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Risk Assessment And Safety Management In Clinical Healthcare Settings: An Interprofessional Model Including Dentistry, Nursing, And Health Assistant/Security Roles

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1. Abstract

Background:
Clinical healthcare environments are inherently complex and high-risk, exposing patients, healthcare professionals, and support staff to a wide range of safety threats. These risks include healthcare-associated infections, procedural errors, occupational injuries, environmental hazards, and workplace violence. While patient safety initiatives have expanded globally, many risk management frameworks remain profession-specific, often overlooking the interconnected roles of Dentistry, Nursing, and Health Assistant/Security personnel in maintaining safe clinical environments.
Objective:
This paper aims to develop and examine an interprofessional risk assessment and safety management model that explicitly integrates Dentistry, Nursing, and Health Assistant/Security roles within clinical healthcare settings.
Methods:
A narrative review of international literature was conducted, drawing on evidence from healthcare safety, infection control, occupational health, and security management domains. Based on the reviewed evidence, a conceptual interprofessional framework was developed to define role-specific and shared responsibilities in risk identification, assessment, mitigation, and reporting.
Results:
The findings highlight that Dentistry is primarily exposed to procedural and infection-related risks, Nursing plays a central role in continuous patient monitoring and safety coordination, and Health Assistant/Security personnel are critical for managing environmental risks, access control, and violence prevention. When these roles operate within a coordinated framework, safety gaps are reduced, communication improves, and proactive risk mitigation becomes feasible.
Conclusion:
An interprofessional approach to risk assessment and safety management is essential for modern clinical healthcare settings. Integrating Dentistry, Nursing, and Health Assistant/Security roles within a unified

safety model enhances patient protection, safeguards healthcare workers, and strengthens organizational resilience. This model provides a foundation for future empirical research and policy development aimed at improving clinical safety outcomes.

Keywords: Risk Assessment, Safety Management, Interprofessional Collaboration, Dentistry, Nursing, Health Assistant, Healthcare Security.

2. Introduction

2.1 Clinical Risk and Safety in Modern Healthcare

Healthcare systems worldwide operate within environments characterized by complexity, time pressure, and high levels of uncertainty. Clinical healthcare settings, including hospitals, outpatient clinics, and dental care facilities—are recognized as high-risk workplaces due to the continuous interaction between patients, healthcare professionals, invasive procedures, medical technologies, and biological hazards. Patient safety incidents, occupational injuries, and security-related events continue to pose significant challenges to healthcare quality and sustainability (World Health Organization [WHO], 2023).

Risk in healthcare is broadly defined as the probability that an adverse event may occur and negatively affect patients, healthcare workers, or organizational operations. These risks range from healthcare-associated infections (HAIs) and medication errors to physical violence, unauthorized access, and environmental hazards such as fire or equipment failure (Reason, 2000). Despite advances in clinical governance and quality improvement, preventable harm remains a global concern. The WHO estimates that millions of patients experience avoidable harm each year, with a substantial proportion occurring in routine clinical settings (WHO, 2023).

Traditionally, healthcare risk management strategies have focused on individual professional groups, particularly physicians and nurses. While such approaches have improved outcomes in certain areas, they often fail to address the interdependent nature of healthcare delivery. Safety lapses rarely result from a single professional error; rather, they emerge from systemic weaknesses, communication failures, and poorly coordinated roles across disciplines (Pronovost et al., 2006). This reality underscores the need for interprofessional risk assessment and safety management models that recognize the collective responsibility of all healthcare workers involved in patient care and facility operations.

Figure 1. Interprofessional Safety Framework in Clinical Healthcare Settings

2.2 The Need for an Interprofessional Safety Perspective

Interprofessional collaboration has become a cornerstone of contemporary healthcare practice. Evidence consistently demonstrates that coordinated teamwork among different healthcare professions improves patient outcomes, enhances communication, and reduces adverse events (Reeves et al., 2017).

However, interprofessional collaboration in safety management remains unevenly implemented, particularly with respect to integrating clinical and non-clinical roles.

