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ANALYSIS OF HOSPITAL MANAGEMENT IN PREVENTING NOSOCOMIAL INFECTIONS (A SYSTEMATIC LITERATURE REVIEW)

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ABSTRACT

Nosocomial infections or Healthcare-Associated Infections (HAIs) are serious issues threatening patient safety and quality of healthcare service. This study analyses effective hospital management practices that enhance coordination and communication among healthcare workers to prevent nosocomial infections. Through a Systematic Literature Review (SLR) approach, this study identifies and synthesizes empirical evidence from previous research. The results indicate that factors that prevent nosocomial infections include patient and family health education, strengthening surveillance systems and healthcare worker training, implementing hand hygiene programs, prudent antibiotic management, and improving motivation and compliance with infection prevention protocols among healthcare workers. Effective leadership, provision of adequate facilities, and support from hospital management are vital to the success of nosocomial infection prevention programs. This study provides practical recommendations for hospitals to optimize management in preventing nosocomial infections, such as improving healthcare worker coordination and communication, ensuring accurate reporting and surveillance, and strictly implementing infection prevention policies and guidelines. These findings contribute to developing comprehensive strategies to address the challenges of nosocomial infections and enhance overall healthcare quality.

Keywords: Nosocomial infections; hospital management; infection prevention; systematic literature review

1. INTRODUCTION

Infectious diseases continue to be a significant cause of high morbidity and mortality globally. One type of infection that has received particular attention is nosocomial infection, which a patient acquires during hospitalization without showing signs of infection at admission.

The main criterion for nosocomial infection is that symptoms of infection do not appear when the patient first receives care and are not in the incubation period of the infection. Symptoms of the infection usually appear at least 72 hours (3 days) after the patient begins their hospitalization, and the infection is not a continuation of a previous infection (Tampubolon, 2020).

Nosocomial infections, or healthcare-associated infections (HAIs), are infections acquired by patients during their stay in a hospital or healthcare facility that were not present or were not in an incubation period when the patient was admitted. These infections can occur in any part of the body, with the most common sites being the urinary tract, respiratory system, surgical wounds, and bloodstream (Septiani, 2020).

According to recent data published in a journal by Istiqomah and Nurhayati (2023), citing the World Health Organization (WHO) 2022 report, the number of nosocomial infections in acute care facilities worldwide reached approximately 8.9 million cases. Further findings reveal that 1 in every 10 patients hospitalized dies due to nosocomial infections. The spread of nosocomial infections is not uniform globally, with the highest rates in the Eastern Mediterranean region at 11.8% and Southeast Asia at 10%. This data highlights the importance of efforts to prevent and control nosocomial infections globally to improve patient safety and healthcare quality.

In developing countries such as Indonesia, the situation is even more concerning. Recent data shows that the prevalence of nosocomial infections in developing countries, including Indonesia, reaches 9.1%, with variations ranging from 6.1% to 16%. According to the Indonesian Ministry of Health, nosocomial infections in Indonesia reached 15.74%, far higher than the rates in developed countries, which range from 5.5% (Rima Ningsi, 2022).

The impact of nosocomial infections is not only felt by the patients but also extends to their families. Families often face additional burdens in terms of care and support, both physically and mentally. They may feel guilty or anxious about the patient's deteriorating condition, which can lead to significant emotional pressure. If the patient suffers complications or an increased risk of death, it can lead to profound emotional distress for the family and relatives involved. Thus, nosocomial infections affect patients' health and significantly impact the emotional and financial well-being of the patients and their families (Apriliyani, 2023).

In the scope of hospital management, occupational health and safety (OHS) for medical personnel are not only a responsibility but also a crucial factor in determining the success and survival of the institution. The threat of nosocomial infections, which endangers patients and healthcare workers, can disrupt hospital operations and undermine public trust.

In this context, systematic research on hospital management and its role in preventing nosocomial infections has become increasingly relevant. As the importance of coordination and communication in preventing nosocomial infections increases, studies using the Systematic Literature Review (SLR) methodology can provide valuable insights into the effectiveness of strategies that healthcare facilities have implemented.

Systematic Literature Review (SLR) is a method that systematically identifies, evaluates, and synthesizes relevant studies related to a specific research question. The purpose of SLR is to

collect and critically analyze all relevant empirical evidence according to pre-established inclusion and exclusion criteria (Wulandari, 2024).

