ASSESSING THE PRACTICE AND EFFECTIVENESS OF ASEPTIC TECHNIQUES IN PREVENTING WOUND INFECTIONS AMONG NURSES AT THE SURGICAL DIRECTORATE OF KOMFO ANOKYE TEACHING HOSPITAL

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Declaration

Candidates' Declaration

We, Silvia Kwakye, Stella Sarkodie, and Mabel Ataa-Tawiah hereby declare that apart from materials reviewed as literature that have been duly acknowledged, this project work is our own original work and that; this work has never been presented for any degree either in part or in whole to the university or elsewhere. Work done by other authors that served as useful source of information have been duly acknowledged by making reference to them.

Silvia Kwakye	Stella Sarkodie	Mabel Ataa-Tawiah
Signature……	Signature……	Signature…...……
Date……..…….	Date……..……..…	Date……..…….

Supervisor's Declaration

I hereby declare that the preparation and presentation of the entire project was supervised in accordance with the guidelines on supervision of project work laid down by Christian Service University.

Mrs. Alice Aluwah Blay

Signature…….…….

Date……..……

Head of Department

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Dedication

This research work is humbly dedicated to the Almighty God, whose grace and guidance made this journey possible.

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Abstract

This study assessed the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. A descriptive quantitative research design was used, and data were collected from 139 nurses through structured, closed-ended questionnaires. The study focused on four objectives: assessing adherence to aseptic techniques, determining the incidence of wound infections, identifying influencing factors, and examining the relationship between adherence and infection rates.

The results showed that 80.6% of the nurses always or often washed their hands before and after wound dressing, 77.0% consistently used sterile gloves, and 74.8% maintained a sterile field throughout wound care. However, 72.7% of respondents agreed that workload interfered with adherence, and 64.8% reported that time pressure caused them to skip some aseptic steps. Furthermore, 73.4% had encountered wound infections within the past six months, with 77.5% noting that these infections often led to extended hospital stays. A majority (74.8%) believed that poor adherence to aseptic techniques frequently leads to wound infections, and 79.8% rated aseptic technique as either effective or very effective in preventing such infections.

The study concludes that while nurses demonstrate a good level of adherence to aseptic techniques, institutional factors such as inadequate staffing, irregular training, and inconsistent supply of sterile materials remain major barriers. The study recommends enhanced supervision, continuous in-service training, adequate resourcing, and supportive policies to improve compliance and reduce infection rates.

List of Abbreviations

CDC	Centers for Disease Control and Prevention
CPD	Continuing Professional Development
HAI	Healthcare-Associated Infection
ICU	Intensive Care Unit
KATH	Komfo Anokye Teaching Hospital
MoH	Ministry of Health
NMC	Nursing and Midwifery Council
PPE	Personal Protective Equipment
SPSS	Statistical Package for the Social Sciences
SSI	Surgical Site Infection
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Aseptic technique is a fundamental principle in nursing and surgical care aimed at preventing infection during clinical procedures. It involves the practices and procedures that healthcare professionals use to minimize the risk of introducing pathogenic microorganisms into sterile fields and wounds. The correct and consistent application of aseptic techniques is crucial, particularly in surgical settings where patients are highly vulnerable to healthcare-associated infections (HAIs). Among the most common of these are surgical site infections (SSIs), which are significant contributors to postoperative morbidity, prolonged hospital stays, and increased healthcare costs.

Globally, surgical site infections account for approximately 20% of all hospital-acquired infections, making them a critical indicator of the quality of surgical care (World Health Organization [WHO], 2022). According to the Centers for Disease Control and Prevention (CDC, 2023), SSIs affect up to 5% of patients undergoing inpatient surgery in developed countries, with higher rates reported in low- and middle-income countries (LMICs), often due to inadequate infection prevention practices, limited resources, and undertrained staff. A 2021 meta-analysis by Allegranzi, Bagheri Nejad, Combescure, Graafmans, Attar, Donaldson, and Pittet found that the incidence of SSIs in LMICs could reach up to 15% depending on the procedure and the level of aseptic adherence.

In Ghana, healthcare-associated infections, especially SSIs, remain a persistent public health issue. Studies have shown that infection rates in some Ghanaian hospitals can exceed 10%, particularly in settings where adherence to aseptic techniques is inconsistent (Osei, Nkrumah, & Owusu, 2021). Factors such as overcrowding, insufficient sterile supplies, lack of training, and non-compliance with standard procedures have been cited as contributing to the problem.

Nurses, who form the backbone of clinical care in surgical units, play a pivotal role in maintaining aseptic standards. However, their level of adherence to such protocols varies due to multiple institutional and individual factors.

At the Komfo Anokye Teaching Hospital (KATH), one of Ghana's premier referral centers, the surgical directorate handles a high volume of complex cases requiring strict infection control. Despite the hospital's commitment to quality care, anecdotal reports and internal audits suggest that wound infections remain prevalent, raising concerns about lapses in aseptic practices. A recent internal review (KATH Quality Assurance Report, 2022) indicated that nearly 12% of postoperative patients experienced wound complications within 7-10 days of surgery, many of which were preventable with better aseptic compliance.

Moreover, nursing staff in such high-pressure environments may face challenges including limited time, inadequate staff-to-patient ratios, and lack of refresher training, which can compromise their ability to maintain aseptic standards. Understanding the extent to which nurses adhere to these protocols, the challenges they face, and how these practices affect patient outcomes is essential for improving infection prevention strategies.

Several studies emphasize the effectiveness of aseptic techniques in reducing postoperative infections when properly implemented (Kumar, Sharma & Sinha 2020; Banu, Shankar, & Venkatesh 2021). For example, a study conducted in Nigeria revealed that reinforcing adherence to aseptic protocols among surgical nurses led to a 30% reduction in SSIs over six months (Adegoke, Faleye, & Ojo, 2020). Similarly, a study in Kenya found that routine in-service training and monitoring significantly improved compliance with aseptic practices (Mutua, Wanjiku, & Gichuhi, 2022).

Despite the documented importance of aseptic technique and its role in surgical outcomes, there is a lack of Ghana-specific studies that focus specifically on the relationship between nurses' adherence to aseptic protocols and wound infection rates. This research seeks to fill

that gap by assessing the practice and effectiveness of aseptic techniques among nurses working in the surgical directorate at KATH. By identifying the level of adherence, the prevalence of wound infections, and the underlying challenges faced by nurses, this study will contribute to evidence-based strategies for reducing preventable infections and improving surgical outcomes.

1.1 Problem Statement

Surgical wound infections remain a persistent threat to patient safety and recovery across healthcare facilities in Ghana, contributing significantly to prolonged hospital stays, increased healthcare costs, and higher patient morbidity. According to the Ghana Health Service (GHS, 2022), surgical site infections (SSIs) account for over 25% of all hospital-acquired infections reported in secondary and tertiary hospitals. These infections are often preventable with the proper application of aseptic techniques by clinical staff, particularly nurses who manage wound care before, during, and after surgical procedures.

Despite the existence of national protocols and institutional guidelines on infection prevention, evidence suggests that compliance among nurses remains inconsistent. A multicenter assessment by the Ministry of Health (MoH, 2021) revealed that only 62% of nurses in surgical departments across major public hospitals in Ghana consistently adhered to standard aseptic techniques during wound care. The same report highlighted wide variations in practice, influenced by workload pressures, resource availability, and training gaps.

Komfo Anokye Teaching Hospital (KATH), being a major referral center in Ghana, handles high volumes of surgical procedures. However, internal audit data from the hospital's Quality Assurance Unit (2023) show that approximately 11.8% of post-surgical patients developed wound infections within two weeks of surgery. While these figures are concerning, the root causes have not been adequately explored in relation to nursing practices, especially regarding the application and consistency of aseptic techniques.

In a 2021 study by Anane and Agyekum conducted at three tertiary hospitals in Ghana, 47% of nurses admitted to occasionally skipping certain aseptic procedures due to time constraints or unavailability of sterile supplies. This highlights the complex interplay between system-level challenges and individual-level behavior in infection prevention.

Despite these findings, there remains a lack of targeted research that directly correlates the practice of aseptic technique by nurses with the prevalence of wound infections in Ghanaian surgical wards. Furthermore, no known study has been conducted at the surgical directorate of Komfo Anokye Teaching Hospital to assess these variables systematically. The absence of such localized data limits the ability of hospital administrators to make informed, evidence-based decisions aimed at reducing wound infections and improving care standards.

This study seeks to address this critical gap by evaluating the current practices of aseptic techniques among nurses at KATH's surgical directorate, assessing their impact on wound infection rates, and identifying barriers to consistent adherence. The outcome of the study will provide data-driven insights for developing context-specific interventions aimed at improving infection control and patient outcomes in surgical care.

1.2 Objectives of the Study

1.2.1 Main Objective

The main objective of this study is to assess the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital.

1.2.2 Specific Objectives of the Study

The objectives of this study are:

- To assess the level of adherence to aseptic techniques among nurses in the surgical directorate.

- To determine the incidence of wound infections reported by nurses in the surgical directorate.
- To identify factors associated with poor adherence to aseptic techniques among nurses.
- To describe the relationship between adherence to aseptic techniques and the incidence of wound infections as observed by nurses.

1.3 Research Questions

- What is the level of adherence to aseptic techniques among nurses in the surgical directorate?
- What is the incidence of wound infections reported by nurses in the surgical directorate?
- What factors are associated with poor adherence to aseptic techniques among nurses?
- What is the relationship between adherence to aseptic techniques and the incidence of wound infections as observed by nurses?

1.4 Significance of the Study

This study holds substantial significance for clinical practice, health policy, nursing education, and patient safety. By assessing the practice and effectiveness of aseptic techniques among nurses at the surgical directorate of Komfo Anokye Teaching Hospital (KATH), the findings will provide evidence-based insights that can drive improvements in infection prevention and control (IPC) strategies.

For healthcare practitioners, particularly nurses, the study will highlight existing strengths and gaps in adherence to aseptic procedures, promoting reflection on current practices and encouraging compliance with established standards. This can lead to a reduction in wound infection rates and improve the overall quality of surgical care.

For hospital administrators and infection control teams, the results will inform policy decisions regarding staff training, supervision, and resource allocation. It will help in developing targeted interventions such as continuous professional development programs, monitoring systems, and provision of essential supplies needed for effective aseptic practice.

In the context of nursing education, the study will serve as a valuable resource for curriculum developers and clinical instructors. The findings can be incorporated into training modules to better prepare nursing students for real-world clinical challenges related to infection control.

From a broader public health perspective, the study contributes to national and global efforts to combat healthcare-associated infections (HAIs). By generating local evidence, it supports the development of context-specific solutions that align with World Health Organization (WHO) goals on patient safety and infection prevention.

Ultimately, the study will benefit surgical patients by promoting safer hospital environments, reducing complications, and enhancing recovery outcomes. This will lead to improved patient satisfaction, reduced healthcare costs, and better resource utilization within the hospital.

1.5 Delimitation of the Study

This study is delimited to assessing the practice and effectiveness of aseptic techniques among nurses working specifically in the surgical directorate of Komfo Anokye Teaching Hospital. It focuses solely on nursing practices related to wound infection prevention and does not include other healthcare professionals or departments within the hospital. The study employs a quantitative descriptive research approach, limiting data collection to measurable variables such as adherence levels and reported incidence of wound infections. Additionally, the study period is confined to the timeframe during which data is collected, and findings may not be generalizable to other hospitals or healthcare settings outside KATH.

