

Knowledges, Practices and Prevention Standards on Infection Control Among Nurses in a Level I Government Hospital in Davao Del Norte

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ABSTRACT

This study determined the knowledge, practices, and compliance with infection prevention and control standards among nurses in a Level I Government Hospital in Davao del Norte. Specifically, it assessed nurses' knowledge, infection control practices, and compliance with prevention standards in terms of hand hygiene, personal protective equipment (PPE), waste management, and sterilization and disinfection, and examined the relationships among these variables. A quantitative descriptive-correlational research design was employed. The study involved 50 registered nurses selected through total enumeration sampling. Data were gathered using a researcher-made questionnaire based on WHO Infection Prevention and Control Guidelines, the Department of

Health Infection Prevention and Control Manual, and CDC Standard Precautions. The instrument was validated by five experts and obtained a Content Validity Index of 0.95, while the overall reliability was 0.93. Data were analyzed using frequency and percentage, mean, standard deviation, and Pearson Product-Moment Correlation. Results showed that nurses demonstrated a very high level of knowledge on infection control, with an overall mean of 4.50. Their infection control practices were also very high, with an overall mean of 4.41, while compliance with prevention standards obtained an overall mean of 4.50. Significant positive relationships were found between knowledge and practices ($r = 0.79$, $p < .001$), knowledge and prevention standards ($r = 0.73$, $p < .001$), and practices and prevention standards ($r = 0.84$, $p < .001$). The findings indicate that higher knowledge is associated with better infection control practices and greater compliance with prevention standards. An Infection Prevention and Control Enhancement Program is therefore recommended to sustain continuous education, competency assessment, compliance monitoring, policy enhancement, and patient safety.

Keywords: *infection prevention and control, nurses, infection control knowledge, infection control practices, prevention standards, hand hygiene, personal protective equipment, waste management, sterilization and disinfection, patient safety*

INTRODUCTION

Healthcare-associated infections (HAIs), also known as hospital-acquired infections, continue to pose a significant challenge to healthcare systems worldwide. These infections are acquired by patients while receiving treatment for medical or surgical conditions and are among the leading causes of prolonged hospitalization, increased healthcare costs, disability, and mortality. The World Health Organization

(WHO) identifies infection prevention and control (IPC) as one of the most effective strategies for ensuring patient safety and improving the quality of healthcare services. Effective IPC programs protect not only patients but also healthcare workers, visitors, and the community by reducing the transmission of infectious diseases within healthcare facilities.

Nurses serve as the largest group of healthcare professionals and spend the greatest amount of time in direct patient care. Consequently, they play a critical role in preventing the spread of infections through strict adherence to standard precautions and evidence-based infection control practices. These practices include proper hand hygiene, appropriate use of personal protective equipment (PPE), safe waste management, sterilization and disinfection of medical equipment, environmental sanitation, and compliance with institutional infection prevention policies. Their consistent implementation is essential in reducing healthcare-associated infections and promoting positive patient outcomes.

Despite the availability of comprehensive infection prevention guidelines issued by the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and the Philippine Department of Health (DOH), healthcare facilities continue to experience challenges in achieving optimal compliance. Factors such as inadequate knowledge, limited training opportunities, heavy workloads, shortages of personal protective equipment, insufficient supervision, and organizational barriers can adversely affect nurses' adherence to infection prevention standards. These challenges are more evident in government hospitals where healthcare workers often manage high patient volumes despite limited resources.

In the Philippines, infection prevention and control has become a national priority following the implementation of the Universal Health Care Act and the strengthening of patient safety initiatives by the Department of Health. The COVID-19 pandemic further emphasized the critical role of infection prevention measures in protecting healthcare workers and patients from emerging infectious diseases. As a result, healthcare institutions have intensified efforts to improve compliance with infection prevention standards through continuous education, competency assessment, policy implementation, and quality improvement programs.

Knowledge is recognized as one of the primary determinants of healthcare workers' compliance with infection prevention practices. Nurses who possess adequate knowledge regarding infection control principles are more likely to implement appropriate preventive measures consistently in their daily clinical practice. However, knowledge alone does not always guarantee compliance. Institutional support, availability of resources, continuous monitoring, positive attitudes, and organizational culture also influence the translation of knowledge into safe clinical practice. Therefore, examining the relationship between nurses' knowledge, infection control practices, and prevention standards is essential in identifying strengths and opportunities for improvement within healthcare institutions.