Based on empirical evidence from previous studies, this study is important to analyze and synthesize effective hospital management practices in improving coordination and communication among healthcare workers to prevent nosocomial infections.

This research is beneficial for enriching the understanding of the complexity and dynamics of nosocomial infections in hospital settings. The findings are expected to provide valuable information for academics, healthcare practitioners, and other stakeholders and serve as an important reference for those interested and researchers in hospital management, infection control, and patient safety.

2. METHODS

This research uses a literature review method with a quantitative approach. Quantitative data such as statistics, numbers, and trends will be collected and analyzed objectively to describe the phenomena or variables being studied. This research employs a literature search strategy through online media, which includes searches on Google Scholar, PubMed, Elsevier, and NCBI.

Literature Review Process:

1. Search using keywords and publication year categories on search engines: In this step, the researcher will conduct a literature search using keywords relevant to the research topic. These keywords will be used to search across various search engines.
2. Selection based on the titles of relevant journals: After the search, the researcher will review the titles of the journals or publications found. At this stage, the researcher will select those journals or publications whose titles are relevant to the research topic.
3. Selection based on the inclusion criteria for research variables: The next step is to select journals or publications based on the inclusion criteria for the research variables. The researcher will check whether the variables studied in the journal or publication match those the researcher intends to investigate.
4. Selection based on the inclusion criteria for journal access and indexing: In this step, the researcher will ensure that the selected journals or publications are fully accessible and have a reputable journal index. This criterion is essential to guarantee the journal's or publication's quality and credibility.
5. Reviewing and evaluating the research data contributing to the discussed topic: After selecting based on the previous criteria, the researcher will examine and evaluate the research data found in the selected journals or publications. The researcher will ensure that the research data is relevant and contributes to the topic under investigation.
6. Analyzing and interpreting the selected research about the study topic: In this step, the researcher will analyze and interpret the research as it relates to the study topic. This analysis and interpretation will provide a deeper understanding of the studied topic.

7. Summarizing the research findings: After analyzing and interpreting the selected studies, the researcher will summarize the findings. The conclusion will address the research questions and offer a general overview of the studied topic.
8. Discussing the results of the analyzed research: Finally, the researcher will discuss the results. This discussion will include further interpretations, implications, limitations, and recommendations for future research.

Data Collection Method

1. Literature Search

In this step, the researcher will systematically search articles, journals, books, or other relevant literature sources related to the research topic. The search will be done through various academic databases, search engines, and other reference sources. Clear search criteria, such as keywords, publication year, and type of literature, must be established to ensure accurate and focused search results.

2. Literature Screening

After obtaining the search results, the next step is the screening process. The researcher will review each piece of literature based on the inclusion and exclusion criteria established beforehand. These criteria may include relevance to the topic, quality of the literature, research methodology, and other key aspects. The screening process aims to ensure that only high-quality and relevant literature is used for the analysis.

3. Data Analysis

The final stage of the literature-based data collection method is data analysis. The researcher will extract key information from the screened literature, including findings, methodologies, and conclusions. This data will be analyzed in-depth using appropriate analysis methods, such as narrative synthesis, meta-analysis, or thematic analysis. The goal is to identify patterns, trends, and implications from the literature findings concerning hospital management in preventing nosocomial infections.

Data Processing and Analysis Techniques

1. Selection of Literature Sources

The first step is to identify relevant literature sources. This is done by searching academic databases such as PubMed, Google Scholar, Elsevier, and NCBI to find journals, articles, books, and reports on hospital management and the prevention of nosocomial infections. Keywords related to the research topic must be used to ensure comprehensive search results. Once the literature sources are found, the next step is to perform an initial selection based on titles and abstracts.

2. Quality Evaluation

The next step is to evaluate the quality of each selected literature source. This ensures that the literature comes from reliable sources and has strong methodologies, such as peer-reviewed journals or official reports from reputable health organizations.

3. Data Extraction

After that, data from each selected literature source must be extracted. The extracted data may include information on the hospital management strategies used to prevent nosocomial infections, the factors affecting the implementation of these strategies, the outcomes of these strategies, and other important findings.

4. Data Synthesis

The next step is synthesizing the data from all the extracted literature sources. In this phase, the researcher identifies patterns, trends, similarities, differences, and key findings from the reviewed literature.

5. Critical Analysis

Critical analysis is performed on all the information collected. The researcher will review the strengths and weaknesses of each literature source and identify knowledge gaps that may require further research.

