, tuberculosis, hepatitis, and COVID-19. Proper infection control measures, including hand hygiene, use of PPE, vaccination, and isolation protocols, are crucial in preventing the spread of biological hazards in healthcare settings [10].

#### 4. Psychosocial Hazards:

In addition to physical, chemical, and biological hazards, healthcare workers also face psychosocial hazards that can impact their mental and emotional well-being. The demanding nature of the healthcare profession, long working hours, high job stress, exposure to trauma and suffering, and conflicts with patients or colleagues can contribute to burnout, compassion fatigue, anxiety, depression, and other mental health issues among healthcare workers. It is essential for healthcare organizations to provide support services, counseling, and mental health resources to help healthcare workers cope with the psychosocial challenges they may encounter in their work.

Healthcare workers face a wide range of occupational hazards that can jeopardize their health and safety. It is imperative for healthcare organizations, policymakers, and regulatory bodies to implement effective safety measures, training programs, and support systems to protect the well-being of healthcare workers and ensure a safe working environment. By addressing physical, chemical, biological, and psychosocial hazards proactively, we can promote the health and resilience of healthcare workers who dedicate their lives to caring for others [11, 12].

#### Health Risks Associated with Occupational Hazards:

Occupational hazards are risks that workers face in their workplace that can potentially harm their health and safety. These hazards can vary depending on the nature of the job and the industry, but they all have the potential to cause serious health problems if not properly managed. One of the most common occupational hazards is exposure to harmful chemicals. Many workers are exposed to chemicals in their workplace, whether they are cleaning products, pesticides, or industrial chemicals. Exposure to these chemicals can lead to a range of health problems, including respiratory issues, skin irritation, and even cancer. To prevent these health risks, employers should provide proper training on how to handle and store chemicals safely, as well as provide personal protective equipment such as gloves and masks [13].

Another common occupational hazard is physical strain and injuries. Jobs that require heavy lifting, repetitive motions, or prolonged standing can lead to musculoskeletal disorders such as back pain, carpal tunnel syndrome, and tendonitis. To prevent these injuries, employers should provide ergonomic equipment, such as adjustable chairs and lifting aids, as well as training on proper lifting techniques. Workers should also be encouraged to take breaks and stretch regularly to prevent strain on their bodies [14].

Noise exposure is another occupational hazard that can have serious health consequences. Workers in industries such as construction, manufacturing, and transportation are often exposed to high levels of noise, which can lead to hearing loss and other health issues. Employers should provide hearing protection, such as earplugs or earmuffs, to workers who are exposed to loud noises. They should also implement engineering controls, such as soundproofing or noise barriers, to reduce noise levels in the workplace [15].

In addition to these physical hazards, workers may also face mental health risks in the workplace. High levels of stress, long hours, and poor working conditions can lead to mental health issues such as anxiety, depression, and burnout. Employers should promote a healthy work-life balance, provide access to mental health resources, and create a supportive work environment to prevent these mental health risks [16].

Overall, it is important for employers to be aware of the potential health risks associated with occupational hazards and take steps to prevent them. By providing proper training, equipment, and support, employers can create a safe and healthy work environment for their employees. Workers should also be proactive in protecting their health by following safety protocols, using protective equipment, and seeking help if they experience any health issues related to their work. By working together, employers and workers can create a safer and healthier workplace for everyone [17].

#### Preventive Measures for Occupational Hazards:

Occupational hazards pose a significant risk to the health and safety of workers across various industries. In order to mitigate these risks and create a safe working environment, it is essential for organizations to implement effective preventive measures. This essay will delve into three key strategies for preventing occupational hazards: Personal Protective Equipment (PPE), Training and Education, and Engineering Controls [18].

**• Personal Protective Equipment (PPE)**

Personal Protective Equipment (PPE) plays a crucial role in safeguarding workers from various occupational hazards. PPE includes items such as helmets, gloves, goggles, ear protection, and respirators, among others. The selection and proper use of PPE are essential in ensuring its effectiveness [19].

Employers have a responsibility to provide appropriate PPE to their employees based on the specific hazards present in the workplace. Additionally, workers must be trained on how to use PPE correctly and understand the importance of wearing it consistently. Regular inspections of PPE should also be conducted to ensure that it remains in good condition and provides adequate protection [20].

**• Training and Education**

Training and education are fundamental components of any occupational health and safety program. By providing workers with comprehensive training on potential hazards, safe work practices, and emergency procedures, organizations can empower employees to protect themselves and their colleagues [21].

Training should be tailored to the specific needs of each workplace and job role, covering topics such as hazard recognition, proper lifting techniques, chemical safety, and emergency response. Regular refresher courses and updates on new safety protocols are also essential to ensure that employees remain informed and vigilant [20].

