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*Review article*

## **Occupational Hazards among Health Care Workers in Nigeria**

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### **ABSTRACT**

Healthcare workers play a vital role in society by providing essential medical care and services. However, their occupational environment exposes them to a diverse range of hazards that can influence their health and well-being. This review aims to provide a comprehensive overview of the occupational hazards faced by healthcare workers and the associated risks, focusing on healthcare settings such as hospitals, clinics, and laboratories. The study synthesizes existing literature on various types of hazards that healthcare workers encounter. These hazards include biological risks, such as exposure to infectious agents like viruses, bacteria, and fungi; chemical exposures from hazardous drugs, disinfectants, and sterilizing agents; physical hazards like ergonomic strain, needle stick injuries, and radiation exposure; and psychosocial hazards including stress, burnout, and workplace violence. In addition to identifying the factor that predispose the workers to this hazards, implementation of proper measures, use of personal protective equipment, ergonomic improvements, comprehensive training programs, and mental health support initiatives are discussed as vital steps in preventing the well-being of healthcare workers. The findings in this review emphasize the need for comprehensive interventions, including improved training programs, implementation of safety protocols, provision of adequate personal protective equipment, and enhanced support systems. As the healthcare landscape continues to evolve in Nigeria, understanding and addressing occupational hazards is vital for ensuring the health and safety of healthcare workers, which can be achieved by raising awareness about the multifaceted challenges faced by healthcare professionals.

**Keywords:** *Occupational Hazard, healthcare system, Safety, Healthcare Workers*

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### **INTRODUCTION**

Occupational hazard refers to any potential danger, risk, or threat to the health, safety, or comfort of workers that arises as a result of their job tasks, work environment, or the conditions in which they work. Health care workers (HCWs) worldwide are exposed to hazard due to their line of employment, making them more susceptible to numerous physical, chemical, biological ergonomics, and psychological hazards that can lead to adverse health outcomes (Vecchio *et al.*, 2003). The COVID-19 epidemic is the most recent and obvious example, which has highlighted the vulnerability of healthcare professionals and the significance of safeguarding their safety (The Lancet, 2020). Consequently, biological hazard like tuberculosis, hepatitis B, HIV/AIDS, and severe acute respiratory syndrome (SARS) have been the main focus of research and safety programs in addition to exposures to emerging diseases (McDiarmid, 2014). In the year 2000, 16,000 hepatitis C virus (HCV), 66 000 hepatitis B virus (HBV) and 1000 human immunodeficiency virus (HIV) infections were brought on by sharps injuries to healthcare personnel (Rapiti *et al.*, 2005). According to estimates, between 2000 and 2030, these infections would likely result in 145 HCV-related premature deaths, 261 HBV-related premature deaths, and 736 HIV-related early deaths (Rapiti *et*

*al.*, 2005). However, the healthcare industry employs 12% of the global labor force (Ndejjo *et al.*, 2015) and occupational injuries among HCWs rated among the highest of any industry. It is estimated that 1 in 10 of this workers experience a sharp injury every year (Guilbert, 2003). The factors that cause occupational diseases and injuries in health care facilities (HCFs) include the carelessness and negligence of healthcare workers, the lack of protective aids and equipment, the insufficient staffing levels, the excessive workload, the disregard for fundamental safety and hygiene precautions, and the inadequate operational knowledge of contemporary healthcare equipment (Amosu *et al.*, 2011). These spurred the development of standard precautions (SPs) by the US Centers for Disease Control and Prevention (CDC) for preventing occupational exposures and handling of infectious materials in HCFs (CDC, 1989; MolinarI, 2003). In underdeveloped nations, lack of adequate facilities and equipment that might improve best practices exacerbates the vulnerability of the workers in HCFs (Crutcher *et al.*, 1991; Moore and Kaczmarek, 1990). Globally, HCWs in sub-Saharan Africa are more exposed to Occupational hazard and the main risk include radiation exposure, back and neck pain, burnout stress, allergic reactions to latex materials, chemical spills, and

patient assault, among other things (Amosun and Degun, 2011; Bekele *et al.*, 2015; Nsubuga and Jaakkola, 2005).