6. Data Presentation

Finally, the collected data must be presented in a systematic and comprehensive narrative form. The researcher will use a clear and logical structure to present their findings.

4. RESULTS AND DISCUSSION

1. Study Identification:

   In this step, 60 studies were obtained from Google Scholar, 40 from PubMed, 13 from Elsevier, and 25 from NCBI. The total number of studies obtained was 138.

2. Study Selection:

   The studies found were then screened based on their titles and abstracts. The researcher focused on four keywords: nosocomial infections, strategies, hospital management, and prevention. Out of the 138 studies, 79 studies passed the initial selection.

3. Study Eligibility:

   Next, the 43 studies that passed the initial selection were thoroughly reviewed (full-text) to assess their eligibility. The researcher evaluated the quality of the methodology and the relevance of each study to the research question.

4. Studies Included:

   The final stage shows the number of studies selected for inclusion in the systematic review. In this diagram, 15 studies were chosen. This means the 43 studies assessed in the previous step did not meet all the eligibility criteria and were not included in the systematic review.

The systematic literature review results, which used PRISMA as a research instrument, yielded 15 selected journals, which were then included in the analysis.

Key Findings on Nosocomial Infection Prevention:

1. Nosocomial Infection Rates and Their Variability

   Nosocomial infection rates in hospitals vary depending on several factors, such as the type of ward, patient condition, and the quality of medical services. Wards with high-risk patients tend to have higher infection rates. Other contributing factors include hospital cleanliness, staff adherence to health protocols, and the presence of effective infection prevention programs.

   Therefore, regular monitoring and evaluation of nosocomial infection rates are essential for assessing the effectiveness of infection prevention programs. This monitoring allows for identifying areas requiring improvement and ensures that preventive measures are consistently applied.

2. Prevention and Control Costs

   Implementing best practices for preventing nosocomial infections requires significant costs, including staff training, the purchase of sterile medical equipment, and enforcing strict health protocols. However, investing in infection prevention can provide long-term economic benefits by reducing treatment costs associated with nosocomial infections. A study by Tchouaket (2021) indicates that spending on preventive practices can reduce the long-term financial burden on hospitals by decreasing infection rates. Therefore, hospital management should consider prevention costs an effective and sustainable cost-saving measure.

3. Effectiveness of Health Education

   Health education for patients and their families can improve their knowledge and attitudes towards infection prevention. A study by Erni et al. (2024) shows that increasing awareness and knowledge of good hygiene practices can reduce nosocomial infection incidents. Comprehensive education programs, which include information on the importance of handwashing, the use of personal protective equipment, and the prevention of infection transmission, have proven effective in improving hygienic behaviour in hospital settings. Therefore, implementing continuous health education programs can be a key strategy in hospital management to reduce nosocomial infection rates.

4. Antibiotic Use and Resistance

   Antibiotic resistance is one of the significant challenges in controlling nosocomial infections. Improper use of antibiotics can exacerbate the problem of antibiotic resistance. According to a study by Lemiech-Mirowska (2021), antibiotic resistance is often caused by irrational use. To address this issue, strict policies and monitoring of antibiotic use in hospitals are necessary. Implementing effective antibiotic stewardship programs can help control antibiotic use and reduce the risk of resistance.

5. Motivation and Compliance of Healthcare Workers

   Motivation and compliance of healthcare workers play a crucial role in the success of nosocomial infection prevention programs. Research by Riani and Syafriani (2019) shows a

relationship between healthcare workers' motivation and compliance with infection prevention practices, such as hand hygiene. High motivation can improve compliance with health protocols, thus reducing the risk of nosocomial infections. Therefore, hospital management needs to consider strategies to enhance the motivation and compliance of healthcare workers, such as through training programs, incentives, and rewards.

6. Strengthening Surveillance Systems and Training

   An effective surveillance system is essential to ensure the accurate and representative reporting of nosocomial infections. Pezhman et al. (2021) recommend that the surveillance system be evaluated regularly to detect and report infections accurately. In addition, continuous training for all healthcare staff is crucial to maintaining a high level of knowledge and practices. Hospital management must ensure that the surveillance system functions well and that training programs are conducted consistently to prevent nosocomial infections.