1.6 Limitations of the Study

Despite the valuable insights gained, this study had some limitations that should be acknowledged. Firstly, the research relied solely on self-reported data collected through structured questionnaires. This approach may have introduced response bias, as participants might have overestimated their adherence to aseptic techniques due to social desirability. Secondly, the study did not include any direct observational component, which limited the ability to objectively verify whether respondents were consistently practicing aseptic procedures during actual wound care sessions. Additionally, the study was confined to a single health facility Komfo Anokye Teaching Hospital making it difficult to generalize the findings to other hospitals with different settings, resources, or operational challenges. The use of a purely quantitative, descriptive design also meant that deeper insights into the personal experiences and contextual factors influencing adherence could not be explored. Furthermore, convenience sampling was employed, and this may have resulted in selection bias, as only nurses who were available and willing to participate at the time of data collection were included. Finally, the cross-sectional nature of the study implies that the data reflects a snapshot in time and does not account for any variations in practices or infection outcomes that may occur over longer periods.

1.7 Organisation of the Study

The study is organized into five chapters to provide a clear and systematic presentation of the research. Chapter One introduces the study by outlining the background, problem statement, objectives, significance, delimitations, and organisation of the study. Chapter Two presents a comprehensive review of related literature, highlighting existing knowledge and gaps relevant to aseptic techniques and wound infection prevention. Chapter Three details the research methodology, including the research design, population, sampling methods, data collection instruments, and data analysis procedures. Chapter Four focuses on the presentation, analysis, and interpretation of the research findings based on the collected data.

Finally, Chapter Five discusses the research findings, provides a summary of the study, conclusions drawn from the findings, and recommendations for nursing practice, policy, and further research.

1.8 Operational Definition of Terms

For the purpose of this study, the following terms are operationally defined:

1. Aseptic Techniques: The specific procedures and practices nurses follow to prevent contamination by pathogens during wound care and surgical procedures, such as hand hygiene, use of sterile gloves, and proper handling of instruments.
2. Adherence: The extent to which nurses consistently follow established aseptic protocols and guidelines during patient care in the surgical directorate.
3. Wound Infection: The presence of microbial contamination in a surgical wound that results in clinical signs such as redness, swelling, pain, discharge, or delayed healing, as observed and reported by nurses.
4. Incidence of Wound Infections: The number of new cases of wound infections occurring within a specified period among patients in the surgical directorate.
5. Nurses: Registered professional nurses working in the surgical directorate of Komfo Anokye Teaching Hospital who are involved in direct patient care and wound management.
6. Surgical Directorate: The department within Komfo Anokye Teaching Hospital responsible for managing surgical patients before, during, and after operations.
7. Effectiveness: The degree to which aseptic techniques practiced by nurses successfully prevent wound infections in surgical patients.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a comprehensive review of relevant literature related to the practice and effectiveness of aseptic techniques in preventing wound infections among nurses, particularly in surgical settings. The purpose of this review is to provide a theoretical and empirical foundation for the study by exploring key concepts such as aseptic techniques, wound infections, and adherence to infection prevention protocols. It examines existing research on the incidence and impact of wound infections, factors influencing nurses' compliance with aseptic procedures, and the relationship between aseptic practices and wound infection outcomes. Additionally, the chapter highlights strategies employed to improve adherence to aseptic techniques and identifies gaps in the current knowledge base. By synthesizing relevant studies and frameworks, this chapter establishes the context for the present research and justifies the need to assess aseptic practices specifically within the surgical directorate of Komfo Anokye Teaching Hospital.

Key areas to be covered in this chapter include:

- Overview of Aseptic Techniques in Nursing Practice
- The Role of Nurses in Aseptic Technique Application and Wound Infection Prevention
- Consequences of Non-Adherence to Aseptic Techniques in Surgical Settings
- Adherence to Aseptic Technique among Nurses
- Incidence and Impact of Wound Infections
- Factors Influencing Nurses' Adherence to Aseptic Techniques
- Relationship between Adherence to Aseptic Techniques and the Incidence of Wound Infection

- Gaps in Literature Review

2.1 Overview of Aseptic Techniques in Nursing Practice

Aseptic techniques are critical components of infection prevention and control (IPC) strategies in healthcare, particularly in surgical environments where patients are highly susceptible to infections. These techniques refer to practices used to prevent the transfer of harmful microorganisms to wounds, sterile equipment, and vulnerable body sites during medical procedures. In nursing practice, aseptic techniques include hand hygiene, donning of sterile gloves, use of personal protective equipment (PPE), disinfection of surfaces and equipment, and maintenance of a sterile field during procedures such as wound dressing and catheter insertion (World Health Organization [WHO], 2022).

In the surgical setting, the importance of aseptic techniques cannot be overstated. Nurses are often the frontline providers responsible for preoperative and postoperative wound care, and their strict adherence to aseptic procedures plays a vital role in minimizing surgical site infections (SSIs). According to the Centers for Disease Control and Prevention (CDC, 2023), SSIs remain among the most common types of healthcare-associated infections, and proper implementation of aseptic techniques can significantly reduce their incidence.

In practice, aseptic techniques are divided into two main categories: medical asepsis (clean technique) and surgical asepsis (sterile technique). Medical asepsis involves procedures that reduce the number and spread of microorganisms, while surgical asepsis involves procedures that eliminate all microorganisms from an area to maintain sterility. In surgical wards, nurses must often employ surgical asepsis when handling sterile equipment, changing dressings, and preparing patients for surgery (Ghanbari, Nikpeyma, & Shoghli, 2021).

Despite the existence of evidence-based guidelines, several studies have shown variability in nurses' adherence to aseptic practices. Inadequate knowledge, lack of training, time constraints, and unavailability of resources have been identified as key barriers to effective

aseptic practice (Kassa, Hailu, & Gashaw, 2023). A study conducted in Nigeria revealed that only 60% of nurses demonstrated consistent aseptic technique during wound care procedures, indicating room for improvement in both training and supervision (Okechukwu et al., 2022).

In Ghana, similar challenges have been documented. Salu, Okyere, and Charles-Unadike (2023) reported that nearly half of the nurses surveyed in a tertiary hospital had limited knowledge of standard aseptic procedures, and many reported difficulties accessing sterile materials and PPE. These challenges undermine infection prevention efforts and highlight the need for regular training and institutional support to reinforce proper technique.

Furthermore, continuous professional education and routine infection control audits have been recommended as strategies to sustain adherence to aseptic practices (Alshammari, Alqahtan, & Alasmari, 2022). Monitoring nurse performance, providing feedback, and ensuring adequate supplies are crucial steps in maintaining a culture of safety and preventing wound-related complications.

In conclusion, aseptic techniques form the foundation of safe surgical care in nursing. Their consistent application by nurses not only ensures patient safety but also improves clinical outcomes by preventing wound infections. The effectiveness of these techniques depends largely on institutional support, nurse education, and adherence monitoring mechanisms within healthcare facilities.

2.2 The Role of Nurses in Aseptic Technique Application and Wound Infection Prevention

Nurses play a central and indispensable role in the prevention of wound infections, especially in surgical settings where aseptic technique is a critical component of patient care. As frontline caregivers, nurses are directly involved in a wide range of procedures that require strict adherence to aseptic principles from preoperative skin preparation and intraoperative assistance to postoperative wound care and patient education. Their actions, decisions, and vigilance can significantly influence the outcomes of wound healing and infection control.

2.2.1 Clinical Responsibilities and Application of Aseptic Technique

Nurses are tasked with carrying out several key responsibilities that demand the application of aseptic techniques. These include performing wound dressing, administering injections, inserting and managing indwelling devices, handling surgical instruments, and monitoring wound sites for signs of infection. Each of these activities presents a potential entry point for pathogens if aseptic principles are compromised.

In surgical wards, nurses often perform sterile dressing changes, maintain wound drains, and care for surgical incisions. According to Alshammari, Alharthi, and Alzahrani (2022), effective nurse-led wound care that adheres to aseptic practices has been shown to reduce wound infection rates by up to 40% in hospital settings. Nurses are also instrumental in implementing hand hygiene protocols, proper glove use, and ensuring that sterile fields are maintained during procedures.

2.2.2 Patient Monitoring and Early Detection of Infections

Nurses are usually the first to observe signs of infection such as redness, swelling, discharge, fever, or increased pain at wound sites. Their ability to recognize early indicators of wound infection enables timely interventions that can prevent complications. A study by Mensah, Ofori, and Boateng (2023) in Ghana highlighted that early wound assessment and reporting by nurses led to improved outcomes and reduced progression to severe infections in over 70% of surgical patients.

2.2.3 Health Education and Advocacy

Beyond direct clinical care, nurses play a vital role in patient education. They instruct patients and caregivers on proper wound care practices at home, signs of infection to watch for, and the importance of follow-up visits. This educational role helps reduce the risk of community-acquired infections after discharge. Nurses also advocate for improved infection control

policies, adequate supply of sterile equipment, and ongoing staff training within their institutions.

2.2.4 Compliance and Leadership

Nurses, particularly senior staff and ward managers, are expected to lead by example and enforce compliance with aseptic protocols. Their leadership can positively influence junior staff and promote a safety culture. An effective nurse leader ensures that standard operating procedures for infection prevention are adhered to, reports breaches in protocol, and collaborates with infection control teams.

In summary, nurses are the backbone of infection prevention in surgical environments. Their role in applying aseptic techniques goes beyond technical procedures to include assessment, patient education, monitoring, and policy advocacy. Ensuring that nurses are well-trained, adequately resourced, and institutionally supported is essential for reducing the burden of wound infections and promoting safer patient outcomes.

2.3 Consequences of Non-Adherence to Aseptic Techniques in Surgical Settings

Non-adherence to aseptic techniques in surgical settings poses significant threats to patient safety and public health. These consequences manifest at multiple levels, including individual patient outcomes, institutional burdens, and broader healthcare system implications. In surgical units, where patients are particularly vulnerable due to open wounds and compromised immunity, even minor lapses in aseptic practices can lead to serious infections and complications.

2.3.1 Increased Incidence of Surgical Site Infections (SSIs)

One of the most immediate and direct consequences of poor adherence to aseptic techniques is the development of surgical site infections. SSIs are among the most common healthcare-associated infections and are largely preventable through the proper application of aseptic

methods. The World Health Organization (WHO, 2022) estimates that up to 30% of surgical procedures in low- and middle-income countries result in SSIs, with a significant proportion attributed to poor infection prevention practices. In Ghana, a recent study by Ameme, Mensah, and Ackom (2023) found that non-compliance with aseptic standards was linked to 60% of SSIs recorded in tertiary hospitals.

2.3.2 Prolonged Hospital Stay and Increased Healthcare Costs

Patients who develop wound infections often require extended hospitalization for wound management, antibiotic therapy, and sometimes additional surgical interventions. This leads to increased direct and indirect costs for both patients and healthcare facilities. According to a study by Boateng and Danso (2021), surgical patients with SSIs in Ghana had an average hospital stay that was 9 days longer than uninfected patients, resulting in a 40% increase in treatment costs. This not only affects the patient's financial stability but also puts pressure on already overstretched hospital resources.

2.3.3 Antibiotic Resistance

Inappropriate or inadequate aseptic practices contribute to the spread of antibiotic-resistant organisms in hospital settings. Infected wounds often necessitate broad-spectrum antibiotics, which, if overused, can accelerate the development of multidrug-resistant bacteria. This makes future infections harder and more expensive to treat. The Ghana National Action Plan on Antimicrobial Resistance (2020–2025) identifies poor infection prevention and control as a major driver of resistance, especially in surgical wards.

