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Assessment of the quality of nursing care provided to patients who have undergone appendectomy: 'The case of the surgical department at Wangata General Referral Hospital, Mbandaka'

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Abstract

Introduction: Surgical safety depends on the quality of nursing care, which is central to the prevention of post-appendectomy complications. At the Wangata General Hospital, discrepancies between theoretical standards and bedside practice have prompted this evaluation.

Overall objective: This study aims to assess the compliance of nursing care provided to patients who have undergone appendectomy with professional standards in order to optimise clinical management.

Methodology: A quantitative and evaluative approach was conducted among surgical nursing staff. Data were collected through structured observation and a questionnaire to compare actual practice with current standards.

Results: The study reveals satisfactory administration of medication, but highlights critical shortcomings in the monitoring of vital signs and adherence to aseptic procedures during dressing changes.

Discussion: These shortcomings can be attributed to a lack of continuing professional development and inadequate equipment. Care, which is overly focused on technical tasks, neglects the educational and relational aspects of patient care.

Conclusion: Improving quality at the Wangata General Hospital requires enhanced skills and better resourcing. Regular supervision is essential to ensure the safety and rapid recovery of post-operative patients.

Keywords: Evaluation, Quality, Nursing, Patients, Surgical patients, Appendectomy

Introduction

The quality of nursing care is now the cornerstone of patient safety within modern healthcare systems. At the global and international level, the World Health Organisation (WHO, 2022) reports that unsafe care contributes to approximately 2.6 million deaths annually in low- and middle-income countries. In the surgical setting, although appendectomy is the most common abdominal emergency, the global rate of postoperative complications ranges from 7% to 15% depending on the context, a proportion largely influenced by the rigour of nursing supervision (Smith & Jones, 2023).

Across the African continent, health disparities exacerbate the risks associated with surgical care. The prospective "African Surgical Outcomes Study" (Biccard et al., 2018) revealed that postoperative mortality in Africa is twice the global average, despite a younger patient profile. This phenomenon is intrinsically linked to the poor quality of nursing care, often hampered by excessive workloads where a single nurse must sometimes supervise more than 30 patients simultaneously, making the monitoring of post-appendectomy complications unreliable.

In the Democratic Republic of the Congo, the guidelines of the National Health Development Plan (PNDS) aim to reduce hospital morbidity, but the implementation of standards remains a major challenge. At the national level, clinical audits show that standards for aseptic practice and monitoring of vital signs are met in fewer than 55% of cases in public hospitals (Kabange & Mukengeshayi, 2022).

This situation is reflected in Equateur Province, where isolation and the precarious state of logistical resources weigh heavily on the performance of healthcare providers in Mbandaka.

At the local level, the Wangata General Referral Hospital (HGR) forms the setting for our study. The findings from fieldwork conducted between August and October 2025 highlight a worrying gap between theoretical protocols and daily nursing practice. It was observed that the monitoring of vital signs during the first few hours following appendectomy is not systematically documented in patient records. Furthermore, the assessment of bowel movement resumption and aseptic technique during dressing changes suffer from technical inconsistencies, exposing patients to risks of surgical site infections or residual peritonitis.

The problem therefore lies in the inadequate quality of nursing care provided, which appears to be compromised by organisational and professional factors. The absence of regular evaluation of nursing practices at the Wangata Regional General Hospital contributes to the persistence of substandard care, which prolongs hospital stays and increases costs for families. It is with this in mind that our study aims to analyse the determinants of this quality in order to formulate recommendations likely to optimise the care of patients undergoing appendectomy at this referral centre.

Research questions

Analysis of the issue highlights a discrepancy between care standards and the practice observed at the Wangata Regional General Hospital. To guide this quantitative assessment, we formulate the following main question: To what extent does the nursing care provided to patients who have undergone appendectomy at the Wangata Regional General Hospital comply with postoperative care standards?

Research hypotheses

In response to the questions raised, we formulate the following main hypothesis: The quality of nursing care provided to patients who have undergone appendectomy at the Wangata Regional General Hospital is generally inadequate, with a compliance rate with professional standards of less than 60%.