7. Implementation of Nosocomial Infection Prevention and Control Program (PPI)

   Implementing the Nosocomial Infection Prevention and Control Program (PPI) in hospitals faces various challenges and shows variability in effectiveness. One major issue is the lack of commitment from all members of the PPI team and the shortage of necessary equipment. Pandeiroot, Niode, and Rampengan (2023) suggest that to address these challenges, hospitals need to organize meetings with management to secure sufficient support and funding. Furthermore, educating and motivating healthcare workers is crucial for enhancing the effectiveness of the PPI program.

8. Knowledge and Compliance of Healthcare Workers

   In general, healthcare workers' knowledge of infection prevention standards and practices is quite good. Research by Alhumaid et al. (2021) indicates that most healthcare workers understand precautionary measures. However, gaps remain in knowledge regarding vaccination, disease transmission methods, and the risks associated with needle usage. Non-compliance with infection prevention guidelines is caused by various factors that must be identified and addressed to improve adherence.

9. Implementation of Hand Hygiene Program

   The hand hygiene program at X Hospital in Yogyakarta is not optimal, with handwashing compliance reaching only 10%. According to Sundoro (2020), to increase compliance, it is recommended that ward heads and the PPI committee implement a routine of five scheduled handwashings, continuous monitoring, and education. This approach will help instil the importance of hand hygiene among healthcare workers and prevent the spread of nosocomial infections.

10. Relationship Between Management Functions and PPI Implementation

    Research by Putra Ritonga and Silaban (2022) shows a significant relationship between the management functions of ward heads and the implementation of nosocomial infection control programs. Effective management by ward heads contributes to the enhanced effectiveness of the PPI program. Ward heads who are actively involved in supervising and

supporting program implementation can ensure that all staff members appropriately follow infection prevention protocols.

11. Prevention of Urinary Tract Infections Due to Catheters

    Preventing urinary tract infections caused by catheter use can be achieved by following the appropriate guidelines for catheter indication, insertion, and removal. Nasrina Ayu Dhiya Maitsa (2021) emphasizes that adherence to these guidelines has effectively reduced infection rates. Implementing strict guidelines for catheter handling is crucial in reducing infection risks and improving patient care quality.

12. Reporting and Surveillance of HAIs

    Reporting and surveillance of Healthcare-Associated Infections (HAIs) is essential for identifying and controlling hospital infection rates. Faridath (2021) highlights the importance of surveillance reporting by the Infection Prevention and Control Nurse (IPCN) committee at Bhayangkara TK II Sartika Asih Hospital in Bandung. Timely and scheduled reporting of nosocomial infections such as phlebitis, decubitus ulcers, urinary tract infections (UTI), ventilator-associated pneumonia (VAP), and surgical site infections (SSI) reflects the success of the surveillance program. Accurate reporting aids in identifying infection trends, developing improved prevention strategies, and enhancing patient safety.

13. Nurse Leadership and Compliance

    Effective nurse leadership significantly impacts nurses' compliance with nosocomial infection prevention measures. Theresia (2020) concluded that effective leadership can enhance nurses' compliance with hand hygiene and glove use practices, thereby reducing the risk of infection transmission. Strong leadership and support from head nurses can create a work environment conducive to good infection prevention practices.

14. Motivation and Compliance with Hand Hygiene

    Motivation significantly correlates with nurses' compliance in performing hand hygiene practices. Riani and Syafriani (2019) recommend using incentives and penalties as an effective strategy to enhance compliance with hand hygiene practices. High motivation levels, whether through positive or negative incentives, can encourage nurses to adhere more strictly to hand hygiene protocols.

15. Knowledge and Compliance with Universal Precautions

    Most nurses understand and comply with universal precautions as a preventive measure for nosocomial infections. A study conducted by Wahyuni et al. (2021) shows that continuous education on universal precautions is crucial for maintaining high levels of knowledge and compliance. Through consistent training and learning, nurses can continually update their knowledge of infection prevention protocols and ensure their implementation in daily practice. This helps reduce the risk of infection spread in hospital settings and improves patient safety.

16. Compliance with PPI Guidelines

    Although many healthcare facilities know the national guidelines for nosocomial infection prevention, only a few implement them consistently. Ekanga et al. (2019) study revealed that accreditation standards, which are unfamiliar to many healthcare facilities, highlight the need to increase awareness and adherence to these guidelines. Raising awareness through socialization and training activities can help healthcare facilities better understand the significance of compliance with infection prevention guidelines and implement them effectively.