Dentistry, Nursing, and Health Assistant/Security roles represent three essential yet often siloed components of the clinical safety ecosystem. Dentistry involves high-risk procedures, including aerosol-generating interventions, exposure to blood and saliva, and the use of sharp instruments and radiological equipment. Nursing professionals maintain continuous patient contact, administer medications, monitor clinical status, and play a pivotal role in early detection of safety threats. Health Assistant/Security personnel, meanwhile, are responsible for environmental control, access regulation, violence prevention, and emergency response—functions that are indispensable for maintaining safe clinical spaces (OSHA, 2022).

Despite their interconnected responsibilities, these roles are frequently managed through separate policies, training programs, and reporting systems. This fragmentation can result in unrecognized hazards, delayed responses, and ineffective communication during critical incidents. For example, a security-related disturbance in a clinical area may escalate due to lack of coordination with nursing staff, while infection control risks in dental clinics may increase if environmental and access controls are inadequately enforced. An interprofessional model that unifies these roles within a single safety framework is therefore essential.

2.3 Risk Assessment in Clinical Healthcare Settings

Risk assessment is a systematic process involving the identification, analysis, and evaluation of hazards that may cause harm. In clinical healthcare settings, risk assessment extends beyond clinical procedures to include occupational safety, environmental hazards, and security threats. Effective risk assessment enables healthcare organizations to prioritize risks, allocate resources appropriately, and implement targeted preventive measures (ISO 31000, 2018).

Dentistry faces unique risk profiles due to the nature of oral healthcare delivery. Aerosol-producing procedures significantly increase the risk of airborne infection transmission, as demonstrated during the COVID-19 pandemic (Meng et al., 2020). Additionally, dental professionals are exposed to ergonomic strain, chemical disinfectants, and ionizing radiation. These risks necessitate rigorous infection control protocols, engineering controls, and close collaboration with nursing and security staff to ensure environmental safety and patient flow management.

Nursing plays a central role in clinical risk assessment due to continuous patient presence. Nurses are often the first to identify early signs of patient deterioration, equipment malfunction, or breaches in infection control practices. Their responsibilities extend to medication safety, patient identification, fall prevention, and incident reporting. As such, nursing functions as the backbone of safety surveillance within healthcare settings (Institute of Medicine, 2000).

Health Assistant/Security personnel contribute to risk assessment by monitoring physical spaces, identifying potential threats, and enforcing safety policies. Workplace violence against healthcare workers has increased globally, making security functions critical for risk mitigation (Phillips, 2016). Security staff also play a vital role in emergency preparedness, evacuation procedures, and coordination during mass casualty or disaster events. Without their integration into clinical safety planning, risk management strategies remain incomplete.

2.4 Safety Management as a Shared Responsibility

Safety management refers to the coordinated implementation of policies, procedures, and practices designed to minimize harm and ensure safe operations. In healthcare, safety management encompasses infection prevention, occupational health, patient safety protocols, and security measures. Importantly, safety management is not the responsibility of a single profession; it is a shared organizational obligation.

High-Reliability Organization (HRO) theory emphasizes that organizations operating in hazardous environments must cultivate collective mindfulness, robust communication, and decentralized decision-making to prevent catastrophic failures (Weick & Sutcliffe, 2015). Applying HRO principles to healthcare highlights the importance of interprofessional engagement in safety governance. Dentistry, Nursing, and Health Assistant/Security roles must function as integrated partners rather than isolated units.

Nurses often serve as safety coordinators, linking clinical teams with administrative and support services. Dentists contribute procedural expertise and infection control leadership within dental settings. Security personnel provide situational awareness and rapid response capabilities. When these roles collaborate through structured communication channels and shared protocols, safety management becomes proactive rather than reactive.

Table 1. Major Risk Categories in Clinical Healthcare Settings

Risk Category	Description	Primary Involved Roles
Clinical risks	Infections, medication errors, procedural complications	Dentistry, Nursing
Occupational risks	Musculoskeletal injuries, sharps exposure	Nursing, Dentistry
Environmental risks	Poor ventilation, overcrowding, hazards	Security, Nursing
Security risks	Violence, unauthorized access	Health Assistant/Security
Emergency risks	Fire, disasters, outbreaks	All roles

2.5 Gaps in Existing Safety Frameworks

Although numerous safety frameworks exist—such as the WHO Patient Safety Framework and national occupational health guidelines—many lack explicit guidance on integrating security and support roles into clinical risk management. Furthermore, dental settings are frequently underrepresented in hospital-centric safety models, despite their unique risk profiles.