Several international and local studies have reported varying levels of infection control knowledge and compliance among nurses. Although many healthcare professionals demonstrate satisfactory theoretical knowledge, gaps continue to exist in the consistent application of infection prevention practices, particularly in hand hygiene compliance, proper use of PPE, waste segregation, and sterilization procedures. These inconsistencies highlight the need for continuous professional development, regular competency evaluation, and evidence-based policy implementation to sustain effective infection prevention programs.

Level I government hospitals provide essential healthcare services to communities and are often the first point of contact for patients seeking medical care. Because these facilities frequently operate with limited resources while serving large patient populations, maintaining effective infection prevention and control practices is crucial to ensuring quality healthcare delivery. Assessing nurses' knowledge, practices, and compliance with prevention standards in these settings provides valuable information that can guide administrators in developing targeted interventions, strengthening infection control programs, and promoting a culture of patient safety.

In Davao del Norte, Level I government hospitals continue to implement infection prevention and control policies consistent with national standards. However, there remains limited published evidence regarding the level of knowledge, practices, and compliance with infection prevention standards among nurses working in these facilities. Understanding the current status of infection control implementation is necessary to identify areas requiring improvement and to support evidence-based decision-making in nursing administration.

Therefore, this study aims to determine the *knowledge, practices, and prevention standards on infection control among nurses in a Level I Government Hospital in Davao del Norte*. Specifically, it seeks to assess nurses' knowledge and practices in hand hygiene, use of personal protective equipment, waste management, and sterilization and disinfection, as well as determine the relationship among these variables. The findings of this study are expected to serve as the basis for strengthening infection prevention and control programs, improving nursing practice, enhancing patient safety, and supporting hospital quality improvement initiatives. Furthermore, the results may contribute to the existing body of knowledge in nursing administration and provide evidence-based recommendations for healthcare policymakers, hospital administrators, nursing leaders, and future researchers.

Statement of the Problem

This study aimed to assess the knowledge, practices, and compliance with infection prevention and control standards among nurses in a Level I government hospital in Davao del Norte.

Specifically, it sought to answer the following questions:

1. What are the demographic characteristics of the respondents in terms of:
 - 1.1. age;
 - 1.2. sex;
 - 1.3. highest educational attainment;
 - 1.4. years of nursing experience;
 - 1.5. clinical unit or area of assignment; and
 - 1.6. attendance in infection prevention and control training?
2. What is the level of nurses' knowledge regarding infection prevention and control standards?
3. What is the level of nurses' infection prevention and control practices?
4. What is the level of nurses' compliance with infection prevention and control standards?
5. Is there a significant relationship between nurses' knowledge and their compliance with infection prevention and control standards?
6. Is there a significant relationship between nurses' practices and their compliance with infection prevention and control standards?
7. Do the levels of knowledge, practices, and compliance significantly differ when respondents are grouped according to their demographic characteristics?

Literature Review

Infection Prevention and Control

Infection Prevention and Control (IPC) is a scientific and evidence-based approach aimed at preventing healthcare-associated infections (HAIs) and reducing the transmission of infectious diseases within healthcare settings. According to the World Health Organization (WHO), IPC is fundamental to patient safety and quality healthcare because it protects patients, healthcare workers, and the community from preventable infections. Effective IPC programs reduce morbidity and mortality, minimize antimicrobial resistance, shorten hospital stays, and decrease healthcare expenditures. The WHO's 2024 global report notes that strong IPC programs, supported by adequate water, sanitation, hygiene (WASH), leadership, surveillance, and staff training, can prevent a substantial proportion of healthcare-associated infections.

Healthcare-associated infections remain among the most common adverse events in healthcare delivery worldwide. They occur when patients acquire infections while receiving treatment for another condition in a healthcare facility. Common HAIs include catheter-associated urinary tract infections, surgical site infections, ventilator-associated pneumonia, and central line-associated bloodstream infections. These infections are largely preventable through strict implementation of standard precautions and evidence-based infection prevention measures.

Nurses' Knowledge on Infection Control

Knowledge is one of the most important determinants of compliance with infection prevention practices. Nurses who possess adequate knowledge of infection prevention principles are more likely to recognize infection risks and implement appropriate preventive measures during patient care.

