

Hazard Identification and Risk Assessment in Residential Healthcare Settings: The Role of Employers and Employees

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Received: 02/01/2026 | Accepted: 22/02/2026 | Published: 27/03/2026

Abstract: Workplace safety remains a critical concern in residential healthcare settings, where employees face diverse physical, chemical, biological, ergonomic, and psychological hazards. This article examines the fundamental principles of hazard identification and risk assessment within the context of a nursing home or long-term care facility. Drawing on Irish and international occupational safety and health (OSH) frameworks, the study explores the distinct but complementary roles of employers and employees in creating and maintaining a safe working environment. Using a structured risk assessment methodology, the article evaluates five categories of hazards commonly encountered in healthcare settings physical, chemical, biological, ergonomic, and psychological applying a standard risk matrix to determine risk levels and identify appropriate control measures. The findings underscore that systematic hazard identification, rigorous risk assessment, and the implementation of the hierarchy of controls significantly reduce workplace injuries and ill health (Larbi, 2024; Singh, 2020). Furthermore, the article highlights the importance of a strong safety culture, effective emergency procedures, and robust incident reporting systems. The study concludes that sustained commitment from both employers and employees, underpinned by comprehensive training, worker participation, and continuous improvement, is essential for safeguarding the health and well-being of healthcare workers and residents alike.

Keywords: Hazard identification, risk assessment, healthcare safety, occupational health, employer responsibilities, employee duties, residential care.

1.0 Introduction

The provision of safe and healthy working conditions is a fundamental obligation in any workplace, but nowhere is this more critical than in residential healthcare settings such as nursing homes and long-term care facilities. In these environments, employees are routinely exposed to a complex array of hazards that can compromise their physical and psychological well-being (Singh, 2020; WHO/ILO, 2021). The nature of care work often characterised by direct patient contact, manual handling, exposure to infectious agents, and high emotional demands necessitates a systematic and proactive approach to safety management (HSA, 2023).

Occupational safety and health (OSH) legislation across jurisdictions, including Ireland's Safety, Health and Welfare at Work Act 2005, places clear duties on both employers and employees to ensure workplace safety (Brennan, 2021). Central to these duties is the process of hazard identification and risk assessment, which forms the foundation of any effective safety management system (ILO, 2018; HSA, 2023). Without a thorough understanding of what hazards exist and how they might cause harm, it is impossible to implement meaningful control measures.

This article study the practical application of hazard identification and risk assessment in a residential healthcare setting. It defines key concepts, examines the respective roles of employers and employees, and provides a structured analysis of five hazard

categories using a standard risk assessment matrix. The article also addresses emergency procedures, incident reporting, and the benefits of control measures, concluding with recommendations for enhancing workplace safety in the healthcare sector.

2.0 Foundational Concepts in Workplace Safety

2.1 Defining Hazard and Risk

A **hazard** is defined as anything including work activities, equipment, substances, or conditions—that has the potential to cause harm to people, property, or the environment (CCOHS, 2024; Singh, 2020). In a residential healthcare setting, hazards may include wet floors, infectious materials, or poorly designed lifting procedures.

Risk, by contrast, refers to the combination of the likelihood that harm will occur and the severity of its consequences (HSA, 2023; IRJET, 2020). Distinguishing between hazard and risk is essential because it allows safety practitioners to prioritise interventions based on where the greatest potential for harm exists.

Assess the Level of Risk: Risk is the likelihood that harm will occur and the severity of the consequences. **Formula:** Risk = Likelihood × Severity/Impact.

Level of Risk

- 1. Likelihood (Probability)** This is how likely it is that the harm will occur. Examples:

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- **Unlikely** – Unlikely to happen
- **Likely** – Could happen occasionally
- **Very Likely** – Expected to happen often

2. **Severity/Impact (Consequence)** This refers to how serious the injury or damage could be. Examples:

- **Slightly Harmful** – First aid required, no time off work
- **Harmful** – Medical attention, time off work
- **Very Harmful** – Serious injury, fatality, major damage

Control Measure

Control measures are actions taken to eliminate or reduce the risk from a hazard to an acceptable level.

- Employers are required to do all that is reasonably practicable to minimise the risk of injury;
 - Identified the hazards and risks relating to the place of work,
 - Put in place appropriate control measures such that it would be grossly disproportionate to do more.