Research has shown that failures in communication and role clarity contribute significantly to adverse events (Reason, 2000). Inadequate inclusion of Health Assistant/Security staff in safety training and reporting systems further exacerbates these challenges. Addressing these gaps requires a comprehensive model that explicitly defines the contributions of Dentistry, Nursing, and Health Assistant/Security roles within a unified risk management structure.

2.6 Aim and Objectives of the Study

The primary aim of this paper is to develop and present an interprofessional risk assessment and safety management model for clinical healthcare settings that explicitly integrates Dentistry, Nursing, and Health Assistant/Security roles.

The specific objectives are to:

1. Identify key clinical, occupational, and security-related risks in healthcare settings.
2. Define role-specific risk assessment and safety management responsibilities for Dentistry, Nursing, and Health Assistant/Security personnel.
3. Propose an interprofessional framework that enhances communication, coordination, and proactive risk mitigation.
4. Discuss the implications of this model for clinical practice, policy development, and future research.

By addressing these objectives, this paper contributes to the growing body of literature advocating for interprofessional approaches to patient and workplace safety, while ensuring that all relevant specialties are recognized as essential partners in risk management.

3. Methods

This study employed a narrative review design combined with conceptual framework development to examine risk assessment and safety management in clinical healthcare settings through an interprofessional lens. The narrative review approach was selected due to its suitability for synthesizing diverse evidence across clinical, occupational, and security-related domains, particularly where empirical interventional studies remain limited. The methodological focus was on integrating perspectives from Dentistry, Nursing, and Health Assistant/Security roles, recognizing their interdependent contributions to healthcare safety systems. Relevant literature was identified through systematic searches of electronic databases including PubMed, Scopus, Web of Science, and Google Scholar, in addition to key institutional sources such as the World Health Organization (WHO), Occupational Safety and Health Administration (OSHA), Centers for Disease Control and Prevention

(CDC), and International Organization for Standardization (ISO). Search terms included combinations of "risk assessment," "safety management," "patient safety," "healthcare security," "nursing safety," "dental safety," "occupational health," and "interprofessional collaboration."

Inclusion criteria encompassed peer-reviewed articles, guidelines, and reports published in English that addressed risk identification, prevention, or management in clinical healthcare environments, with explicit or implicit relevance to Dentistry, Nursing, or Health Assistant/Security functions. Both qualitative and quantitative studies were included, along with systematic reviews, policy documents, and consensus statements. Exclusion criteria involved studies limited to non-clinical environments, non-healthcare industries, or those focusing solely on physician-centered risk models without broader interdisciplinary relevance. Data extraction focused on identifying recurring risk categories, professional responsibilities, safety interventions, and reported outcomes related to patient, staff, and environmental safety.

Following literature synthesis, an analytical framework based on internationally recognized risk management principles—risk identification, risk analysis, risk evaluation, risk control, and monitoring—was applied (ISO 31000, 2018). This framework enabled systematic mapping of risks across clinical workflows and professional roles. Dentistry-specific risks were analyzed in relation to procedural hazards, infection transmission, and radiological exposure; nursing-related risks were examined through patient monitoring, medication safety, and infection prevention roles; and Health Assistant/Security risks were assessed in terms of environmental safety, access control, violence prevention, and emergency preparedness. The integration of these analyses informed the development of an interprofessional conceptual model emphasizing shared responsibility, structured communication, and coordinated safety governance.

4. Risk Landscape in Clinical Healthcare Settings

Clinical healthcare settings represent complex adaptive systems where multiple hazards coexist and interact. The risk landscape within these environments is shaped by clinical procedures, human factors, organizational structures, and external pressures such as increasing patient volumes and workforce shortages. Understanding this multifaceted risk landscape is essential for designing effective safety management strategies that incorporate Dentistry, Nursing, and Health Assistant/Security roles as integral components.