The Centers for Disease Control and Prevention (CDC) emphasizes that healthcare personnel must receive continuous education and competency-based training in infection prevention. Core practices include hand hygiene, appropriate use of PPE, environmental cleaning, injection safety, respiratory hygiene, and safe handling of medical equipment. Continuous education ensures that healthcare workers remain updated with evolving evidence and clinical guidelines.

Recent evidence also highlights that infection prevention nurses require competencies extending beyond clinical knowledge, including surveillance, communication, leadership, education, monitoring, and quality improvement. These competencies support effective implementation of IPC programs across healthcare organizations.

Knowledge is therefore considered the foundation upon which infection prevention behaviors are built. However, knowledge alone is insufficient unless it is consistently translated into clinical practice through institutional support and ongoing competency development.

Infection Control Practices Among Nurses

Infection control practices refer to the routine behaviors performed by healthcare workers to minimize infection transmission.

The CDC identifies several core practices that should be implemented consistently in all healthcare settings, regardless of facility type. These include proper hand hygiene, use of personal protective equipment, safe injection practices, environmental cleaning, and adherence to standard and transmission-based precautions. The CDC also emphasizes that organizational leadership, adequate staffing, and availability of supplies are essential for sustained compliance.

Environmental cleaning and disinfection are equally important components of infection prevention. Effective cleaning protocols, regular monitoring, staff education, and feedback mechanisms reduce microbial contamination and contribute to safer patient care environments.

Despite established guidelines, several studies have reported inconsistent adherence among healthcare workers. Heavy workloads, time constraints, limited resources, insufficient supervision, and inadequate access to PPE may reduce compliance with infection prevention practices, particularly in resource-constrained healthcare settings.

Hand Hygiene

Hand hygiene is recognized as the single most effective measure for preventing healthcare-associated infections.

The WHO recommends performing hand hygiene before touching a patient, before clean or aseptic procedures, after exposure to body fluids, after touching a patient, and after touching the patient's surroundings. Proper hand hygiene interrupts the transmission of microorganisms and significantly reduces healthcare-associated infections.

The CDC likewise identifies hand hygiene as a fundamental infection prevention practice applicable across all healthcare settings. Alcohol-based hand rubs are recommended when hands are not

visibly soiled, while soap and water are indicated when hands are visibly contaminated or after caring for patients with certain infectious diseases.

Personal Protective Equipment (PPE)

Personal Protective Equipment serves as a barrier that protects healthcare workers from exposure to infectious agents.

Appropriate PPE includes gloves, gowns, surgical masks, respirators, face shields, and protective eyewear. Selection depends on the anticipated exposure and type of patient care activity.

The WHO and CDC stress that PPE is effective only when properly selected, correctly donned and doffed, and used together with standard precautions and hand hygiene. Continuous competency assessment is necessary to ensure appropriate PPE utilization among healthcare personnel.

Waste Management

Healthcare waste management is another essential component of infection prevention.

Proper segregation, collection, transportation, treatment, and disposal of healthcare waste reduce occupational hazards and environmental contamination. Infectious waste must be handled using standard precautions to protect healthcare workers, waste handlers, and the public.

Healthcare facilities should implement written waste management policies, provide appropriate color-coded containers, and conduct continuous staff education to promote compliance.

Sterilization and Disinfection

Sterilization and disinfection eliminate microorganisms from medical equipment and environmental surfaces.

The WHO recommends standardized reprocessing procedures for reusable medical devices, including cleaning, disinfection, sterilization, storage, and routine monitoring of sterilization processes. Proper reprocessing reduces cross-contamination and healthcare-associated infections.

Prevention Standards

Prevention standards refer to established policies, protocols, and evidence-based practices designed to minimize infection transmission within healthcare facilities.

According to the CDC, effective infection prevention programs require leadership commitment, healthcare worker education, surveillance systems, environmental cleaning, occupational health programs, and continuous quality improvement. Healthcare organizations that consistently implement these standards report lower rates of healthcare-associated infections and improved patient outcomes.

Related Foreign Studies

Recent international studies consistently demonstrate that nurses with higher infection prevention knowledge exhibit better compliance with infection control practices. Healthcare organizations that invest in continuous education, competency assessment, and monitoring achieve higher adherence to infection prevention standards.

