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Identifying Risks Associated with Care in Health Establishments the Case of EL IDRISSI Kenitra Provincial Hospital, Morocco

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Abstract

The identification of care-related risks within healthcare organisations is an important part of managing the quality of care and the safety of patients and medical staff. The aim of this strategy is to identify, assess and manage potential healthcare risks. This study was carried out in order to identify the occupational risks associated with care at the El Idrissi Hospital in Kenitra, using a methodology based on a survey using questionnaires sent to healthcare staff in the various departments and care units at the hospital, based on a sample of 112 participants. The results of the survey showed that healthcare professionals are highly exposed to a variety of biological, physical, chemical, ergonomic and psychosocial risks. 83% of participants stated that they were constantly exposed to various threats, mainly infectious threats. 35% of the staff questioned reported respiratory damage (chemical risk), while 100% of the participants stated that musculoskeletal disorders (MSDs) were the predominant risk, regardless of the social segment of care staff. 30% of staff suffered from night work and 40% reported being exposed to high levels of stress and burnout, particularly professionals working in emergency departments or intensive care units.Consequently, it is imperative to put in place a prevention plan to reduce each category of risk with a view to maintaining a healthy working environment.

Keywords: Occupational Risk, Risk Management, Health Personnel, Safety

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1. Introduction

Hospital risks are extremely diverse. They affect patients and healthcare professionals, whether they are doctors, nurses, technicians or other members of the nursing staff, and include risks related to medical activities and clinical care (medication errors, infectious risks, iatrogenia, etc.), as well as environmental risks, which affect the safety of people and property, and are subject to extensive regulation. The notion of risk has become a key issue in a number of areas, particularly in the health sector. Indeed, The French National Authority for Health (HAS) defines risk as: "an undesired situation with negative consequences resulting from the occurrence of one or more events whose occurrence is uncertain. These consequences are those whose occurrence disrupts the achievement of its primary mission: to provide quality care to people in complete safety " [1]. In fact, healthcare establishments are considered complex organizations. The diversity of actors, processes, specialties, and the complication of health technologies actively

contribute to the permanent exposure of medical, nursing and health technician personnel to professional risks. This is why a risk identification and management approach can help reduce to an acceptable level the risks adversely affecting their activity, in particular the risks of adverse events associated with care in Moroccan hospitals, while relying on new tools such as risk mapping. The aim of this study is to identify and deal with the risks associated with care in Moroccan hospitals. The case of the CHP Kenitra involves a preliminary analysis of the risks and the development of a map of the risks associated with care in the hospital. This will enable us to make the risk management process more reliable and assist decision-making. The acceptability of risks associated with care is also linked to the frequency, severity and quality of the risk management system.

2. Literature review on healthcare risk management in the hospital environment

Risk management emerged in the insurance industry in the USA in the 1950s. Over the last few decades, the concept of risk has undergone significant evolution. This approach is applied in various fields, each with its own distinct methods. The perception of risk varies according to the context, whether it's a doctor, an artist, an epidemiologist or an engineer. Risk management in healthcare establishments, in particular, is constantly evolving as a result of medical developments, technological advances and regulatory changes. Its main aim is to improve the quality of care, reduce risks to patients and guarantee the safety of healthcare professionals. Indeed, the hospital is considered as an organization exposed to considerable risks, involving human, technical and financial issues [2]. Risk management in the hospital environment is essential to understanding the key issues of safety and quality of care. It is a crucial process aimed at identifying, assessing, reducing, and monitoring potential risks in a hospital environment. Increasingly, the aim of risk management is to guarantee the safety of patients and healthcare professionals, and to maintain rigorous standards of care. As emphasized by Ellenberg & al. in 2006, risk management terminology is essential, as it conditions medical acts, behaviors and representations, and must therefore be "clear, specific and functional " [3-4]. As mentioned above, risk management in a hospital involves several elements, including the use of a comprehensive method for identifying risks, assessing them in advance and ranking them in order of importance. In addition, according to the National Institute for Research and Safety (INRS[5], 2018), ongoing exposure to the risks illustrated in the following diagram (Figure 1) can lead to the development of occupational diseases in healthcare professionals. The identification of risks associated with care is therefore an essential step in managing the quality and safety of patients and professionals within healthcare establishments. The aim of this approach is to identify potential risks, in order to prevent them and improve the quality of care provided. Our study, carried out at the EL IDRISSI hospital in Kenitra, was conducted with this in mind, using the following research methodology.