2.2 Common Causes and Prevention of Workplace Accidents

Research consistently identifies slips, trips, and falls as the most frequent cause of workplace accidents, followed by manual handling injuries, contact with moving machinery, and being struck by falling objects (Arbill, 2023; HASpod, 2021). These causes are particularly relevant in healthcare settings where employees move between patient rooms, operate assistive equipment, and handle heavy loads.

Effective accident prevention strategies include maintaining good housekeeping practices, implementing safe systems of work and equipment guarding, providing manual handling training and lifting aids, and conducting regular risk assessments and safety training (Larbi, 2024; IRJET, 2020). Each of these measures addresses root causes rather than merely responding to incidents after they occur.

3.0 Emergency Procedures: Fire Safety

In the event of a fire, residential healthcare facilities must have a clearly established emergency action plan. Staff are expected to raise the alarm immediately, contact the fire service, and follow the RACE protocol: Rescue anyone in immediate danger, Alarm, contain the fire by closing doors, and Evacuate via the nearest safe route (OSHA, 2024; HSE EU, 2013).

Evacuation routes and assembly points must be prominently displayed, and roll calls should be conducted at the assembly point to account for all residents and staff. Only trained personnel should attempt to use fire extinguishers, and only when it is safe to do so; otherwise, the priority must be the rapid and orderly evacuation of vulnerable residents (OSHA, 2024).

4.0 Roles and Responsibilities in Workplace Safety

4.1 The Role of the Employer

Under Irish legislation, notably the Safety, Health and Welfare at Work Act 2005, employers bear the primary responsibility for ensuring workplace safety (Brennan, 2021). This duty extends to

providing, so far as is reasonably practicable, a safe workplace, safe systems of work, safe equipment, and adequate information, instruction, training, and supervision (HSWA, 1974, s.2; ILO Convention 155).

Employers must also conduct and document risk assessments, implement appropriate control measures, maintain accurate safety records, and provide personal protective equipment (PPE) where required (OSHA, 2023; ILO, 2018). The obligation to consult with workers on safety matters is equally important, as it ensures that the perspectives of those performing the work are incorporated into safety decisions (HSA, 2023).

4.2 Duties of the Employer (Section 8 of the SHWWA 2005)

- **Provide a safe workplace** → Ensure hospital corridors are clear and dry to prevent slips and falls
- **Maintain safe systems of work** → Implement infection control protocols for wound care
- **Provide safe equipment and machinery** → Service patient hoists regularly and check for faults
- **Carry out risk assessments and prepare a Safety Statement** → Assess risks related to patient lifting or needle-stick injuries
- **Provide training, information, instruction, and supervision** → Train healthcare assistants in manual handling and fire safety
- **Consult with employees on health and safety matters** → Discuss new safety procedures during team meetings or with safety reps
- **Prevent exposure to harmful substances** → Provide proper procedures and PPE for handling cytotoxic drugs or bodily fluids
- **Provide Personal Protective Equipment (PPE)** → Supply gloves, gowns, masks for infection prevention
- **Prepare emergency plans and procedures** → Display fire evacuation routes and conduct regular drills (Ofanson Class Note 2026)

4.3 The Role of the Employee

Employees, too, have legally defined duties under the 2005 Act. They must take reasonable care for their own safety and that of others, follow established safe procedures and training, correctly use PPE, report hazards, accidents, and near misses, and cooperate with the employer's safety policies (Canada Labour Code, 2023; OSHA, 2024).

This shared responsibility forms what is often termed the "internal responsibility system," a cornerstone of modern occupational safety and health law (WHO/ILO, 2021). When both employers and employees fulfil their respective duties, the workplace becomes safer and more resilient to potential harms.

4.4 Duties of the Employee (Section 13 of the SHWWA 2005)

- **Take reasonable care for their own safety and that of others** → Mop up a spill or report it to avoid a slip hazard

- **Cooperate with their employer on safety matters** → Attend mandatory infection control training
- **Use equipment and PPE correctly** → Wear gloves and apron when changing dressings
- **Avoid unsafe behaviour or horseplay** → Never race wheelchairs or misuse equipment
- **Not work under the influence of drugs or alcohol** → Report for duty alert and sober
- **Report hazards, accidents, or near misses** → Notify a supervisor of a faulty hoist or spill
- **Not interfere with or misuse safety equipment** → Never tamper with smoke detectors or alarm systems (Ofanson Class Note 2026).

