

Case Report

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The Role of Risk Assessment in Health Care Institutions

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Introduction

Health care institutions represent one of the most challenging working environments because they combine complex clinical activities with continuous exposure to numerous occupational hazards. Health care professionals work under conditions that require rapid decision-making, high responsibility, physical endurance, and emotional resilience. At the same time, they are exposed to biological agents, hazardous chemicals, ionizing radiation, manual handling of patients, workplace violence, psychological stress, and irregular working hours.

According to the World Health Organization (WHO), protecting the health and safety of health care workers is a prerequisite for ensuring patient safety and maintaining high-quality health services. A healthy workforce is essential for an effective and sustainable health care system.

For this reason, occupational risk assessment has become one of the fundamental elements of occupational safety and health management. It provides the basis for identifying workplace hazards, evaluating occupational risks, implementing preventive measures, and continuously improving working conditions [1].

International Perspective

Occupational risk assessment is recognized worldwide as a cornerstone of workplace safety.

The International Labour Organization (ILO) estimates that nearly three million people die every year from occupational accidents and work-related diseases worldwide, while hundreds of millions suffer non-fatal occupational injuries and illnesses. Although not all of these cases occur in health care, the health sector remains one of the occupations with the highest exposure to multiple hazards [2].

Similarly, the European Agency for Safety and Health at Work (EU-OSHA) emphasizes that health care workers are exposed to a unique combination of biological, chemical, ergonomic, and psychosocial hazards that require continuous monitoring and preventive action.

These international organizations recommend that risk assessment should be viewed as a continuous process rather than a document prepared solely to satisfy legal requirements.

Legal and Professional Importance

Risk assessment is a legally required document in most countries and forms the basis for occupational safety management within health care institutions. However, beyond legal compliance, it serves several important professional purposes: protecting employees from occupational injuries and diseases; protecting patients by ensuring that employees are medically fit for their duties; supporting management in organizing safe work processes; improving productivity and employee satisfaction; reducing absenteeism and financial losses associated with occupational illnesses. A well-prepared risk assessment enables institutions to identify risks before incidents occur rather than reacting after injuries or diseases have already developed [3].

Occupational Hazards in Health Care

Health care workers encounter numerous hazards throughout their professional careers.

Biological Risks

Exposure to infectious diseases remains one of the greatest occupational risks in hospitals.

Health care professionals may come into contact with bloodborne pathogens such as hepatitis B, hepatitis C, and HIV through needlestick injuries or exposure to contaminated body fluids.

Respiratory infections, including tuberculosis, influenza, and COVID-19, also represent significant occupational hazards.

Preventive measures include vaccination programs, infection prevention protocols, appropriate use of personal protective equipment, safe disposal of medical waste, and continuous staff education [4].

Chemical Risks

Hospitals routinely use disinfectants, sterilizing agents, anesthetic gases, laboratory chemicals, and cytotoxic drugs.

Without proper protective measures, prolonged exposure may result in allergic reactions, respiratory diseases, skin disorders, reproductive health problems, or chronic toxic effects.

Risk assessment identifies these hazards and recommends engineering controls, ventilation systems, safe handling procedures, and personal protective equipment [5].

Physical Risks

Physical hazards include ionizing radiation, laser equipment, excessive noise, electrical hazards, poor lighting, slips, falls, and thermal stress.

Employees in radiology, nuclear medicine, and interventional cardiology require particularly strict preventive measures, including personal dosimetry, shielding, and regular occupational health surveillance [6].

Ergonomic Risks

Musculoskeletal disorders remain one of the leading causes of sick leave among nurses and other health professionals.

Manual lifting of patients, repetitive movements, prolonged standing, awkward body posture, and transporting equipment contribute significantly to chronic back pain and joint disorders. Modern risk assessments increasingly recommend patient lifting devices, ergonomic workplace design, and regular employee training [7].

Psychosocial Risks

Psychological hazards have become increasingly important in modern health care.

Heavy workloads, emergency situations, long working hours, night shifts, emotional exhaustion, workplace violence, and burnout negatively affect both employees and patient safety.

Risk assessment should therefore include organizational measures such as adequate staffing, stress management programs, psychological support services, and violence prevention strategies [8].

Risk Assessment and Occupational Health

One of the most valuable functions of risk assessment is supporting occupational medicine.

The document defines which medical examinations are required before employment, during employment, and after specific occupational exposures.

Medical surveillance should always correspond to actual workplace hazards rather than following a standard examination protocol for every employee [9].

For Example

Radiology personnel require monitoring related to radiation exposure.

Laboratory workers require surveillance related to biological hazards.

Operating theatre staff require monitoring related to anesthetic gases and infectious risks.

Nurses performing heavy manual work require evaluation of musculoskeletal health.

Employees working night shifts require assessment of health conditions potentially affected by circadian rhythm disruption.

This individualized approach improves employee protection while optimizing occupational health resources.

Economic Impact

Effective risk assessment also has significant economic benefits. Occupational injuries and diseases increase health care costs, compensation expenses, employee absenteeism, staff shortages, overtime expenditures, and recruitment costs.

Preventive measures are considerably less expensive than treating occupational diseases or replacing experienced employees [10].

Numerous international studies have demonstrated that investing in occupational safety results in long-term financial savings while simultaneously improving employee morale and institutional performance

Case Study

An illustrative example involves a nurse employed in the emergency department of a large hospital.

The workplace had not been identified as one involving increased occupational risk, and the nurse underwent only a standard pre-employment medical examination.

Approximately eighteen months later, she developed rheumatoid arthritis and required almost three years of sick leave. According to Serbian law this diagnosis represent absolute inappropriate condition for the shift work.

After recovery, she could no longer perform the physically demanding duties of emergency medicine and was permanently transferred to another department.

This case demonstrates the consequences of inadequate risk assessment.

A comprehensive assessment might have identified the demanding ergonomic and physical requirements of emergency nursing, allowing occupational physicians to perform a more targeted medical evaluation before employment.

Such preventive action could have reduced both personal suffering and organizational difficulties while preserving the employee's long-term work ability [11].

Conclusion

Risk assessment should never be viewed merely as a legal document stored in administrative records.

Instead, it is a dynamic management tool that supports prevention, protects employee health, improves patient safety, guides occupational medicine, and enhances organizational efficiency. Health care institutions that continuously review and improve their risk assessments are better prepared to protect their workforce, comply with legal obligations, and provide safe, high-quality medical care.

Ultimately, protecting health care workers means protecting patients, strengthening health care institutions, and improving the resilience of the entire health care system.

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