In Nigeria, Health care facilities (HCFs) have grown in size and variety over the past 30 years. However, maintaining best practices and the tools needed to carry out high-risk clinical operations has proven difficult (Bekele *et al.*, 2015) and HCWs in the country are insufficiently prepared to deal with workplace risks, therefore they get hurt or sick while doing their jobs (Orji *et al.*, 2002). It has been discovered that the most frequent occupational hazards among the health care employees include; needle stick injuries, work-related stress, exposure to blood and bodily fluids (Akpoh *et al.*, 2020; Bolarinwa, 2011; Orji *et al.*, 2009). According to a research carried out by Orji *et al.*, work-related stress (83.3%), needle stick injuries (75.5%), sleep disorders (42.3%), and assault (24.3%) were the most prevalent occupational risks for healthcare personnel in Nigeria (Orji *et al.*, 2002). HCFs find it challenging to safeguard the health and welfare of front-line HCWs, which makes them occupationally vulnerable, jeopardizing the delivery of high-quality healthcare in underdeveloped nations like Nigeria (Bekele *et al.*, 2015). Limited studies have been carried out to access the different types of occupational hazards among health care workers in Nigeria. This literature review aims to explore the occupational hazards faced by health care workers in Nigeria, factors that predispose them to this hazard and impact on their health and wellbeing.

## TYPES OF OCCUPATIONAL HAZARDS

**Biological Hazard:** Biological hazards represent a significant occupational risk for healthcare workers due to their consistent exposure to infectious agents and potentially harmful microorganisms (Innocent *et al.*, 2022). Healthcare professionals are at the forefront of patient care, often dealing with blood, bodily fluids, and contaminated surfaces (Ghosh, 2013). This places them at risk of contracting infectious diseases such as HIV, hepatitis, and various respiratory illnesses (Kin, 2009). For instance, nurses, doctors, and laboratory technicians may face needle stick injuries, increasing their risk of contact with blood borne pathogens such as HIV, hepatitis B, and hepatitis C, which pose a great concern due to the potential for transmission through accidental needle stick injuries, or contact with contaminated surfaces (Achal, 2000; America *et al.*, 2000). More so, Occupational hazard as a result of exposure to infectious blood borne pathogen and other health related events are among the most serious health risk faced by health care workers in developing countries (Beyera and Beyen, 2014). In addition, airborne pathogens present in healthcare environments can lead to respiratory infections. Similarly, Health care workers exposure to biological hazards in Nigeria could arise due to insufficient access to clean water, lack of universal precaution for protection against blood borne diseases, lack of sterile equipment and proper waste management, exposure to bacteria, fungi, parasite or blood borne virus as well as communicable diseases such as avian flu, swine flu among others (CDC, 2017). Proper infection control practices, the use of personal protective equipment (PPE), rigorous hand hygiene, and the implementation of vaccination programs are

essential in order to safeguard the health and safety of healthcare workers while they provide crucial medical services (WHO, 2022).

**Chemical Hazards:** Chemical hazards pose significant risks to healthcare workers due to their exposure to a variety of chemicals and substances in medical settings. Healthcare professionals, ranging from nurses and doctors to laboratory technicians and cleaning staff, encounter a wide range of chemicals used in medical procedures, cleaning, and diagnostics. These hazards encompass disinfectants, cleaning agents, anesthetic gases, antineoplastic agents, hazardous drugs, and various chemicals utilized in laboratory testing. Exposure to these substances can lead to adverse health effects, including respiratory irritations, skin disorders, allergic reactions, and, in severe cases, chronic diseases and carcinogenic effects (Rosenstock *et al.*, 2005). For instance, personnel working in clinical laboratories handle a multitude of chemicals used in diagnostic testing, such as reagents, solvents, and fixatives. These substances can lead to skin irritation, respiratory issues, and allergic reactions if proper precautions are not taken (Ghosh, 2013). Additionally, Healthcare professionals such as Pharmacists and oncology nurses who manage hazardous drugs, like chemotherapy medications, face potential risks of exposure that can result in long-term health problems, including reproductive harm and cancer. Even routine tasks such as cleaning and disinfecting patient areas involve chemicals that emit fumes and aerosols, putting cleaning staff and nurses at risk for respiratory discomfort, allergic effect on the skin and other health issues, which some nurses and other healthcare professionals have attributed to as the cause of severe illness (Joseph, 2014). Mitigating these risks necessitates stringent safety measures such as proper training on chemical handling, the use of personal protective equipment, adherence to safe storage and disposal practices, and the implementation of ventilation systems to minimize exposure. Given the essential role healthcare workers play in patient care, effectively addressing chemical hazards is crucial for safeguarding their well-being and ensuring the quality of healthcare services.