General objective

The general objective of this study is to evaluate the quality of nursing care provided to patients who have undergone appendectomy at the Wangata Regional General Hospital during the period from August to October 2025. This comprehensive evaluation is based on Donabedian's conceptual framework, which links structure, process and outcomes to define clinical excellence. According to Smith and Jones (2023), such an approach is essential for measuring the gap between prescribed care and the care actually provided at the patient's bedside.

Methodology

1. Study design

We opted for a quantitative, descriptive cross-sectional study. This choice is justified by our intention to assess the quality of care at a specific point in time (August to October 2025) without manipulating the variables, in order to provide an accurate snapshot of nursing practices.

2. Presentation of the study setting

The Wangata General Referral Hospital (HGR) is located in the city of Mbandaka, the capital of Equateur Province in the Democratic Republic of the Congo. It is situated within the health zone that bears its name, in the heart of the Wangata district. This facility is geographically bounded by the city's main thoroughfares, facilitating access for local residents and patients referred from peripheral health centres.

The choice of Wangata General Hospital for this study is no coincidence. As a referral hospital situated in a major urban centre, it handles the highest number of appendectomy cases in the region. It provides a suitable setting for assessing whether nationally established quality standards are effectively applied in a provincial context. Furthermore, the diverse profile of the nurses working there allows for the

collection of rich data for a quantitative analysis representative of local competencies.

3. Population and sampling

To assess clinical excellence at Wangata General Referral Hospital, the study population was strictly limited to nurses (levels A0, A1, A2 and A3) assigned to the A&E, operating theatre and surgical departments, thereby excluding trainees, administrative staff and staff from non-surgical departments. To ensure complete homogeneity of the data, selected participants had to have personally cared for at least one patient who had undergone an appendectomy during the survey period, be present during data collection, and have given their free and informed consent.

The final sample consists of 46 healthcare professionals selected via a non-probabilistic method based on reasoned choice or convenience. As Grawitz (2001) points out, this approach is particularly relevant when the researcher targets a specific profession whose practical activity is central to the evaluation process. This sample size of participants reflects a representativeness approach seeking to reconcile statistical reliability requirements with logistical realities on the ground. In accordance with the methodological principles of Polit and Beck (2021), the formation of such a group is essential in quantitative research designs to allow for a valid extrapolation of findings to the study population, whilst ensuring optimal operational management of the investigations during the period from August to October 2025.

4. Method, Technique and Data Collection Tool

In order to accurately capture data from clinical practice, the study employs a research method combining structured observation and structured interviews. This dual approach allows for a direct comparison of actual practices—the 'doing' observed at the patient's bedside—with staff members' theoretical knowledge and organisational constraints. The main instruments comprise a checklist-style observation grid and a structured questionnaire, both developed on the basis of Donabedian's three-dimensional model and the guidelines of the DRC Ministry of Health. This methodological combination is validated by Polit and Beck (2021) as the most effective strategy for assessing the compliance of interventions with professional standards.

The scientific rigour of this approach also relies on the validation and metrological standardisation of the data collection tools. Content validity was ensured by the expertise of a surgeon and two nursing lecturers, whilst face validity was tested during a pre-test conducted with ten nurses to eliminate any semantic or technical ambiguities. At the same time, the reliability and consistency of the measurement were ensured by the unambiguous nature of the wording, thereby minimising measurement errors in accordance with the principles of Grawitz (2001), who advocates the repeatability of observations. Finally, to neutralise the subjective biases inherent in the assessment of wound care, strict standardisation of the success criteria was established in advance, ensuring perfect inter-observer reliability during the analysis of practices in the field.

5. Analysis of the study variables

In accordance with the methodological guidelines of Polit and Beck (2021), this research structures its data around a primary dependent variable and several independent or explanatory variables. The central element to be measured and explained is the 'Quality of nursing care provided', a qualitative variable converted into a quantitative score of compliance-. Drawing on Donabedian's (2003) conceptual model, this quality is assessed across three distinct dimensions: technical compliance relating to strict adherence to monitoring and aseptic protocols; traceability defined by the completeness of the care record; and safety measured by the total absence of incidents or medication administration errors.

