

A STUDY OF HEALTHCARE RISKS AND MITIGATING STRATEGIES: CASE OF SHAAM HOSPITAL UAE

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ABSTRACT

Objective: Healthcare services in hospital environments are frequently beset by numerous risks that may result in negative outcomes and operational inefficiencies. This study seeks to examine the healthcare risks and their effects at Shaam Hospital, UAE.

Research Method: The study employed a quantitative research methodology to gather data from hospital operational staff. Statistical instrument Statistical Package for the Social Sciences (SPSS) was used to perform a comprehensive analysis of the data, discerning critical risk factors.

Findings: The risks are categorized in three categories as regulatory and legal risks; operational and resource Risks; clinical and patient care risks. In regulatory and legal risks; regulatory audits are conducted regularly to ensure legal compliance in operations, has the highest meanwhile in operational and resource Risks, the highest-ranked item is "There is effective management of hospital equipment and supplies". In clinical and patient care risks in a healthcare facility, "The hospital ensures timely and accurate diagnosis for all patients" is highest ranked risk. Mitigating and corrective strategies were also classified in three categories as Enhancement of Medication Safety Systems; Promotion of a Strong Safety Culture; implementation of comprehensive infection control programs. "The hospital uses technology, such as barcoding or electronic prescribing, to enhance medication safety"; "Safety rounds are regularly conducted to identify potential hazards and safety risks"; "Hand hygiene compliance is regularly enforced and monitored throughout the hospital" are highest ranked measures in the above categories respectively.

Originality: This research aims to offer significant insights into healthcare risk management, thereby enhancing the development of safer and more resilient healthcare systems in the UAE and beyond.

Keywords: Health care, Risk, UAE, Hospital

1. INTRODUCTION

Risk management emerged post-World War II, focusing initially on insurance plans to shield individuals and companies from potential losses (Singh and Ghatala, 2012; Dionne, 2019). However, by the 1950s, the high cost and limitations of insurance prompted organizations to develop internal risk mitigation mechanisms. In the healthcare sector, risk management began in the USA in 1970, spurred by a court ruling that held hospitals accountable for care quality (Singh and Ghatala, 2012). This led to a push for clinical governance, championed by organizations like the WHO (Nduhura et al., 2020). Healthcare risk management involves regulations ensuring hospital safety for clients, assets, and profits, covering strategic, financial, human capital, legal, technological, and environmental risks. The UAE has focused on healthcare reform since its formation in 1971, aiming for affordable, high-quality care (Koornneef et al., 2012). Both Singapore and Malaysia have also undertaken significant reforms to address population needs, with Singapore's 3M framework and Malaysia's national health initiatives aiming to improve healthcare access and quality.

The UAE's healthcare vision, detailed in Policy Agenda 2007–2008 and Economic Vision 2030, aims for a robust economy through investments in healthcare and other sectors. Both public and private providers play key roles in the UAE's healthcare market (Al Neyadi, 2016). Shaam Hospital, established in 1973, exemplifies the need for integrated risk management in healthcare operations.

Healthcare risk management is crucial for protecting patient well-being, enhancing healthcare quality, and fortifying institutions (Poulose & Sreedharan, 2019). In the UAE, a nation experiencing rapid economic growth and a burgeoning healthcare sector, healthcare risk management has become increasingly significant, especially in facilities like Shaam Hospital. The UAE's healthcare sector has expanded remarkably, establishing advanced medical facilities such as Shaam Hospital to serve a growing and diverse population (Al-Kaabi et al., 2020). However, this growth introduces risks that necessitate robust risk management strategies (Al-Dossary et al., 2015). Despite global emphasis on healthcare risk management, there's a lack of comprehensive studies on UAE healthcare institutions, including Shaam Hospital, which is concerning given the evolving healthcare regulations in the UAE (Haase et al., 2017). This study addresses key issues at Shaam Hospital: identifying diverse healthcare risks (clinical, operational, financial, and strategic), assessing and prioritizing these risks, developing tailored mitigation strategies, evaluating crisis management preparedness, and integrating technology for effective risk management (Liem et al., 2020; Lee et al., 2018).

Healthcare risk management covers patient safety, human resources, regulatory compliance, asset protection, and business sustainability. It requires identifying, evaluating, and mitigating risks while prioritizing the welfare of patients, staff, assets, visitors, and the organization's mission. In research, understanding the current state of the field and identifying knowledge gaps is essential (Boote and Beile, 2005). Studies on healthcare supply chain risks highlight the need for comprehensive risk management frameworks and effective mitigation strategies. This study will examine healthcare risk management practices at Shaam Hospital, addressing risk identification, assessment, mitigation, and technology integration. Additionally, it explores supply chain risk management within healthcare, focusing on risk factors, mitigation strategies, and performance assessment.

2. RISK MANAGEMENT

Risk management is a structured process for identifying, evaluating, and responding to potential risks to protect assets and mitigate financial damage (Singh & Ghatala, 2012). It involves proactive identification and action to reduce or eliminate risks. Projects often encounter unexpected events with positive or negative outcomes. Positive outcomes present opportunities, while negative ones result in losses (Robert, 1992). A structured approach helps find operational flaws and implement measures to mitigate risks. The Australian Standard for Risk Management (AS/NZS 4360:1999) outlines seven iterative sub-processes: establishing the risk context, identifying risks, analyzing risks, rating risks, communicating with stakeholders, and monitoring and controlling risk occurrences (Ahmed et al., 2003). Effective risk management requires defining project components and their interactions, using tools such as project network diagrams, design structure matrices (DSM), general activity networks (GAN), and precedence diagramming methodologies (PDM).