Clinical risks remain among the most prominent threats to patient safety. Healthcare-associated infections (HAIs) continue to pose significant morbidity and mortality risks worldwide, particularly in environments involving invasive procedures and close patient contact (WHO, 2023). Dentistry is especially vulnerable due to aerosol-generating procedures that facilitate airborne transmission of pathogens. Saliva, blood, and respiratory secretions serve as potential vectors for infection, placing both patients and dental professionals at heightened risk (Meng et al., 2020). Nursing staff, who frequently interact with multiple patients across shifts, play a critical role in interrupting transmission pathways through adherence to infection prevention and control (IPC) measures, hand hygiene, and environmental sanitation.

Medication errors constitute another major clinical risk, particularly in high-acuity settings. Nurses are central to medication administration and reconciliation processes, and errors may arise from workload pressures, communication failures, or system design flaws (Institute of Medicine, 2000). While dentists may prescribe medications such as antibiotics and analgesics, coordination with nursing staff is essential to ensure continuity of care and prevent adverse drug events. Inadequate communication across professional boundaries can exacerbate these risks.

Occupational risks significantly affect healthcare workers and contribute indirectly to patient safety concerns. Musculoskeletal injuries, needlestick injuries, chemical exposures, and psychological stress are prevalent across clinical settings. Dentistry professionals face ergonomic strain due to prolonged static postures, while nurses experience high rates of back injuries associated with patient handling (OSHA, 2022). Health Assistant/Security personnel encounter physical risks during incident response, restraint situations, or emergency evacuations. Failure to address occupational safety undermines workforce sustainability and compromises the overall safety culture.

Environmental and infrastructural risks further complicate the healthcare risk landscape. Poorly designed clinical spaces, inadequate ventilation, faulty equipment, and overcrowding increase the likelihood of accidents and infection transmission. Dental clinics embedded within hospitals or

outpatient facilities require coordinated environmental controls to manage patient flow and minimize cross-contamination. Health Assistant/Security staff are essential in maintaining safe physical environments through surveillance, access regulation, and hazard reporting.

Security-related risks have gained increasing attention in healthcare safety discourse. Workplace violence against healthcare workers has escalated globally, with nurses disproportionately affected due to their frontline roles (Phillips, 2016). Dental settings are not immune to aggression, particularly in emergencies or pain-related situations. Health Assistant/Security personnel are uniquely positioned to identify escalating threats, implement de-escalation strategies, and protect both staff and patients. However, their effectiveness depends on timely communication and collaboration with clinical staff.

Emergency and disaster-related risks represent another critical dimension of the healthcare risk landscape. Fires, power outages, infectious disease outbreaks, and mass casualty events require coordinated, interprofessional responses. Nurses often manage patient triage and continuity of care, dentists may provide emergency interventions or support, and security personnel oversee evacuation, crowd control, and coordination with external emergency services. Fragmented preparedness planning undermines resilience and increases the likelihood of harm during crises (Weick & Sutcliffe, 2015).

Importantly, these risk categories do not exist in isolation. Clinical, occupational, environmental, and security risks interact dynamically, creating complex risk profiles that cannot be effectively managed through profession-specific strategies alone. A holistic understanding of the risk landscape highlights the necessity of interprofessional risk assessment frameworks that integrate Dentistry, Nursing, and Health Assistant/Security roles as complementary safety agents within clinical healthcare systems.

5. Role-Specific Risk Assessment Responsibilities

Effective risk assessment and safety management in clinical healthcare settings depend on clearly defined yet interconnected professional responsibilities. Dentistry, Nursing, and Health Assistant/Security roles each possess distinct competencies and risk exposures, but their effectiveness is maximized when operating within a coordinated interprofessional framework. This section examines role-specific responsibilities while emphasizing shared accountability for safety outcomes.

Dentistry professionals operate in high-risk clinical environments characterized by invasive procedures, exposure to biological hazards, and reliance on specialized equipment. Risk assessment in dentistry begins with procedural planning, including patient screening for infectious diseases, medical history review, and assessment of procedural complexity. Aerosol-generating procedures present a significant infection risk, necessitating strict adherence to personal protective equipment (PPE) protocols, high-efficiency suction systems, and environmental controls (Meng et al., 2020). Dentists are responsible for identifying procedural risks, implementing evidence-based infection control measures, and collaborating with nursing staff to ensure continuity of safety practices across care settings.