To identify the factors determining this quality, the independent variables are divided into three well-defined analytical dimensions. The first concerns the socio-professional profile of nurses, encompassing their level of education (categories A3 to A0), access to continuing professional development in perioperative care, and length of service, the latter enabling an assessment of the role of experience on clinical judgement with reference to the work of Phaneuf (2017). The second dimension explores structural and organisational factors, such as workload (nurse-to-patient ratio) and the availability of material resources and consumables, the lack of which is identified by Kabange and Mukengeshayi (2022) as the main obstacle to the quality of care in the DRC. Finally, the third dimension focuses directly on clinical processes by measuring the frequency of vital sign monitoring, the aseptic score during dressing changes, and responsiveness to post-operative pain. The translation of each of these variables into coded numerical indicators ensures rigorous operationalisation, guaranteeing appropriate statistical analysis and direct comparison with the research hypotheses.

6. Data Collection Process

The data collection process was structured around three successive stages to ensure the objectivity of the results and minimise bias among the 46 nurses in the sample. The preparatory phase began with obtaining the necessary authorisations from the management of the Wangata General Referral Hospital and the head of nursing, followed by a pre-test of the data collection tools with ten professionals not selected for the final assessment. As argued by Polit and Beck (2021), this preliminary testing is fundamental in a clinical setting to ensure that all participants have a clear understanding of the terminology related to appendectomy, thereby allowing the observation grid and questionnaire to be adjusted and finalised.

The operational phase ran continuously from August to October 2025, based on a non-participatory direct observation approach within operating theatres and surgical wards. The researcher recorded in real time the technical compliance of dressings and postoperative monitoring. In parallel, a structured questionnaire was administered individually to healthcare staff at the end of their shift to assess their knowledge and structural constraints without disrupting clinical activity. This methodological choice supports the findings of Kabange and Mukengeshayi (2022), who define direct observation in the DRC as the most reliable method for mitigating social desirability bias, characterised by the tendency of staff to report theoretical practices that they do not consistently carry out. This phase was supplemented by a documentary audit of care records focusing on the monitoring of patient flow and vital signs.

Finally, the verification and closure phase required a daily check of the consistency and completeness of all records completed in the field. Tools containing omissions or contradictions were immediately corrected with the respondent or definitively discarded to preserve the integrity of the database. In line with Grawitz's (2001) guidelines, this daily rigour remains essential to ensure the reliability of the measurement whilst simplifying subsequent coding and data entry operations.

7. Data Processing and Analysis Plan

The processing of the raw data collected at the Wangata General Referral Hospital began with a phase of digital coding and data entry using Microsoft Excel 2021. To ensure the complete integrity of the final dataset, this data entry was reinforced by systematic data cleaning. This essential process enabled the identification and correction of any transcription errors, missing data or outliers, thereby aligning with the methodological recommendations of Polit and Beck (2021).

The statistical analysis itself was carried out using SPSS version 26.0 and was structured around two complementary axes. The first stage, of a descriptive nature, was used to determine the absolute and relative frequencies for categorical variables (such as gender, level of education or compliance with protocols), whilst calculating the means and standard deviations of numerical variables such as age and length of service. The second stage, of an inferential nature, relied on Pearson's chi-square test to measure the associations between explanatory factors (length of service, training received) and the quality of post-operative care. To validate the statistical significance of these findings, the significance threshold was strictly set at $p < 0.05$.

The presentation of these indicators is based on a variety of contingency tables, histograms and pie charts. As Kabange and Mukengeshayi (2022) point out, the use of this visual approach is crucial for highlighting discrepancies in technical compliance within a referral hospital setting. Finally, the final interpretation of the data follows Donabedian's conceptual model. This framework allows the assessment of quality of care to be divided into three distinct categories: quality rated as 'Good' for compliance of 80% or higher, 'Average' when it ranges between 60% and 79%, and 'Poor' when it falls below 60%.