3. Research methodology and presentation of the study environment

The aim of this study is to identify the risks associated with care, and to prevent incidents and accidents that could harm the health of caregivers in the care units of the El Idrissi hospital in Kenitra, thereby reducing the quality of care provided. Our research is based on an exploratory descriptive approach aimed at the early identification of potential risks, in order to assess their probability and severity and improve risk prevention actions in the hospital environment. We carried out field visits to observe and interview care staff, and retrospectively exploited a database of recorded risks, in addition to a questionnaire administered to all hospital staff.

This study is being carried out at El Idrissi Hospital, a provincial hospital in the city of Kenitra, serving the population of the North Pole of the Rabat-Salé-Kenitra region (the former Gharb Chrarda Beni Hsen region), estimated at 1,901,301 inhabitants. The choice of this structure is justified by: a) its regional vocation b) the large number of staff. In addition, the feasibility of the study and the insufficiently developed research culture in this hospital justify the choice of this establishment.

4. Presentation and discussion of study results

4.1. Participant characteristics

The discussion of the results is based on interviews conducted at El Idrissi Hospital in Kenitra with all workers in the various departments within the hospital. The present study targeted 112 caregivers belonging to different care units of the hospital, 64% of whom were female and 36% male. The distribution of age categories is shown in Figure 2. The most represented age group is that between 31 and 40, with a rate of 42%, followed by those aged 41 and over, with a rate of 31%, and lastly those in the 20 to 30 age category, who represent 27% of the sample.

According to the information on the age of the participants, 69% were between 20 and 40 years old, and 31% were over 41. So we have a sample with a "young" character, and a predominance of women, since two-thirds were female. The following figure (Figure 3) shows the breakdown of participants by gender. The graph above illustrates the distribution of participants by gender and shows that two-thirds of the participants in the study were female (64%). Based on professional seniority, 67.5% of respondents have more than 10 years' experience, while 32.5% have less than 10 years' experience. Of the latter, 17% have between 5 and 10 years' experience and 15% have less than 5 years' experience. Mastering the full range of care procedures requires significant professional experience. Indeed, acquiring these techniques requires time and know-how, as well as the ability to develop reflections based on real-life situations. So we're looking at a "very experienced" professional category, and one that must be in favor of quality practices and personal behavior.

4.2. Identification and assessment of care-related risks at EL IDRISSI Kenitra Provincial Hospital

To identify and evaluate the various risks associated with care involving hospital nursing staff, we carried out field visits to the kenitra hospital, using an observation grid based on the responses to the questionnaires distributed. This method was used to identify risk situations. In this section, we will describe and detail all the risks associated with care, using the classification defined during the INRS survey in 2018 (see Figure 1). In order to be effective, risk identification and assessment must be based

primarily on field data. The description of existing risks in a structured way according to three dimensions: the frequency of events, the consequences of the event, and the actions taken to manage them [5]. The table below lists the risks associated with care, indicating their frequency, severity and criticality. These risks were identified and collected at Kenitra Provincial Hospital. Frequency (F) and severity (S) are assessed by the facility's professionals, while criticality (C) is calculated (C= F x S).

Having identified the risks and assessed their frequency and severity, we then analyzed them using the Farmer diagram, a risk prioritization tool [6], which will enable us to define the criticality of the risks identified and consequently rank them according to their priority. The matrix used allowed us to categorize risks into three levels of criticality [7]: High, Moderate, and Acceptable. This will enable us to identify action levels for each type of risk. We see in the diagram above that:

- 47% of them have been classified as criticality 3 "High" or "Unacceptable", and must be the subject of a risk reduction process.
- 39% of these have been classified as criticality 2 "Moderate", a tolerable risk under control and justifying a risk reduction approach.
- And 14% were classified as criticality 1 "Low" or acceptable, requiring no action.

In fact, risk management in Morocco is an Obligation of hospital organizations: "Hospital management must have systems, procedures and measures in place that are likely to reduce the frequency of risks, prevent their occurrence and minimize the consequences for patients, staff and visitors " [8] (Ministry of Health Order 2011). This is also a national guideline, strongly recommended by the 2012-2016 and 2017-2021 sector strategies (Ministry of Health Morocco 2017).

By applying this matrix, we are able to draw up a risk map to manage risks by proposing preventive or corrective actions and making recommendations.

especially musculoskeletal disorders (MSDs), which affect all categories of staff, It is generally caused by the handling of patients and postural constraints and manifested by back pain, lumbago, sciatica and tendonitis and 9% low risk when exposed to extreme temperatures (extremely cold temperatures in freezing rooms or very hot in sterile areas).