Radiological safety is another critical area of dental risk assessment. The use of intraoral and panoramic radiography exposes patients and staff to ionizing radiation, requiring compliance with radiation protection principles such as justification, optimization, and dose limitation. Dentists must ensure equipment calibration, appropriate shielding, and staff training, while coordinating with facility management and security to maintain controlled access to radiological areas. Emergency preparedness within dental settings, including management of medical emergencies such as syncope or anaphylaxis, further underscores the importance of interdisciplinary communication with nursing and security personnel.

Nursing professionals serve as the central nexus of risk assessment in clinical healthcare settings. Continuous patient monitoring enables nurses to identify early signs of deterioration, infection, or adverse reactions. Nursing risk assessment responsibilities encompass medication safety, fall prevention, pressure injury prevention, and infection control. Nurses also play a pivotal role in safety reporting systems, documenting incidents and near misses that inform organizational learning (Institute of Medicine, 2000).

From an interprofessional perspective, nurses act as safety coordinators who bridge clinical and non-clinical domains. In dental clinics, nurses or dental assistants support procedural safety, instrument sterilization, and patient education. In broader healthcare environments, nurses collaborate with security personnel to manage aggressive behaviors, enforce isolation protocols, and respond to emergencies. Their leadership in safety huddles, audits, and quality improvement initiatives positions nursing as a cornerstone of safety governance.

Table 2. Dentistry-Specific Risks and Mitigation Strategies

Risk Type	Example	Mitigation Measures
Infection transmission	Aerosol-generating procedures	PPE, suction systems
Radiological exposure	Dental X-ray use	Shielding, dose optimization
Procedural emergencies	Syncope, allergic reactions	Emergency protocols, nursing coordination
Ergonomic strain	Prolonged posture	Ergonomic equipment

Health Assistant/Security personnel contribute a critical yet often underrecognized dimension to risk assessment and safety management. Their responsibilities extend beyond physical security to encompass environmental safety, violence prevention, and emergency response. Risk assessment activities include monitoring access points, identifying unauthorized individuals, assessing environmental hazards, and responding to security incidents. In clinical settings, timely intervention by security staff can prevent escalation of conflicts, protect vulnerable patients, and ensure staff safety (Phillips, 2016).

Security personnel also play a vital role in emergency preparedness and disaster response. During fires, evacuations, or mass casualty events, they coordinate movement, secure perimeters, and liaise with external emergency services. Their collaboration with nursing staff is essential for prioritizing patient safety, particularly for individuals with limited mobility or critical care needs. In dental and outpatient settings, security ensures orderly patient flow and mitigates risks associated with overcrowding or emotional distress.

The integration of these roles within a unified risk assessment framework enhances safety outcomes by reducing silos and fostering shared situational awareness. Structured communication mechanisms, such as interdisciplinary safety briefings and incident reporting systems, facilitate timely information exchange. Joint training programs and simulation exercises further strengthen interprofessional collaboration by clarifying roles and reinforcing mutual trust.

Table 3. Nursing-Related Risk Assessment Responsibilities

Risk Area	Nursing Role
Medication safety	Administration, reconciliation
Infection control	Hand hygiene, isolation enforcement
Patient deterioration	Continuous monitoring
Incident reporting	Documentation and escalation
Interprofessional coordination	Liaison with dentistry and security

Importantly, role-specific responsibilities must be supported by organizational policies that promote inclusiveness and shared accountability. Safety culture thrives when Dentistry, Nursing, and Health Assistant/Security personnel are equally valued contributors to risk management. Leadership commitment to interprofessional engagement, coupled with continuous education and performance monitoring, is essential for sustaining effective safety systems (WHO, 2023).