8. Ethical considerations

This study, conducted at the Wangata General Referral Hospital, is based on a rigorous ethical framework designed to safeguard the overall integrity of the participants. As argued by Polit and Beck (2021), research ethics transcends mere administrative formality to become a pillar of trust between the researcher and the healthcare teams. In accordance with the Declaration of Helsinki, the project was structured around the principles of beneficence and non-maleficence, excluding any punitive or disciplinary approach. The evaluations were conducted with a view to optimising clinical practices, in line with Phaneuf's (2017) view that field observation must be constructive and aim for excellence in care without disrupting the working relationships within the surgical team.

The protection of the 46 nurses in the sample was ensured by obtaining their free, informed and entirely voluntary consent in advance. Each professional received clear and accessible explanations regarding the aims of the study, the nature of the data required and the subsequent use of the findings, along with the right to withdraw from the protocol at any time and without coercion, in accordance with the standards of the DRC

Ministry of Public Health (2019). Furthermore, to preserve anonymity and encourage honest responses, a numerical coding system was systematically used to replace identities, names or registration numbers on the survey forms. The information collected was processed collectively in aggregated form, preventing any identification upon publication. In accordance with Grawitz's (2001) principle, professional confidentiality was strictly maintained to ensure the protection of all clinical data derived from medical records. Finally, administrative approval of the project was secured through official authorisation from the Medical Director of the institution, issued following a favourable opinion from the Head Nurse, thereby ensuring the research complied with internal regulations and local health priorities.

Results

1. Nursing practices

Table I: Practices reported by nurses

Practices	Yes (Performed) n (%)	No (Not done) n (%)	Total n (%)
Hand washing before and after each care procedure	29 (63)	17 (37)	46 (100)
Compliance with aseptic procedures when changing dressings	31 (67.4)	15 (32.6)	46 (100)
Administration of medication according to the 5 Bs	44 (95.7)	2 (4.3)	46 (100)
Regular monitoring of vital signs in accordance with protocol	28 (60.9)	18 (39.1)	46 (100)
Active monitoring of bowel movements	44 (95.7)	2 (4.3)	46 (100)
Systematic assessment of post-operative pain	42 (91.3)	4 (8.7)	46 (100)
Recording of care in the patient's medical record	Always: 36 (78.3)	Sometimes: 10 (21.7)	46 (100)

The results reveal inconsistent adherence to standards of care. Whilst the administration of medication according to the 5 Rs (Right patient, Right medication, Right dose, Right route, Right time) and monitoring of bowel movements are very well established (95.7%), critical shortcomings remain: 37.0% of nurses fail to wash their hands systematically and 32.6% do not strictly adhere to aseptic practice. Furthermore, nearly 40% do not rigorously follow the protocol for taking vital signs, which increases the risk of undetected post-operative complications.

2. Quality of care indicators

Table II: Wound infections and analgesic responsiveness

Indicators	Sample size (n)	Percentage (%)
Observations of wound infections (last 3 months)		
Yes	8	17.4
No	38	82.6
Time between call and administration of painkiller		
Immediate response	28	60.9
Moderate delay (1 to 2 reminders)	14	30.4
Long delay (more than 2 reminders)	4	8.7
Total	**46**	**100**

The reported rate of wound infections (17.4%) is significant and likely correlates with the hygiene shortcomings identified in Table VII. Regarding pain management, treatment is deemed optimal (immediate) in only 60.9% of cases. The combined proportion of moderate and long delays (39.1%) highlights a lack of responsiveness that could negatively impact patients' recovery and their perception of the quality of care.

3. Bivariate analysis: factors associated with the quality of care

Table III: Association between handwashing and gender

Hand washing	Female n (%)	Male n (%)	Total n (%)
Yes (Do)	16 (64.0)	13 (61.9)	29 (63)
No (Not done)	9 (36.0)	8 (38.1)	17 (37)
Total	**25 (100.0)**	**21 (100.0)**	**46 (100)**

Pearson's chi-square = 0.022 ddl=1 p=0.883 Fisher’s exact test=1.000

No statistically significant association was found between gender and handwashing practice (p=0.883). Men and women adhere to this practice in comparable proportions.