Biological risks: According to the required results, 44.45% present a high biological risk, in particular infections associated with care (IAS) and exposure to blood (HIV, hepatitis B and hepatitis C, etc.) and biological fluids, 33.34% a moderate risk, which concerns skin and viral infection risks and fungal and TB infections present 22.2% a low risk and controlled at hospital level.

Chemical risks: Healthcare professionals consider that 37.5% present a high chemical risk, especially in laboratory analyses (reagents, solvents, etc.) and hospital waste management, 37.5% are classified as moderate, particularly in operating theatres (exposure to anesthetic gases and medical gases (oxygen, nitrogen, nitrous oxide), and 25% of risks are low and manageable.

Physical risks: 55% of risks, according to the staff questioned, present a high physical risk, especially for those exposed to IR (scanners and radiodiagnostic machines) and who use medical equipment, 36% a moderate risk, especially musculoskeletal disorders (MSDs), which affect all categories of staff, It is generally caused by the handling of patients and postural constraints and manifested by back pain, lumbago, sciatica and tendonitis and 9% low risk when exposed to extreme temperatures (extremely cold temperatures in freezing rooms or very hot in sterile areas).

Ergonomic risks: Ergonomic occupational risks in the hospital environment exist according to the nature of the operation of this system (exposure to pathogenic agents, stress, and awkward postures). 8% have a low risk, followed by 33% with a high ergonomic risk, and 59% with a moderate risk (uncomfortable posture, stressful environment and workstation ergonomics). Care workers are constantly exposed to a variety of risks that can affect their health and lead to temporary or permanent incapacity, as well as time off work.

Psychosocial risks: healthcare professionals suffer from psychological risks, 50% of the risks are classified as moderate and need to be controlled (communication, fear of committing serious medical errors, etc.), 38% present a high risk, especially stress, burnout and PTSD, and only 12% are acceptable and can be controlled (variable working hours).

5. Discussion

Healthcare professionals are constantly exposed to a wide range of risks that can lead to illness, injury and temporary or permanent absence from work. However, each facility presents specific risks that need to be identified and managed appropriately. Hospital-acquired infections (HAI), which are considered to be an indicator of the quality of care provided, are a common risk in all hospitals worldwide [9]. The study shows that healthcare staff are highly exposed to biological and infectious risks. According to several SUMER surveys, exposure to infectious risks in the hospital environment affects all healthcare workers, with 63.1% of medical staff expressing exposure to biological agents, 48.3% being in contact with a human reservoir via the respiratory route, and 63% of nurses and midwives being directly exposed to biological agents (SUMER, 2014) [10]. The study by Colombo (C., 2008) on accidents involving exposure to blood and biological fluids (AEB) among healthcare professionals is still a daily reality in Swiss hospitals, despite the knowledge and dissemination of preventive measures. The majority of reported AEB (79.9%) occurred during the care of hospitalised patients (39.2% in operating theatres, 26.6% in care units, 6% in intensive care units). 2.8% of accidents occurred in the laboratory and 1.7% during waste disposal. A very small proportion of reported AEB (1.4%) involved outpatient care [11].

In addition, healthcare establishments are places where chemical risks are present at different levels, depending on the activities and professions carried out. The effects may be immediate or delayed, acute or chronic, local or general. According to the WHO, over 8% of deaths worldwide result from exposure to chemicals (WHO, 2011) [12]. Around 30% of recognised occupational illnesses in Europe are thought to be chemical in origin (INRS, 2018). Regarding the management of waste from healthcare activities, 15% of this waste presents infectious, chemical, traumatic or radioactive risks. In 2010, injections with used needles and syringes led to 33,800 new infections with the human immunodeficiency virus (HIV), 1.7 million infections with the hepatitis B virus and 315,000 infections with the hepatitis C virus [13]. Doctors, nurses, midwives, care

assistants and cleaning staff are at the front line of exposure to these diseases. Another study carried out at our study site showed that 97.62% of those surveyed admitted that medical and pharmaceutical waste (MPW) presents a major health risk for professionals [14].

In addition, numerous scientific studies show that psychosocial risks lead to higher risks of physical and psychological health damage for healthcare professionals. These risks may be psychosocial (stress, burnout, violence in the workplace, burnout) or ergonomic (noisy environment, workstation ergonomics, MSD, etc.). In France According to the national survey of adverse events in healthcare carried out in 2019 by DREES, accidents at work account for 2.5% of serious adverse events occurring in healthcare establishments. Of these accidents, 40% are injuries caused by sharp objects, 20% are falls, 10% are burns or electrocution, and 10% are traffic accidents [15].