Table 4. Health Assistant / Security Risk Prevention Roles

Risk Area	Responsibilities
Workplace violence	De-escalation, response
Access control	Monitoring entry points
Environmental safety	Hazard identification
Emergency response	Evacuation, coordination
Support to clinical teams	Real-time threat alerts

In summary, role-specific risk assessment responsibilities form the foundation of comprehensive safety management in clinical healthcare settings. Dentistry contributes procedural and infection control expertise, Nursing provides continuous surveillance and coordination, and Health Assistant/Security ensures environmental and situational safety. When integrated within an interprofessional framework, these roles collectively enhance resilience, protect patients and staff, and advance the quality and safety of healthcare delivery.

6. Interprofessional Safety Management Model

An interprofessional safety management model is essential for addressing the complex and interconnected risks present in clinical healthcare settings. Traditional safety models often operate within professional silos, focusing on isolated responsibilities rather than shared accountability. In contrast, an interprofessional model recognizes that patient safety, occupational health, and environmental security are mutually reinforcing and depend on coordinated action among Dentistry, Nursing, and Health Assistant/Security personnel.

The proposed model is grounded in systems theory and High-Reliability Organization (HRO) principles, which emphasize collective mindfulness, continuous learning, and decentralized decision-making in high-risk environments (Weick & Sutcliffe, 2015). Within this framework, safety management is conceptualized as a continuous cycle encompassing risk identification, risk analysis, risk mitigation, monitoring, and feedback. Each professional group contributes distinct expertise while participating in shared governance and communication structures.

At the core of the model is shared situational awareness. Dentistry professionals contribute real-time information regarding procedural risks, infection control challenges, and equipment-related hazards. Nursing professionals synthesize clinical data through continuous patient monitoring, early warning systems, and medication surveillance. Health Assistant/Security personnel provide environmental intelligence, including crowd dynamics, access risks, and early indicators of aggression or system disruption. When these inputs are integrated through structured communication channels, safety threats can be identified proactively rather than reactively.

The model establishes interprofessional safety governance through multidisciplinary safety committees that include representatives from Dentistry, Nursing, and Health Assistant/Security. These committees are responsible for reviewing incident reports, conducting root cause analyses, and updating safety protocols. Unlike traditional committees dominated by clinical leadership alone, this inclusive structure ensures that security and environmental perspectives are incorporated into decision-making processes (WHO, 2023).

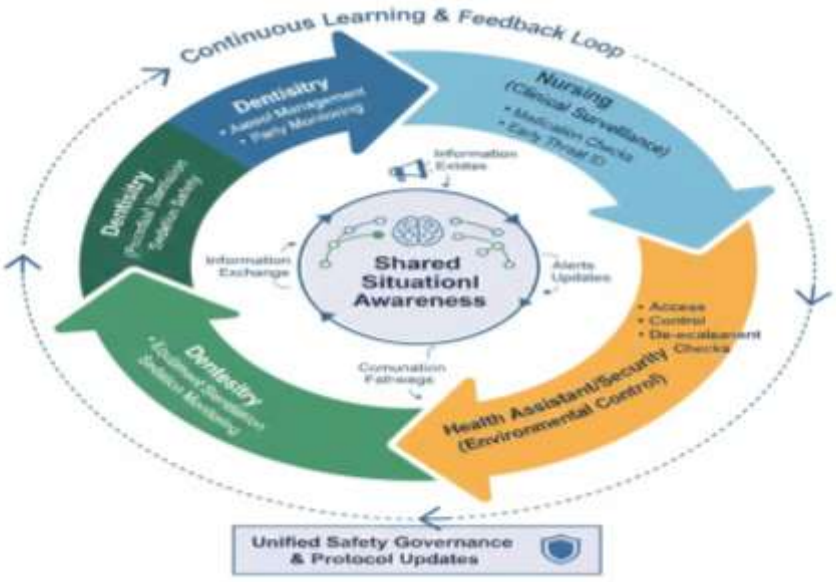
Communication pathways are a defining feature of the model. Standardized handoff tools, safety huddles, and escalation protocols facilitate timely information exchange across professional boundaries. For example, nursing staff may alert security personnel to escalating patient agitation, while dentists may communicate procedural scheduling risks that affect patient flow and security staffing. These bidirectional communication mechanisms reduce ambiguity and enhance coordinated responses to emerging threats (Pronovost et al., 2006).