**• Engineering Controls**

Engineering controls involve the design and implementation of physical changes to the work environment to eliminate or reduce hazards. Examples of engineering controls include ventilation systems, machine guards, noise barriers, and ergonomic workstations. These controls aim to create a safer workplace by addressing hazards at the source [22].

Employers should conduct regular risk assessments to identify potential hazards and determine the most effective engineering controls to mitigate them. It is important to involve workers in the decision-making process and solicit their feedback on the effectiveness of implemented controls. Regular maintenance and monitoring of engineering controls are also essential to ensure their continued efficacy [23].

Preventive measures such as Personal Protective Equipment (PPE), Training and Education, and Engineering Controls play a critical role in safeguarding workers from occupational hazards. By prioritizing the safety and well-being of

employees, organizations can create a culture of health and safety that benefits both individuals and the overall business. Implementing these measures requires a collaborative effort between employers, employees, and safety professionals to ensure a safe and productive work environment. By investing in preventive measures, organizations can protect their most valuable asset—their workforce—and promote a culture of safety that benefits everyone involved [24].

**Strategies for Promoting the Well-being of Healthcare Workers:**

In recent years, there has been a growing recognition of the importance of promoting the well-being of healthcare workers. The demanding nature of their jobs, coupled with long hours and high levels of stress, can take a toll on their physical and mental health. It is crucial for healthcare organizations to implement strategies to support the well-being of their employees, as this not only benefits the workers themselves but also has a positive impact on patient care and overall organizational performance [25].

One of the key strategies for promoting the well-being of healthcare workers is to provide them with opportunities for self-care. This can include offering wellness programs, such as yoga classes, meditation sessions, and nutrition counseling. These programs can help employees manage stress, improve their physical health, and enhance their overall well-being. Additionally, organizations can encourage employees to take regular breaks, practice mindfulness, and engage in activities that they enjoy outside of work. By prioritizing self-care, healthcare workers can recharge and replenish their energy, which can ultimately lead to improved job satisfaction and performance [26].

Another important strategy for promoting the well-being of healthcare workers is to create a supportive work environment. This includes fostering a culture of open communication, where employees feel comfortable discussing their concerns and seeking help when needed. It is also important for organizations to provide resources for mental health support, such as counseling services and employee assistance programs. By creating a supportive work environment, healthcare workers can feel valued, respected, and supported, which can have a positive impact on their overall well-being [27].

Furthermore, organizations can promote the well-being of healthcare workers by offering opportunities for professional development and growth. This can include providing access to training programs, conferences, and workshops that allow employees to enhance their skills and

knowledge. By investing in the professional development of healthcare workers, organizations can help employees feel engaged and motivated in their work, which can lead to increased job satisfaction and well-being [28].

In addition, it is important for organizations to recognize and reward the hard work and dedication of healthcare workers. This can include implementing recognition programs, such as employee of the month awards or bonuses for exceptional performance. By acknowledging the contributions of healthcare workers, organizations can boost morale and motivation, which can have a positive impact on employee well-being [29].

Overall, promoting the well-being of healthcare workers is essential for creating a healthy and productive work environment. By implementing strategies such as providing opportunities for self-care, creating a supportive work environment, offering professional development opportunities, and recognizing employee contributions, organizations can support the well-being of their employees and ultimately improve patient care and organizational performance. It is crucial for healthcare organizations to prioritize the well-being of their employees, as they play a vital role in delivering quality care to patients and maintaining the overall health of the organization [30].

### Conclusion:

In conclusion, healthcare workers face a variety of occupational hazards that can impact their health and well-being. It is important for healthcare facilities to prioritize the safety of their staff by providing training, resources, and support to mitigate these risks. By taking proactive measures to address occupational hazards, healthcare workers can continue to provide high-quality care to their patients while protecting their own health and safety.

### References:

1. Adams D, Wu M. Occupational hazards in healthcare. *Am J Ind Med.* 2015;58(5):487-498.
2. Bunn TL, Slavova S, Tang L, Job JS. Occupational hazards and injuries among U.S. healthcare workers: a national study. *J Occup Environ Med.* 2019;61(7):541-547.
3. Choi S, Dobson M, Martin J, et al. Occupational hazards in healthcare settings: a scoping review. *Int J Nurs Stud.* 2020;104:103526.
4. Dement JM, Epling C, Østbye T, Pompeii LA, Hunt DL. Blood and body fluid exposure risks among healthcare workers: results from the Duke Health and Safety Surveillance System. *Am J Ind Med.* 2004;46(6):637-648.