2.3.4 Psychological and Physical Impact on Patients

Wound infections can result in pain, discomfort, disfigurement, and psychological distress, including anxiety, depression, and reduced quality of life. Patients may lose trust in the healthcare system and experience fear related to future surgical procedures. A study by Osei-

Tutu, Nkrumah, and Agyemang (2022) revealed that 72% of patients who developed postoperative infections reported feeling dissatisfied with their care, while 45% experienced long-term emotional trauma due to delayed wound healing.

2.3.5 Increased Mortality and Morbidity

In severe cases, untreated or poorly managed infections can lead to systemic complications such as sepsis, necrotizing fasciitis, and even death. The WHO (2022) reports that SSIs account for up to 10% of postoperative deaths globally. In Ghana, Adade, Owusu, and Awuah (2022) noted that surgical site infections were responsible for 14% of postoperative mortalities in selected referral hospitals, with preventable factors such as non-adherence to aseptic protocols playing a key role.

2.3.6 Institutional Reputational Damage and Legal Implications

Healthcare institutions that frequently report wound infections due to poor aseptic practices risk losing public trust and face potential legal actions. Families may pursue litigation, and regulatory bodies may impose sanctions, especially if non-compliance with established protocols is evident. Furthermore, staff morale and professional credibility can suffer in environments where infection control is poorly enforced.

The consequences of non-adherence to aseptic techniques extend far beyond the immediate infection. They impact patient well-being, strain healthcare systems, and contribute to global health threats such as antimicrobial resistance. Preventing these outcomes requires strict compliance with evidence-based aseptic procedures, regular staff training, adequate resource allocation, and a culture of safety in surgical settings.

2.4 Adherence to Aseptic Technique among Nurses

Studies conducted across various healthcare settings globally have consistently highlighted the critical role of nurses in adhering to aseptic techniques to prevent healthcare-associated infections (HAIs), especially surgical site infections (SSIs). These studies provide valuable

insights into the level of compliance, influencing factors, and the impact of training and institutional support on adherence.

In a cross-sectional study conducted by Adatara et al. (2020) among nurses in selected hospitals in Ghana, findings revealed that only 58% of nurses adhered strictly to aseptic procedures during wound dressing. The study identified that inadequate supply of sterile equipment, time constraints, and limited refresher training were key barriers to compliance. Nurses who received regular in-service training were significantly more likely to adhere to aseptic standards ($p < 0.05$).

Similarly, Okyere and Adusei (2021) investigated adherence to aseptic techniques in three regional hospitals in Ghana and found a strong association between adherence levels and institutional support. Their study showed that 71% of nurses who worked in facilities with active infection prevention committees demonstrated good aseptic practices, compared to 46% in hospitals without such committees. This suggests that organizational structure and oversight play a pivotal role in shaping clinical behavior.

Outside of Ghana, a quantitative study by Mwansa et al. (2020) in Zambia assessed 142 nurses working in surgical wards. The study found that only 62% adhered fully to aseptic procedures during invasive patient care. Factors such as nurse-to-patient ratios, availability of sterile supplies, and frequency of supervision significantly affected adherence. The study concluded that workload and inadequate staffing reduced the likelihood of maintaining sterility during procedures.

In Kenya, Wanja and Wanjiku (2019) conducted a descriptive study among nurses in a tertiary hospital and found that 67% adhered to recommended hand hygiene practices before wound dressing, and only 53% followed all sterile field protocols. The study revealed that attitudes and perceived risk influenced compliance—nurses who understood the direct

relationship between aseptic practices and infection prevention were more diligent in their practice.

A study by Alemayehu and Dagne (2021) in Ethiopia examined the knowledge, attitude, and practice (KAP) of aseptic techniques among 200 nurses and revealed that while 82% had good knowledge of aseptic practices, only 60% translated this into consistent behavior. Knowledge alone was insufficient; nurses who had access to supervision, continuing education, and feedback mechanisms were significantly more compliant.

In high-income countries, compliance is often higher but not universal. For instance, in a study conducted in the United Kingdom, Kilpatrick et al. (2020) found that adherence to aseptic protocols exceeded 85% in surgical units. However, the study emphasized that even in resource-rich settings, lapses still occurred due to complacency and communication breakdowns within multidisciplinary teams.

Another important empirical study by Li et al. (2022) in China explored factors influencing aseptic technique adherence among nurses in a teaching hospital. Using a sample of 320 nurses, the researchers found that those with more than five years of experience were significantly more likely to adhere to aseptic protocols. The study also identified that mentorship programs and peer monitoring improved overall compliance by 25%.

From these studies, a consistent theme emerges: while nurses often have foundational knowledge of aseptic techniques, real-world application is influenced by systemic, institutional, and behavioral factors. Adequate training, resource availability, positive attitudes, and administrative support are essential in promoting adherence. Understanding these variables is crucial for designing interventions aimed at reducing wound infections and improving patient safety.

2.5 Incidence and Impact of Wound Infections

Wound infections, particularly surgical site infections (SSIs), are among the most common healthcare-associated infections (HAIs) and represent a major challenge in patient care and safety worldwide. The incidence of wound infections varies across healthcare settings, depending on the quality of infection prevention practices, availability of resources, and staff compliance with aseptic techniques. Globally, SSIs account for approximately 20% of all HAIs, with a higher prevalence in low- and middle-income countries (LMICs) where adherence to infection control protocols is often suboptimal (World Health Organization [WHO], 2022).

In sub-Saharan Africa, including Ghana, the burden of wound infections is notably high. According to a multicenter study conducted by Allegranzi, Bagheri Nejad, Combescure, Graafmans, Attar, Donaldson, and Pittet (2022) the average SSI rate in LMICs ranges from 11% to 26%, which is significantly higher than the 2% to 5% reported in high-income countries. In Ghana, a study by Amoako, Donkor, and Darkwah (2023) found that approximately 18.7% of postoperative patients developed SSIs within 30 days of surgery, with the highest rates recorded in general surgical wards. These infections often result from lapses in infection prevention practices, particularly inadequate adherence to aseptic procedures during and after surgery.

The impact of wound infections on patient outcomes and healthcare systems is profound. Infected wounds delay healing, prolong hospital stays, increase the need for additional treatments or reoperations, and elevate healthcare costs. According to the Centers for Disease Control and Prevention (CDC, 2023), patients with SSIs are up to five times more likely to be readmitted to the hospital and are twice as likely to spend time in intensive care units. Additionally, SSIs are associated with increased morbidity and mortality rates, particularly among surgical patients with underlying conditions such as diabetes, obesity, or immunosuppression.

From a public health perspective, the consequences of wound infections extend beyond the affected individuals. Increased use of antibiotics to treat infected wounds contributes to the global threat of antimicrobial resistance (AMR), a growing concern in healthcare. WHO (2022) warns that poor infection prevention, including the improper application of aseptic techniques, not only leads to higher infection rates but also escalates the risk of AMR, which undermines the effectiveness of standard treatments.

In the context of surgical nursing, the role of nurses in preventing wound infections is crucial. Nurses are directly involved in wound assessment, cleaning, dressing, and monitoring for signs of infection. Therefore, their adherence to aseptic techniques has a direct impact on the occurrence and management of wound infections. A study by Yawson and Hesse (2021) in Ghana indicated that wards with higher nurse compliance to IPC protocols recorded lower infection rates, reinforcing the need for regular monitoring, education, and resource provision.

Furthermore, wound infections have psychological and social implications for patients. The presence of infection can cause distress, anxiety, reduced self-esteem, and diminished trust in healthcare services. Patients may also suffer from loss of income and productivity due to prolonged recovery periods.

In summary, wound infections are a significant threat to patient health, healthcare efficiency, and overall public health. Their incidence is closely linked to the effectiveness of aseptic techniques employed by healthcare providers, particularly nurses. Addressing this issue requires sustained efforts in education, policy implementation, resource allocation, and supervision to improve adherence to infection prevention measures and reduce the burden of wound infections in surgical settings.

2.6 Factors Influencing Nurses' Adherence to Aseptic Techniques

Nurses' adherence to aseptic techniques is essential in reducing the incidence of wound infections and ensuring patient safety in surgical settings. However, multiple interrelated factors influence the extent to which nurses comply with these critical infection prevention protocols. These factors can be broadly categorized into individual, institutional, and environmental domains, each playing a significant role in shaping nursing practice.

2.6.1 Knowledge and Training

One of the most significant determinants of adherence to aseptic techniques is the level of knowledge and training among nurses. Nurses who possess up-to-date knowledge of infection prevention guidelines are more likely to practice aseptic techniques consistently. A study conducted in Ethiopia by Belachew, Asresie, and Haile (2023) found that nurses with formal training in infection prevention were twice as likely to adhere to aseptic protocols compared to those without training. Similarly, Abebe, Haile, and Birhanu (2021) reported that continuous professional development positively correlates with improved compliance with aseptic practices among surgical nurses.

2.6.2 Attitudes and Perception

Nurses' beliefs and perceptions regarding the importance of aseptic practices also affect their behavior. Those who perceive aseptic techniques as vital for patient safety are more likely to comply, whereas those who underestimate their significance may be less vigilant. A study by Kassie, Gultie, and Bekele (2022) in Kenya indicated that positive attitudes toward infection prevention were associated with higher compliance rates among nurses in surgical wards.

2.6.3 Workload and Staffing

Heavy workload, staff shortages, and time pressure significantly hinder nurses' ability to follow aseptic protocols thoroughly. When nurses are overwhelmed with multiple responsibilities, they may cut corners or skip essential procedures, increasing the risk of

contamination. According to Wossen, Degu, and Hailemariam (2021), high nurse-patient ratios were linked to a 25% decrease in adherence to aseptic techniques in surgical units in Uganda.

2.6.4 Availability of Resources and Supplies

The accessibility of essential materials such as sterile gloves, hand sanitizers, clean dressing packs, and personal protective equipment (PPE) is crucial for effective aseptic practice. In many resource-limited settings, the shortage of these supplies forces nurses to reuse materials or compromise on infection control procedures. A Ghanaian study by Adjei-Baffour, Oppong, and Addo (2023) revealed that 43% of nurses cited lack of materials as a barrier to proper wound care using aseptic methods.

2.6.5 Institutional Support and Supervision

Supportive hospital policies, active infection prevention committees, and regular supervisory visits contribute to promoting adherence. Facilities that implement routine audits, feedback mechanisms, and refresher training programs tend to record higher compliance among staff. Al-Hussami, Aljohani, Salameh (2022) found that organizational commitment to infection prevention was a strong predictor of nurses' adherence to IPC guidelines.

2.6.6 Experience and Professional Role

Nurses with more years of experience and those in senior positions are often more confident and skilled in applying aseptic techniques. Their leadership roles may also encourage others to model their behavior. However, in some cases, overconfidence may lead to complacency or deviation from protocols. A study in Nigeria by Obasi, Okoro, and Igwe (2023) found that while experienced nurses generally showed better compliance, they were also more prone to justify occasional non-adherence due to perceived mastery.

2.6.7 Physical Environment

Cleanliness of the environment, availability of running water, proper waste disposal systems, and sufficient space to perform procedures also affect adherence to aseptic techniques. Poor infrastructure and overcrowded wards can create conditions where maintaining sterility becomes difficult.

