

Safety Practices of Nurses in Preventing Surgical Site Infection Among Post-Operative Patients

Lou Joe B. De Guzman¹ Joel John Dela Merced²

<https://orcid.org/0009-0000-0569-9541>¹;

<https://orcid.org/0000-0002-1459-5274>²

St. Bernadette of Lourdes College^{1,2}

ljdeguzman@sbic.edu.ph¹; jdelamerced@sbic.edu.ph²

ABSTRACT

The study assessed the safety practices of 34 nurses to prevent surgical site infections (SSIs) using a quantitative descriptive–correlational design. Nurses, mostly aged 28–43 years, with a balanced sex distribution, showed strong compliance with core infection-prevention measures, including hand hygiene, aseptic techniques, patient education, waste disposal, and medication adherence. Moderate adherence was observed in early infection reporting, wound assessment, and access to infection-control supplies. Factor analysis identified four dimensions—core practices, workload and staffing constraints, operational preparedness, and clinical support—explaining 75.09% of the variance. Overall, nurses demonstrated high knowledge and competence, but systemic challenges such as staffing shortages, long duty hours, limited training, and insufficient supervision constrained optimal performance. Strengthening workforce conditions, training, and clinical support systems is essential to sustain effective SSI prevention and ensure patient safety.

Keywords: *Strategies implemented by nurses, work conditions, institutional support/resources, knowledge/compliance behaviors*

INTRODUCTION

This study examined the safety practices of nurses to prevent surgical site infections (SSIs) among postoperative patients in a government hospital in the Philippines. It aimed to identify effective nursing interventions, barriers to compliance, and factors influencing recovery outcomes. Using a quantitative descriptive–correlational design, the research documented current nursing practices and analyzed their relationship with infection severity, patient recovery, and overall health improvement. By applying statistical methods, the study highlighted correlations between infection-prevention strategies and patient outcomes, contributing to the broader goal of enhancing nursing care, improving patient safety, and reducing SSI in public hospital settings.

Statement of the Problem

Despite existing studies and guidelines on surgical site infections (SSI) in the Philippines, the problem persists, particularly in public hospitals where high patient volumes compromise safety. Lapses across the pre-, intra-, and post-operative phases contribute significantly to SSI occurrence. Limited quantitative research has focused on nurses' contributory factors—such as work habits, stress, and daily experiences—leaving a gap in understanding how their practices and environment affect infection outcomes. This study therefore aimed to determine the level of nurses' safety practices in SSI prevention and to explore the factors that facilitate or hinder consistent implementation across all phases of surgical care.

Scope and Delimitations

This study examined the safety practices of nurses to prevent surgical site infections (SSIs) among postoperative patients in a government hospital in the Philippines. It focused on nurses assigned to the operating room, the post-anesthesia care unit (PACU), and surgical wards, examining infection-prevention measures, protocol adherence, and patient education. Using a qualitative design, data were gathered through semi-structured interviews and analyzed thematically to identify common practices, challenges, and areas for improvement. The scope was limited to selected nurses from one hospital in the National Capital Region, excluding other surgical team members. While reliance on self-reported experiences may introduce bias, the findings provide valuable insights for strengthening nursing practice, infection-control strategies, and patient safety in post-operative care.