Risk identification involves analyzing the current state of a project's progress. Methods like checklists, influence diagrams, cause-and-effect diagrams, hazard and operability studies (HAZOP), and failure mode analysis help identify risk scenarios (Ahmed, Kayis, & Amornsawadwatana, 2007). Risk measures include likelihood and consequence, used to compute risk size and develop mitigation strategies. Risk analysis determines the impact of risk factors on a project. Aggregating and managing risk events at a higher level prevents micromanagement. Techniques like probability impact grids, fault tree analysis, event tree analysis, sensitivity analysis, and

simulation aid risk analysis (Clemen, 1996). Developing risk mitigation options involves evaluating project strategies, budgets, and timelines. Portfolio management, decision tree analysis, and multiple criteria decision-making methodologies help create risk mitigation plans (Ahmed et al., 2003). A proactive approach involves precautions like insurance, while a reactive approach begins contingency planning (DeMaio et al., 1994). Creating a risk-management strategy requires understanding the type of risk, whether pure or speculative. Pure risks, such as fire or theft, result in negative outcomes, while speculative risks, like financial securities, can have both positive and negative outcomes (Power, 2006). The evolution of risk management has broadened its focus from pure risks to include market risks, given financial uncertainties.

To provide a comprehensive risk management strategy, it's essential to understand the types of risks identified: pure risks and speculative risks. Pure risks include scenarios like fire, accidents, and theft, whereas speculative risks involve financial elements like stocks, credit, and commodities that can result in both positive and negative outcomes (Power, 2006). Power suggests replacing the term "pure risk" with "empirical risk" to reflect its natural origin and "speculative risk" with "market risk" to emphasize financial uncertainty. Initially, businesses were less concerned about financial risks due to stable interest rates and controlled currency values (D'Arcy & Keogh, 1999). However, the volatility of prices, interest rates, and exchange rates has made financial risk a primary concern, necessitating its inclusion in risk assessments (Sampieri et al., 2001). Risk management is a proactive, collaborative strategy involving the identification, assessment, and mitigation of risks. Collier (2009) describes enterprise risk management as developing a risk management culture within an organization, viewing risks as both dangers and opportunities. It aims to maintain progress by identifying and reducing negative risk events or performance issues.

2.1 RISK MANAGEMENT IN HEALTHCARE

Healthcare is a multifaceted sector encompassing a variety of functions, technical focuses, and organizational structures, including public, quasi-public, and private interests, as well as for-profit and non-profit firms. The complexity and diverse funding methods make defining healthcare challenging. Healthcare risk management is critical in identifying, assessing, and mitigating various risks within healthcare services. Carver and Torsiello (2017) describe it as a systematic and comprehensive approach aimed at protecting patients, healthcare providers, and organizations. This encompasses clinical, operational, financial, and legal risks, ensuring patient safety, regulatory compliance, and quality care. Patient safety is a primary concern, addressing risks like medication errors, infections, surgical complications, and diagnostic errors. Strategies include implementing protocols, procedures, and technologies to minimize these risks, as emphasized by the Agency for Healthcare Research and Quality (AHRQ).

Operational risk management ensures healthcare facilities function efficiently, handling supply chain disruptions, staffing issues, and infrastructure failures. Effective management involves contingency planning, resource allocation, and process optimization, as noted by Salami et al. (2024). Financial risks, such as healthcare costs, insurance, and regulatory compliance, pose significant challenges. Risk management includes financial planning, budgeting, and insurance coverage to maintain financial stability (Coleman & Steele). Legal and regulatory compliance is crucial, given the complex web of healthcare regulations. Failure to comply can lead to legal disputes and financial penalties. Efforts focus on meeting all legal and regulatory obligations, as emphasized by AbouZaid et al. (2020). Thus, healthcare risk management is essential for safeguarding the industry's integrity and ensuring patient well-being. It addresses patient safety, operational efficiency, financial stability, and legal compliance through systematic risk identification, assessment, and mitigation, aiming to provide safe, efficient, and high-quality care while navigating the complexities of the healthcare landscape.

2.2 HEALTHCARE RISK MITIGATION AND PREVENTION STRATEGIES IN UAE

Healthcare risk mitigation and prevention strategies are crucial for ensuring the safety and well-being of patients and staff, as well as maintaining the operational efficiency of healthcare institutions. At Shaam Hospital UAE, implementing comprehensive risk management frameworks helps identify potential hazards, assess their impact, and develop strategies to prevent or mitigate adverse outcomes. A robust risk management approach includes continuous monitoring, staff training, and advanced technologies to promptly detect and respond to risks. Effective risk mitigation begins with thorough risk assessments. This involves identifying potential risks through regular audits, incident reporting systems, and feedback from healthcare professionals and patients. By analyzing these data points, Shaam Hospital can prioritize risks based on severity and likelihood, enabling targeted interventions. For example, the hospital's risk management team can implement measures to reduce healthcare-associated infections (HAIs) by adopting stringent hygiene protocols and regular staff training (Almeida, 2023).

A critical component of healthcare risk prevention at Shaam Hospital is technology. Electronic Health Records (EHRs) and Clinical Decision Support Systems (CDSS) help reduce medication errors, improve diagnostic accuracy, and enhance overall patient care. These systems provide healthcare professionals with real-time access to patient data, facilitating informed decision-making and reducing the likelihood of adverse events. Additionally, implementing automated alert systems can help early detection of potential issues, allowing for timely interventions (Smith et al., 2022). Staff training and education play a pivotal role in healthcare risk mitigation. Regular training sessions on best practices, emergency response protocols, and the latest healthcare technologies ensure that Shaam Hospital staff are well-prepared for various risk scenarios. Continuous professional development programs keep healthcare workers updated on the latest trends and advancements in patient safety, fostering a culture of continuous improvement and vigilance (Brown, 2022).

Fostering a culture of safety at Shaam Hospital is another crucial aspect of risk prevention. Encouraging open communication and a non-punitive approach to incident reporting helps identify and address potential risks before they escalate into serious issues. Promoting a culture where staff feel comfortable reporting near misses and errors allows the hospital to gain valuable insights into system vulnerabilities and implement corrective actions to prevent recurrence (Jones et al., 2021). Effective risk management also requires collaboration and coordination among different departments within the hospital. Multidisciplinary teams, including physicians, nurses, pharmacists, and administrative staff, can work together to develop comprehensive risk mitigation strategies. These teams can conduct regular reviews of clinical practices, analyze incident reports, and implement process improvements to enhance patient safety and care quality. Such collaborative efforts ensure that risk management is a shared responsibility and that all stakeholders are aligned in their commitment to patient safety (Patel & Green, 2022).