The WHO's 2024 Global Report on Infection Prevention and Control emphasizes that strengthening national and facility-level IPC programs significantly improves healthcare quality, reduces healthcare-associated infections, and supports antimicrobial resistance prevention.

A recent scoping review by Bai et al. (2025) identified nine core competency domains for infection prevention nurses, including infection control knowledge, clinical practice, surveillance, communication, leadership, education, and quality improvement. The review concluded that comprehensive competencies are essential for effective IPC implementation.

Related Local Studies

In the Philippines, infection prevention and control has become increasingly important following the COVID-19 pandemic and the implementation of the Universal Health Care Act. Government hospitals continue to strengthen infection prevention programs through staff training, policy implementation, and compliance monitoring.

Local studies have generally reported that Filipino nurses possess satisfactory knowledge regarding infection prevention. However, compliance varies depending on institutional support, availability of supplies, workload, and frequency of infection control training. These findings indicate the need for continuous professional education and stronger organizational commitment to sustain compliance with infection prevention standards.

Despite these efforts, there remains limited published evidence focusing specifically on Level I government hospitals in Davao del Norte, highlighting the need for the present study.

Synthesis of the Literature

The reviewed literature demonstrates that infection prevention and control remains a fundamental component of quality healthcare. Both international and local evidence indicates that nurses' knowledge significantly influences their infection prevention practices and compliance with established standards. Continuous education, adequate institutional support, effective leadership, and regular competency assessment consistently emerge as major factors associated with successful IPC implementation.

However, the literature also identifies persistent gaps in compliance due to workload, resource limitations, and organizational barriers. Furthermore, there is limited published evidence examining the combined relationship among nurses' knowledge, practices, and prevention standards within Level I government hospitals in Davao del Norte.

The present study addresses this gap by assessing these variables in a local government hospital. Its findings are expected to contribute to the development of evidence-based interventions, strengthen infection prevention programs, and improve patient safety and quality of healthcare services.

Theoretical Framework

This study is anchored on the Health Belief Model (HBM) and the Infection Prevention and Control (IPC) Framework of the World Health Organization (WHO).

The Health Belief Model postulates that individuals' engagement in health-promoting behaviors depends on their perceived susceptibility to illness, perceived severity of the threat, perceived benefits of action, and perceived barriers to implementation. In the context of infection control, nurses who recognize the risks associated with hospital-acquired infections (HAIs) and perceive the benefits of proper infection control practices are more likely to adhere to preventive measures.

The WHO IPC Framework (2021) outlines core components for effective infection control, including training of healthcare workers, continuous surveillance, safe waste management, sterilization, and environmental hygiene. It underscores that knowledge, attitudes, and practices of healthcare providers are central to preventing infections. Together, these models guide the assessment of nurses' infection control knowledge and behavior in healthcare settings.

Conceptual Framework

This study is anchored on the premise that nurses' knowledge of infection control influences their infection control practices, which consequently affect their compliance with infection prevention standards. Knowledge serves as the foundation for appropriate clinical decision-making, while consistent practice reflects the application of acquired knowledge in the clinical setting. Adherence to infection prevention standards ultimately contributes to reducing healthcare-associated infections (HAIs) and promoting patient safety.

The framework adopts the Input–Process–Output (IPO) Model, which illustrates the relationship among the variables of the study.

INPUT

The input consists of the three major variables:

Independent Variable

- ***Knowledge on Infection Control***
 - Hand Hygiene
 - Use of Personal Protective Equipment (PPE)
 - Waste Management
 - Sterilization and Disinfection

Mediator Variable

- ***Practices on Infection Control***
 - Hand Hygiene
 - Proper Use of PPE
 - Waste Management
 - Sterilization and Disinfection

Dependent Variable

- ***Prevention Standards***
 - Compliance with Hand Hygiene Standards
 - Compliance with PPE Standards
 - Compliance with Waste Management Standards
 - Compliance with Sterilization and Disinfection Standards

PROCESS

The process involves the following activities:

- Development and validation of the research questionnaire
- Approval from the hospital administration and ethics committee
- Distribution of questionnaires to nurse respondents
- Retrieval and encoding of data
- Statistical analysis using:
 - Frequency and Percentage
 - Mean
 - Standard Deviation
 - Pearson Product-Moment Correlation
- Interpretation of findings
- Formulation of conclusions and recommendations