**Physical Hazard:** Due to the nature of their demanding work environment, healthcare personnel are significantly at risk from physical dangers. The healthcare sector involves tasks that can lead to various physical injuries such as Lifting and transferring patients, which can result in musculoskeletal strains, and injuries if proper body mechanics and lifting equipment are not used. Musculoskeletal injury, which is commonly exhibited as back pain is the highest occupational risk for many health care workers (Abi, 2005). Another study conducted by Bolanle *et al.*, also discovered that a large percentage of Nigerian nurses reported having Work-related musculoskeletal disorders (WMSDs) at some point in their careers, with low back injuries being the most common (Tinubu *et al.*, 2010). Slips, trips, and falls on wet floors or cluttered hallways are constant concerns in bustling healthcare facilities. Operating rooms and emergency departments expose workers to high levels of noise, which can lead to hearing impairment over time (Park, 2009). Moreover, Sharps injuries, such as needle sticks and cuts from medical

instruments expose workers to the risk of blood borne infections (Rosenstock *et al.*, 2005). Other physical hazards in the hospital include light, high or low pressure, high or low temperature, combustible liquid, compressed gases, vibrations, etc. These hazards result to health problem such as burns, heat stroke, heat cramp, eyestrain, hearing effect, visual fatigue, etc. The prevention of physical hazards among healthcare workers necessitates rigorous adherence to safety protocols, training in proper lifting techniques, the use of personal protective equipment, and maintaining a vigilant awareness of one's surroundings to mitigate these risks and promote the well-being of healthcare professionals.

**Psychosocial Hazards:** Psychosocial hazards encompass various non-physical risks that healthcare workers face due to the nature of their work environment, interactions, and the emotional demands of patient care. Healthcare professionals, while providing essential medical services, often encounter psychosocial challenges that can influence their mental and emotional well-being. Some of the psychosocial hazards among healthcare workers include, lack of job satisfaction, insecurity, frustrations, poor human relationship, and emotional tension (Park, 2009). Workplace Stress as a result of high-pressure environment, long working hours, and intense workload in healthcare settings can contribute to chronic stress. Balancing patient care, administrative tasks, and emotional demands can lead to burnout and negatively affect mental health. Aggression, threats, or violence from patients, their family or coworkers are among the psychosocial hazards for health care workers (Lambert, 2008). All this can result in psychological trauma and fear, influencing their sense of security and well-being. In addition, Occupational stress and burnout are highly prevalent among health profession, some studies suggested that this is due to inadequate staffing level, long work hour, exposure to infectious diseases, and hazardous exposure to substances leading to illness and death (Ruotsalame *et al.*, 2014). Shift Work, irregular working hours, night shifts, and rotating schedules is inevitable in Nigeria healthcare setting. It can disrupt sleep patterns and lead to sleep deprivation, which can affect mood, cognitive function, overall mental health and the chances of developing cardiovascular and some Non-communicable Disease (Walton & Rogers, 2017). Recognizing and addressing psychosocial hazards is crucial to promoting the mental well-being of healthcare workers and ensuring the delivery of quality patient care.