Finally, continuous evaluation and improvement of risk mitigation strategies are essential to keep pace with the evolving healthcare landscape. At Shaam Hospital, regular audits, feedback loops, and performance metrics assess the effectiveness of implemented strategies. By staying adaptable and responsive to new challenges and opportunities, the hospital can ensure its risk management practices remain robust and effective in safeguarding patient health and safety (Miller et al., 2023). An effective healthcare risk mitigation and prevention strategies at Shaam Hospital UAE involve a combination of thorough risk assessments, technological integration, staff training, fostering a culture of safety, interdisciplinary collaboration, and continuous improvement. These strategies collectively contribute to minimizing risks and enhancing the quality of patient care, ultimately leading to better health outcomes and operational efficiency.

2.3 HEALTHCARE RISKS

Healthcare risks at Shaam Hospital UAE, as in many healthcare facilities, are multifaceted and can significantly impact patient outcomes, staff safety, and overall hospital performance. One of the most pressing risks is the potential for hospital-acquired infections (HAIs). Despite stringent hygiene protocols, HAIs remain a prevalent issue, contributing to extended hospital stays, increased medical costs, and heightened mortality rates (Khan et al., 2023). Effective infection control measures, including rigorous hand hygiene practices and the use of advanced sterilization techniques, are critical in mitigating this risk (World Health Organization, 2022). Another significant risk in healthcare is medication errors. These errors can occur at various stages, including prescribing, dispensing, and administration. They often result from factors such as miscommunication, inadequate staff training, and system errors (Institute for Safe Medication Practices, 2023). Implementing electronic health records (EHRs) and computerized physician order entry (CPOE) systems has shown promise in reducing these errors by ensuring accurate and complete medication information is available to healthcare providers (AHRQ, 2023).

The management of chronic diseases presents another layer of risk, particularly in a hospital setting like Shaam Hospital. Chronic conditions such as diabetes, cardiovascular diseases, and hypertension require ongoing monitoring and management. The failure to adequately manage these conditions can lead to severe complications and increased hospital admissions (Johnson et al., 2022). Integrating comprehensive care plans and patient education programs can help in managing chronic diseases more effectively, reducing the burden on the healthcare system (National Institute for Health and Care Excellence, 2023). Workplace safety for healthcare workers is another critical area of concern. Healthcare professionals at Shaam Hospital face risks such as exposure to infectious diseases, physical injuries, and mental health challenges due to high-stress environments (Occupational Safety and Health Administration, 2023). Ensuring a safe working environment through regular training, adequate protective equipment, and mental health support services is essential in maintaining the well-being of healthcare workers and ensuring they can provide the best care to patients (American Nurses Association, 2023).

Technological advancements, while beneficial, also introduce new risks. The increasing reliance on digital systems and medical devices raises concerns about cybersecurity and data breaches. Protecting patient data and ensuring the security of medical devices is paramount in preventing unauthorized access and potential misuse of sensitive information (Cybersecurity and Infrastructure Security Agency, 2023). Robust cybersecurity measures and continuous monitoring of digital infrastructure are necessary to safeguard against these threats (Healthcare Information and Management Systems Society, 2023). Financial risks are inherent in healthcare management, with hospitals like Shaam Hospital facing challenges related to funding, budget constraints, and cost management. Ensuring financial stability while maintaining high-quality care requires efficient resource allocation and strategic planning (Healthcare Financial Management Association, 2023). Innovative financial strategies, such as value-based care models, can help in optimizing costs and improving patient outcomes (Porter & Kaplan, 2023).

Lastly, the risk of natural disasters and emergencies poses a significant challenge to healthcare facilities. Shaam Hospital, like many others, must have robust emergency preparedness plans to handle situations such as pandemics, natural disasters, and other crises (World Health Organization, 2023). Developing comprehensive disaster response plans, conducting regular drills, and ensuring adequate supplies and resources are crucial in maintaining operational continuity during emergencies (Centers for Disease Control and Prevention, 2023).

2.3.1 CLINICAL AND PATIENT CARE RISKS

Clinical and patient care risks are significant concerns in healthcare settings, including Shaam Hospital UAE. These risks encompass a broad range of issues, from diagnostic errors and medication mishaps to procedural complications and inadequate patient monitoring. Recent studies emphasize that diagnostic errors remain a leading cause of patient harm, often resulting from cognitive biases, lack of adequate information, and communication breakdowns among healthcare providers (Graber et al., 2018). At Shaam Hospital, implementing robust diagnostic protocols and fostering a culture of collaboration and continuous learning can help mitigate these risks. Medication errors are another critical aspect of clinical and patient care risks. These errors can occur at various stages, including prescribing, dispensing, and administration, and are often attributed to factors such as similar drug names, unclear labeling, and lack of proper patient information (Gandhi et al., 2019). To address this at Shaam Hospital, it is essential to employ technology-driven solutions like computerized physician order entry (CPOE) systems, barcode medication administration (BCMA), and comprehensive electronic health records (EHRs). These technologies can significantly reduce the incidence of medication errors by providing real-time alerts and ensuring accurate patient information management.

Procedural complications represent a substantial risk in clinical care. Surgical procedures, in particular, carry inherent risks, including infections, anesthesia complications, and post-operative issues. Research indicates that adherence to standardized surgical protocols, such as the World Health Organization's Surgical Safety Checklist, can markedly reduce these risks (Haynes et al., 2018). At Shaam Hospital, strict adherence to such protocols, coupled with continuous staff training and simulation exercises, can enhance surgical safety and improve patient outcomes. Regular audits and feedback mechanisms can also ensure compliance and identify areas for improvement. Inadequate patient monitoring is another significant risk factor that can lead to severe complications, including patient deterioration that goes unnoticed until it becomes critical. Effective patient monitoring involves not only the use of advanced monitoring equipment but also the presence of adequately trained staff who can interpret and act on the data. Studies highlight the importance of integrating early warning systems and rapid response teams to promptly address any signs of patient distress (Jones et al., 2019). For Shaam Hospital, investing in these systems and ensuring continuous staff education on their use can prevent adverse events and enhance patient safety.