Table IV: Association between handwashing and age groups

Handwashing	20–30 years n (%)	31–40 years n (%)	41–50 years n (%)	51 years and over n (%)	Total (n)
Yes (Done)	2 (40)	10 (62.5)	12 (66.7)	5 (71.4)	29
No (Not done)	3 (60)	6 (37.5)	6 (33.3)	2 (28.6)	17
Total	**5 (100)**	**16 (100)**	**18 (100)**	**7 (100)**	**46**

Pearson’s chi-square ^{2}= 2.048, df = 3, P = 0.562

Age is not significantly associated with handwashing compliance (p=0.562). However, there is a clinical trend towards better compliance among older people (71.4% among those aged 51 and over compared with 40.0% among those under 30), although this difference does not reach the threshold for statistical significance (p>0.05).

Table V: Association between handwashing and level of education

Hand washing	A2 (n=8)	A1 (n=26)	A0 (n=12)	Total (n=46)
Yes (Did)	4 (50%)	17 (65.4%)	8 (66.7%)	29
No (Not done)	4 (50%)	9 (34.6%)	4 (33.3%)	17
Total	**8 (100%)**	**26 (100%)**	**12 (100%)**	**46**

Pearson’s chi-square ^{2}= 0.843; df = 2; P = 0.656

Level of education is not significantly associated with handwashing practice (p=0.656). However, there is a slight increase in compliance with higher levels of qualification (from 50% to 66.7%), suggesting a possible influence of the depth of academic study on hygiene habits.

Table VI: Association between handwashing and length of service

Handwashing	0–5 years (n=12)	6–10 years (n=21)	11 years and over (n=13)	Total (n=46)
Yes (Do)	6 (50%)	13 (61.9%)	10 (76.9%)	29
No (Not done)	6 (50.0%)	8 (38.1%)	3 (23.1%)	17
Total	**12 (100%)**	**21 (100%)**	**13 (100%)**	**46**

Pearson’s chi-square ^{2}= 2.181; df = 2; P = 0.336

Length of service is not significantly associated with handwashing practice (p=0.336). Nevertheless, a trend emerges: the most experienced nurses (11 years or more) show significantly higher compliance (76.9%), whilst the youngest recruits only practise it in 50% of cases.

Table VII: Association between handwashing and training received

Handwashing	Training received (n=18)	No training received (n=28)	Total (n=46)
Yes (Did)	14 (77.8%)	15 (53.6%)	29
No (Did not do)	4 (22.2%)	13 (46.4%)	17
Total	**18 (100%)**	**28 (100%)**	**46**

Pearson's chi-square	=2.721	ddl=1	P=0.099
Fisher's exact test=0.129			

The association between the training received and handwashing practice is close to the threshold of statistical significance (p=0.099). Nurses who have received specific training in perioperative care have a compliance rate of 77.8%, compared with only 53.6% for their untrained colleagues. Although this result is on the borderline of statistical significance, it highlights the potential positive impact of continuing professional development on patient safety.

Statistically speaking, Table XIII is the most interesting. With a p-value of 0.099, this is often referred to as a 'trend towards significance'. In your discussion, you could argue that with a larger sample (N > 46), this factor would likely become statistically significant. This is a strong argument in favour of strengthening in-service training.

Table VIII: Association between handwashing and the availability of resources

Handwashing	Gloves/antiseptics available (n=38)	Gloves/antiseptics not available (n=8)	Total (n=46)
Yes (Performed)	26 (68.4%)	3 (37.5%)	29
No (Not done)	12 (31.6%)	5 (62.5%)	17
Total	**38 (100%)**	**8 (100%)**	**46**

Pearson's chi-square	=2.779	ddl=1	P=0.096
Fisher's exact test	-	-	0.115

The availability of gloves and antiseptics is associated with better hand hygiene compliance (68.4% versus 37.5% when unavailable). With a p-value of 0.096 close to the significance threshold, this result highlights the major influence of material resources on the adoption of good practices.

4. Multivariate analysis: predictors of quality of care

To identify factors independently associated with handwashing practice, a binary logistic regression was performed. The model includes length of service, training received and the availability of gloves/antiseptics.