At national level, a study assessing stress among healthcare staff revealed that stress was more frequent in large cities (Casablanca and Rabat) and that the prevalence of stress was 21.7%. The risk factors for occupational stress were high psychological demand combined with low decision-making latitude and insufficient social support [16]. Moreover, burnout is the most common form of psychosocial risks in Morocco, with a frequency rate of 49%. These results, compared with those of studies carried out in France on medical interns and nurses [17], show that burnout is more prevalent in Moroccan healthcare environments than in France [18]. A survey carried out at EL IDRISSI hospital in 2022 revealed that healthcare workers are particularly exposed to psychosocial risks, especially stress and burnout. This concerns professions with high mental, emotional and affective demands and great responsibilities, such as nurses [19].

Finally, risk management in hospitals is an ongoing process that requires a proactive and collaborative approach, involving the implementation of appropriate action plans to prevent, mitigate or respond to these risks.

6. Risk management actions and recommendations

Some actions taken to manage the different types of risks:

6.1. Biological risks

- ✓ Implementing a strategy to prevent nosocomial infections
- ✓ Providing carers with the information system they need to report nosocomial infections
- ✓ Provide ongoing training for staff on good hygiene practices and the correct use of personal protective equipment (PPE)
- ✓ Set up a monitoring system to track infection rates and react quickly to any increase.
- ✓ Provide regular training on infection control practices.
- ✓ Regular cleaning and disinfection of surfaces and objects that have been in contact with contaminated biological material.
- ✓ Appropriate training for care staff to minimise the risk of exposure to biological pathogens.
- ✓ Ensuring the safe management of biological waste
- ✓ Display the protocol for sorting waste at source in accordance with current regulations
- ✓ Establish containment standards for infected patients to minimise transmission (septic isolation);
- ✓ Set up a nosocomial infection prevention committee to regularly review data and recommend improvements.

6.2. Chemical risks

- ✓ Implement a chemicals management strategy
- ✓ Inventory and labelling: Maintain an inventory of chemical products, store them correctly and label them appropriately.
- ✓ Chemical safety training: Train staff in the safe handling of chemicals and how to react in the event of a leak.
- ✓ Emergency response protocols: Establish protocols for managing emergency chemical leaks or exposures.
- ✓ The use of personal protective equipment (PPE), such as gloves, masks and goggles, to protect against chemicals.
- ✓ Medical waste management: - Colour-coded bins: Medical waste bins are colour-coded to ensure correct separation of waste, including sharps, infectious waste and pharmaceutical waste.
- ✓ Implementing safe working procedures, such as handling chemicals in limited quantities and using adequate ventilation equipment.

6.3. Physical risks

- ✓ Identify areas at risk of falling and put in place preventive measures, such as anti-slip mats and safety barriers. safety railing for stairs
- ✓ The use of personal protective equipment (PPE), such as gloves, masks and goggles, to prevent AEB.
- ✓ Provide staff with training in patient lifting and transfer techniques to reduce the risk of musculoskeletal injuries (MSDs).
- ✓ Implement measures to prevent exposure to ionising radiation, such as staff training and the introduction of exposure monitoring procedures
- ✓ Safety training: Training staff on safety protocols for handling medical equipment and how to react in the event of an incident.
- ✓ Infrastructure maintenance: Hospitals must ensure the maintenance and safety of their infrastructure, including lifts, heating, ventilation and air conditioning systems, and emergency power supplies.

6.4. Ergonomic risks

- ✓ Train staff in good ergonomic practice. This training should cover correct postures, load handling and injury prevention.
- ✓ Workstation ergonomics: Adapt workstations with adjustable chairs, keyboard supports and screens at the appropriate height.
- ✓ Adapting service architecture to the care procedures performed.
- ✓ Wellness programme: Offer wellness and stress management programmes.
- ✓ Adjust the location of waste collectors to promote sorting at source.