OUTPUT

The expected output of the study is an evidence-based Infection Prevention and Control (IPC) Enhancement Program for nurses in the Level I Government Hospital in Davao del Norte. The program may include:

- Continuous infection control education and training
- Strengthened compliance monitoring
- Regular competency assessment
- Updated hospital infection control policies
- Improved patient safety and quality of healthcare services

Conceptual Framework Diagram (IPO Model)



Figure 1. Conceptual Framework Diagram

The conceptual framework illustrates that knowledge of infection control among nurses serves as the foundation for the correct implementation of infection prevention measures. Adequate knowledge enhances infection control practices, including proper hand hygiene, appropriate use of personal protective equipment, safe waste management, and effective sterilization and disinfection procedures. Consistent application of these practices leads to better compliance with infection prevention standards, ultimately improving patient safety and reducing the incidence of healthcare-associated infections.

Through the research process of data collection and statistical analysis, the study aims to identify relationships among these variables. The findings will serve as the basis for developing an Infection Prevention and Control Enhancement Program to strengthen nurses' competencies, improve compliance with established standards, and support continuous quality improvement in the hospital. This framework aligns with the study's objective of examining the relationship between nurses' knowledge, practices, and prevention standards on infection control.

Foreign Literature

Knowledge on Infection Control

According to *Allegranzi et al. (2020)*, infection prevention remains a global priority, yet compliance with established protocols is inconsistent. Their research underlines that knowledge alone is insufficient unless reinforced by institutional support and monitoring. Similarly, *Zhou et al. (2021)* found that nurses with frequent IPC training demonstrated higher levels of knowledge and adherence, emphasizing continuous education as a key component in infection prevention.

In a study by *Yusuf and Al-Rawajfah (2018)* in Saudi Arabia, nurses exhibited strong theoretical knowledge of infection control but struggled to translate this knowledge into consistent practice, particularly in high workload environments. This discrepancy highlights the need for supportive hospital policies and leadership engagement in IPC compliance.

Practices on Infection Control

Luo et al. (2019) emphasized that hand hygiene remains the most effective and low-cost method for preventing infections. However, compliance rates among nurses remain suboptimal due to time constraints, forgetfulness, and lack of resources. The study recommends integrating infection control practices into daily nursing routines and creating a culture of accountability.

In the study of *Khan et al. (2020)* conducted in Pakistan, only 62% of nurses consistently used PPE during patient care, primarily due to inadequate supplies and discomfort. This finding supports the idea that resource availability significantly influences infection control adherence. Furthermore, *Cruz et al. (2019)* noted that institutional infection control programs that included mentorship and periodic evaluation improved nurses' compliance with waste segregation and sterilization procedures.

Prevention Standards and Hospital-Acquired Infections

According to the *Centers for Disease Control and Prevention (CDC, 2022)*, adherence to prevention standards—such as hand hygiene, PPE use, and environmental cleaning—can reduce hospital-acquired infections by up to 70%. Studies by *Mathur (2020)* and *Fashafsheh et al. (2019)* demonstrated that hospitals implementing structured infection control programs saw a marked decrease in HAIs, particularly when nurses were actively engaged in infection control committees.

Local Literature

In the Philippines, infection control has been a critical concern, particularly within government hospitals where staffing limitations and patient overcrowding often pose risks for cross-infection.

Delos Santos et al. (2020) conducted a study on nurses' infection control compliance in a tertiary hospital in Manila and found that while nurses had high knowledge levels, actual practices were often inconsistent due to lack of supervision and monitoring.

Reyes and Panganiban (2019) emphasized that continuous professional education and administrative support play vital roles in reinforcing infection control standards, noting that hospitals with active Infection Control Committees (ICCs) achieved higher compliance rates.

Moreover, Cruz and Alvarez (2021) highlighted that government hospital nurses in Mindanao demonstrated moderate knowledge and practice levels on PPE utilization and waste segregation. The study identified gaps in the areas of sterilization and disinfection, pointing to the need for regular in-service training and updated infection control guidelines.

A similar study by Mendoza *et al.* (2018) on the relationship between knowledge and practice on infection control among nurses in Davao Region revealed a significant correlation between knowledge and practice, supporting the idea that informed nurses are more likely to comply with infection prevention protocols.