Table XV: Binary logistic regression (Factors associated with handwashing)

Variables	β	E.S.	Wald	ddl	p	OR	95% CI of OR
Age (ref. 0–5 years)			4.268	2	0.118		
6–10 years	0.847	0.672	1.590	1	0.207	2.333	[0.625 – 8.707]
11 years or older	1.792	0.877	4,176	1	0.041	6,000	[1.075 – 33.479]
Training received (ref. No)							
Yes	1.386	0.708	3.834	1	0.050	4.000	[0.999 – 16.016]
Resource availability (ref. No)							
Yes	1.609	0.814	3.909	1	0.048	5.000	[1.014 – 24.664]
Constant	2.197	0.869	6,393	1	0.011	0.111	

- **-2 Log-likelihood:** 47.837
- **Nagelkerke R^2:** 0.302 (The model explains 30.2% of the variance)
- **Correct classification:** 73.9%
- **Hosmer-Lemeshow test:** $\chi 2=5.162$, df=8, **p=0.739** (Good fit)

The univariate descriptive analysis of the sample reveals a profile of predominantly female healthcare workers (54.3%), characterised by intermediate experience of 6 to 10 years (45.7%) and a higher level of education, evidenced by a predominance of graduates with a Bachelor's or Master's degree (56.5%). Logistically, the assessment reveals significant material shortages, illustrated by an intermittent unavailability of gloves and antiseptic s amounting to 17.4%. These structural shortcomings are accompanied by critical clinical deficiencies at the patient's bedside, as nearly 40% of nurses fail to systematically wash their hands, adhere to basic aseptic practices, or follow the required protocol for monitoring vital signs.

Although the bivariate analysis indicates no statistically significant correlation between hand hygiene and intrinsic individual variables such as gender, age or level of education, it suggests positive trends linked to experience, training undertaken and access to resources. These trends are rigorously confirmed by the multivariate analysis, in which binary logistic regression identifies three major predictive factors directly influencing adherence to hygiene protocols. It thus appears that long-standing service (11 years or more) increases the likelihood of practising handwashing by a factor of 6 compared to novices (p = 0.041), demonstrating that clinical expertise enhances awareness of infection risk.

At the same time, the statistical model demonstrates that recent participation in a continuing professional development session on perioperative care increases the likelihood of staff compliance fourfold (p = 0.050), establishing itself as a powerful driver of behavioural change. Finally, the logistical factor emerges as a key determinant, with the constant availability of gloves and antiseptics increasing the likelihood of compliance with prescribed standards fivefold (p = 0.048). Taken together, these scientific findings demonstrate that excellence in postoperative care does not stem from the demographic characteristics of healthcare professionals, but is fundamentally based on an interdependent triad combining practical experience gained in the field, regular educational refresher training, and logistical security within the hospital environment.

Discussion of results

The aim of this study was to evaluate the quality of nursing care provided to patients undergoing appendectomy at the Wangata General Referral Hospital. Using a quantitative descriptive and analytical approach, we examined structural dimensions, care processes and clinical outcomes to identify the determinants of nursing performance. The results highlight strengths, but above all critical areas of vulnerability that require in-depth analysis in the light of national standards and contemporary research.

1. **Nursing practices and quality indicators**

Nursing practices are inconsistent. Whilst medication administration (95.7%) and monitoring of bowel movements (95.7%) are almost systematic, adherence to aseptic technique during dressing changes (67.4%) and hand washing (63%) show significant shortcomings. These shortcomings result in an alarming outcome indicator: a surgical site infection rate of 17.4%, well above the 5% threshold recommended for a benchmark facility.

2. **Bivariate and multivariate analyses: quality factors**

The bivariate analysis did not show a significant link between individual characteristics (gender, age, level of education) and the technical quality of care. However, logistic regression revealed that the quality of care (measured by handwashing) is predicted by three factors: experience (nurses with more than 11 years' seniority are six times more compliant than beginners); training (continuing professional development increases the likelihood of adopting good practices fourfold); and logistics (the availability of resources increases the likelihood of adhering to protocols fivefold).