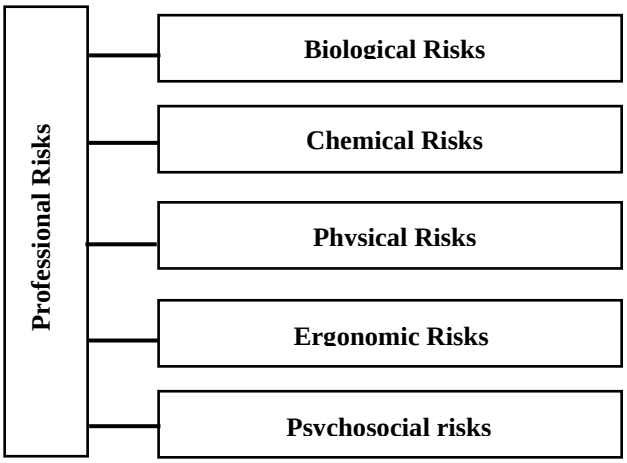


Figure 1. Panorama of professional risks (INRS)

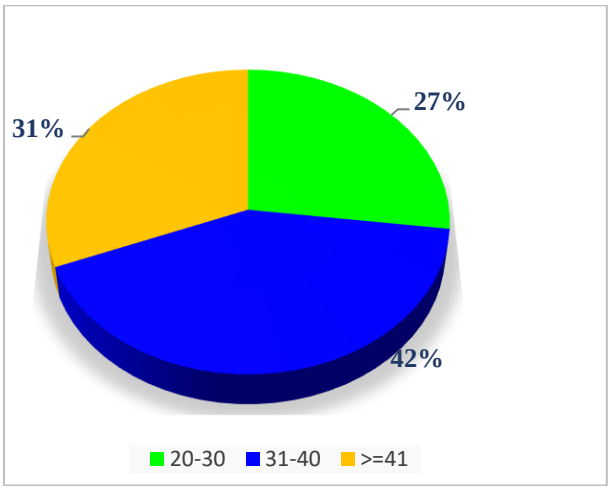


Figure 2. Age distribution of study participants

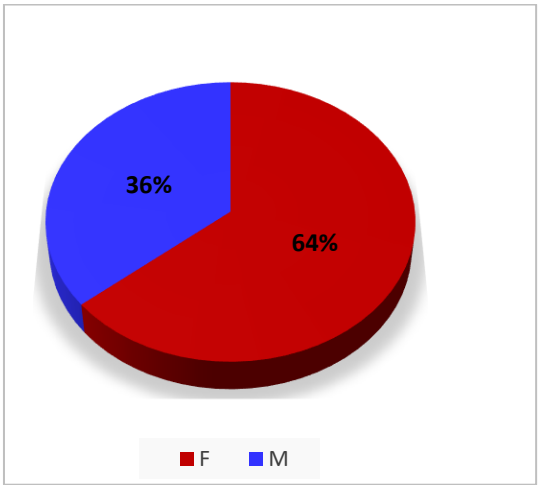


Figure 3: Distribution of study participants by gender

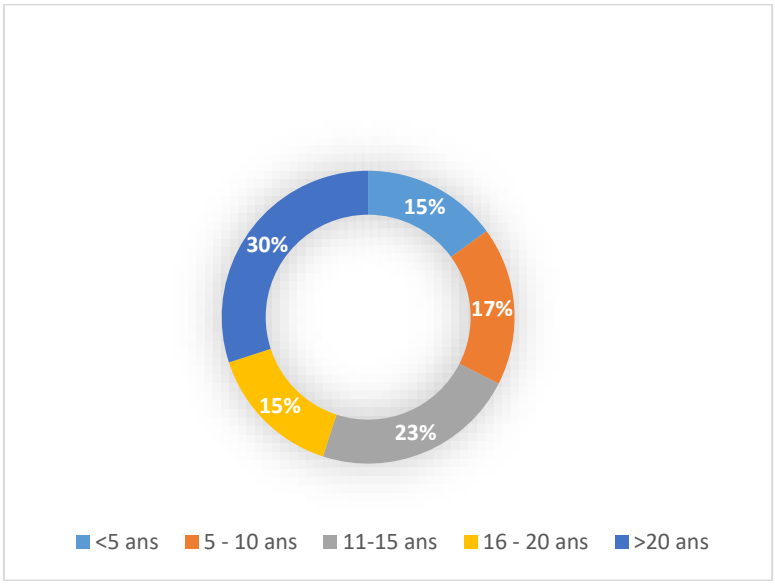
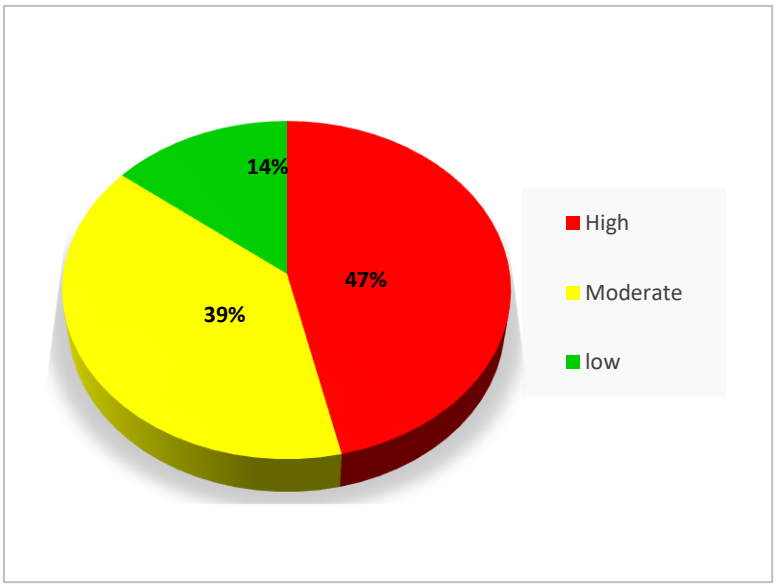