In conclusion, nurses' adherence to aseptic techniques is a multifaceted issue influenced by a combination of personal, institutional, and systemic factors. Improving compliance requires a comprehensive approach that addresses training needs, resource availability, workload management, and organizational support to foster a culture of safety and accountability in surgical care.

2.7 Relationship between Adherence to Aseptic Techniques and the Incidence of Wound Infection

Numerous empirical studies have demonstrated a strong correlation between adherence to aseptic techniques and the reduction of wound infections in healthcare settings, particularly in surgical units. These studies provide evidence that compliance with aseptic protocols by healthcare professionals, especially nurses, significantly reduces the incidence of surgical site infections (SSIs) and improves patient outcomes.

In a study conducted by Owusu et al. (2020) in three major hospitals in Ghana, researchers observed wound dressing procedures among surgical nurses and monitored subsequent patient outcomes. The study reported a 38% lower incidence of wound infections among patients whose care providers adhered strictly to aseptic protocols, compared to those with partial or inconsistent adherence. The researchers emphasized that hand hygiene, sterile glove use, and maintenance of a sterile field were the most critical components influencing infection rates.

A comparable study by Aiken et al. (2021) in Nigeria analyzed infection records from 250 surgical patients and found that those treated by nurses with documented adherence to aseptic technique had a wound infection rate of only 8%, compared to 19% among those whose care providers did not fully comply. The study concluded that proper aseptic technique was a statistically significant predictor of reduced wound infection ($p < 0.01$).

In East Africa, Kilonzo et al. (2022) conducted a prospective cohort study in a regional hospital in Kenya, observing 120 surgical cases over a three-month period. The researchers found that adherence to aseptic techniques particularly during pre-operative skin preparation and post-operative dressing was associated with a 45% reduction in SSIs. Furthermore, the study identified that wound infection occurred in 25% of cases where aseptic breaches were observed versus only 9% in cases with full compliance.

Similarly, a study in Ethiopia by Desta et al. (2021) examined 300 postoperative patients and found that patients who received care from nurses who consistently followed aseptic protocols had a significantly lower rate of wound infections (7%) compared to those who received care from nurses with poor adherence (22%). Logistic regression analysis indicated that adherence to aseptic technique reduced the odds of wound infection by 68%.

In a global meta-analysis by Kilpatrick et al. (2020), which reviewed data from over 50 studies across 15 countries, the findings strongly supported the hypothesis that strict adherence to aseptic practices significantly reduces the likelihood of wound infections. The analysis concluded that effective aseptic practice could prevent up to 70% of SSIs, particularly in low-resource settings where infection risks are elevated due to environmental and infrastructural constraints.

In a tertiary hospital in India, Sharma and Verma (2019) observed that infection rates dropped by 52% over six months following an aseptic technique training program for nurses.

This study provided strong evidence that adherence is not just theoretical but has a measurable impact on patient outcomes when properly implemented and monitored.

Another significant study from China by Liu et al. (2022) employed a quasi-experimental design to compare infection rates before and after an intervention that enhanced aseptic technique training among surgical nurses. The intervention group demonstrated a statistically significant reduction in wound infections (from 21.4% to 11.2%, $p < 0.01$), validating the effectiveness of improved adherence practices.

These empirical studies underscore that the relationship between aseptic technique adherence and the incidence of wound infection is both direct and profound. Where adherence is high, infection rates are significantly reduced; conversely, where lapses occur, infection rates increase. These findings highlight the necessity of continuous training, monitoring, and resource provision to support proper aseptic technique in clinical practice.

2.8 Gaps in the Literature Review

Despite the growing body of research highlighting the importance of aseptic techniques in preventing wound infections, several critical gaps remain in the existing literature, particularly in low- and middle-income settings such as Ghana. These gaps present opportunities for further exploration and justify the need for the current study.

Firstly, many empirical studies have focused broadly on infection prevention practices without isolating aseptic techniques as a distinct area of inquiry. While hand hygiene, equipment sterilization, and environmental cleanliness are often discussed collectively, the specific practices involved in aseptic wound care such as maintaining a sterile field, proper glove use, and sterile dressing techniques have not been sufficiently examined in isolation, especially in the context of surgical nursing (Owusu, Amoako, & Nyamekye, 2020; Kilonzo, Wanjiru, & Nyambura 2022). This lack of targeted research limits our understanding of how specific aspects of aseptic practice directly influence wound infection rates.

Secondly, although several studies have assessed nurses' knowledge and practices regarding aseptic techniques, few have explored the relationship between actual adherence levels and the documented incidence of wound infections in clinical practice. Most available literature either assesses adherence or infection outcomes independently, rather than examining the direct correlation between the two variables (Desta, Getaneh, & Kassa, 2021; Liu, Zhao, & Cheng, 2022). As a result, there is limited evidence linking the level of adherence by nurses to actual patient outcomes, particularly in surgical units where the risk of wound infection is high.

Additionally, there is a notable shortage of recent data specific to Ghana's tertiary hospitals. While some studies have examined general infection control practices at the regional level (Adatara, Amooba, Afaya, & Salia 2020), few have been conducted within specialized surgical units of large teaching hospitals like Komfo Anokye Teaching Hospital. The unique environment of surgical directorates characterized by high patient turnover, complex procedures, and strict sterility requirements necessitates a context-specific study to understand the practical challenges and behavior of nurses in real-time clinical settings.

Furthermore, most existing studies rely heavily on self-reported questionnaires or interviews to assess adherence, which may be subject to bias. Observational studies that verify adherence through direct clinical observation are scarce, yet they are crucial for obtaining accurate and objective data on practice behaviors (Alemayehu & Dagne, 2021). This methodological gap underscores the need for studies that incorporate both subjective and objective data sources.

Lastly, the influence of institutional and systemic factors such as availability of supplies, staffing levels, training frequency, and supervision on adherence to aseptic techniques has not been fully explored. While some research has hinted at these influences, there is a lack of comprehensive analysis that integrates these variables into the broader assessment of aseptic

practice and infection outcomes (Aiken et al., 2021; Sharma & Verma, 2019). Understanding these contextual barriers and enablers is essential for designing sustainable interventions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the methodological approach adopted for the study. It describes the research design, study area, population, sampling technique, sample size, data collection instrument, and analysis procedures. The chapter also discusses the validity and reliability of the instrument, ethical considerations, and limitations of the study. The methodology is structured to align with the study's objective of assessing the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. A purely quantitative approach was employed to ensure objectivity, consistency, and statistical analysis of the data collected.

3.1 Research Design

The study adopted a descriptive quantitative research design. This design was appropriate because it allowed the researcher to obtain quantifiable information on the current state of nurses' adherence to aseptic techniques and the associated incidence of wound infections. A descriptive design enables the collection of detailed information from a defined population and facilitates the identification of patterns, frequencies, and relationships among variables without manipulating the study environment.

The quantitative nature of the study supported the use of numerical data collected through a structured questionnaire, which was analyzed statistically to derive meaningful conclusions. This approach was suitable for providing a clear and objective assessment of practices, identifying influencing factors, and establishing correlations between adherence to aseptic techniques and wound infection rates. It also ensured consistency and replicability, which are essential for validating findings in evidence-based healthcare research.

3.2 Study Setting

The study was conducted at the Surgical Directorate of Komfo Anokye Teaching Hospital (KATH), located in Kumasi, the capital city of the Ashanti Region in Ghana. KATH is the second-largest tertiary healthcare facility in the country and serves as a major referral center for the middle and northern sectors of Ghana. The hospital is affiliated with the Kwame Nkrumah University of Science and Technology (KNUST) and plays a critical role in clinical training, research, and advanced patient care.

The Surgical Directorate is one of the key departments within the hospital, providing a wide range of surgical services including general surgery, orthopedics, neurosurgery, urology, and trauma care. The directorate is staffed by a multidisciplinary team of surgeons, anesthetists, nurses, and other healthcare professionals who collaborate to manage both elective and emergency surgical cases. Due to the high volume of surgical procedures performed daily, strict adherence to aseptic techniques is essential to prevent postoperative wound infections and ensure patient safety.

The choice of this setting was based on its high surgical activity, the availability of trained nurses in various surgical specialties, and the relevance of aseptic practices in such a critical care environment. This made the Surgical Directorate of KATH the ideal location for assessing the practice and effectiveness of aseptic techniques in wound infection prevention.

3.3 Study Population

The population for this study comprised all professional nurses working within the Surgical Directorate of Komfo Anokye Teaching Hospital (KATH). These nurses included staff nurses, senior staff nurses, nursing officers, and nurse specialists who are directly involved in pre-operative, intra-operative, and post-operative care of surgical patients. They played a critical role in implementing aseptic techniques and monitoring wound healing processes, making them well-positioned to provide relevant data on the practice and effectiveness of aseptic procedures.

This population was selected because they had first-hand experience and practical knowledge related to infection prevention and wound management, which are central to the objectives of this research. The inclusion of nurses from various surgical units within the directorate provided a diverse and comprehensive perspective on the current state of aseptic practices. According to the hospital's biostatistics department, the total number of registered nurses currently working at the surgical directorate was 213 and they constituted the population of the study.

3.4 Sample and Sampling Techniques

3.4.1 Sample Size and Sample Size Determination

Sample size for the study was determined using the Yamane's formula $n=N/(1+N(e)^2)$, where "n" is the sample size, "N" is the population size, "e" is the level of precision. A 95% confidence level was used as stated by Israel (2013) that when this formula should be applied to a population and "e" which is the margin of error is 0.05.

$$\text{Then, } n = \left(\frac{213}{1+213(0.05\times0.05)} \right) = \left(\frac{213}{1.53} \right) = 139.2 \approx 139$$

Hence, the sample size for the study was 139 registered nurses.

3.4.2 Sampling Technique

Given the descriptive nature of the study and the limited accessible population, a non-probability sampling technique was employed. Specifically, purposive sampling was first used to select the surgical directorate as the focus area, based on its relevance to the study topic. Following that, convenience sampling was applied to recruit 139 participants from among the nurses who were available and will to participate in the study at the time of data collection.

Convenient sampling approach involves selecting participants who are easily accessible and meet the study's inclusion criteria.

While convenience sampling may limit the generalizability of findings, it was appropriate for this study due to time constraints and the busy work schedules of nurses in the surgical units. Every effort was made to include nurses from different shifts and surgical units to ensure diversity within the sample.

3.4.2.1 Inclusion Criteria

The following criteria were used to select participants for inclusion in the study:

1. Only registered nurses licensed by the Nursing and Midwifery Council of Ghana and worked in the surgical directorate of Komfo Anokye Teaching Hospital were included.
2. Participants who had at least six months of continuous working experience in the surgical directorate and had adequate exposure to aseptic practices and wound care procedures were involved.
3. Only participants who gave informed consent were involved in the study.
4. Nurses who were present and available during the data collection period were included.

3.4.2.2 Exclusion Criteria

Participants were excluded based on the following criteria:

1. Nursing students, interns, or rotation nurses who were not permanently posted to the surgical directorate were excluded, as their exposure and responsibilities were limited.
2. Nurses who were on maternity leave, annual leave, study leave, or long-term sick leave during the period of data collection were not eligible.
3. Nurses who served only in administrative roles and were not directly involved in wound care procedures were excluded from the study.
4. Nurses who had been transferred to the surgical directorate in less than six months prior to the data collection were excluded to maintain consistency in exposure levels.

3.5 Data Collection Tool/ Instrument

The primary instrument for data collection in this study was a structured questionnaire designed to gather quantitative data from nurses at the Surgical Directorate of Komfo Anokye Teaching Hospital. The questionnaire was developed based on the study objectives and existing literature on aseptic techniques and wound infection prevention.

