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Editorial

Occupational biological risk in healthcare workers

Manuel Romero-Saldaña
Editor in Chief
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Biohazardous occupational accidents represent a significant challenge in the healthcare field due to the constant exposure of healthcare workers to pathogens. These accidents, which include needle sticks, cuts, splashes of body fluids, and contact with contaminated materials, can lead to serious infections, such as hepatitis B (HBV), hepatitis C (HCV), and HIV.

World Health Organization (WHO) estimates that approximately two million healthcare workers experience sharps injuries annually, resulting in a significant risk of exposure to blood-borne pathogens [1]. A study conducted in hospitals in Europe revealed that the prevalence rate of needlestick injuries ranges from 10% to 30% per year, with the highest rates in areas such as surgery and intensive care [2]. The high frequency of these incidents underscores the importance of implementing effective preventive strategies to protect these workers. There are several factors that increase the risk of biological hazard occupational accidents among healthcare workers:

• Invasive Procedures: Workers involved in invasive procedures, such as surgery or catheter insertion, are at higher risk due to direct contact with blood and other body fluids. Surgeons and other specialists are particularly exposed to these risks. A study in Italy showed that surgeons have a higher incidence of needlestick injuries compared to other healthcare workers due to the nature of their tasks [3].

• Training and Awareness: Lack of adequate training on the safe handling of biological materials increases the risk of accidents. Doebbeling et al. [4] found that ongoing training programs, focusing on the correct use of personal protective equipment (PPE) and the adoption of safe practices, can significantly reduce the incidence of these accidents.

• Workload and Fatigue (Psychosocial Factors): Workload, long shifts, and fatigue are associated with an increased risk of biological accidents. A longitudinal study, conducted in developing countries, showed that healthcare workers with high levels of fatigue are 25% more likely to suffer accidents related to exposure to pathogens [5].
• Inadequate Use of Personal Protective Equipment (PPE): Although PPE is essential to protect workers, its use is often inconsistent or incorrect. Oliveira et al. [6] in a study conducted in Brazilian hospitals found that lack of adherence to the use of PPE is an important factor in the high incidence of biological accidents. The proper and consistent use of this equipment is crucial to minimize exposure to risks.

The consequences of occupational accidents due to biological risk can be serious, affecting both the physical health and psychological well-being of healthcare workers:

• Acute Infections: Exposure to biological agents can result in severe acute infections, such as HIV, HBV and HCV. Acute HCV infection, for example, can progress to chronic hepatitis in up to 85% of cases, underlining the seriousness of these exposures [7].
• Chronic Diseases: Some workplace-acquired infections can progress to chronic diseases, such as liver cirrhosis or liver cancer, which has long-term implications for worker health [8].
• Psychological Impact: The psychological stress resulting from a biological workplace accident can be significant. Workers who suffer these incidents may experience anxiety, fear, and in some cases, post-traumatic stress disorder (PTSD) [9]. This psychological impact can affect not only their general well-being, but also their job performance.

Preventing workplace accidents due to biological risk is crucial to protect healthcare workers. Effective strategies include:

• Continuing Education and Training: Providing ongoing training on identifying and managing biological risks is essential. One study showed that regular training programs can reduce the incidence of biological accidents by 30% [10]. These programs should focus on safe practices, such as proper use of PPE and compliance with safety protocols.

• Sharps Safety Protocols: Implementing strict protocols for handling and disposing of needles and other sharp objects can significantly reduce the risk of accidents. The use of safety devices, such as needles with protective mechanisms, has been shown to reduce needlestick injuries by 40% [11].

• Personal Protective Equipment (PPE): Providing and ensuring proper use of PPE is critical to preventing exposure to pathogens. One study highlighted that adequate access to and correct use of PPE is essential to preventing occupational infections [12].

• Vaccination: Vaccination is a key preventive measure, especially against HBV. Workplace vaccination campaigns should be mandatory and well coordinated to achieve high coverage. The Centers for Disease Control and Prevention (CDC) has been recommending for decades that all healthcare workers be vaccinated against HBV to reduce the risk of transmission in the workplace [13].

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