5.0 Reporting and Recording Accidents and Dangerous Occurrences

Effective incident management relies on prompt and accurate reporting. Accidents, near misses, and dangerous occurrences should be reported immediately to a supervisor, who then initiates the organisation’s incident procedure (OSHA, 2023). Detailed records capturing who, what, where, when, and how must be maintained on accident or incident forms or through digital systems.

Serious incidents may also require notification to the national regulator, such as the Health and Safety Authority (HSA) in Ireland or the Occupational Safety and Health Administration (OSHA) in the United States, within prescribed time limits (OSHA, 2023). Investigations following such reports should aim to identify root causes and implement corrective actions, ensuring that lessons are learned and risks are reduced over time (Time Series Accident Study, 2020).

6.0 Types of Hazards in Residential Healthcare Settings

Residential healthcare workers are exposed to a wide range of hazards, which can be categorised as follows:

Hazard Category	Examples
Physical Hazards	Noise, wet/slippery floors, moving machinery (Singh, 2020)
Chemical Hazards	Cleaning agents, disinfectants, cytotoxic drugs, sterilising gases (Rahman et al., 2023)
Ergonomic Hazards	Repetitive tasks, manual lifting of residents, poorly designed workstations (IRJET, 2020)
Biological Hazards	Blood and body fluids, airborne infections (e.g., TB, COVID-19), contaminated sharps (WHO, 2020)
Psychological Hazards	Work-related stress, bullying, harassment, fatigue from long hours (WHO/ILO, 2021)

Each category requires distinct identification methods and control strategies, as explored in the risk assessments that follow.

7.0 Risk Assessments: Methodology and Application

Risk assessments were conducted using a standard risk matrix that combines likelihood and impact scores to determine overall risk levels. The matrix is presented below:

Likelihood / Impact	1: Slightly Harmful	2: Harmful	3: Very Harmful
1: Unlikely	1 (Low)	2 (Low)	3 (Low)
2: Likely	2 (Low)	4 (Medium)	6 (Medium)
3: Very Likely	3 (Low)	6 (Medium)	9 (High)

Risk Rating Scale: Low Risk = 1–3; Medium Risk = 4–6; High Risk = 7–9.

7.1 Physical Hazard Risk Assessment

Hazard: Wet floor in the corridor, causing a slip risk.

Impact: 2 (Harmful – possible fractures or sprains).

Likelihood: 2 (Likely – busy corridor, frequent use).

Risk Score: $2 \times 2 = 4 \rightarrow$ **Medium Risk**

Control Measures:

- Immediate signage and cordoning off the area until dry.
- Procedure for prompt spill response, quick drying methods, and cleaning during low traffic times (UWSP, 2024).

7.2 Chemical Hazard Risk Assessment

Hazard: Use of strong disinfectant spray in a poorly ventilated room.

Impact: 2 (Harmful – respiratory and skin irritation).

Likelihood: 3 (Very likely – daily use).

Risk Score: $2 \times 3 = 6 \rightarrow$ **Medium Risk (Upper End)**

Control Measures:

- Substitute with a less hazardous product or appropriate dilution; follow the Safety Data Sheet (SDS).
- Improve ventilation and provide appropriate gloves and eye protection; train staff on safe use (Rahman et al., 2023; Journal of Occupational Medicine and Toxicology, 2024).

7.3 Biological Hazard Risk Assessment

Hazard: Exposure to blood and body fluids during personal care.

Impact: 3 (Very harmful – risk of bloodborne infection).

Likelihood: 2 (Likely – frequent contact tasks).

Risk Score: $3 \times 2 = 6 \rightarrow$ **Medium Risk (Upper End)**

Control Measures:

- Standard precautions: gloves, aprons, face protection where splashes are possible; safe sharps disposal.
- Vaccination programmes (e.g., hepatitis B), training in infection prevention, and post-exposure procedures (WHO, 2020).

7.4 Ergonomic Hazard Risk Assessment

Hazard: Repeated manual lifting or repositioning of residents without assistive aids.

Impact: 2 (Harmful – musculoskeletal injury).

Likelihood: 3 (Very likely – frequent task).

Risk Score: $2 \times 3 = 6 \rightarrow$ **Medium Risk (Upper End)**

Control Measures:

- Provide hoists and slide sheets; enforce a "no manual lifting" policy where feasible.
- Manual handling training and staffing levels that allow two-person lifts when required (Singh, 2020; IRJET, 2020).

7.5 Psychological Hazard Risk Assessment

Hazard: Chronic work-related stress from understaffing and high workload.