Finally, the interplay between clinical risks and patient care quality underscores the need for a comprehensive risk management framework at Shaam Hospital. This framework should include regular risk assessments, staff training programs, patient education, and the implementation of best practices in clinical care. Creating a culture that prioritizes patient safety, encourages open communication, and leverages technology can significantly reduce clinical and patient care risks (Carayon et al., 2020). Continuous improvement initiatives, guided by data and patient feedback, can help maintain high standards of care and minimize risks, ensuring better health outcomes for patients.

2.3.2 OPERATIONAL AND RESOURCE RISKS

Operational and resource risks are significant challenges in healthcare settings, particularly in institutions like Shaam Hospital UAE. These risks encompass a wide range of issues, including staffing shortages, inefficient resource allocation, and system failures, which can directly impact the quality and safety of patient care. Studies have shown that hospitals with inadequate operational and resource management often experience higher rates of adverse events and lower patient satisfaction (Willis et al., 2018). In a high-demand environment, ensuring that resources are appropriately allocated and managed is crucial for maintaining operational efficiency and delivering optimal patient care. Staffing shortages are a

primary operational risk that can severely affect the functionality of healthcare services. Insufficient staffing levels, particularly of critical healthcare professionals such as nurses and doctors, can lead to increased workload, burnout, and higher rates of medical errors (Aiken et al., 2018). At Shaam Hospital, addressing staffing shortages through strategic recruitment, retention strategies, and workforce planning is essential. Research indicates that hospitals with adequate staffing levels not only improve patient outcomes but also enhance staff morale and reduce turnover rates, thereby fostering a more stable and efficient healthcare environment (Dall'Ora et al., 2020).

Inefficient resource allocation is another critical aspect of operational risks. This includes the mismanagement of financial resources, medical supplies, and equipment. Studies have highlighted that resource misallocation can lead to bottlenecks in patient care processes, delayed treatments, and increased operational costs (Feng et al., 2019). At Shaam Hospital, implementing robust financial management and inventory control systems can help ensure that resources are used efficiently and effectively. Additionally, regular audits and performance reviews can identify areas where resources may be wasted or underutilized, allowing for timely corrective actions. System failures, including technological and infrastructural breakdowns, also pose significant operational risks. Healthcare systems rely heavily on technology for patient records, diagnostics, and treatment plans. Any disruption in these systems can lead to delays in care, errors in patient information, and compromised patient safety (Ash et al., 2020). For Shaam Hospital, investing in reliable and up-to-date technology, along with comprehensive maintenance and support plans, is crucial. Furthermore, developing contingency plans and conducting regular emergency drills can prepare the hospital to effectively manage and mitigate the impact of system failures.

Lastly, the integration of effective risk management frameworks is vital for addressing operational and resource risks. Such frameworks involve identifying potential risks, assessing their impact, and implementing strategies to mitigate them (Cagliano et al., 2019). At Shaam Hospital, adopting a proactive approach to risk management can significantly enhance operational resilience. This includes training staff on risk awareness, fostering a culture of continuous improvement, and utilizing data analytics to predict and manage risks. By embedding risk management into the core operations, Shaam Hospital can improve its capability to anticipate and respond to operational challenges, thereby ensuring sustained high-quality patient care.

2.4.3 REGULATORY AND LEGAL RISKS

Regulatory and legal risks are significant concerns for healthcare institutions, including Shaam Hospital UAE, as they directly impact the hospital's compliance with laws and regulations, thereby influencing its operational and financial stability. Regulatory risks arise from the need to adhere to various healthcare standards, such as patient privacy laws, medical record-keeping requirements, and safety protocols. Non-compliance can lead to severe consequences, including fines, legal actions, and reputational damage (Field, 2018). In the UAE, healthcare providers must navigate a complex regulatory landscape that includes both local and international standards, making it imperative for Shaam Hospital to maintain robust compliance mechanisms.

Legal risks in healthcare are multifaceted, encompassing issues related to malpractice, patient rights, and employment laws. Malpractice claims, in particular, pose a substantial threat to hospitals, as they can result in costly litigation and settlements (Bismark & Studdert, 2020). For Shaam Hospital, the risk of malpractice claims underscores the necessity of stringent clinical governance and comprehensive training programs for healthcare professionals. Ensuring that all staff are well-versed in the latest clinical guidelines and legal requirements is crucial for minimizing the risk of legal actions stemming from medical errors or negligence. Patient privacy and data protection are critical regulatory concerns that have gained prominence with the increasing digitization of healthcare records. The UAE has stringent regulations governing the handling of patient information, and breaches can lead to severe

penalties (Al Ameen et al., 2019). For Shaam Hospital, implementing advanced cybersecurity measures and ensuring strict adherence to data protection laws is essential to safeguard patient information. Regular audits and staff training on data privacy can help mitigate the risks associated with data breaches and ensure compliance with relevant regulations.

Employment law compliance also presents a significant regulatory risk for healthcare institutions. Issues such as fair labor practices, workplace safety, and employee rights are governed by stringent laws in the UAE (Al Suwaidi, 2020). Shaam Hospital must ensure that its employment policies and practices are aligned with these legal requirements to avoid potential disputes and legal actions. This includes providing adequate training, ensuring fair working conditions, and maintaining transparent communication channels with employees. The cumulative impact of regulatory and legal risks necessitates a proactive and comprehensive risk management approach. For Shaam Hospital, this involves not only adhering to existing laws and regulations but also staying abreast of changes in the regulatory environment (Chandra & Sun, 2019). Developing a robust compliance program that includes regular risk assessments, continuous monitoring, and employee education can help mitigate these risks. Additionally, fostering a culture of transparency and accountability within the organization can enhance compliance and reduce the likelihood of regulatory and legal infractions.