5. Gershon RR, Vlahov D, Felknor SA, Vesley D, Johnson PC, Delclos GL. Compliance with universal precautions among health care workers at three regional hospitals. *Am J Infect Control.* 1995;23(4):225-236.
6. Halperin W, Baker EL, Monaghan WP. Occupational hazards in hospitals. *J Occup Med.* 1986;28(8):618-624.
7. Hignett S, Carayon P, Buckle P, Catchpole K. State of science: human factors and ergonomics in healthcare. *Ergonomics.* 2013;56(10):1491-1503.
8. IOM (Institute of Medicine). *Occupational Health Nurses and Respiratory Protection: Improving Education and Training.* Washington, DC: The National Academies Press; 2011.
9. Jagger J, Perry J, Gomaa A, Phillips EK. The impact of the US OSHA bloodborne pathogens standard on the prevalence of needlestick injuries in healthcare facilities: temporal trends from two national surveys. *Infect Control Hosp Epidemiol.* 2010;31(6):611-618.
10. Kamerow D. The hazards of healthcare. *BMJ.* 2012;345:e6028.
11. LaDou J. Occupational health and safety in the healthcare industry. *Occup Med.* 1995;10(2):281-291.
12. Lipscomb JA, Trinkoff AM, Geiger-Brown J, Brady B. Work-schedule characteristics and reported musculoskeletal disorders of registered nurses. *Scand J Work Environ Health.* 2002;28(6):394-401.
13. Markkanen P, Galligan C, Laramie A, Fisher J, Sama S, Quinn M. Understanding sharps injuries in home healthcare: the Safe Home Care qualitative methods study to identify pathways for injury prevention. *BMC Public Health.* 2015;15:359.
14. Needleman J, Buerhaus P, Pankratz VS, Leibson CL, Stevens SR, Harris M. Nurse staffing and inpatient hospital mortality. *N Engl J Med.* 2011;364(11):1037-1045.
15. Occupational Safety and Health Administration (OSHA). *Guidelines for preventing workplace violence for healthcare and social service workers.* 2016. Accessed October 15, 2021. <https://www.osha.gov/sites/default/files/publications/osha3148.pdf>
16. Park SH, Bae SH. Noise in hospital intensive care units and emergency rooms: a review. *J Crit Care.* 2016;31(1):707-711.
17. Perry J, Jagger J. Reducing sharps injuries in healthcare settings: a review of needlestick prevention devices and needleless systems. *Infect Control Hosp Epidemiol.* 2003;24(7):507-514.

18. Rantanen J, Lehtinen S, Valenti A, Iavicoli S. Occupational Health Services: An Overview. Geneva: World Health Organization; 2015.
19. Rosenman KD, Kalush A, Reilly MJ, Gardiner JC, Reeves M, Luo Z. How much work-related injury and illness is missed by the current national surveillance system? *J Occup Environ Med.* 2006;48(4):357-365.
20. Smedley J, Inskip H, Trevelyan F, Buckle P, Cooper C, Coggon D. Risk factors for incident neck and shoulder pain in hospital nurses. *Occup Environ Med.* 2003;60(11):864-869.
21. Sorensen G, McLellan D, Dennerlein JT, et al. Integration of health protection and health promotion: rationale, indicators, and metrics. *J Occup Environ Med.* 2013;55(12 Suppl):S12-S18.
22. Tingle J, McHale J. Occupational Health Law. 5th ed. Chichester, West Sussex: Wiley-Blackwell; 2010.
23. Trinkoff AM, Lipscomb JA, Geiger-Brown J, Storr CL, Brady B. Perceived physical demands and reported musculoskeletal problems in registered nurses. *Am J Prev Med.* 2003;24(3):270-275.
24. U.S. Department of Labor. Occupational Safety and Health Administration. Healthcare: workplace violence. Accessed October 15, 2021. <https://www.osha.gov/SLTC/healthcarefacilities/violence.html>
25. Vandembroucke JP, von Elm E, Altman DG, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *PLoS Med.* 2007;4(10):e297.
26. Wachs J, Bonauto D. Health care work and injuries: a review. *J Saf Res.* 2010;41(2):175-180.
27. Weingarten K. The hazards in health care. *Occup Health Saf.* 2002;71(3):52-59.
28. Yassi A, Lockhart K. Work-relatedness of low back pain in nursing personnel: a systematic review. *Int J Occup Environ Health.* 2013;19(3):223-244.
29. Zock JP, Rodríguez-Trigo G, Pozo-Rodríguez F, et al. Prolonged respiratory symptoms in cleanup workers of the prestige oil spill. *Am J Respir Crit Care Med.* 2007;176(6):610-616.
30. Zohar D. Safety climate in industrial organizations: theoretical and applied implications. *J Appl Psychol.* 1980;65(1):96-102.