17. Risk Factors for Nosocomial Infections

    Several risk factors for nosocomial infections in hospitals include advanced age, intra-hospital transfers, cross-contamination, and the use of antibiotics and urinary catheters. Research by Isigi et al. (2023) shows that effective preventive measures, such as using single-patient rooms and aseptic techniques, can reduce the risk of nosocomial infections. Identifying these risk factors allows hospitals to take appropriate preventive actions and reduce infection incidents.

18. Factors Contributing to Nosocomial Infection – Phlebitis

    During infusion use, variations in the type of infusion fluids and the use of injection therapy contribute to the risk of nosocomial infection – phlebitis. A study by Ahmad, Rijal, and Haryati (2020) confirms that monitoring and managing these factors significantly reduces infection rates. Regulating the duration of infusion use, limiting the types of fluids used, and ensuring aseptic injection techniques can help prevent phlebitis and other infection-related complications.

19. Policies and Implementation of Hand Hygiene

    Implementing an effective hand hygiene program in hospitals is critical to preventing nosocomial infections. According to Sundoro (2020), the hand hygiene program at X Hospital in Yogyakarta is not optimal, with handwashing compliance reaching only 10%. To improve compliance, it is recommended that a scheduled handwashing routine be implemented, along with continuous monitoring and education by ward heads and the PPI committee. Consistent hand hygiene practices can enhance service quality and patient safety.

20. Strengthening Management Functions in PPI Implementation

    There is a significant relationship between the management functions of ward heads and the implementation of nosocomial infection control programs. Research by Putra Ritonga and Silaban (2022) shows that effective management by ward heads contributes to improved effectiveness of the PPI program. Effective ward leadership can ensure staff compliance with prevention protocols and the availability of necessary equipment and resources. Strong management support is key to the success of nosocomial infection prevention programs.

21. Prevention of Urinary Tract Infections Due to Catheters

Efforts to prevent urinary tract infections caused by catheter use can be achieved by adhering to proper guidelines in catheter indication, insertion, and removal procedures. Nasrina Ayu Dhiya Maitsa (2021) shows that adherence to these guidelines effectively reduces infection rates. Implementing strict guidelines for catheter handling is essential for reducing infection risks and improving patient care quality. Continuous training and supervision are required to ensure that all healthcare staff apply best practices.

22. Reporting and Surveillance of HAIs

    Reporting and surveillance of nosocomial infections are critical for identifying and controlling hospital infection incidents. Faridath (2021) emphasizes the urgency of surveillance reporting by the IPCN committee at Bhayangkara TK II Sartika Asih Hospital in Bandung. Timely and scheduled reporting of nosocomial infections such as phlebitis, decubitus ulcers, UTIs, VAP, and SSIs reflects the success of the surveillance program. The data collected from reporting can be used to identify infection trends, develop better prevention strategies, and improve patient safety.

23. Nurse Leadership and Compliance

    Quality nurse leadership significantly impacts nurses' compliance with nosocomial infection prevention measures. Research by Theresia (2020) concluded that effective leadership can improve nurses' compliance with hand hygiene practices and glove use, thus reducing the risk of infection transmission. Strong leadership and support from head nurses can create a work environment that encourages good infection prevention practices.

24. Motivation and Compliance with Hand Hygiene

    Motivation significantly correlates with nurses' compliance in performing hand hygiene practices. According to research by Riani and Syafriani (2019), using incentives and penalties can be an effective strategy to improve compliance with hand hygiene practices. High motivation, whether through positive or negative incentives, can encourage nurses to adhere more strictly to hand hygiene protocols. Allah (Swt.) consistently emphasizes the importance of inviting others to goodness, performing good deeds, and submitting to Allah, as outlined in QS. Al-Fussilat/41:33.

    According to Tafsir Tahlili, this verse criticizes those who speak falsely about the Qur'an, questioning: What speech is better than the Qur'an, and who speaks more rightly than the one who calls others to obey Allah? According to Ibn Sirin, as-Suddi, Ibn Zaid, and al-Hasan, the best words are those of the Prophet Muhammad (PBUH), whom Allah loves and has purified, and who is His chosen one. The Prophet Muhammad is the most devoted to Allah, and Allah granted his call for humanity to follow the path of Allah. Some scholars interpret this verse more generally, stating that anyone calling others to obey Allah speaks the best words.