2.4 HEALTHCARE RISK MITIGATION AND PREVENTION STRATEGIES

Healthcare risk mitigation and prevention strategies are critical in ensuring the safety and well-being of patients, staff, and the overall operational efficiency of healthcare institutions. At Shaam Hospital UAE, implementing comprehensive risk management frameworks is essential to identify potential hazards, assess their impact, and develop strategies to prevent or mitigate adverse outcomes. A robust risk management approach includes continuous monitoring, staff training, and the integration of advanced technologies to detect and respond to risks promptly. Effective risk mitigation begins with a thorough risk assessment process. This involves identifying potential risks through regular audits, incident reporting systems, and feedback from healthcare professionals and patients. By analyzing these data points, Shaam Hospital can prioritize risks based on their severity and likelihood, allowing for targeted interventions. For instance, the hospital's risk management team can implement measures to reduce the incidence of healthcare-associated infections (HAIs) by adopting stringent hygiene protocols and regular staff training (Almeida, 2023).

One of the critical components of healthcare risk prevention at Shaam Hospital is the use of technology. Electronic Health Records (EHRs) and Clinical Decision Support Systems (CDSS) are invaluable tools that help in reducing medication errors, improving diagnostic accuracy, and enhancing overall patient care. These systems provide healthcare professionals with real-time access to patient data, facilitating more informed decision-making and reducing the likelihood of adverse events. Additionally, implementing automated alert systems can help in early detection of potential issues, allowing for timely interventions (Smith et al., 2022). Staff training and education play a pivotal role in healthcare risk mitigation. Regular training sessions on best practices, emergency response protocols, and the latest healthcare technologies ensure that the staff at Shaam Hospital are well-prepared to handle various risk scenarios. Continuous professional development programs also keep healthcare workers updated on the latest trends and advancements in patient safety, fostering a culture of continuous improvement and vigilance (Brown, 2022).

Another crucial aspect of risk prevention at Shaam Hospital is fostering a culture of safety. Encouraging open communication and a non-punitive approach to incident reporting helps in identifying and addressing potential risks before they escalate into serious issues. By promoting a culture where staff feel comfortable reporting near misses and errors, the hospital can gain valuable insights into system vulnerabilities

and implement corrective actions to prevent recurrence (Jones et al., 2021). Collaboration and coordination among different departments within the hospital are vital for effective risk management. Multidisciplinary teams that include physicians, nurses, pharmacists, and administrative staff can work together to develop comprehensive risk mitigation strategies. These teams can conduct regular reviews of clinical practices, analyze incident reports, and implement process improvements to enhance patient safety and care quality. Such collaborative efforts ensure that risk management is a shared responsibility and that all stakeholders are aligned in their commitment to patient safety (Patel & Green, 2022). Finally, continuous evaluation and improvement of risk mitigation strategies are essential to keep pace with the evolving healthcare landscape. At Shaam Hospital, regular audits, feedback loops, and performance metrics are utilized to assess the effectiveness of implemented strategies. By staying adaptable and responsive to new challenges and opportunities, the hospital can ensure that its risk management practices remain robust and effective in safeguarding patient health and safety (Miller et al., 2023).

In conclusion, effective healthcare risk mitigation and prevention strategies at Shaam Hospital UAE involve a combination of thorough risk assessments, technological integration, staff training, fostering a culture of safety, interdisciplinary collaboration, and continuous improvement. These strategies collectively contribute to minimizing risks and enhancing the quality of patient care, ultimately leading to better health outcomes and operational efficiency.

2.4.1 IMPLEMENTATION OF COMPREHENSIVE INFECTION CONTROL PROGRAMS

The implementation of comprehensive infection control programs is critical in mitigating healthcare-associated infections (HAIs), which pose significant risks to patient safety and outcomes. Infection control programs encompass a range of strategies designed to prevent the spread of infectious diseases within healthcare settings. These strategies include standard precautions, hand hygiene, sterilization of medical equipment, and isolation procedures. Studies have shown that robust infection control programs are associated with significant reductions in HAIs, underscoring their importance in healthcare risk management (Haque et al., 2020). At Shaam Hospital UAE, establishing a comprehensive infection control program can play a vital role in safeguarding patient health and enhancing overall healthcare quality.

Hand hygiene is a cornerstone of infection control programs. Proper hand hygiene practices among healthcare workers are essential in preventing the transmission of infectious agents. The World Health Organization (WHO) recommends the use of alcohol-based hand rubs and regular handwashing with soap and water as key measures in infection control (Allegranzi & Pittet, 2021). In Shaam Hospital, promoting hand hygiene through regular training, visible reminders, and easy access to hand hygiene facilities can significantly reduce the risk of HAIs. Compliance monitoring and feedback mechanisms are also crucial in ensuring that hand hygiene practices are consistently followed.

Sterilization and disinfection of medical equipment are other critical components of infection control programs. Contaminated medical instruments can serve as vectors for infection, leading to serious complications for patients. Effective sterilization protocols, including the use of autoclaves and chemical disinfectants, are necessary to eliminate pathogens from medical devices (Rutala & Weber, 2019). Shaam Hospital can benefit from implementing stringent sterilization processes and regularly auditing these practices to ensure compliance with established standards. Additionally, continuous education and training for staff on the latest sterilization techniques can enhance the effectiveness of these protocols. Isolation procedures for patients with infectious diseases are vital in preventing the spread of infections within the hospital. Isolation involves the physical separation of patients with contagious conditions to minimize contact with other patients, visitors, and healthcare workers. The use of

personal protective equipment (PPE), such as gowns, gloves, and masks, is essential in isolation settings (Karan et al., 2020). At Shaam Hospital, establishing clear guidelines for isolation practices and ensuring that staff are adequately trained in the use of PPE can reduce the risk of cross-contamination. Regular drills and simulations can also help staff stay prepared for managing infectious disease outbreaks.

Comprehensive infection control programs require ongoing assessment and improvement to remain effective. Continuous surveillance of infection rates, coupled with regular feedback and reporting, can help identify areas for improvement and track the success of implemented measures (Magill et al., 2021). At Shaam Hospital, establishing a dedicated infection control team to oversee these activities can enhance program effectiveness. This team can conduct regular risk assessments, develop action plans for identified risks, and ensure that infection control practices are aligned with the latest evidence-based guidelines. By prioritizing infection control, Shaam Hospital can significantly reduce healthcare risks and improve patient safety outcomes.