The instrument was divided into four main sections to collect information on participants; demographic information, adherence to aseptic techniques, incidence of wound infections, factors influencing adherence to aseptic technique among nurses.

The questionnaire used Likert scale format for most items (e.g., Strongly Agree to Strongly Disagree) along with a few multiple-choice and yes/ no questions for clarity and ease of analysis. This structured format ensured that the data collected could easily be coded, entered into statistical software, and analyzed to meet the study's objectives.

3.6 Instrument Validity and Reliability

To ensure that the questionnaire yielded accurate and consistent results, measures were taken to establish both validity and reliability.

Validity refers to the extent to which the instrument measures what it is intended to measure. In this study, content validity was ensured through colleagues and experts review. The drafted questionnaire was submitted to experienced professionals in public health, nursing, and infection prevention for evaluation. These experts assessed the relevance, clarity, and adequacy of each item in relation to the study objectives. Suggestions from the reviewers were used to revise the instrument before it was finalized for data collection.

Furthermore, a pilot study was conducted involving a small group of nurses from the Surgical Ward of South Suntreso Government Hospital. The pilot study helped identified ambiguous or misleading questions, as well as determined the average time required to complete the questionnaire. Feedbacks from the pilot were incorporated to improve the clarity and precision of the instrument.

Reliability was also ensured. Reliability refers to the consistency of the instrument in measuring the intended variables over time. Effort was also made to maintain consistency in administration by standardizing instructions and ensuring that all respondents received the same version of the questionnaire under similar conditions. This helped reduce interviewer bias and enhanced the accuracy of the collected data.

Through these processes, the instrument was refined to maximize its validity and reliability, ensuring that the study generated trustworthy and replicable results.

3.7 Data Collection Procedure

The data collection process was commenced after obtaining ethical clearance from the Department of Nursing, Christian Service University and administrative approval from the management of Komfo Anokye Teaching Hospital. After the approvals were secured, the researcher coordinated with the heads of nursing units within the Surgical Directorate to schedule appropriate times for administering the questionnaires, taking into consideration the nurses' duty shifts and workload.

Data was collected using self-administered structured questionnaires. The researcher personally distributed the questionnaires to eligible participants during break periods and after ward rounds to minimize disruption to patient care. Participants were provided with a brief explanation of the purpose of the study, their rights as respondents, and instructions for completing the questionnaire. They were also given the opportunity to ask questions for clarification before proceeding with answering the questionnaire.

Participation was entirely voluntary, and nurses were assured of anonymity and confidentiality. Each respondent was required to sign an informed consent form before receiving the questionnaire. No names or personal identifiers were recorded on the forms to ensure privacy.

Participants were given sufficient time (approximately 10–15 minutes) to complete the questionnaire and return it directly to the researcher. Follow-up visits were made over a period of one week to ensure a high response rate and also to retrieve any pending responses.

3.8 Data Analysis and Management

After the data collection, all the completed questionnaires were carefully checked for completeness and consistency. The data were then coded and entered into the Statistical Package for the Social Sciences (SPSS) version 26.0 for analysis. This software was chosen due to its reliability and wide usage in analyzing quantitative research data.

The analysis was primarily descriptive in nature, aligning with the design of the study. Frequencies and percentages were used to describe the demographic characteristics of respondents (e.g., age, gender, years of experience, rank) as well as information providing insight into the extent of adherence to aseptic techniques, the observed incidence of wound infections, and contributing factors, and the result have been presented in tables, charts, and graphs for clarity and easy interpretation.

3.9 Ethical Considerations

Ethical compliance was a critical component of this study to ensure the protection of the rights, dignity, and well-being of all participants. To this end, the following ethical measures were strictly observed.

Prior to the commencement of data collection, ethical clearance was obtained from the Department of Nursing, Christian Service University. In addition, administrative permission was sought from the management of Komfo Anokye Teaching Hospital, specifically from the head of the Surgical Directorate.

Also, participants were provided with a detailed informed consent form explaining the purpose of the study, the procedures involved, the voluntary nature of participation, and their

right to withdraw at any point without penalty. Only participants who signed the consent form were included in the study.

Moreover, participants' identities were not recorded on the questionnaire to ensure anonymity of the participants. All data collected were kept strictly confidential and used solely for the research purposes. Questionnaires were coded for data entry, and no identifiable information was disclosed in any part of report resulting from the study.

In addition, participation in the study was entirely voluntary. No participant was coerced, and they were freed to decline or withdraw from the study at any point without facing any negative consequences.

CHAPTER FOUR

ANALYSIS OF RESULTS

4.0 Introduction

This chapter presents the analysis of data collected from nurses at the surgical directorate of Komfo Anokye Teaching Hospital on the practice and effectiveness of aseptic techniques in preventing wound infections. The chapter is organized in line with the study's specific objectives and structured questionnaire sections. Quantitative data were analyzed using descriptive statistical tools, including frequencies and percentages, and the results are presented in tables and pictorial charts. This chapter, therefore, provides a foundation for drawing relevant conclusions and making informed recommendations in the subsequent chapter.

4.1 Socio-Demographic Characteristics of Respondents

This section presents the socio-demographic characteristics of the 139 respondents, providing insight of their age, gender, highest level of education, years of experience as a nurse, rank in nursing, years worked in the surgical directorate, and training on aseptic technique. The responses obtained are as illustrated on the table and figures below

Table 1: Socio-Demographic Characteristics of Respondents (n = 139)

Variables	Frequency	Percentage	Comm. Perc. (%)
Age Group			
20–29years	34	24.5	24.5
30–39years	58	41.7	66.2
40–49years	38	27.3	93.5
50years and above	9	6.5	100.0
Gender			
Male	47	33.8	33.8
Female	92	66.2	100.0
Educational Qualification			
Diploma	70	50.4	43.9
Bachelor's Degree	61	43.9	94.3
Master's or Above	8	5.8	100.
Work Experience			
Less than 1 year	12	8.6	8.6
1–5 years	54	38.8	47.4
6–10 years	44	31.7	79.1
Above 10 years	29	20.9	100.0
Rank			
Staff Nurse	40	28.8	28.8
Senior Staff Nurse	38	27.3	56.1
Nursing Officer	34	24.5	80.6
Nurse	27	19.4	100.0

Source; Field Data 2025

Figure 1: Number of Years Worked in the Surgical Directorate

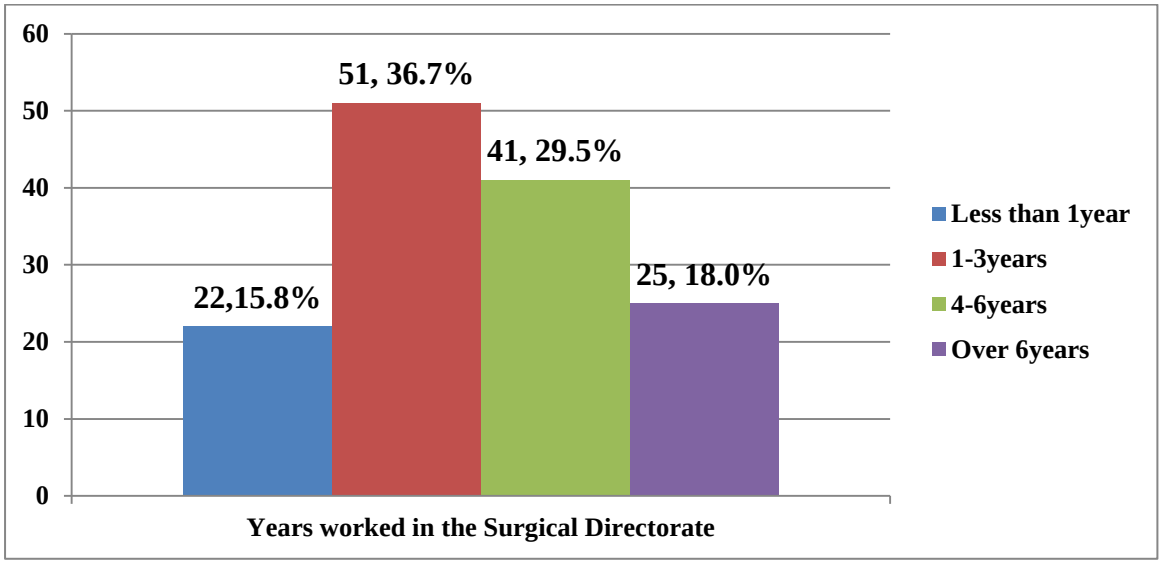
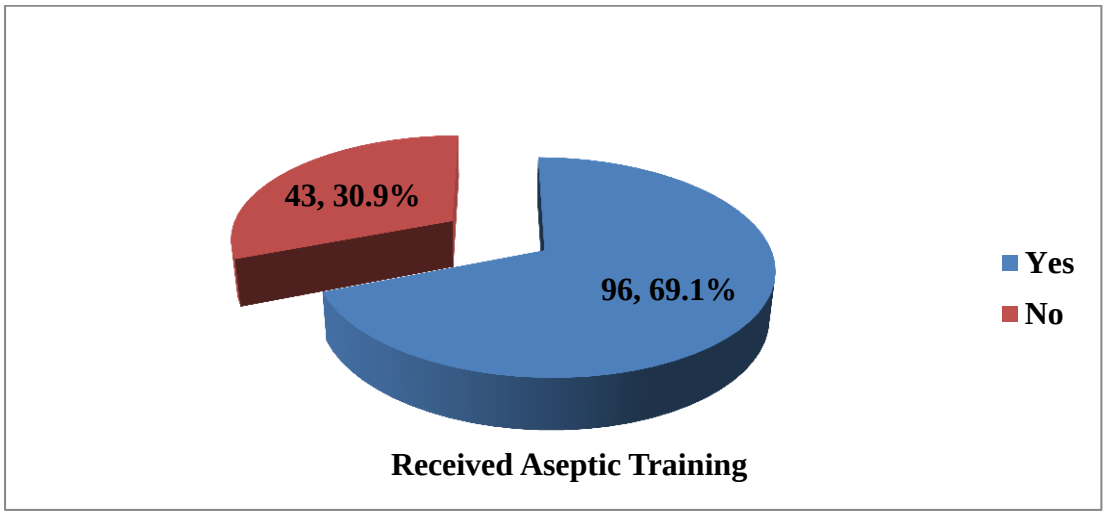


Figure 2: Received Any Formal Training in Aseptic Technique in the Past 2years?



The socio-demographic data revealed that a majority of the respondents (41.7%) were within the age range of 30-39 years, followed by 27.3% who were aged 40-49 years. This indicates that most nurses working in the surgical directorate are in their early to mid-career stages. Additionally, the data showed that 66.2% of the respondents were female, while 33.8% were male, reflecting the female-dominated nature of the nursing profession.

With regard to academic qualifications, 43.9% of the respondents held a bachelor's degree, 50.4% had a diploma, and only 5.8% possessed a master's degree or higher.

In terms of professional experience, 38.8% of the nurses had worked between 1-5 years, while 31.7% had between 6-10years of experience.

On the issue of professional rank, staff nurses constituted the highest group (28.8%), followed by senior staff nurses (27.3%) and nursing officers (24.5%). Nurse specialists accounted for the smallest proportion (19.4%).

Additionally, 36.7% of respondents had served in the surgical directorate for 1-3years, while 29.5% had between 4-6years of experience in the unit.