Risk stratification and prioritization within the model are informed by interprofessional input. Clinical risks such as infection transmission or medication errors are evaluated alongside security risks such as violence or unauthorized access. This integrated assessment prevents the marginalization of non-clinical risks and supports balanced resource allocation. Nursing professionals often lead clinical risk stratification, while security personnel contribute threat assessments, and dentistry professionals assess procedural complexity and infection risk.

Training and competency development are embedded within the model to reinforce interprofessional collaboration. Joint training programs focus on shared competencies such as situational awareness, communication, de-escalation techniques, and emergency response. Simulation-based training scenarios involving dental emergencies, aggressive patient behavior, or infection outbreaks promote role clarity and mutual trust. Evidence suggests that interprofessional simulation enhances team performance and safety outcomes (Reeves et al., 2017). The model also emphasizes integrated incident reporting and learning systems. All professionals, dentists, nurses, and security staff—are encouraged to report incidents and near misses using a unified platform. This inclusive approach improves reporting rates and enables comprehensive analysis of safety events, capturing both clinical and environmental

factors. Feedback loops ensure that lessons learned are disseminated across all professional groups, fostering a culture of continuous improvement (Reason, 2000).

Figure 2. Interprofessional Risk Assessment and Safety Management Model



Finally, leadership engagement is critical to sustaining the interprofessional safety management model. Organizational leaders must visibly support collaboration, allocate resources equitably, and reinforce the value of all professional roles. By embedding interprofessional safety principles into policy, performance evaluation, and organizational culture, healthcare institutions can transition from fragmented safety efforts to resilient, system-wide risk management.

7. Implementation Strategies

Implementing an interprofessional safety management model requires deliberate planning, organizational commitment, and sustained engagement across professional groups. Effective implementation strategies must address policy development, workforce training, communication infrastructure, and performance evaluation while ensuring meaningful participation from Dentistry, Nursing, and Health Assistant/Security personnel.

The first implementation pillar is policy integration. Healthcare organizations must develop unified safety policies that explicitly define interprofessional roles and responsibilities. Rather than maintaining separate protocols for clinical care and security operations, integrated policies align infection control, patient safety, occupational health, and security procedures within a single governance framework. Dentistry-specific infection control policies, nursing clinical safety protocols, and security access-control procedures should be harmonized to eliminate contradictions and clarify expectations (ISO 31000, 2018).

Leadership engagement is essential for successful implementation. Executive leaders and department heads must champion interprofessional safety initiatives and model collaborative behavior. Appointing interprofessional safety champions from Dentistry, Nursing, and Health Assistant/Security roles helps translate policy into practice. These champions facilitate communication, identify implementation barriers, and promote frontline engagement.

Workforce education and training represent a critical implementation strategy. Interprofessional training programs should be mandatory and ongoing, focusing on shared safety competencies rather than profession-specific tasks alone. Topics may include infection prevention, risk communication, violence prevention, emergency preparedness, and incident reporting. Simulation-based exercises involving dental clinics, inpatient units, and security scenarios reinforce collaboration and enhance preparedness (Reeves et al., 2017).

Communication infrastructure must support real-time information exchange. Implementation strategies include standardized reporting tools, electronic incident reporting systems accessible to all staff, and routine safety huddles. Nursing staff often facilitate daily safety briefings, while security personnel provide situational updates, and dental teams highlight procedural risks. These forums create shared awareness and promote proactive risk mitigation.

Resource allocation is another critical consideration. Adequate staffing, access to PPE, surveillance technologies, and environmental controls are necessary to support safety initiatives. Under-resourcing any professional group undermines the interprofessional model. For example, insufficient security staffing increases violence risk, while inadequate nursing ratios compromise patient monitoring and infection control.

Finally, monitoring and evaluation mechanisms ensure sustainability. Key performance indicators may include incident rates, reporting frequency, staff perceptions of safety culture, and compliance with safety protocols. Regular audits and feedback sessions involving all professional groups reinforce accountability and support continuous improvement (WHO, 2023).