**Ergonomic Hazards:** Ergonomics hazards pose a significant concern for healthcare workers, given the physically demanding nature of their tasks and the need for prolonged periods of patient care. These hazards stem from improper workplace design and equipment use, which can lead to musculoskeletal injuries and long-term health issues. Healthcare professionals often engage in repetitive motions, maintaining awkward postures, lifting and transferring patients, all of which can result in strains, sprains, and chronic discomfort (Joseph, 2014). Additionally, poor ergonomics in workstation design, such as computer usage, can lead to conditions like carpal tunnel syndrome and back pain. A study carried out by Ganiyu *et al.* identified that Lifting or

transferring activities and increased use of manual therapy techniques like mobilizations, manipulations, and massage can leads to various ergonomic hazards. Manual therapy has also been linked to a higher risk of work-related musculoskeletal disorders (WMSDs), and healthcare workers who regularly perform manual therapies are 3.5 times more likely to have suffered musculoskeletal injuries than those who do not (Ganiyu *et al.*, 2015). Addressing ergonomics hazards requires the implementation of proper lifting techniques, ergonomic tools, and adjustable equipment that accommodate various body sizes and postures. By prioritizing ergonomics, healthcare organizations can create safer and more comfortable work environments, mitigating the risk of musculoskeletal injuries and promoting the comfort of their dedicated workforce (Rosenstock *et al.*, 2005).

#### **FACTORS PREDISPOSING HEALTH CARE WORKERS TO OCCUPATIONAL HAZARD**

Health care workers are constantly in contact with and attending to patient thus exposing them to numerous hazards. In Nigeria, occupational health is not given the proper amount of attention. Numerous variables have been linked to occupational hazards among health care professionals as both causes and predisposing factors.

**Individual factors:** According to (Ndejjo *et al.*, 2015), the likelihood of biological and non-biological dangers is likely to be predicted by working overtime, being under pressure at work, and working in many healthcare institutions, negligence and carelessness on the part of healthcare workers, lack of protective aids and equipment, lack of staff, an excessive workload, and failure to follow basic safety and hygiene rules, and lack of operational knowledge of contemporary medical equipment are all factors that contribute to occupational illnesses and injuries in healthcare facilities. In support of the aforementioned, it is suggested that the rise in occupational risks in developing nations is mostly attributable to health care personnel who don't follow common safety procedures including washing their hands, wearing gloves, and using protected personal equipment (PPE)(Amosun & Degun, 2011). Additionally, this risky technique raises the danger of injury and the spread of diseases to healthcare professionals. (Lee, 2009) stated that other concerns include a lack of post-exposure prophylaxis (PEP) usage or lack of availability, incomplete immunization against the Hepatitis B virus among healthcare workers, and a failure to follow basic infection control procedures including wearing gloves and washing hands. disinfectant usage Similar to how these other factors contribute to the rise of tuberculosis among healthcare professionals How do elderly healthcare professionals and those who have worked in such facilities for more than ten years, as well as those with a high patient to healthcare worker ratio, operate in TB centers (Owie, 2016).

**Governmental factor:** The absence of regulations and policies implementation by the government has also been cited as a contributing cause to occupational hazard among these workers. According to (Ahasan & Partanen, 2007).