2.4.2 ENHANCEMENT OF MEDICATION SAFETY SYSTEMS

The enhancement of medication safety systems is a critical strategy for mitigating healthcare risks at Shaam Hospital UAE. Medication errors, which include incorrect dosages, improper administration, and dispensing mistakes, are a significant source of preventable harm in healthcare settings. Implementing advanced medication safety systems such as computerized physician order entry (CPOE), electronic prescribing, and barcode medication administration (BCMA) can greatly reduce these errors. These technologies streamline the medication management process, ensuring accuracy and consistency, which is essential for patient safety (Bates et al., 2018). Computerized physician order entry (CPOE) systems are particularly effective in reducing medication errors. CPOE systems allow physicians to enter medication orders directly into an electronic system, reducing the risk of errors associated with handwriting misinterpretations and manual transcriptions. Additionally, CPOE systems often include clinical decision support tools that provide real-time alerts about potential drug interactions, allergies, and dosing errors (Slight et al., 2019). By integrating these systems into the daily operations at Shaam Hospital, the risk of medication-related adverse events can be significantly minimized.

Electronic prescribing (e-prescribing) further enhances medication safety by ensuring that prescriptions are accurately communicated to pharmacies. E-prescribing systems reduce the likelihood of errors caused by illegible handwriting and misunderstood verbal orders. They also facilitate the cross-referencing of patient records to check for contraindications and duplications in therapy (Odukoya & Chui, 2019). For Shaam Hospital, adopting e-prescribing can streamline the medication dispensing process and enhance coordination between healthcare providers and pharmacists, thereby improving overall medication safety. Barcode medication administration (BCMA) is another vital component of a comprehensive medication safety strategy. BCMA systems use barcodes on patient wristbands and medications to ensure the correct patient receives the correct medication at the correct dose and time. By scanning these barcodes, healthcare providers can verify the medication administration process, significantly reducing the risk of errors (Helmons et al., 2017). Implementing BCMA at Shaam Hospital can improve accuracy in medication administration, enhance patient safety, and provide an additional layer of verification that complements other medication safety systems.

The successful implementation of these technologies requires continuous training and support for healthcare staff. Regular training sessions and simulations can help staff become proficient in using these systems and understanding their importance in enhancing medication safety (Franklin et al., 2020). Moreover, continuous monitoring and evaluation of these systems are necessary to identify and address any issues promptly. At Shaam Hospital, fostering a culture that values patient safety and

encourages the adoption of technological advancements is crucial for the long-term success of these initiatives.

2.4.3 PROMOTION OF A STRONG SAFETY CULTURE

Promoting a strong safety culture within healthcare institutions like Shaam Hospital UAE is paramount to mitigating risks and preventing adverse events. A safety culture is defined by the shared values, attitudes, and behaviors that prioritize safety in healthcare settings. Research underscores that a robust safety culture leads to fewer medical errors and better patient outcomes (Halligan & Zecevic, 2019). At Shaam Hospital, fostering such a culture involves commitment from all levels of the organization, from senior leadership to frontline staff. Leadership must model safety-oriented behaviors and establish clear policies that reinforce the importance of patient safety in everyday operations. Key elements of a strong safety culture include open communication, continuous education, and non-punitive reporting systems. Open communication ensures that all staff members feel comfortable discussing safety concerns without fear of retribution. Studies have shown that when healthcare professionals can freely report errors and near misses, it leads to a significant reduction in adverse events (Manser, 2019). At Shaam Hospital, implementing anonymous reporting systems and conducting regular safety huddles can enhance transparency and encourage proactive problem-solving. Additionally, continuous education and training are essential for keeping staff updated on best practices and new safety protocols.

A non-punitive approach to error reporting is critical for maintaining a culture of safety. Blame-free environments encourage healthcare workers to report mistakes and near misses, which provides valuable data for identifying patterns and preventing future incidents (Bowie et al., 2020). At Shaam Hospital, establishing a system where errors are seen as opportunities for learning rather than punishment can lead to more comprehensive safety strategies. This approach not only improves patient safety but also boosts staff morale, as employees feel supported and valued rather than penalized for their honesty. Leadership plays a crucial role in shaping and sustaining a safety culture. Effective leaders prioritize safety by allocating resources, setting clear expectations, and regularly engaging with staff on safety issues (Ginsburg et al., 2021). At Shaam Hospital, leaders can demonstrate their commitment by actively participating in safety rounds, recognizing and rewarding safe practices, and ensuring that safety is a core component of the hospital's strategic objectives. Leadership visibility and involvement can significantly influence the attitudes and behaviors of staff towards safety.

Finally, continuous quality improvement (CQI) initiatives are vital for maintaining a strong safety culture. CQI involves the ongoing assessment and enhancement of healthcare processes to improve patient outcomes and reduce risks (James & Savitz, 2019). At Shaam Hospital, implementing CQI programs such as Plan-Do-Study-Act (PDSA) cycles can help systematically identify issues and implement effective solutions. Regular audits, feedback mechanisms, and patient safety indicators are tools that can be used to measure progress and ensure that safety remains a top priority. By embedding CQI into the organizational fabric, Shaam Hospital can sustain a culture of safety that evolves and improves over time.

3. METHODOLOGY

Literature review and questionnaire survey were used to achieve study goals. A literature review examines academic research journals, textbooks, and online resources to identify, assess, and propose ways to identify the risks related to healthcare faced globally. Quantitative study used stratified simple random sampling was adopted to collect data. The data collected for this research was analyzed using SPSS version 22 to meet research objectives. The mean and standard deviation

analysis were used to rank the parameters investigated parameters of risks and the strategies to mitigate the risks.

4. RESULTS AND DISCUSSIONS

Questionnaire survey was performed to collect the data which was analyzed to drive the conclusion as discussed in the following sub-sections.

4.1 RANKING OF THE RISK FACTORS

Data was analyzed with standard deviation and mean values to rank. The ranking of the regulatory and legal risks is presented in table 1.