Synthesis of Literature

The reviewed literature underscores a consistent pattern: nurses generally possess adequate knowledge of infection control principles, but gaps remain in translating this knowledge into consistent practice. Both foreign and local studies emphasize the importance of continuous education, institutional support, and monitoring in sustaining effective infection control measures.

Despite available guidelines from the DOH and WHO, limited resources and varying levels of compliance remain challenges in many government hospitals, particularly those at the primary care level. These findings justify the need to examine the relationship among nurses' knowledge, practices, and prevention standards in infection control within a Level I Government Hospital in Davao del Norte.

The present study contributes to filling this gap by identifying existing levels of knowledge and compliance among nurses and determining whether these factors significantly relate to infection prevention standards. The results will help guide the formulation of evidence-based interventions and policy recommendations to improve infection control in local healthcare settings.

METHODS

Research Design

This study employed a quantitative, descriptive-correlational research design.

The descriptive method was used to determine the level of nurses' knowledge, practices, and prevention standards regarding infection control. The correlational design was utilized to determine whether a significant relationship exists among knowledge, practices, and prevention standards.

This design is appropriate because it allows the researcher to describe existing conditions and determine the relationship among variables without manipulating them.

Research Locale

The study was conducted at a Level I Government Hospital in Davao del Norte, Philippines.

The hospital provides primary and secondary healthcare services to the municipality and nearby communities. It offers emergency services, inpatient care, outpatient consultations, maternal and child health services, operating room services, and public health programs.

The hospital was selected because infection prevention and control is one of its quality and patient safety priorities.

Research Respondents

The respondents were 50 registered nurses employed at the Level I Government Hospital. The respondents were assigned in different clinical departments, including:

- Emergency Room
- Operating Room

- Delivery Room
- Medical Ward
- Surgical Ward
- Pediatric Ward
- Outpatient Department

Inclusion Criteria

Respondents must:

- be Registered Nurses;
- have worked in the hospital for at least six months;
- be directly involved in patient care; and
- voluntarily agree to participate.

Exclusion Criteria

The following were excluded:

- nurses on leave during data collection;
- contractual nurses with less than six months of service;
- administrative nurses without direct patient care.

Sampling Technique

The study employed *total enumeration sampling*. Since the total population consisted of only 50 nurses, all qualified nurses were invited to participate.

Research Instrument

The researcher utilized a researcher-made questionnaire based on the following sources:

- World Health Organization (WHO) Infection Prevention and Control Guidelines
- Department of Health (DOH) Infection Prevention and Control Manual
- Centers for Disease Control and Prevention (CDC) Standard Precautions
- Current literature on infection control

The questionnaire consisted of four (4) parts:

Part I. Demographic Profile

This part gathered the respondents' demographic information in terms of:

1. Age
2. Sex
3. Civil Status
4. Educational Attainment
5. Length of Service
6. Area Assignment

Part II. Knowledge on Infection Control

This part assessed the respondents' knowledge of infection control across the following four dimensions:

1. Hand Hygiene
2. Personal Protective Equipment (PPE)
3. Waste Management
4. Sterilization and Disinfection

Part III. Practices on Infection Control

This part assessed the frequency of the respondents' infection control practices using the same four dimensions:

1. Hand Hygiene
2. Personal Protective Equipment (PPE)
3. Waste Management
4. Sterilization and Disinfection

Part IV. Prevention Standards

This part measured the extent to which nurses comply with infection prevention standards.

Scale

A five-point Likert scale was utilized to measure the respondents' knowledge, practices, and compliance with prevention standards. The same scale and interpretation were applied to the respective sections of the questionnaire.

Knowledge

Scale	Interpretation
4.21–5.00	Very High
3.41–4.20	High
2.61–3.40	Moderate
1.81–2.60	Low
1.00–1.80	Very Low

The same interpretation was used for Practices and Prevention Standards.

Validity of Instrument

The questionnaire was evaluated by five experts:

- Infection Control Nurse
- Chief Nurse
- Nursing Research Professor
- Statistician
- MHA Adviser

Comments and recommendations were incorporated before pilot testing.

The instrument obtained a Content Validity Index (CVI) of 0.95, indicating excellent content validity.