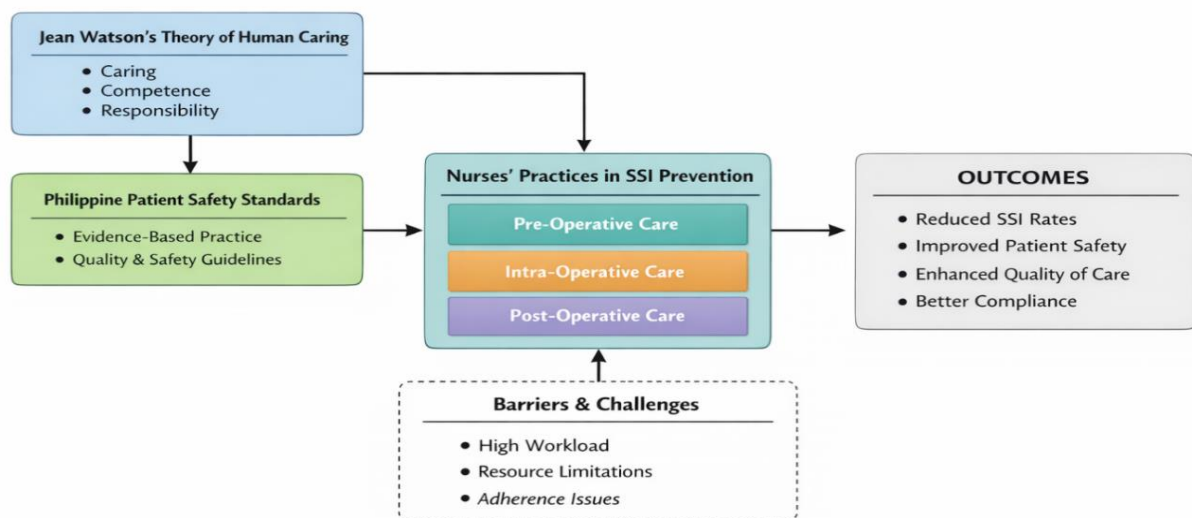
Review of Related Literature

During the pre-operative phase, nurses performed independent functions such as verifying consent, bowel preparation, administering pre-operative medication, providing health education, conducting general assessments, and ensuring patient hygiene. The intra-operative phase focused on transferring patients to the operating room, maintaining sterility, ensuring patient safety, and administering intra-operative medications, instruments, or blood transfusions as needed. The post-operative phase began after skin closure and included wound care, surgical dressing, site assessment, patient transfer from PACU to the ward, and the prevention and early detection of surgical site infections (SSI).

Theoretical Framework

Given that healthcare providers in our hospital engage in direct patient contact, we acknowledge that we may contribute to the spread of infections. Thus, it is important to examine strategies for preventing surgical site infections (SSIs) and the barriers nurses encounter that may increase the risk of SSI transmission.

Conceptual Framework



METHODOLOGY

Research Design

The study used a descriptive–correlational design to assess nurses’ compliance with infection prevention practices and examine their relationship with patient outcomes. Data were collected through a structured questionnaire with a four-point Likert scale and analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) and inferential tests. This approach provided objective measurement of nursing practices, identified trends, and generated evidence-based findings to guide clinical decision-making, improve patient safety, and reduce surgical site infections in hospital settings.

Research Steps

The study followed a systematic process consisting of problem identification, review of related literature, formulation of research questions or hypotheses, selection of an appropriate research design, development of a sampling strategy, data collection, data analysis, and presentation of findings.

Data Collection and Sample Selection

The study was conducted in a government hospital in Las Piñas City, specifically in the Surgical Ward, Operating Room, and Post-Anesthesia Care Unit (PACU). The respondents were nurses assigned to these areas. A total of 30 nurses participated in the study. Inclusion criteria required that participants have at least 6 months of experience handling surgical patients and have attended at least 1 training or seminar related to their field.

Data Analysis Methods

The data collected were coded, organized, and analyzed using appropriate statistical tools. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic profile of the respondents and assess surgical site infection (SSI) prevention practices. To identify underlying dimensions of safety practices, factor analysis (specifically principal component analysis) was employed to group related questionnaire items and determine the core components.

Validation

The study examined nursing strategies across the pre-, intra-, and post-operative phases that affect the risk of surgical site infection (SSI). Key variables included safety practices, workplace conditions, training, and perceived barriers. Factor analysis identified core nursing practices as moderately associated with operational preparedness and clinical support, highlighting the importance of training and resources. In contrast, workload pressures and staffing shortages were weakly related and functioned as independent barriers. Overall, the findings show that while nurses demonstrate strong competencies, organizational and environmental factors play a critical role in sustaining effective infection-control practices.

Study Limitations and Ethical Considerations

This study has several limitations that should be considered when interpreting the findings. First, the study focused solely on nurses, thereby excluding other healthcare

professionals who may also influence surgical site infection (SSI) prevention practices. Second, the sample was limited to a small number of nurses from a single government hospital in Las Piñas City, which restricts the generalizability of the results. Additionally, the hospital is experiencing understaffing, which may have influenced participants' responses and practices. The use of data from a single institution also limits variability and may not reflect conditions at other hospitals. Consequently, similarities in this setting may lead to biased or misleading conclusions that may not be applicable to other healthcare environments.