Lastly, a majority of the respondents (69.1%) reported that they had received formal training in aseptic techniques, while 30.9% had not.

4.2 Level of Adherence to Aseptic Techniques

One aim of the study was to assess the level of adherence to aseptic techniques among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. The responses obtained are presented on table 2 below.

Table 2: Respondents' Level of Adherence to Aseptic Techniques (n = 139)

Statement	Always Freq. (%)	Often Freq. (%)	Sometimes Freq. (%)	Rarely Freq. (%)	Never Freq. (%)
I wash my hands before and after wound dressing	63(45.3)	49(35.3)	21(15.1)	6(4.3)	0(0.0)
I wear sterile gloves when performing wound dressing	56(40.3)	51(36.7)	24(17.3)	6(4.3)	2(1.4)
I maintain a sterile field throughout the wound care procedure	58(41.7)	46(33.1)	24(17.3)	8(5.8)	3(2.2)

I dispose of contaminated materials using standard procedures	70(50.4)	42(30.2)	21(15.1)	4(2.9)	2(1.4)
I follow the correct order of donning and doffing PPE	49(35.3)	56(40.3)	25(18.0)	7(5.0)	2(1.4)
I use sterile dressing packs for each wound care procedure	65(46.8)	44(31.7)	21(15.1)	6(4.3)	3(2.2)
I ensure the wound area is disinfected before and after wound care	53(38.1)	50(36.0)	24(17.3)	8(5.8)	4(2.9)
I avoid touching non-sterile surfaces during wound care	61(43.9)	47(33.8)	19(13.7)	8(5.8)	4(2.9)

Source; Field Data 2025

From table 2 above on adherence to aseptic technique among the study respondents, a total of 45.3% of respondents indicated that they always wash their hands before and after wound dressing, while 35.3% reported doing so often. Only 4.3% rarely complied, and none reported never doing it.

For the use of sterile gloves, 40.3% always used them, 36.7% did so often, and 17.3% reported sometimes using them. A small percentage, 4.3%, rarely used sterile gloves, while 1.4% never did.

Regarding maintaining a sterile field, 41.7% of nurses always conformed, 33.1% often did, and 17.3% did so sometimes. Only 2.2% reported never maintaining a sterile field during wound care.

Half of the respondents (50.4%) always disposed of contaminated materials using standard procedures, and 30.2% did so often. Only 1.4% reported never following standard disposal procedures.

When asked about following the correct order of donning and doffing PPE, 35.3% of respondents reported always following the correct order, while 40.3% reported often following it. Only 1.4% said they never followed the correct order.

In terms of using sterile dressing packs for each procedure, 46.8% reported doing so always, and 31.7% did so often. A small number (2.2%) reported never using sterile dressing packs.

For disinfection of the wound area before and after care, 38.1% always performed this task, 36.0% did so often, and 17.3% did so sometimes. Only 2.9% indicated that they never disinfected the area.

Finally, 43.9% of respondents reported that they always avoided touching non-sterile surfaces during wound care, 33.8% did so often, and 13.7% did so sometimes. A small proportion (2.9%) admitted to never avoiding contact with non-sterile surfaces.

4.3 Incidence of Wound Infections

This part of the research examined the incidence of wound infection in the surgical directorate. In all, six questions were poised to the nurses and the responses obtained are as illustrated on table 3 below.

Table 3: Respondents' Views on the Incidence of Wound Infections (n = 139)

Variable	Frequency	Percentage (%)
Have you encountered a case of wound infection in the last 6 months?		
Yes	102	73.4
No	29	20.9
Not Sure	8	5.8
If "Yes" to the question 15 above were the wound infections you observed mostly post-surgical?		
Yes	67	65.5
No	18	18.0
Not Sure	17	16.5
If "Yes" to question 15, did any of the wound infections result in extended hospital stays?		

Yes	79	77.5
No	15	14.7
Not Sure	8	7.8
Do you report wound infections to your supervisor or infection control team?		
Yes	95	62.6
No	30	21.6
Not Sure	14	10.1
Are wound infection rates in your unit documented regularly?		
Yes	87	62.6
No	33	23.7
Not Sure	19	13.7
Do you believe most wound infections are preventable through aseptic techniques?		
Yes	113	81.3
No	14	10.1
Not Sure	12	8.6

Source; Field Data 2025

Out of the total respondents who were involved in the study, 73.4% reported that they had encountered a case of wound infection in the last six months, while 20.9% indicated they had not, and 5.8% were not sure. Regarding the nature of the infections, out of those who stated that they have encountered wound infection, 65.5% stated that the wound infections observed were mostly post-surgical, 18.0% said they were not, and 16.5% were unsure.

In terms of the impact of these encountered infections, 77.5% of respondents indicated that some wound infections resulted in extended hospital stays, while 14.7% did not observe this, and 7.8% were uncertain. When asked about reporting practices, 68.3% of respondents stated that they report wound infections to a supervisor or infection control team, 21.6% said they do not, and 10.1% were not sure.

Concerning documentation, 62.6% of the respondents confirmed that wound infection rates are documented regularly in their unit, 23.7% reported that documentation is not done

regularly, and 13.7% were unsure. Lastly, 81.3% of the respondents believed that the majority of wound infections are preventable through the use of aseptic techniques, while 10.1% did not believe so, and 8.6% were uncertain.

4.4 Factors Affecting Adherence to Aseptic Techniques

This section of the study sought to assess the factors influencing nurses' adherence to aseptic techniques. Diverse factors were pointed out by the study respondents and the findings are illustrated on the table below.

Table 4: Factors Affecting Adherence to Aseptic Techniques (n = 139)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	Freq.(%)	Freq.(%)	Freq.(%)	Freq.(%)	Freq.(%)
Workload in my unit makes it difficult to follow aseptic procedures	52(37.4)	49(35.3)	18(12.9)	14(10.1)	6(4.3)
There are adequate sterile materials available for procedures	31(22.3)	47(33.8)	21(15.1)	28(20.1)	12(8.6)
Time pressure often causes me to skip some aseptic steps	46(33.1)	44(31.7)	19(13.7)	21(15.1)	9(6.5)
Regular supervision improves adherence to aseptic techniques	64(46.0)	42(30.2)	16(11.5)	10(7.2)	7(5.0)
There is adequate in-service training on aseptic techniques	35(25.2)	41(29.5)	22(15.8)	27(19.4)	14(10.1)
Peer support enhances my ability to maintain aseptic technique	49(35.3)	43(30.9)	23(16.5)	17(12.2)	7(5.0)

Source; Field Data 2025

Regarding workload, 37.4% of respondents strongly agreed and 35.3% agreed that workload in their unit makes it difficult to follow aseptic procedures. A smaller proportion (12.9%) remained neutral, while 10.1% disagreed and 4.3% strongly disagreed.

When asked whether there are adequate sterile materials available, 22.3% strongly agreed and 33.8% agreed. Meanwhile, 15.1% were neutral, 20.1% disagreed, and 8.6% strongly disagreed with the statement.

On the issue of time pressure, 33.1% strongly agreed and 31.7% agreed that it causes them to skip some aseptic steps. In contrast, 13.7% were neutral, 15.1% disagreed, and 6.5% strongly disagreed.

With regard to supervision, 46.0% strongly agreed and 30.2% agreed that regular supervision improves adherence to aseptic techniques. Another 11.5% were neutral, while 7.2% disagreed and 5.0% strongly disagreed.

Concerning in-service training, 25.2% strongly agreed and 29.5% agreed that such training is adequate in their unit. However, 15.8% were neutral, 19.4% disagreed, and 10.1% strongly disagreed.

Lastly, 35.3% strongly agreed and 30.9% agreed that peer support enhances their ability to maintain aseptic technique. Additionally, 16.5% were neutral, while 12.2% disagreed and 5.0% strongly disagreed with the statement.

4.5 Relationship between Aseptic Techniques Adherence and Wound Infections

This part of the questionnaire sought to examine the relationship between adherence to aseptic technique and wound infection at the surgical directorate of the Komfo Anokye Teaching Hospital. The responses obtained are as illustrated on the table below.

Table 5: Relationship between Aseptic Techniques Adherence and Wound Infections (n=139)

Variables	Frequency	Percentage (%)
How often does poor adherence lead to wound infections?		
Always	58	41.7
Often	46	33.1
Sometimes	20	14.4
Rarely	10	7.2
Never	5	3.6
Most common aseptic breach leading to infection in your unit?		
Failure to wash hands	49	35.3
Improper glove use	38	27.3
Non-sterile dressing	32	23.0
Inadequate waste disposal	20	14.4
When aseptic techniques are strictly followed, how often do wound infections occur?		
Very Frequently	6	4.3
Frequently	13	9.4
Occasionally	41	29.5
Rarely	57	41.0
Never	22	15.8
How would you rate the effectiveness of aseptic technique in preventing wound infection?		
Very Effective	63	45.3
Effective	48	34.5
Neutral	14	10.1
Ineffective	9	6.5
Very Ineffective	5	3.6

Source; Field Data 2025

From the table above, regarding the frequency of wound infections due to poor adherence to aseptic techniques, 41.7% of respondents indicated that it occurs always, 33.1% said it occurs often, and 14.4% reported that it occurs sometimes. Only 7.2% said it rarely happens, and 3.6% believed it never happens.

When asked about the most common aseptic breach leading to infections, 35.3% of respondents cited failure to wash hands, 27.3% mentioned improper glove use, 23.0% identified non-sterile dressing, and 14.4% pointed to inadequate waste disposal.

On the frequency of wound infections when aseptic techniques are strictly followed, 41.0% said they rarely occur, 29.5% said they occur occasionally, 15.8% reported never witnessing them, 9.4% said frequently, and 4.3% said very frequently.

Concerning the effectiveness of aseptic technique in preventing wound infections, 45.3% rated it as very effective, 34.5% as effective, and 10.1% remained neutral. Meanwhile, 6.5% rated it as ineffective, and 3.6% as very ineffective.

CHAPTER FIVE

DISCUSSION, SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the final component of the study by discussing the results of the study, providing a summary of the major findings, drawing conclusions based on the research objectives, and offering relevant recommendations. The study was conducted to assess the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. The chapter revisits the purpose of the study, summarizes key findings from the data analysis, and provides conclusions drawn from the results. In addition, it outlines recommendations for policy, practice, and further research aimed at improving aseptic technique adherence and reducing wound infection rates. The discussions are presented in line with the specific objectives that guided the study.

5.1 Discussion

5.1.1 Level of Adherence to Aseptic Techniques

The findings from the study indicate a generally high level of adherence to aseptic techniques among nurses in the surgical directorate at Komfo Anokye Teaching Hospital. For instance, 80.6% of respondents either always or often washed their hands before and after wound dressing, while 77.0% reported consistently wearing sterile gloves. Additionally, 74.8% maintained a sterile field throughout the wound care procedure either always or often. These figures suggest that the majority of the nurses are aware of and practice key elements of aseptic technique. These findings are consistent with a study by Alemayehu and Dagne (2021) in Ethiopia, which found that 82% of nurses had good knowledge of aseptic techniques and 72% demonstrated good practice during wound dressing. Similarly, Adatara

et al. (2020) in Ghana reported that 74.3% of nurses adhered to aseptic practices during routine procedures, aligning closely with the current study's results.