Table 1. Ranking of the Regulatory and Legal Risks

Regulatory and Legal Risks	Std. Deviation	Mean	Ranking
Regulatory audits are conducted regularly to ensure legal compliance in operations	4.48	.735	1st
Healthcare staff are well-informed about legal obligations related to patient care.	4.44	1.091	2nd
We regularly review compliance with healthcare laws and regulations.	4.36	1.025	3rd
The hospital has clear policies in place to handle legal claims or liabilities.	4.02	1.186	4th
Our facility complies with all applicable healthcare regulations	3.62	1.260	5th

The table 1 evaluates regulatory and legal risks in a healthcare setting, ranking items based on mean scores, with standard deviation reflecting response variability. The highest-ranked item, "Regulatory audits are conducted regularly to ensure legal compliance in operations," has the highest mean (4.48) and lowest variability (0.735), indicating strong agreement and consistency among respondents. "Healthcare staff are well-informed about legal obligations related to patient care" follows as the second-ranked item (mean 4.44, SD 1.091), suggesting effective awareness but slightly more varied perceptions. Third, "We regularly review compliance with healthcare laws and regulations" (mean 4.36, SD 1.025) reflects consistent efforts in compliance checks. The fourth-ranked item, "The hospital has clear policies in place to handle legal claims or liabilities" (mean 4.02, SD 1.186), shows moderate agreement with higher variability. Lastly, "Our facility complies with all applicable healthcare regulations" (mean 3.62, SD 1.260) ranks lowest, indicating the least agreement and greatest variability, potentially highlighting an area for improvement. The ranking of the operational and resource Risks is presented in table 2.

Table 2. Ranking of the Operational and Resource Risks

Operational and Resource Risks	Std. Deviation	Mean	Ranking
There is effective management of hospital equipment and supplies.	4.08	1.122	1st
Staff shortages significantly affect the quality of patient care	4.04	1.124	2nd
Our healthcare facility has sufficient resources to handle daily operations efficiently	4.02	1.116	3rd
We are prepared for operational disruptions such as power outages or system failures.	3.90	1.216	4th

The workload of staff is well-distributed, minimizing burnout and ensuring patient care quality.	3.66	1.255	5th
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The table 2 assesses Operational and Resource Risks in a healthcare facility, ranking items based on mean scores, with standard deviation indicating response variability. The highest-ranked item, "There is effective management of hospital equipment and supplies" (mean 4.08, SD 1.122), reflects a strong consensus on effective resource management. Closely following is "Staff shortages significantly affect the quality of patient care" (mean 4.04, SD 1.124), suggesting agreement on the impact of staffing issues. "Our healthcare facility has sufficient resources to handle daily operations efficiently" ranks third (mean 4.02, SD 1.116), showing relatively positive perceptions but room for improvement. Fourth, "We are prepared for operational disruptions such as power outages or system failures" (mean 3.90, SD 1.216) reveals moderate agreement, with slightly higher variability. Lastly, "The workload of staff is well-distributed, minimizing burnout and ensuring patient care quality" (mean 3.66, SD 1.255) ranks lowest, highlighting a key concern regarding staff workload and its impact on care quality. The ranking of the clinical and patient care Risks are presented in table 3.

Table 3. Ranking of the Clinical and Patient Care Risks

Clinical and Patient Care Risks	Std. Deviation	Mean	Ranking
The hospital ensures timely and accurate diagnosis for all patients.	3.96	1.177	1st
We have a reliable system for reporting and addressing patient care incidents.	3.94	1.202	2nd
Patient care protocols are regularly reviewed and updated	3.64	1.352	3rd
Our facility has effective protocols in place to manage patient safety risks	3.38	1.510	4th
Clinical staff are adequately trained to minimize medical errors.	3.34	1.423	5th

The table 3 evaluates Clinical and Patient Care Risks in a healthcare facility, ranking items based on mean scores, with standard deviation indicating the variability of responses. The top-ranked item, "The hospital ensures timely and accurate diagnosis for all patients" (mean 3.96, SD 1.177), reflects relatively high agreement and moderate consistency among respondents. Following closely is "We have a reliable system for reporting and addressing patient care incidents" (mean 3.94, SD 1.202), suggesting that incident management systems are perceived as effective but with slightly more variability. "Patient care protocols are regularly reviewed and updated" ranks third (mean 3.64, SD 1.352), showing moderate agreement but highlighting room for improvement in protocol updates. Fourth, "Our facility has effective protocols in place to manage patient safety risks" (mean 3.38, SD 1.510) indicates lower confidence and higher response variability in safety measures. Lastly, "Clinical staff are adequately trained to minimize medical errors" (mean 3.34, SD 1.423) ranks lowest, signaling concerns about training adequacy and its impact on minimizing errors.

4.2 RANKING OF THE HEALTHCARE RISK MITIGATION AND PREVENTION STRATEGIES

Data was analyzed with standard deviation and mean values to rank. The ranking of the enhancement of medication safety system parameters are presented in table 4.

Table 4. Ranking of the Enhancement of Medication Safety Systems

Enhancement of Medication Safety Systems	Std. Deviation	Mean	Ranking
The hospital uses technology, such as barcoding or electronic prescribing, to enhance medication safety	4.02	1.020	1st
Clear protocols are in place for administering high-risk medications to minimize errors.	3.98	1.059	2nd
Medication reconciliation is performed at each stage of patient care to avoid errors	3.92	1.085	3rd
Regular training on medication safety practices is provided to healthcare professionals	3.54	1.313	4th
The hospital has implemented a system for reporting medication errors	3.30	1.389	5th

The table 4 assesses the Enhancement of Medication Safety Systems in a healthcare facility, ranking various practices based on their mean scores, with standard deviation reflecting the variability in responses. The highest-ranked item, "The hospital uses technology, such as barcoding or electronic prescribing, to enhance medication safety" (mean 4.02, SD 1.020), indicates strong agreement and relatively consistent responses regarding the role of technology in ensuring medication safety. "Clear protocols are in place for administering high-risk medications to minimize errors" ranks second (mean 3.98, SD 1.059), showing high confidence in error-minimizing protocols. Third, "Medication reconciliation is performed at each stage of patient care to avoid errors" (mean 3.92, SD 1.085) reflects moderately positive perceptions of this practice. Fourth, "Regular training on medication safety practices is provided to healthcare professionals" (mean 3.54, SD 1.313) indicates a need for more emphasis on training initiatives. Lastly, "The hospital has implemented a system for reporting medication errors" (mean 3.30, SD 1.389) ranks lowest, highlighting a significant area for improvement in error reporting systems. The ranking of the promotion of a strong safety culture related parameters are presented in table 5.