Impact: 3 (Very harmful – burnout, anxiety, cardiovascular effects).

Likelihood: 2 (Likely – ongoing staffing pressures).

Risk Score: $3 \times 2 = 6 \rightarrow$ **Medium Risk**

Control Measures:

- Adequate staffing and workload management, including breaks and fair rostering.
- Access to support services (employee assistance programmes, debriefing) and anti-bullying policies that promote a positive safety culture (WHO/ILO, 2021).

8.0 The Benefits of Control Measures

Effective control measures reduce both the likelihood and severity of harm, leading to fewer workplace injuries, lower sickness absence rates, and improved organisational productivity (Larbi, 2024). Studies of structured hazard identification and risk control (HIRA/HIRARC) demonstrate that systematic application of the hierarchy of controls elimination, substitution, engineering controls, administrative measures, and PPE significantly reduces occupational injuries and ill health (Singh, 2020).

Beyond these direct benefits, robust control measures strengthen safety culture. When workers see that hazards are taken seriously and that controls are consistently applied, they become more engaged in safety practices and more compliant with procedures (HSE EU, 2013).

9.0 Recommendations for Enhancing Workplace Safety

Based on the analysis presented, the following recommendations are proposed:

- **Formalize a Continuous HIRA/HIRARC Programme:** Implement a documented Hazard Identification and Risk Assessment (HIRA) programme, reviewed at least annually or after any incident, to systematically prioritize and control medium-to-high risk hazards (e.g., slips, biological exposure, ergonomic strain).
- **Engineer Out Ergonomic & Physical Hazards:** Enforce a "no manual lifting" policy by providing hoists, slide sheets, and height-adjustable beds; for wet floors, install anti-slip matting and schedule cleaning during low-traffic periods to reduce musculoskeletal injuries and falls.
- **Strengthen Targeted, Practical Training:** Deliver role-specific, hands-on refresher training every 6–12 months focusing on safe use of lifting aids, infection control for body fluids (risk score 6), and chemical safety (reading Safety Data Sheets) to ensure continuous competency beyond just providing PPE.
- **Implement a Non-Punitive Near-Miss Reporting System:** Introduce a simple anonymous near-miss form

(digital or paper) and hold monthly 15-minute safety huddles to review reports and identify root causes without blame, encouraging reporting of events like faulty hoists or spills.

- **Reduce Psychological Hazards via Workload Controls:** Address chronic work-related stress (risk score 6) by establishing minimum safe staffing ratios, ensuring uninterrupted breaks, and providing an Employee Assistance Programme (EAP) for confidential counselling, reducing burnout and fatigue-related errors.
- **Create a Joint Safety Committee with Worker Participation:** Form a monthly safety committee comprising management, shift leads, and frontline care staff to review risk assessments, audit control measures, and make binding recommendations, ensuring practical controls and fulfilling employer duties under Section 8 of the 2005 Act.

9.1 Implement a Formal HIRA/HIRARC Programme

Regular, documented risk assessments ensure that hazards are systematically identified, prioritised, and controlled. Such programmes provide a structured framework for continuous improvement in safety performance (IRJET, 2020).

9.2 Strengthen Training and Supervision

Induction and refresher training in manual handling, infection control, chemical safety, and emergency procedures reduce unsafe acts and ensure that all staff are competent to perform their duties safely (Singh, 2020).

9.3 Improve Reporting and Learning from Incidents

A simple, non-punitive reporting system for near misses and accidents supports root cause analysis and fosters a culture of learning rather than blame (Time Series Accident Study, 2020).

9.4 Promote Worker Participation and Safety Culture

Safety committees, toolbox talks, and meaningful consultation with workers improve compliance and help tailor controls to real work conditions (HSE EU, 2013; ILO, 2018).

10.0 Conclusion

This article has examined the critical importance of hazard identification and risk assessment in residential healthcare settings. It has defined key concepts, outlined the respective responsibilities of employers and employees, and demonstrated the practical application of risk assessment methodologies across five hazard categories. The findings affirm that systematic risk management grounded in robust legislation, supported by effective training, and sustained by a positive safety culture is essential for protecting the health and well-being of healthcare workers and residents alike.

In my future healthcare career, the principles explored in this work will inform my approach to recognising hazards early, following safe procedures, and contributing to a safety culture that prioritises the protection of all those within the care environment. Safety is not merely a set of rules to be followed; it is a dynamic process of continuous improvement that requires the commitment of everyone in the organisation.

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