Furthermore, proper disposal of contaminated materials showed the highest adherence, with over 80% of respondents doing so always or often. This finding is in line with Kilpatrick et al. (2020), who noted that disposal protocols are often the most followed due to their structured nature and institutional enforcement. However, adherence to steps such as avoiding non-sterile surfaces and following the proper order of donning and doffing PPE had slightly lower rates, indicating areas that may need targeted reinforcement.

Despite the relatively good adherence overall, some practices such as proper use of sterile dressing packs and routine disinfection of the wound area showed moderate variation in compliance. This variation mirrors findings by Mwansa et al. (2020) in Zambia, who found that inconsistent supply of sterile materials and time pressure affected nurses' ability to follow aseptic procedures in full.

The results also support the conclusion of Okyere and Adusei (2021), who found that adherence was higher among nurses with longer experience and those who had received recent in-service training. This implies that ongoing training and supervision may be crucial factors in maintaining high standards of practice.

In all, the findings suggest that while the majority of nurses at KATH demonstrate a good level of adherence to aseptic techniques, there are still specific practices that need improvement. The results also validate the trends observed in similar studies conducted in other low and middle-income countries, where adherence is influenced by training, supervision, workload, and availability of supplies.

5.1.2 Incidence of Wound Infections

The results from this part reveal that a substantial majority of nurses (73.4%) reported encountering wound infections within the last six months. This suggests that wound

infections remain a frequent occurrence in the surgical directorate. Similar findings were reported by Owusu et al. (2020) in a study conducted in Ghana, where over 70% of nurses acknowledged encountering at least one case of wound infection within a three-month period. This frequency of reported infections aligns with the broader challenges of healthcare-associated infections in low- and middle-income countries.

Additionally, 65.5% of the nurses indicated that the infections observed were mostly post-surgical in nature. This observation reflects trends identified in Allegranzi et al. (2019), who emphasized that surgical site infections (SSIs) are among the most common hospital-acquired infections in resource-constrained settings, often resulting from inadequate adherence to infection prevention practices.

Concerning the outcomes of these infections, 77.5% of the nurses who had encountered wound infection reported that the infections resulted in extended hospital stays. This is consistent with findings from Desta et al. (2021) in Ethiopia, where patients with infected wounds experienced longer hospitalization periods and increased antibiotic use. These extended stays not only strain hospital resources but also increase the risk of secondary infections and healthcare costs.

In terms of reporting behavior, 68.3% of nurses stated that they report wound infections to supervisors or infection control teams. This level of reporting is relatively high and comparable to findings by Kilpatrick et al. (2020), who observed that structured infection reporting systems in hospitals can increase staff accountability and facilitate prompt responses to infection outbreaks.

Despite this, only 62.6% of the respondents affirmed that wound infection rates are documented regularly in their units. This indicates a potential gap in systematic infection surveillance and aligns with Mensah et al. (2021), who reported similar documentation inconsistencies in Ghanaian hospitals due to poor record-keeping systems and staff shortages.

Importantly, 81.3% of the respondents believed that the majority of wound infections could be prevented through proper aseptic techniques. This belief reflects findings by Aiken et al. (2021) and World Health Organization (2022), who have both emphasized that adherence to aseptic procedures can significantly reduce the incidence of wound infections in hospital settings.

Generally, the findings highlight the persistent burden of wound infections and emphasize the need for strengthened infection surveillance, consistent reporting, and reinforcement of preventive strategies like aseptic technique.

5.1.3 Factors Affecting Adherence to Aseptic Techniques

It is evident from this part of the study that several factors influence how consistently nurses adhere to aseptic techniques in the surgical directorate at Komfo Anokye Teaching Hospital.

A majority of the respondents (72.7%) either strongly agreed or agreed that workload in their unit makes it difficult to follow all steps of aseptic procedures. This is in line with findings by Mwansa et al. (2020), who reported that high nurse-to-patient ratios and time constraints in surgical wards often lead to skipped infection control steps. Similarly, Mensah et al. (2021) identified workload as a key barrier to effective aseptic technique compliance in Ghanaian hospitals.

In terms of availability of sterile materials, only 56.1% of respondents agreed that adequate materials were available. This implies that more than 40% were either unsure or disagreed, suggesting inconsistent supply of essential items. This finding supports the results of Alemayehu and Dagne (2021) in Ethiopia, where inadequate access to sterile supplies was linked to reduced adherence among nurses during wound care.

Regarding the impact of time pressure, 64.8% of respondents agreed that it often causes them to skip some aseptic steps. This aligns with the work of Adatara et al. (2020), who found that

in busy surgical units, time pressure is a recurring factor that contributes to procedural shortcuts and noncompliance with sterile protocols.

Regular supervision was reported to enhance adherence by 76.2% of respondents. This corresponds with findings from Kilpatrick et al. (2020), who emphasized that structured monitoring and support systems increase compliance among nursing staff. Supervision likely acts as both a reminder and a reinforcement mechanism for maintaining correct practice.

When asked about in-service training, only 54.7% of respondents agreed that it was adequate, indicating that training opportunities may not be frequent or thorough enough for all staff. This observation echoes the findings of Aiken et al. (2021), who reported that regular and practical training sessions significantly improve adherence to aseptic techniques.

Lastly, 66.2% of respondents agreed that peer support enhances their ability to maintain aseptic technique. Peer influence has been recognized in several studies, including Li et al. (2022), which found that nurses who observed good practices among colleagues were more likely to emulate them, leading to improved adherence across teams.

In conclusion, the results suggest that while personal knowledge and attitude are important, systemic and environmental factors such as workload, supply availability, training, supervision, and peer influence play a crucial role in shaping nurses' aseptic behavior. Addressing these factors holistically may improve consistency and effectiveness in aseptic technique adherence.

5.1.4 Relationship between Adherence to Aseptic Techniques and Incidence of Wound Infections

The findings from this section of the study demonstrate that a significant proportion of the nurses perceive a strong link between aseptic technique adherence and the occurrence of wound infections. Specifically, 41.7% of respondents stated that poor adherence always leads to wound infections, while 33.1% indicated it often does. This suggests that nearly three-

quarters of the nurses believe there is a frequent and direct consequence of poor aseptic practice in clinical outcomes. This perception is consistent with findings from Desta et al. (2021) in Ethiopia, where nurses reported that breaches in aseptic technique were strongly associated with increased post-operative infection rates.

Regarding specific breaches, 35.3% of respondents cited failure to wash hands as the most common aseptic lapse leading to infections, followed by improper glove use (27.3%) and non-sterile dressing (23.0%). These findings align with results from Kilpatrick et al. (2020) and Allegranzi et al. (2019), who identified hand hygiene and improper use of protective barriers as the leading contributors to surgical site infections, especially in low-resource settings.

When asked about infection occurrence in situations where aseptic techniques are strictly followed, 41.0% of nurses reported that wound infections rarely occur, while 29.5% indicated they occur occasionally. This response supports the idea that proper adherence to aseptic practices significantly lowers the risk of infection. Similar conclusions were drawn in the work of Liu et al. (2022) in China, where the rate of wound infection dropped significantly following the implementation of stricter aseptic protocols among nursing staff.

On the perceived effectiveness of aseptic technique in preventing wound infections, 45.3% of the respondents rated it as very effective and 34.5% as effective. This indicates a high level of confidence among the nurses in the preventive value of aseptic procedures. This belief is supported by World Health Organization (2022) guidelines, which affirm that proper implementation of aseptic measures can reduce healthcare-associated infections by up to 70%.

As a whole, the results from this part reinforce existing global evidence that aseptic technique adherence is a key determinant of wound infection rates. The responses also suggest that

nurses not only understand the consequences of noncompliance but also recognize the critical role of fundamental practices such as hand hygiene and glove use in preventing infections.

5.2 Summary

5.2.1 Summary of the Research Process

This study was undertaken to assess the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. A quantitative research design was employed, using a descriptive approach to collect and analyze data. The target population consisted of registered nurses working within the surgical directorate. A convenience sampling technique was used to select a total of 139 nurses who met the inclusion criteria and were available during the period of data collection.

Data were collected through a structured, closed-ended questionnaire designed to capture information across five sections: socio-demographic characteristics, level of adherence to aseptic techniques, incidence of wound infections, factors influencing adherence, and the relationship between adherence and wound infections. The questionnaire was administered in person to ensure clarity and completeness of responses.

After data collection, responses were coded and analyzed using descriptive statistical tools. Frequencies, percentages, and cumulative percentages were calculated and presented in tables and pictorial charts. The analysis focused on identifying trends, levels of adherence, perceived causes of wound infections, and nurses' perceptions of how aseptic practices impact infection prevention.

Findings from the study were compared with results from existing literature to identify consistencies, differences, and gaps. The study adhered to ethical principles, including informed consent, confidentiality, voluntary participation, and institutional clearance. Based on the findings, conclusions were drawn, and relevant recommendations were made to

support improved nursing practices and policy development related to aseptic technique and infection prevention.

5.2.2 Summary of Key Findings

The study was structured to address four specific objectives. The key findings are summarized below according to the major sections of the research instrument.

5.2.2.1 Socio-Demographic Characteristics

The study involved 139 nurses. The majority (41.7%) were aged 30-39 years, and 66.2% were female. In terms of qualification, 43.9% held a bachelor's degree, while 50.4% had a diploma. Most respondents (38.8%) had between 1-5 years of work experience, and 36.7% had served between 1-3 years in the surgical directorate. Additionally, 69.1% of the nurses had received formal training in aseptic techniques.

5.2.2.2 Level of Adherence to Aseptic Techniques

The study revealed that most nurses demonstrated a high level of adherence to aseptic techniques. For instance, 80.6% of respondents either always or often washed their hands before and after wound dressing, and 77.0% consistently used sterile gloves. About 74.8% maintained a sterile field during procedures. However, some variation was noted in disinfection of wound areas and the use of sterile dressing packs. A few respondents occasionally skipped certain steps due to workload and time constraints.

5.2.2.3 Incidence of Wound Infections

The findings showed that 73.4% of respondents had encountered wound infections within the last six months. A majority (65.5%) indicated that the infections observed were mostly post-surgical. About 77.5% of respondents reported that some infections resulted in extended hospital stays. Although 68.3% reported infections to their supervisors or infection control teams, only 62.6% confirmed that infection rates were documented regularly. Importantly,

81.3% believed that most wound infections were preventable through proper aseptic practices.

5.2.2.4 Factors Affecting Adherence to Aseptic Techniques

Several factors were identified as influencing adherence. A large number (72.7%) of respondents agreed that workload affected their ability to follow aseptic steps. Time pressure was also a concern, with 64.8% agreeing that it led to skipped procedures. Only 54.7% believed that in-service training on aseptic techniques was adequate. However, supervision (76.2%) and peer support (66.2%) were reported as positive influences that helped reinforce good practices.

5.2.2.5 Relationship between Adherence and Wound Infections

Respondents recognized a strong link between non-adherence to aseptic techniques and the occurrence of wound infections. About 74.8% agreed that poor adherence always or often results in infections. The most common breaches leading to infections were failure to wash hands (35.3%) and improper glove use (27.3%). Additionally, 70.5% of respondents noted that wound infections rarely or occasionally occurred when aseptic practices were properly followed. Most respondents (79.8%) rated aseptic techniques as either very effective or effective in preventing infections.

5.3 Conclusion

This study set out to assess the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital. Based on the findings, it can be concluded that the majority of nurses demonstrate a generally high level of adherence to core aseptic practices such as hand hygiene, use of sterile gloves, and maintaining a sterile field during wound care. Despite this, challenges such as workload, time pressure, inadequate training, and limited availability of sterile supplies were found to influence adherence levels.