**Table 1:**  
**Some Occupational Hazards Studies Carried out Among Health Care Workers in Nigeria**

Author	Location	Study Design	Sample Size	Healthcare Facility	Occupational Hazard Reported	Hazard Report %
(Oyedepo <i>et al</i> , 2007)	Ondo State Nigeria	Cross Sectional	1116	Government Hospitals	Sharp Related Injuries Cuts and Wounds Stress Physical, Psychological, Sexual, And/or Verbal Abuse	43.6% 36.7% 94% 44.6%
(Orji <i>et al</i> , 2002)	Ile-Ife Nigeria	Descriptive	89	Obstetrics and Gynecology Unit OAU Teaching Hospital	Work-Related Stress Needle-Stick Injuries Bloodstains On Skin Sleep Disturbance Skin Reactions Assault From Patients Hepatitis	83.3% 75.6% 73.1% 42.3% 37.2% 24.3% 8.9%
(Ochei <i>et al</i> , 2016)	Cross River State Nigeria	Cross Sectional Descriptive	236	University Of Calabar Teaching Hospital	Stress (Prolonged Standing) Needle Stick Injuries Exposure to Blood Borne Diseases Exposure To Respiratory Disease	86% 25% 90% 81%
(Adamu & Umar, 2016)	Niger State Nigeria	Cross Sectional	200	Federal Medical Center Bida	Needle Stick Injury Hepatitis B and C Viruses Stress Back Pain	40.7% 13.9% 32.8% 10.3%
(Osungbemi <i>et al</i> , 2016)	Ondo State Nigeria	Cross Sectional Descriptive	345	University Of Medical Science Teaching Hospital And State Specialist Hospital Ondo	Sharp Related Injuries Infections from Patients Cuts and Wounds Air Borne Disease Stress Physical/Verbal Abuses	75.4% 70.7% 60% 60% 77.7% 53.3%
(Okeafor & Alamina, 2018)	Rivers State Nigeria	Cross Sectional	18	University Of Port Harcourt Teaching Hospital	Work Overload/Stress Laboratory Related	83% 38%
(Ofili <i>et al</i> , 2004)	Edo State	Cross Sectional Study	214	Benin City Central Hospital	Contaminated Blood Splash Needle Prick	49% 18%
(Isara <i>et al.</i> , 2015)	Edo State	Cross Sectional Studies	122	University Of Benin Teaching Hospital	Needle Prick by Recapping Needles Accidental Prick from Other HCW Needle Prick As A Result Of Patients Aggression	38% 10% 26%
(Innocent <i>et al.</i> , 2022)	South Eastern Nigeria	Cross Sectional	94	University Healthcare Center	Cuts and Wounds Direct Contact with Contaminated Specimens/Hazardous Materials, Stress	47.9% 29.8% 35.1%
(Osazuwa-Peters <i>et al.</i> , 2012)	Edo State	Cross Sectional	242	Secondary and Tertiary Government Owned Dental Centers	HIV/AIDS (2.2%) Hepatitis B (1.1%), Tuberculosis (1.1%) Chemical Hazards in The Form of Skin Reactions to Latex Gloves X-Ray	2.2% 1.1% 1.1% 17.8% 7.8%

There are insufficient regulations and policies governing the workplace. In developing nations, just 10% of the population is covered by occupational and safety legislation. Workers are engaged in situations that not only deprive them of their dignity and worth but also subject them to a high incidence of workplace accidents, even when occupational health and safety standards are in place. (Owie, 2016) Similarly, occupational stress is prominent among health care workers.

**Health care facilities related factors:** Health care facilities in Nigeria can inadvertently contribute to the increase of occupational hazards among health care workers through various factors. These factors include:

*Inadequate infrastructure and equipment:* Many health care facilities in Nigeria lack proper infrastructure and equipment, such as safety devices, ergonomic tools, and appropriate ventilation systems. This lack of necessary resources can increase the risk of occupational hazards for health care workers (Adebayo & Asuzu, 2017).

*Inadequate training and awareness:* Health care facilities may not provide sufficient training and awareness programs on occupational hazards and safety practices. This can lead to a lack of knowledge and awareness among health care workers, making them more susceptible to hazards (Afolabi *et al*, 2019).

**Insufficient implementation of safety protocols:** Health care facilities may not have proper systems in place to enforce safety protocols and guidelines. This can result in a lack of adherence to infection control measures, handling of hazardous substances, and safe work practices, thereby increasing the risk of occupational hazards (Anyanwu & Iwu, 2018).

**Limited availability of personal protective equipment (PPE):** Health care facilities may not consistently provide adequate PPE, such as gloves, masks, and protective clothing, to their workers. This can leave health care workers vulnerable to exposure to infectious diseases, chemicals, and other hazards (Eze *et al.*, 2014).

**High workload and understaffing:** Many health care facilities in Nigeria face challenges of high patient load and understaffing. This can lead to increased stress, fatigue, and rushing, which can contribute to errors, accidents, and injuries among health care workers (Ilesanmi & Alebiosu, 2015).

**Stress related psychosocial factor:** Increased stress is also associated with higher rates of burnout, absenteeism, diagnostic mistakes, and lower patient satisfaction. Substance addiction, major depressive disorder, anxiety, and suicide are among side effects of stress that affect health care professionals more frequently than the general population (Orji *et al.*, 2002). In a study carried out by Orji *et al.*, he found that Health care employees' excessive workloads, lengthy workdays, frequent shifts, and high patient attendance rates all contribute to work-related stress and all of these has a detrimental effect on healthcare personnel, compromising patient care and lowering both their own and patients' quality of life (Orji *et al.*, 2002). Other factors that contribute to stress in healthcare professionals include; long distance travel to work, poor communication' between patient and health care worker, low socio- economic status, irregular medical supplies at the health facilities, lack of career structure for health care workers and insufficient income earned by health care workers per month, lack of experts and resources to manage occupational hazard and improper disposal of medical waste such as needles and other sharps are other factors (Owie, 2016).