Table 5. Ranking of the Promotion of a Strong Safety Culture

Promotion of a Strong Safety Culture	Std. Deviation	Mean	Ranking
Safety rounds are regularly conducted to identify potential hazards and safety risks.	4.16	1.017	1st
Staff feel comfortable reporting safety concerns without fear of retaliation.	3.98	1.078	2nd
The hospital encourages teamwork and communication to improve patient safety.	3.96	1.124	3rd
The hospital promotes continuous learning and improvement in patient safety practices through feedback and training	3.34	1.624	4th
Hospital leadership actively promotes a culture of safety across all departments	2.24	1.222	5th

The table 5 evaluates the Promotion of a Strong Safety Culture within a healthcare facility, ranking items based on mean scores, with standard deviation indicating response variability. The highest-ranked item, "Safety rounds are regularly conducted to identify potential hazards and safety risks" (mean 4.16, SD 1.017), reflects strong agreement and consistent implementation of proactive safety measures. "Staff feel comfortable reporting safety concerns without fear of retaliation" ranks second (mean 3.98, SD 1.078), indicating a positive reporting environment. Third, "The hospital encourages teamwork and communication to improve patient safety" (mean

3.96, SD 1.124) highlights the value placed on collaboration for safety. However, "The hospital promotes continuous learning and improvement in patient safety practices through feedback and training" (mean 3.34, SD 1.624) ranks fourth, showing significant variability and a need for stronger emphasis on learning initiatives. Lastly, "Hospital leadership actively promotes a culture of safety across all departments" ranks lowest (mean 2.24, SD 1.222), signaling a critical gap in leadership's role in fostering a robust safety culture. The ranking of the implementation of comprehensive infection control programs related parameters are presented in table 6.

Table 6. Ranking of the Implementation of Comprehensive Infection Control Programs

Implementation of Comprehensive Infection Control Programs	Std. Deviation	Mean	Ranking
Hand hygiene compliance is regularly enforced and monitored throughout the hospital.	3.66	1.319	1st
The hospital ensures proper use of personal protective equipment (PPE) by staff.	3.54	1.297	2nd
The hospital has well-defined infection control policies and procedures in place.	3.48	1.249	3rd
Regular infection control training is provided to healthcare staff.	3.46	1.199	4th
Routine infection surveillance and monitoring are conducted to prevent hospital-acquired infections	3.40	1.325	5th

The table 6 assesses the Implementation of Comprehensive Infection Control Programs in a healthcare facility, ranking practices based on mean scores and standard deviation to reflect agreement and variability in responses. The highest-ranked item, "Hand hygiene compliance is regularly enforced and monitored throughout the hospital" (mean 3.66, SD 1.319), indicates a moderately positive perception of hand hygiene practices with some variability. "The hospital ensures proper use of personal protective equipment (PPE) by staff" ranks second (mean 3.54, SD 1.297), reflecting a fair level of adherence but room for improvement. Third, "The hospital has well-defined infection control policies and procedures in place" (mean 3.48, SD 1.249), suggests moderate confidence in policy clarity. Fourth, "Regular infection control training is provided to healthcare staff" (mean 3.46, SD 1.199), shows slightly lower agreement on the adequacy of training. Lastly, "Routine infection surveillance and monitoring are conducted to prevent hospital-acquired infections" ranks lowest (mean 3.40, SD 1.325), highlighting the need to enhance surveillance efforts to mitigate infection risks effectively.

5. CONCLUSION

Healthcare services in hospital settings are often plagued by various risks that can lead to adverse outcomes and operational inefficiencies. This study evaluated the healthcare risks as well as mitigating and corrective strategies at Shaam Hospital, UAE. The research utilized a quantitative methodology to collect data from hospital operational personnel. The Statistical Package for the Social Sciences (SPSS) was employed to conduct an extensive analysis of the data, identifying significant risk factors. The mean and standard deviation analysis were used to rank the parameters investigated parameters of risks and the strategies to mitigate the risks. From the results it was found that:

- In regulatory and legal risks; regulatory audits are conducted regularly to ensure legal compliance in operations, has the highest mean (4.48) and lowest variability (0.735), indicating strong agreement and consistency among respondents. While "Our facility complies with all applicable healthcare regulations" ranks lowest, indicating the least agreement and greatest variability, potentially highlighting an area for improvement.

- In operational and resource Risks, the highest-ranked item is "There is effective management of hospital equipment and supplies" which reflects a strong consensus on effective resource management. The workload of staff is well-distributed, minimizing burnout and ensuring patient care quality is ranked lowest, highlighting a key concern regarding staff workload and its impact on care quality.
- In clinical and patient care risks in a healthcare facility, "The hospital ensures timely and accurate diagnosis for all patients" is highest ranked reflecting relatively high agreement and moderate consistency among respondents. Clinical staff are adequately trained to minimize medical errors ranked lowest, signaling concerns about training adequacy and its impact on minimizing errors.
- The study evaluated mitigating and corrective strategies using mean and standard deviation analysis and the study revealed that in Enhancement of Medication Safety Systems, the highest-ranked item is "The hospital uses technology, such as barcoding or electronic prescribing, to enhance medication safety". Among the Promotion of a Strong Safety Culture, the highest-ranked item is "Safety rounds are regularly conducted to identify potential hazards and safety risks". Studying the implementation of comprehensive infection control programs, the highest-ranked item is "Hand hygiene compliance is regularly enforced and monitored throughout the hospital".

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