The study further established that wound infections remain a common occurrence in the surgical setting, with most cases identified as post-surgical. The respondents recognized that poor adherence to aseptic protocols directly contributes to the occurrence of these infections, and many believed that strict compliance can significantly reduce their incidence.

Largely, the study confirms that while nurses possess the knowledge and intent to practice aseptic techniques, systemic and institutional barriers can hinder consistent implementation. Strengthening supervision, improving supply logistics, offering continuous in-service training, and promoting peer support systems are essential to enhancing aseptic compliance and improving patient safety in surgical wards.

5.4 Recommendations

Based on the key findings of the study on the practice and effectiveness of aseptic techniques among nurses at the surgical directorate of Komfo Anokye Teaching Hospital, the following recommendations are proposed to enhance compliance and reduce wound infection rates:

- Nurses should strictly adhere to all components of aseptic techniques, especially hand hygiene, proper glove use, and maintaining sterile fields during procedures. They should also take personal initiative to participate in available infection prevention and control training programs to update their knowledge and skills.
- Hospital management should ensure the consistent availability of sterile materials and personal protective equipment (PPE) required for aseptic procedures, and should organize regular in-service training and refresher courses on aseptic techniques to keep nurses updated with best practices.
- Infection prevention committees should enhance their monitoring systems to track and report wound infection trends, and evaluate staff compliance with aseptic practices.

- The Ministry of Health and regulatory bodies such as the Nursing and Midwifery Council should incorporate mandatory aseptic technique training into professional licensing and continuous professional development (CPD) programs.
- Also, national guidelines on aseptic technique should be widely disseminated and made accessible to all healthcare institutions to ensure uniformity in practice.
- Further studies should explore the relationship between aseptic technique adherence and clinical outcomes using observational or interventional designs.

5.5 Implications of the Study

The findings of this study carry significant implications for various stakeholders involved in surgical care and infection prevention, including patients, nurses, healthcare facilities, and policy makers.

5.5.1 Implications for Patients

The study highlights that adherence to aseptic techniques plays a critical role in preventing wound infections. For patients, this implies a reduced risk of surgical site infections, shorter hospital stays, faster recovery, and reduced healthcare costs when aseptic practices are properly followed by care providers. Improved adherence also contributes to enhanced trust and satisfaction in the quality of care received.

5.5.2 Implications for Nurses

For nurses, the study emphasises the importance of consistent application of aseptic procedures in clinical practice. It also highlights how factors such as workload, training, supervision, and peer support influence their ability to maintain proper aseptic practices. The findings call for increased awareness, continuous professional development, and a proactive attitude toward infection prevention as a core responsibility of nursing care.

5.4.3 Implications for Health Facilities

The study reveals that systemic and institutional factors such as availability of sterile supplies, staff workload, and frequency of supervision significantly affect adherence to aseptic techniques. Health facilities must prioritize resource allocation to ensure uninterrupted supply of essential materials and invest in capacity building initiatives such as regular in-service training. Additionally, implementing stronger infection surveillance and reporting systems can help monitor trends and improve infection control outcomes.

5.4.4 Implications for Policy Makers

For health policy makers, the study provides evidence-based insight into the link between aseptic practice and wound infection prevention. This calls for the development and enforcement of policies that support adequate staffing in surgical units, mandatory infection prevention training, and the integration of aseptic practice guidelines into national nursing standards. Policy interventions should also support monitoring systems that evaluate institutional compliance with infection control protocols.

5.6 Suggested Areas for Further Research

- Future research could explore how adherence to aseptic practices varies across departments such as surgical, medical, pediatric, and emergency units to identify unit-specific challenges and strengths.
- Since this study relied on self-reported data, future research could involve direct observation of nursing practice to objectively assess compliance with aseptic protocols.
- Research can be conducted to evaluate how periodic in-service training affects the knowledge, attitudes, and adherence of nurses to aseptic techniques over time.
- A study focusing on staffing levels and their influence on aseptic adherence would help to identify whether workload significantly impairs best practices.

- Future studies can investigate the specific infrastructural, supply chain, and policy-related barriers to aseptic technique implementation in rural or under-resourced health settings.

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Appendices

Appendix 1: Research Questionnaire

Christian Service University

Department of Nursing

Topic: *Assessing the Practice and Effectiveness of Aseptic Techniques in Preventing Wound Infections among Nurses at the Surgical Directorate of Komfo Anokye Teaching Hospital*

Introduction

Dear Participant,

You are invited to participate in a research study on aseptic technique. The objective of this study is to assess the practice and effectiveness of aseptic techniques in preventing wound infections among nurses at the surgical directorate of Komfo Anokye Teaching Hospital.
Your responses will be kept confidential, and your participation is voluntary. Please answer the questions as honestly as possible.

Instructions

1. Do not write your name
2. They are section A, B, and C, D
3. Tick (√) the appropriate responds

Section A: Socio-Demographic Information

1. What is your age range?

   ☐20–29years ☐30–39years ☐ 40–49years ☐ 50years and above

2. What is your gender?

   ☐ Male ☐ Female

3. What is your highest qualification?

   ☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐ Other: _____

4. How many years have you worked as a nurse?

   ☐ Less than 1year ☐ 1–5years ☐ 6–10years ☐ Above 10years

5. How many years have you worked in the surgical directorate?

   ☐Less than 1year ☐ 1–5years ☐ 6–10years ☐ Above 10 years

6. Have you received any formal training in aseptic techniques in the past 2 years

   ☐ Yes ☐ No

Section B: Level of Adherence to Aseptic Techniques

This section seeks to assess the level of adherence to aseptic techniques among nurses at the surgical directorate of Komfo Anokye Teaching Hospital

No.	Statement	Always	Often	Sometimes	Rarely	Never
7.	I wash my hands thoroughly before and after wound dressing					
8.	I wear sterile gloves when performing wound dressing.					
9.	I maintain a sterile field throughout the wound care					

procedure

10. I dispose of contaminated materials using standard procedures.
11. I follow the correct order of donning and doffing personal protective equipment (PPE).
12. I use sterile dressing packs for each wound care procedure.
13. I ensure the wound dressing area is properly disinfected before and after care.
14. I avoid touching non-sterile surfaces during wound care.

Section C: Incidence of Wound Infections

This part of the questionnaire aims to examine the incidence of wound infection at the surgical directorate of Komfo Anokye Teaching Hospital

No.	Statement	Yes	No	Not Sure
15.	Have you encountered a case of wound infection in the last 6 months?			
16.	If "Yes" to question 15 above, were the wound infections you observed mostly post-surgical?			
17.	If "Yes" to question 15, did any of the wound infection result in extended hospital stays?			

18. Do you report wound infections to your supervisor or infection control team?
19. Are wound infection rates in your unit documented regularly?
20. Do you believe the majority of wound infections are preventable through aseptic techniques?

Section D: Factors Affecting Adherence to Aseptic Techniques

This section seeks to determine the factors affecting adherence to aseptic techniques among nurses at the surgical directorate of the Komfo Anokye Teaching Hospital

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21.	The workload in my unit makes it difficult to follow aseptic procedures fully.					
22.	There are adequate sterile materials available for each procedure.					
23.	Time pressure often causes me to skip some aseptic steps.					
24.	Regular supervision improves adherence to aseptic techniques.					
25.	There is adequate in-					

service training on aseptic techniques in my unit.

26. Peer support enhances my ability to practice proper aseptic technique.

Section E: Relationship between Adherence and Wound Infections

This part of the questionnaire seeks to examine the relationship between adherence to aseptic technique and wound infection at the surgical directorate of the Komfo Anokye Teaching Hospital

27. In your opinion, how often does poor adherence to aseptic techniques contribute to wound infections?

    ☐ Always ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

28. Which of these is the most common aseptic breach leading to wound infection in your unit? *Select all that apply*

    ☐Failure to wash hands ☐Improper glove use

    ☐ Non-sterile dressing ☐Inadequate waste disposal

29. When aseptic techniques are strictly followed, how often do you see wound infections occur?

    ☐Very Frequently ☐ Frequently ☐ Occasionally ☐Rarely ☐ Never

30. Based on your experience, how would you rate the effectiveness of aseptic technique in preventing wound infection?

    ☐ Very Effective ☐ Effective ☐Neutral ☐Ineffective ☐Very Ineffective

Thank you for completing this questionnaire!

Appendix 2: Participant Information Sheet

Title of Study:

Assessing the Practice and Effectiveness of Aseptic Techniques in Preventing Wound Infections among Nurses at the Surgical Directorate of Komfo Anokye Teaching Hospital

Introduction:

You are being invited to take part in a research study being conducted by a group of final-year nursing students from Christian Service University as part of the requirements for the award of a Bachelor of Science degree in Nursing. Before you decide whether to participate, it is important that you understand why the research is being done and what it will involve. Kindly take your time to read the information below and feel free to ask questions if you need any clarification.

Purpose of the Study:

The purpose of this study is to assess how nurses adhere to aseptic techniques during wound care and to examine the impact of such practices on the occurrence of wound infections in the surgical directorate of Komfo Anokye Teaching Hospital.

Why You Have Been Invited:

You have been selected to participate because you are a registered nurse currently working in the surgical directorate and are directly involved in wound care practices.

Voluntary Participation:

Your participation in this study is entirely voluntary. You may refuse to take part or withdraw at any stage without giving any reason. There will be no consequences to your employment or relationship with the hospital if you choose not to participate.

What Participation Involves:

If you agree to participate, you will be asked to complete a structured questionnaire that will take approximately 10-15 minutes. The questionnaire will ask about your socio-demographic information, adherence to aseptic techniques, experiences with wound infections, and factors influencing your practice.

Risks and Benefits:

There are no foreseeable risks associated with participating in this study. Although there may be no direct benefit to you, the findings from this study may contribute to improving infection prevention practices and patient care in your unit and other similar settings.

Confidentiality:

All information collected will be kept strictly confidential. You will not be asked to provide your name or any identifying information. Responses will be used only for academic purposes and will be reported in a manner that ensures anonymity.

Ethical Approval:

This study has been reviewed and approved by the Institutional Review Board, Christian Service University as well as the management of Komfo Anokye Teaching Hospital.

Contact for Further Information:

If you have any questions or concerns about this study, please contact:

Miss Sylvia Kwakye

Phone: +233539914221

Department of Nursing, Christian Service University

Statement of Consent:

If you decide to take part in this study, you will be asked to sign a consent form to confirm your voluntary participation.

Appendix 3: Participant Consent Form

Title of Study:

Assessing the Practice and Effectiveness of Aseptic Techniques in Preventing Wound Infections among Nurses at the Surgical Directorate of Komfo Anokye Teaching Hospital

Name of Researchers: Silvia Kwakye, Stella Sarkodie, and Mabel Ataa-Tawiah, Final-Year BSc Nursing Students, Christian Service University

Participant Declaration:

I have read and understood the information provided in the Participant Information Sheet. The purpose and procedures of the study have been clearly explained to me, and I have had the opportunity to ask questions.

I understand that:

My participation in this study is entirely voluntary.

I may withdraw from the study at any point without giving a reason and without any penalty.

There are no known risks associated with participating in this study.

The information I provide will be treated with strict confidentiality and used only for academic purposes.

My identity will not be disclosed in any report or publication resulting from this study.

I voluntarily agree to participate in this study.

Participant's Name: ……

Participant's Signature: …….. Date: …….

Researcher's Name: ……

Researcher's Signature: ……..Date: ……