Figure 4. Distribution of participants by length of service



C3 High risks: Risks to be addressed
C2 Moderate risks: Risks to monitor.
C1 Low risks: No action is necessary.

Figure 5: Graphical representation of criticality level

Figure 6. Risk mapping

VERY SERIOUS	- Fire and explosion risks (storage of flammable chemicals)		-Healthcare-associated infections (HAIs) -Exposure to blood and body fluids -Use of radiopharmaceutical chemicals -Exposure to ionising radiation -Risks associated with medical equipment -Violence and aggression	-Handling contaminated biological material -Exposure to pathogens -Exposure to sharps
SERIOUS	- Exposure to tuberculosis (TB)	-Accidents involving exposure to blood -Heavy loads -Exposure to anaesthetic gases -Exposure to medical gases -Difficult communication - Discrimination and harassment	-Handling laboratory chemicals -Exposure to chemicals and biological agents -Emotional workload -Demanding work environment -Stress and pressure -Burnout -Excessive workload -Secondary traumas (post-traumatic stress disorder (PTSD). - Storage and management of hazardous waste	-Violence in the workplace -Handling healthcare waste -Awkward postures and repetitive movements -Emotional stress -Lack of support and recognition
MEDIUM	-Mycoses (fungal infections)	-Skin infections - Fecal-oral viral infections -Falls -Workstation ergonomics	-Sterilisation products -Musculoskeletal disorders (MSD) -Uncomfortable postures : -Time management and workload -Noisy environments -Stressful environments Responsibility and decision-making -Interpersonal Conflicts -Responsibility and Guilt -Fear of Medical Error	-Exposure to noise -Viral respiratory diseases -Exposure to suffering and death - Lack of resources (human, material and financial) -Repetitive work
LOW	-Exposure to extreme temperatures	-Ethical responsibility	-Variable working hours -Use of medical equipment	--Handling disinfectant and cleaning chemicals
	Highly improbable	**Improbable**	**Probable**	**Highly probable**

Table 1. Hospital risks by severity and probability

Risk category	Risk	Frequency	Severity	Criticality
BIOLOGICAL RISKS	Nosocomial infections or healthcare-associated infections (HAIs)	3	4	12
	Exposure to blood and body fluids	3	4	12
	Exposure to tuberculosis (TB)	1	3	3
	Skin infections	2	2	4
	Viral respiratory diseases	4	2	8
	Viral infections with fecal-oral transmission	2	2	4
	Mycoses (fungal infections)	1	2	2
	Handling contaminated biological material	4	4	16
	Handling healthcare waste	4	4	16
CHEMICAL RISKS	Exposure to anaesthetic gases	2	3	6
	Exposure to medical gases	2	3	6
	Handling disinfectant and cleaning chemicals	4	1	4
	Handling laboratory chemicals	3	3	9
	Use of radiopharmaceutical chemicals	3	4	12
	Hazardous waste storage and management	3	3	9
	Fire and explosion risks (storage of flammable chemicals)	1	4	4
	Sterilization products	3	2	6
PHYSICAL RISKS	Falls	2	2	4
	Exposure to chemicals and biological agents	3	3	9
	exposure to sharp objects	4	4	16
	Musculoskeletal disorders (MSD)	3	2	6
	Violence in the workplace	4	3	12
	Noise exposure	4	2	8
	Exposure to ionizing radiation / Exposure to ionizing radiation	3	4	12
	Risks related to medical equipment	3	4	12
	Blood exposure accidents (BEA)	2	3	6
	Exposure to extreme temperatures	1	1	1
	Emotional workload	3	3	9
ERGONOMIC RISKS	Heavy loads	2	3	6
	Awkward postures and repetitive gestures	4	3	12
	Uncomfortable postures	3	2	6
	Repetitive work	4	2	8
	Emotional stress	4	3	12
	Demanding work environment	3	3	9
	Time management and workload	3	2	6
	Noisy environments	3	2	6
	Stressful environments	3	2	6
	Use of medical equipment	3	1	3
	Exposure to pathogens	4	4	16
	Ergonomics of workstations	2	2	4
PSYCHOSOCIAL RISKS	Stress and Pressure	3	3	9
	Professional Exhaustion (Burnout)	3	3	9
	Exposure to Suffering and Death	4	2	8
	Violence and aggression	3	4	12
	Difficult Communication	2	3	6
	Responsibility and Decision Making	3	2	6
	Lack of resources (human, material and financial)	4	2	8
	Discrimination and harassment	2	3	6
	Excessive workload	3	3	9
	Variable working hours	3	1	3
	Lack of Support and Recognition	4	3	12
	Secondary traumas (post-traumatic stress disorder (PTSD)).	3	3	9
	Interpersonal conflicts	3	2	6
	Ethical responsibility	2	1	2
	Responsibility and guilt	3	2	6
	Fear of medical error	3	2	6