RESULTS AND DISCUSSION

The study involved 34 nurses, mostly aged 28–43 years, with a balanced sex distribution, and nearly half of whom served as staff nurses. Senior nurses demonstrated the highest level of expertise and training. The researcher-developed questionnaire demonstrated excellent reliability (Cronbach's Alpha = 0.948). Results revealed strong compliance with core infection-prevention practices such as hand hygiene, aseptic techniques, patient education, waste disposal, and medication adherence, while moderate compliance was noted in early infection reporting, wound assessment, and access to supplies.

Factor analysis identified four dimensions—core practices, workload and staffing constraints, operational preparedness, and clinical support—explaining 75.09% of the variance. Overall, nurses demonstrated strong knowledge and adherence to infection prevention practices, but systemic challenges such as staffing shortages, long duty hours, limited training, and insufficient rest limited performance. The findings underscore that SSI prevention is multidimensional, requiring both individual competence and organizational support to sustain high-quality patient care.

SUMMARY AND CONCLUSION

The study showed that nurses consistently practiced core infection-prevention measures, including hand hygiene, aseptic techniques, patient education, waste disposal, and medication adherence. However, early infection reporting, wound assessment, and access to infection-control supplies were only moderately observed. Factor analysis revealed that while individual competencies were strong, organizational challenges—including inadequate staffing, extended duty hours, and insufficient rest—significantly affected performance. These systemic barriers highlighted the need for continuous training, adequate staffing, and stronger clinical support systems. Overall, SSI prevention was found to be multidimensional, with clinical support, structured supervision, and effective deployment of skilled nurses playing a crucial role in sustaining safe practices. Hospital administrators are urged to prioritize workforce management, reinforce training programs, and address workplace challenges to strengthen SSI prevention and ensure high-quality patient care.

RECOMMENDATIONS

The study recommends that hospital administrators strengthen staffing patterns to reduce workload and maintain safe nurse-to-patient ratios. Regular training and continuing education on SSI prevention should be prioritized to enhance competencies. Future studies with larger sample sizes and across multiple hospitals are encouraged to validate the findings and develop predictive models. Finally, emphasis should be placed on equipping nurses with the right skills and ensuring proper deployment. Where recruitment is limited, improving the competencies of existing staff through training, supervision, and support has proven more effective in enhancing safety practices and reducing infection risks.

ACKNOWLEDGMENTS

I extend my heartfelt gratitude to all who supported the completion of this research. I sincerely thank my colleagues and friends for their guidance and encouragement, and I deeply appreciate the dean and professors for their expertise and constructive feedback. Above all, I give special thanks to my wife for her patience and unwavering support, which sustained me throughout this journey. Their collective contributions made this study possible.

AI DECLARATION STATEMENT:

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data; all authors are credited for their academic contributions.

REFERENCES

- Allegranzi, B., Bagheri Nejad, S., Combescure, C., Graafmans, W., Attar, H., Donaldson, L., & Pittet, D. (2011). Burden of endemic health-care-associated infection in developing countries: Systematic review and meta-analysis. *The Lancet*, 377(9761), 228–241. [https://doi.org/10.1016/S0140-6736\(10\)61458-4](https://doi.org/10.1016/S0140-6736(10)61458-4).
- Allegranzi, B., Bagheri Nejad, S., Combescure, C., Graafmans, W., Attar, H., Donaldson, L., & Pittet, D. (2011). *Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis*. The Lancet, 377(9761), 228–241.
- Department of Health. (2020). *Philippine National Standards in Infection Prevention and Control*. Department of Health – Health Facilities and Services Regulatory Bureau.
- Reyes, J. A., Santos, M. P., & Cruz, L. R. (2019). *Incidence and prevention of surgical site infections in selected hospitals in Metro Manila*. Philippine Journal of Nursing, 89(2), 45–52.
- Department of Health. (2020). *Philippine national standards in infection prevention and control*. Department of Health – Health Facilities and Services Regulatory Bureau.
- World Health Organization. (2016). *Global guidelines for the prevention of surgical site infection*. WHO Press.