**Other factors:** Another effect of this professional risk is violence or attack, which can be either physical or verbal abuse or both. These mistreatments occur after appointment cancellation, during lengthy waits at medical institutions, and when patients are paying their fees. verbal assault that consists of insults, threats, yelling, and sexual harassment. Patients and their family members are the ones that continue this brutality (Azodo & Ezeja, 2011) When these risks manifest, they can lead to accidents, disabilities, low productivity, economic waste, absenteeism, suffering etc (Amadi, 2011).

Addressing these issues requires a multi-faceted approach involving health care facilities, regulatory bodies, and government agencies. It is crucial for health care facilities to prioritize the safety and well-being of their workers by providing adequate resources, training, and support systems. Implementing and enforcing safety protocols, ensuring the availability of PPE, and addressing workload issues can

significantly reduce occupational hazards among health care workers in Nigeria.

## **PREVENTION AND CONTROL OF OCCUPATIONAL HAZARDS AMONG HEALTH CARE WORKERS IN NIGERIA**

The Nigerian government and health sector have taken several measures to prevent and control occupational hazards among healthcare workers in Nigeria. Here are some key actions taken:

**Development of Policies and Guidelines:** The Nigerian government has developed policies and guidelines to address occupational hazards in healthcare settings. The National Industrial Safety Policy for Nigeria provides a framework for promoting safety and health at work, including healthcare facilities. Additionally, the Federal Ministry of Health has developed guidelines on Occupational Health and Safety in Healthcare Services provide comprehensive recommendations for the prevention and control of occupational hazards. These guidelines cover various aspects such as infection prevention, waste management, chemical safety, and ergonomic considerations.(Employment, 2018)

**Training and Capacity Building:** The government and health sector have initiated and prioritized training and capacity building programs for healthcare workers to enhance their knowledge and skills in preventing and managing occupational hazards. The Nigeria Centre for Disease Control (NCDC) conducts regular training sessions on infection prevention and control, including the proper use of personal protective equipment (PPE). These trainings aim to educate healthcare workers on the risks, prevention strategies, and best practices for occupational health and safety (Health, 2017).

**Provision of Personal Protective Equipment (PPE):** The government and health sector have made efforts to provide and ensure the availability and proper use of personal protective (PPE) to healthcare workers. The NCDC, in collaboration with partners, has supplied PPE to healthcare facilities, especially during disease outbreaks such as the Ebola virus outbreak in 2014; this includes items such as masks, gloves, gowns, and goggles to protect healthcare workers from infectious diseases and other occupational hazards. This has helped in minimizing the risk of occupational hazards among healthcare workers.(Control, 2020a)

**Surveillance and Monitoring:** The government, through the NCDC, has established a surveillance system to monitor and report occupational hazards among healthcare workers. The NCDC, in collaboration with relevant stakeholders, collects data on incidents, injuries, and diseases related to occupational hazards. The data collected helps in identifying trends, evaluating interventions, and improving prevention strategies. (NCDC, 2020b)

**Research and Advocacy:** The government and health sector support research activities to generate evidence on occupational hazards and their prevention among healthcare

workers. This research helps in identifying risks, developing interventions, and advocating for policy changes. For example, a study titled "Occupational Hazards and Health Problems among Healthcare Workers in Nigeria" highlighted the need for improved safety measures and raised awareness about the issue (Oleribe *et al*, 2014).

Overall, the Nigerian government and health sector have taken significant steps to prevent and control occupational hazards among healthcare workers. However, challenges still exist, including the need for increased funding, improved infrastructure, and strengthened enforcement of safety regulations. Continued efforts are required to ensure the safety and well-being of healthcare workers in Nigeria.