Table 2. Prioritization of risks associated with care

Risks	Frequency	Severity	Criticality	Risk level	Priority action
RISQUES BIOLOGIQUES					
Nosocomial infections or healthcare-associated infections (HAIs)	3	4	12	High	Priority 1
Exposure to blood and body fluids	3	4	12	High	Priority 1
Handling contaminated biological material	4	4	16	High	Priority 1
Handling healthcare waste	4	3	12	High	Priority 1
Viral respiratory diseases	4	2	8	Moderate	Priority 2
Skin infections	2	2	4	Moderate	Priority 2
Viral infections with fecal-oral transmission	2	2	4	Moderate	Priority 2
Exposure to tuberculosis (TB)	1	3	3	low	Priority 3
Mycoses (fungal infections)	1	2	2	low	Priority 3
RISQUES CHIMIQUES					
Handling laboratory chemicals	3	3	9	High	Priority 1
Use of radiopharmaceutical chemicals	3	4	12	High	Priority 1
Hazardous waste storage and management	3	3	9	High	Priority 1
Exposure to anaesthetic gases	2	3	6	Moderate	Priority 2
Exposure to medical gases	2	3	6	Moderate	Priority 2
Sterilization products	3	2	6	Moderate	Priority 2
Fire and explosion risks (storage of flammable chemicals)	1	4	4	low	Priority 3
Handling disinfectant and cleaning chemicals	4	1	4	low	Priority 3
RISQUES PHYSIQUES					
exposure to sharp objects	4	4	16	High	Priority 1
Exposure to ionizing radiation / Exposure to ionizing radiation	3	4	12	High	Priority 1
Risks related to medical equipment	3	4	12	High	Priority 1
Violence in the workplace	4	3	12	High	Priority 1
Exposure to chemicals and biological agents	3	3	9	High	Priority 1
Emotional workload	3	3	9	High	Priority 1
Noise exposure	4	2	8	Moderate	Priority 2
Musculoskeletal disorders (MSD)	3	2	6	Moderate	Priority 2
accidental exposure to Blood (AEB)	2	3	6	Moderate	Priority 2
Falls	2	2	4	Moderate	Priority 2
Exposure to extreme temperatures	1	1	1	low	Priority 3
RISQUES ERGONOMIQUES					
Exposure to pathogens	4	4	16	High	Priority 1
Emotional stress	4	3	12	High	Priority 1
Awkward postures and repetitive gestures	4	3	12	High	Priority 1
Demanding work environment	3	3	9	High	Priority 1
Repetitive work	4	2	8	Moderate	Priority 2
Heavy loads	2	3	6	Moderate	Priority 2
Uncomfortable postures	3	2	6	Moderate	Priority 2
Time management and workload	3	2	6	Moderate	Priority 2
Noisy environments	3	2	6	Moderate	Priority 2
Stressful environments	3	2	6	Moderate	Priority 2
Ergonomics of workstations	2	2	4	Moderate	Priority 2
Use of medical equipment	3	1	3	low	Priority 3
RISQUES PSYCHOSOCIAUX					
Violence and aggression	3	4	12	High	Priority 1
Lack of Support and Recognition	4	3	12	High	Priority 1
Stress and Pressure	3	3	9	High	Priority 1
Professional Exhaustion (Burnout)	3	3	9	High	Priority 1
Excessive workload	3	3	9	High	Priority 1
Secondary traumas (post-traumatic stress disorder (PTSD)).	3	3	9	High	Priority 1
Exposure to Suffering and Death	4	2	8	Moderate	Priority 2
Difficult Communication	2	3	6	Moderate	Priority 2
Responsibility and Decision Making	3	2	6	Moderate	Priority 2
Lack of resources (human, material and financial)	4	2	8	Moderate	Priority 2
Discrimination and harassment	2	3	6	Moderate	Priority 2
Interpersonal conflicts	3	2	6	Moderate	Priority 2
Responsibility and guilt	3	2	6	Moderate	Priority 2
Fear of medical error	3	2	6	Moderate	Priority 2
Variable working hours	3	1	3	low	Priority 3
Ethical responsibility	2	1	2	low	Priority 3