    This is relevant to the motivation of nurses to comply with hand hygiene practices. The verse teaches that promoting and performing good deeds, like maintaining hand hygiene, are noble acts of charity. Strong motivation can drive nurses to comply with hand hygiene protocols, whether through positive or negative incentives. This not only fulfils professional obligations but also becomes a moral and spiritual act aimed at protecting both personal

and patient health, reflecting an awareness of responsibility and submission to Allah (Nurul Hidayah Nur, 2019).

25. Knowledge and Compliance with Universal Precautions

    Most nurses have good knowledge and compliance with universal precautions as a preventive measure for nosocomial infections. Research by Wahyuni et al. (2021) shows that ongoing education in universal precaution practices is crucial to maintaining high levels of knowledge and compliance. With consistent training and education, nurses can continuously improve their understanding of infection prevention protocols and ensure their implementation in everyday practice. This helps reduce the risk of infection transmission in hospital environments and enhances patient safety.

26. Compliance with PPI Guidelines

    Although many healthcare facilities know national guidelines for nosocomial infection prevention, only a few implement them consistently. Research by Ekanga et al. (2019) reveals that accreditation standards, which are unknown to many healthcare facilities, highlight the need to increase awareness and proper implementation of these guidelines. Raising awareness through socialization and training can help healthcare facilities better understand the importance of complying with infection prevention guidelines and implementing them effectively.

27. Risk Factors for Nosocomial Infections

    Several risk factors for nosocomial infections in hospitals include advanced age, intra-hospital transfers, cross-contamination, and the use of antibiotics and urinary catheters. Research by Isigi et al. (2023) shows that effective preventive measures, such as using single-patient rooms and aseptic techniques during care, can reduce the risk of nosocomial infections. Identifying these risk factors allows hospitals to take appropriate preventive measures and reduce infection rates.

28. Factors Contributing to Nosocomial Infection – Phlebitis

    The duration of infusion use, variations in the types of infusion fluids, and the use of injection therapy contribute to the risk of nosocomial infection – phlebitis. A study by Ahmad et al. (2020) confirms that monitoring and managing these factors significantly reduces infection rates. Regulating the duration of infusion use, limiting the types of fluids used, and ensuring aseptic injection techniques can help prevent phlebitis and other related infections.

29. Policies and Implementation of Hand Hygiene

    Implementing an effective hand hygiene program in healthcare facilities is vital for preventing nosocomial infections. According to Sundoro (2020), the hand hygiene program at X Hospital in Yogyakarta is not optimal, with handwashing compliance reaching only 10%. To improve compliance, it is recommended that a handwashing routine be established five times a day, along with continuous monitoring and education by ward heads and the PPI committee. A strong hand hygiene culture can enhance the quality of care and patient safety.

30. Integrity of Data and Transparent Reporting

The integrity of data and transparent reporting is crucial in the efforts to prevent and control nosocomial infections. Accurate data on infection rates, types of infections, and contributing factors is vital for identifying areas needing improvement and developing effective prevention strategies. Furthermore, transparent reporting to relevant parties, such as healthcare professionals, hospital management, and health authorities, strengthens trust and promotes collaboration in infection control efforts.

Research by Nurul Hidayah Nur (2019) shows that hospitals with transparent reporting systems and a culture of openness tend to have lower rates of nosocomial infections. This is because transparency encourages accountability and fosters prompt corrective actions.

Therefore, healthcare facilities must develop standardized, accessible, and secure reporting systems. Additionally, training staff on the importance of data integrity and accurate reporting should be a priority. This ensures that the data produced is trustworthy and can serve as the basis for sound decision-making in nosocomial infection prevention efforts.

4. CONCLUSION

This study highlights the crucial role of hospital management in addressing nosocomial infections (NI). Various factors, ranging from the type of room, patient condition, and antibiotic use to the motivation and compliance of healthcare workers, all contribute to the prevalence rate of NI. Furthermore, investment in infection prevention efforts, the implementation of health education programs, and the consideration of initial costs have proven effective and sustainable over the long term. Therefore, hospital management must consider all these factors to enhance the overall quality of care and patient safety.

However, hospital management still faces challenges such as limited commitment and resources, a lack of knowledge and compliance among staff, and the complexity of nosocomial infection (NI) prevention. To improve the effectiveness of nosocomial infection prevention (NI) measures such as strengthening surveillance systems and training, providing comprehensive health education, investing in effective prevention programs, demonstrating strong leadership and management commitment, and enhancing the motivation and compliance of healthcare staff are crucial. By implementing these actions, the risk of NI is expected to be reduced, thereby improving the overall quality of healthcare services.

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