Reliability

A pilot study involving 30 nurses from another government hospital was conducted to assess the reliability of the research instrument. The internal consistency of the questionnaire was determined using Cronbach's Alpha.

Dimension	Cronbach's Alpha
Knowledge on Infection Control	0.91
Practices on Infection Control	0.94
Prevention Standards	0.92
Overall Reliability	0.93

The results demonstrate that the research instrument has excellent internal consistency, with an overall Cronbach's Alpha coefficient of 0.93.

RESULTS AND DISCUSSION

Demographic Profile

Table 1. *Demographic Profile (N=50)*

Variable	Frequency	Percentage
Male	12	24%
Female	38	76%
20–30 years	18	36%
31–40 years	21	42%
41 years above	11	22%
Bachelor's Degree	43	86%
Master's Units	7	14%

The majority of respondents were female (76%), aged 31–40 years (42%), and held a bachelor's degree (86%).

Level of Knowledge on Infection Control

Table 2. *Level of Knowledge*

Indicator	Mean	Interpretation
Hand Hygiene	4.63	Very High
PPE	4.58	Very High
Waste Management	4.42	Very High
Sterilization	4.37	Very High

The nurses demonstrated a very high level of knowledge regarding infection control, with an overall mean of 4.50, interpreted as Very High. Among the four dimensions, Hand Hygiene obtained the highest mean score of 4.63, indicating a strong level of knowledge and awareness regarding proper hand hygiene as an important infection prevention measure.

Practices on Infection Control

Table 3. *Practices*

Indicator	Mean	Interpretation
Hand Hygiene	4.51	Very High
PPE	4.49	Very High
Waste Management	4.34	Very High
Sterilization	4.28	Very High

The respondents demonstrated a very high level of infection control practices, with an overall mean of 4.41, interpreted as Very High. Among the assessed dimensions, Hand Hygiene obtained the highest

compliance score, indicating that the respondents consistently practiced proper hand hygiene as part of their infection prevention measures.

Prevention Standards Compliance

Table 4. *Prevention Standards*

Indicator	Mean	Interpretation
Hand Hygiene	4.60	Very High
PPE	4.55	Very High
Waste Management	4.46	Very High
Sterilization	4.40	Very High

The nurses demonstrated a very high level of compliance with infection prevention standards, with an overall mean of 4.50, interpreted as Very High. The findings indicate that the nurses consistently adhered to infection prevention standards established by the hospital and aligned with relevant national guidelines.

Relationship Between Knowledge and Practices

Table 5. *Relationship among Variables*

Variables	r-value	p-value	Decision
Knowledge vs Practices	0.79	0.000	Reject Ho

There is a strong positive significant relationship between knowledge and practices. This indicates that nurses with higher levels of knowledge on infection control tend to demonstrate better infection control practices.

Knowledge and Prevention Standards

Table 6. *Knowledge and Prevention Standards*

Variables	r-value	p-value	Decision
Knowledge vs Prevention Standards	0.73	0.000	Reject Ho

There is a strong positive significant relationship between knowledge and prevention standards. The findings indicate that higher knowledge is significantly associated with better adherence to infection prevention standards.

Practices and Prevention Standards

Table 7. *Practices and Prevention Standards*

Variables	r-value	p-value	Decision
Practices vs Prevention Standards	0.84	0.000	Reject Ho

There is a very strong positive significant relationship between nurses' infection control practices and their compliance with prevention standards. This indicates that better infection control practices are associated with higher compliance with infection prevention standards.

Summary of Findings

The study revealed that:

1. Nurses demonstrated a very high level of knowledge regarding infection control (Overall Mean = 4.50).
2. Nurses exhibited very high infection control practices (Overall Mean = 4.41).
3. Nurses maintained very high compliance with prevention standards (Overall Mean = 4.50).
4. There was a statistically significant positive relationship between:
 - o Knowledge and Practices ($r = 0.79, p < .001$)
 - o Knowledge and Prevention Standards ($r = 0.73, p < .001$)
 - o Practices and Prevention Standards ($r = 0.84, p < .001$)

These findings suggest that higher levels of knowledge are associated with better infection control practices and greater adherence to prevention standards.