## **RECOMMENDATION**

Tackling occupational hazards among health care workers in Nigeria requires a multi-faceted approach involving various stakeholders. Here are some recommendations to address and mitigate these hazards:

**Strengthen Occupational Health and Safety Policies:** The government should develop and enforce comprehensive occupational health and safety policies specific to health care settings in Nigeria. These policies should address various hazards and provide clear guidelines on prevention, control measures, and reporting mechanisms. Regular review and updates of these policies are essential to ensure their effectiveness.

**Enhance Training and Education Programs:** Provision should be made for regular and comprehensive training programs for health care workers on occupational hazards, safety practices, and proper use of personal protective equipment (PPE). Training should be tailored to the specific hazards faced by different job roles and should be mandatory for all health care workers. Continuous education and reinforcement of safety protocols are crucial.

**Ensure Adequate Provision of Personal Protective Equipment (PPE):** Health care facilities should ensure the availability, accessibility, and proper use of PPE to all health care workers. This includes gloves, masks, goggles, face shields, gowns, and other necessary protective gear. Regular assessments of PPE needs, proper fitting, and training on correct usage are necessary to prevent exposure to hazards.

**Improve Infrastructure and Equipment:** The government should invest in the improvement of infrastructure and equipment in health care facilities. This includes the installation of proper ventilation systems, ergonomic tools, sharps disposal containers with safety features, and adequate lighting. Regular maintenance and inspection of equipment are necessary to ensure their functionality and safety.

**Strengthen Infection Prevention and Control Practices:** The health care facilities should promote strict adherence to infection prevention and control practices, including hand hygiene, sterilization, and disinfection protocols. Develop and implement standard operating procedures for handling infectious materials and waste. Regular monitoring and

auditing of these practices should be conducted to ensure compliance.

**Implement Engineering Controls:** Introduce engineering controls to minimize occupational hazards. This includes the use of local exhaust ventilation systems, automated sharps disposal systems, and ergonomic equipment. Regular maintenance and inspection of engineering controls are necessary to ensure their effectiveness.

**Enhance Reporting and Investigation Systems:** Establish a robust system for reporting and investigating incidents, accidents, and near misses. Health care workers should be encouraged to report hazards and provide a safe and confidential reporting mechanism. Conduct thorough investigations to identify root causes and implement corrective actions to prevent future occurrences.

**Provide Support and Counseling Services:** Recognize and address the psychological and emotional impact of occupational hazards on health care workers. Establish support systems, such as counseling services, support groups, and employee assistance programs, to address their mental health needs. Promote a culture of peer support and resilience in the workplace.

**Strengthen Collaboration and Advocacy:** Collaborate with regulatory bodies, professional associations, and government agencies to advocate for the rights and safety of health care workers. Engage in dialogue and partnerships to develop and enforce occupational health and safety regulations. Share best practices and lessons learned to improve the overall safety culture in health care settings.

**Conduct Research and Data Collection:** Research on occupational hazards among health care workers in Nigeria should be encouraged to identify emerging risks and develop evidence-based interventions. Collect and analyze data on occupational hazards, incidents, and adherence to safety protocols to inform decision-making and policy development. Implementing these recommendations requires commitment, resources, and collaboration among health care facilities, regulatory bodies, professional associations, and government agencies. By prioritizing the prevention and control of occupational hazards, health care workers in Nigeria can be better protected, ensuring their safety and well-being in the workplace.

## **CONCLUSION**

Occupational hazards pose significant challenges to the health and well-being of health care workers in Nigeria. The findings of this review highlight the need for comprehensive interventions to address these hazards, including improved training programs, implementation of safety protocols, provision of adequate PPE, and enhanced support systems. By preventing occupational diseases and injuries, protecting and promoting the health, safety, and well-being of health workers, and strengthening the performance of health systems, key interventions to protect the health and safety of health workers increase the resilience of health services in the face of

outbreaks and public health emergencies and contribute to strengthening the performance of health. Moreover, further research is needed to explore the long-term health outcomes of occupational hazards among health care workers in Nigeria and to develop evidence-based strategies for prevention and mitigation (Bienassis & Slawomirski, 2021).

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