- ✓ Improving inter-professional communication and communication with patients to reduce misunderstandings and sources of stress.

6.5. Psychosocial risks

- ✓ Providing training and raising awareness of the problems of stress, burnout and violence in the workplace
- ✓ Providing training in stress management, effective communication and conflict resolution.
- ✓ Put in place support measures for workers, such as stress management programmes and psychological assistance services.
- ✓ Encouraging a culture of well-being: Creating a working environment that encourages well-being, work-life balance and employee recognition.
- ✓ Make hospital staff aware of the risks of PTSD and the early signs of the disorder.
- ✓ Psychological support programme: Provide staff with access to mental health professionals or counsellors.
- ✓ allocate the resources needed to prevent risks, which may include investment in infrastructure, staff training and patient safety.
- ✓ reducing excessive working hours and promoting a supportive culture within the hospital.
- ✓ Make hospital staff aware of the risks of PTSD and the early signs of the disorder.

7. Recommendation

To ensure effective and efficient risk management, we propose the following recommendations:

- Implement a system for monitoring health and safety regulations to ensure that the hospital complies with current standards.
- Educate and train staff regularly on regulations specific to their area of work, including medical waste management, fire safety and infection control.
- Implement a risk management system and monitoring software to automate and streamline the collection, analysis and management of risk-related data.
- Carry out regular audits to ensure compliance with current regulations and implement corrective measures for any deviations identified.
- Invest in risk prevention measures, including infrastructure improvements, staff training and patient safety.
- Develop a comprehensive emergency plan to deal with a variety of situations, including natural disasters, pandemics, fires and other unexpected events.
- Outsource certain specialist services, such as medical waste management, ensuring that external providers are qualified and meet safety and compliance standards.
- Measure the effectiveness of risk management measures by establishing relevant key performance indicators (KPIs) and monitoring hospital-acquired infection rates, readmission rates, medication errors and other relevant indicators.
- Involving management in the occupational risk management strategy
- Post the various protocols relating to good hospital hygiene practice in accordance with national regulations and current standards.

8. Conclusion

In Morocco, as in other countries, identifying the occupational risks associated with healthcare is an essential step in ensuring the safety of patients and healthcare staff. This identification must be carried out systematically and exhaustively, covering all risk factors, whether biological (exposure to infections), chemical (exposure to hazardous chemicals), physical (patient handling), ergonomic (musculoskeletal disorders) or psychological (stress and burn-out). In this article, we have attempted to identify the occupational risks affecting hospital staff using a mapping of the risks associated with care at Kenitra hospital in order to be able to manage the risks to a valid and acceptable level. The aim of this study was to identify the risks associated with care and to assess the risks correctly using a qualitative method based on an assessment of the probability and potential impact of each risk.

The results of our study showed that risks in the hospital environment are highly varied, with varying degrees of criticality depending on the care unit. They have a negative impact on the health and safety of healthcare staff. 83% of participants said they were constantly exposed to various infectious threats (HAIs , AEB, COVID-19), over 35% of the staff questioned said they had suffered respiratory problems due to the excessive use of disinfectants, 22% said they had suffered skin irritations due to latex gloves, while 100% of those questioned said they had suffered MSDs, generally caused by handling patients and postural constraints and manifested by back pain, lumbago, sciatica and tendonitis, muscle soreness and arthralgia. This risk spares no category of staff. 30% of staff suffer from night work. What's more, most care staff working in emergency departments or intensive care units claim to be exposed to high levels of stress and burnout.

In fact, the recommendations made could contribute to the general improvement of risk management at the Hospital by putting in place corrective and preventive actions to guarantee a safe and effective healthcare environment, including staff training and continuous improvement. Finally, managing the risks associated with healthcare is a public health priority, which aims to guarantee a process of continuous improvement in the quality of healthcare services, based on epidemiological surveillance to identify, analyze and prevent occupational risks.

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