Summary

This study was conducted to determine the *Knowledge, Practices and Prevention Standards on Infection Control among Nurses in a Level I Government Hospital in Davao del Norte*. Specifically, it assessed the nurses' level of knowledge, infection control practices, and compliance with prevention standards in the areas of hand hygiene, use of personal protective equipment (PPE), waste management, and sterilization and disinfection. Furthermore, the study determined whether a significant relationship existed among these variables.

A *quantitative descriptive-correlational research design* was employed. The respondents consisted of 50 registered nurses, selected through total enumeration sampling. Data were collected using a validated researcher-made questionnaire based on the World Health Organization (WHO) Infection Prevention and Control Guidelines, the Department of Health (DOH) Infection Prevention and Control Manual, and the Centers for Disease Control and Prevention (CDC) Standard Precautions.

The statistical tools used in analyzing the data included frequency and percentage distribution for the respondents' profile, weighted mean and standard deviation to determine the levels of knowledge, practices, and prevention standards, and Pearson Product-Moment Correlation to determine the relationships among the variables.

The findings revealed that the respondents demonstrated a very high level of knowledge regarding infection control, with an overall mean of 4.50. Likewise, the nurses exhibited very high infection control practices, obtaining an overall mean of 4.41, while compliance with infection prevention standards also obtained a very high rating with an overall mean of 4.50. The Pearson correlation analysis further revealed statistically significant positive relationships between knowledge and practices, knowledge and prevention standards, and practices and prevention standards. These findings indicate that increased knowledge among nurses contributes to better infection control practices and greater adherence to infection prevention standards.

CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn:

1. The nurses possess a very high level of knowledge regarding infection prevention and control, particularly in hand hygiene, use of personal protective equipment, waste management, and sterilization and disinfection. This indicates that they are knowledgeable about established infection control principles and current healthcare guidelines.
2. The nurses consistently demonstrate very high infection control practices in their daily clinical responsibilities. This reflects their commitment to implementing appropriate infection prevention measures and ensuring patient and healthcare worker safety.

3. The respondents exhibit very high compliance with infection prevention standards, suggesting that hospital policies and infection control protocols are effectively implemented within the institution.
4. The study found a significant positive relationship between nurses' knowledge and infection control practices. Nurses with greater knowledge tend to demonstrate better compliance with recommended infection prevention practices.
5. A significant positive relationship also exists between knowledge and prevention standards as well as between practices and prevention standards. These findings affirm that knowledge and proper clinical practice are essential determinants of compliance with infection prevention standards.
6. The null hypothesis stating that there is no significant relationship between nurses' knowledge, practices, and prevention standards is therefore rejected. The study supports the conclusion that knowledge significantly influences infection control practices and compliance with prevention standards.

Overall, maintaining high levels of knowledge through continuous education and strengthening evidence-based clinical practice are essential strategies in sustaining effective infection prevention and control programs in healthcare institutions.

Recommendations

Based on the conclusions of the study, the following recommendations are proposed:

1. **Hospital Administration** should continue to strengthen its Infection Prevention and Control (IPC) Program by allocating sufficient resources, ensuring the availability of personal protective equipment, and supporting continuous quality improvement initiatives related to infection prevention.
2. The **Infection Prevention and Control Committee** should conduct regular monitoring, compliance audits, and competency assessments to ensure that infection prevention policies are consistently implemented across all hospital departments.
3. The **Nursing Service Department** should organize periodic in-service education, seminars, workshops, and simulation-based training to reinforce nurses' knowledge and clinical competencies in infection prevention and control.
4. **Nurses** should actively participate in continuing professional development programs and remain updated with current WHO, DOH, and CDC infection prevention guidelines to sustain high-quality nursing practice and patient safety.
5. **Hospital management** should establish a continuous performance evaluation and feedback system that recognizes exemplary compliance and addresses identified gaps in infection control practices.
6. **Future researchers** are encouraged to replicate this study using a larger sample size, multiple hospitals, or different healthcare settings. Additional variables such as organizational support, availability of resources, workload, leadership, safety culture, and attitudes toward infection control may also be explored to further understand factors influencing compliance.
7. Based on the findings of the study, the researcher recommends the development and implementation of an Infection Prevention and Control Enhancement Program focusing on continuous education, competency assessment, compliance monitoring, and policy enhancement to further improve infection prevention practices and patient safety outcomes in the hospital.

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