Table 5. Implementation Strategies and Responsible Professions

Strategy	Dentistry	Nursing	Security
Policy integration	✓	✓	✓
Safety training	✓	✓	✓
Incident reporting	✓	✓	✓
Emergency preparedness	✓	✓	✓
Continuous monitoring	—	✓	✓

8. Discussion

This paper presents an interprofessional approach to risk assessment and safety management that integrates Dentistry, Nursing, and Health Assistant/Security roles within clinical healthcare settings. The findings underscore the necessity of moving beyond profession-specific safety frameworks toward collaborative models that reflect the realities of modern healthcare delivery.

A central contribution of this study is the recognition that safety risks are inherently interconnected. Clinical, occupational, and security risks interact dynamically, and failure to address one domain can compromise others. For example, inadequate security responses to patient aggression directly affect nursing safety and patient care continuity, while lapses in dental infection control may expose both clinical staff and the broader facility environment to harm (Phillips, 2016; Meng et al., 2020).

The proposed model aligns with High-Reliability Organization principles by emphasizing shared responsibility, continuous vigilance, and learning from near misses (Weick & Sutcliffe, 2015). Nursing emerges as a central coordinating role, consistent with prior research highlighting nurses' leadership in patient safety and risk surveillance (Institute of Medicine, 2000). Dentistry's procedural expertise and infection control leadership complement nursing functions, while Health Assistant/Security personnel provide critical environmental and situational awareness often overlooked in clinical safety models.

Compared with existing frameworks such as the WHO Patient Safety Framework, this model offers greater specificity regarding role integration and security inclusion. By explicitly incorporating Health Assistant/Security roles, the model addresses a persistent gap in healthcare safety literature. This inclusion is particularly relevant given rising rates of workplace violence and increasing complexity of healthcare environments (WHO, 2023).

From a practice perspective, the model supports improved communication, reduced safety gaps, and enhanced staff confidence. Interprofessional training and shared governance structures foster mutual respect and trust, which are foundational to safety culture. However, implementation challenges remain, including resistance to change, hierarchical barriers, and resource constraints.

9. Limitations

Several limitations should be acknowledged when interpreting the findings of this study. First, the narrative review methodology, while suitable for synthesizing diverse evidence, lacks the methodological rigor of systematic reviews and meta-analyses. As a result, the conclusions are based on conceptual integration rather than quantitative effect estimates.

Second, the proposed interprofessional safety management model has not been empirically tested. While grounded in established theories and existing literature, its effectiveness requires validation through observational studies, pilot implementations, and controlled interventions across different healthcare settings.

Third, variability in organizational culture, resource availability, and regulatory environments may limit generalizability. Healthcare systems differ significantly in their staffing models, security infrastructure, and professional scopes of practice. Adaptation of the model may therefore be necessary to align with local contexts.

Finally, the study focuses on Dentistry, Nursing, and Health Assistant/Security roles and does not explicitly include other healthcare professionals such as physicians or pharmacists. While this focus aligns with the study objectives, future research should explore broader interprofessional integration.

10. Conclusion

Risk assessment and safety management are fundamental to delivering high-quality, sustainable healthcare. This paper highlights the necessity of an interprofessional approach that integrates Dentistry, Nursing, and Health Assistant/Security roles within a unified safety management framework. By recognizing the complementary expertise of these professions, healthcare organizations can address the complex and interconnected risks inherent in clinical environments.

The proposed interprofessional safety management model emphasizes shared responsibility, structured communication, and continuous learning. Dentistry contributes procedural and infection control expertise, Nursing provides continuous patient surveillance and coordination, and Health Assistant/Security personnel ensure environmental safety and threat mitigation. Together, these roles form a resilient safety network capable of preventing harm to patients and staff. Implementation of this model requires organizational commitment, inclusive policies, interprofessional training, and robust communication systems. While challenges remain, the potential benefits include improved safety culture, reduced adverse events, and enhanced workforce well-being.

In conclusion, integrating Dentistry, Nursing, and Health Assistant/Security roles within interprofessional safety management is not optional but essential for modern healthcare systems. This model offers a practical and theoretical foundation for advancing patient and workplace safety and provides a roadmap for future research and policy development in clinical risk management.

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