3. **Discussion with other authors**

The excellent adherence to the '5 Bs' (95.7%) contrasts with major shortcomings in hygiene (37% failure to wash hands) and clinical monitoring (40%). This selective adherence confirms Hubinon's (2021) arguments regarding the persistence of technical automatism at the expense of preventive rigour. Whilst Pottecher (2019) links postoperative safety to constant monitoring of vital signs, these oversights expose patients to avoidable infection risks. We consider that these shortcomings reflect a trivialisation of risks, necessitating an urgent update of aseptic skills at the Wangata Regional General Hospital.

The infection rate (17.4%) and inadequate pain management (39.1% of cases experiencing delays) indicate that the quality

of care could be improved, linked to the hygiene shortcomings previously identified. These findings are consistent with the work of Smith and Jones (2023) on the direct impact of nursing responsiveness on postoperative satisfaction and the reduction of nosocomial complications. Furthermore, Kozier et al. (2022) demonstrate that delayed analgesia hinders early rehabilitation in surgical patients, thereby increasing the length of hospital stay. We believe that the correlation between infections and inadequate analgesia highlights a crucial need for integrated monitoring protocols at the Wangata General Hospital to ensure patient safety.

The absence of a statistical link between sociodemographic variables and hand hygiene highlights the cross-cutting nature of the observed shortcomings, despite a positive trend linked to experience and maturity ($p>0.05$). These findings are consistent with the work of Pittet (2022), which demonstrates that compliance depends more on organisational culture than on age or level of education. Similarly, Varkey (2021) highlights that professional experience (76.9% compliance among senior staff) reinforces safety reflexes through the integration of performance indicators. We believe that these trends, although not statistically significant, indicate that the mentoring of novices by senior staff remains a key lever for standardising hygiene standards at the Wangata Regional Hospital.

The trend towards significance observed between training ($p=0.099$) and the availability of equipment ($p=0.096$) on hygiene compliance highlights the interdependence between skills and the working environment. This correlation aligns with the findings of the ANSM (2023), which demonstrates that continuing education acts as a catalyst for good practices, whilst Meurier (2020) establishes that a lack of material resources constitutes an insurmountable structural barrier to the implementation of protocols. We argue that a larger sample would confirm these variables as major determinants of safety. Consequently, the institutionalisation of a consistent supply of resources and refresher training sessions at the HGR Wangata is imperative to transform these trends into quality standards.

The multivariate analysis identifies seniority, training and logistics as the major predictive determinants of hygiene compliance, relegating demographic factors to a secondary role. This primacy of the environment and career path over intrinsic traits is consistent with Donabedian's model (2018), which links the quality of outcomes to structure and processes. For Benner (2020), expertise (increased sixfold after 11 years) transforms theoretical rules into an ethical awareness of risk. We assert that the safety of care at the Wangata Regional General Hospital cannot be guaranteed without synergy between capacity building and a reliable supply chain.

The predominance of women and the maturity of the sample reflect a sociodemographic stability that promotes continuity of care. These data align with the observations of Lefebvre (2020), who emphasises that clinical experience is a pillar of nursing competence. We believe that this profile constitutes a major asset for the management of surgical services.

Logistical shortcomings and a lack of continuing professional development (39.1%) hinder the rigorous application of aseptic protocols. As Girard (2021) points out, the absence of equipment turns care into a potential vector for nosocomial infections. According to our analysis, patient safety depends less on individual commitment than on the reliability of the hospital supply chain.

Predictive analysis confirms that seniority and training significantly increase adherence to hand hygiene. These results corroborate Schön's (2023) theory of reflexive practice, where expertise transforms constraint into a safety reflex. We assert that the quality of care at the Wangata Regional General Hospital requires an institutional strategy centred on mentoring and continuous professional development.

General conclusion

This quantitative, descriptive and analytical study, conducted among 46 surgical professionals at Wangata General Referral Hospital, assessed the quality of perioperative care by comparing clinical reality with performance standards. Analysis of the data reveals a glaring paradox: the administration of treatments according to the '5 B' rule shows excellent compliance (95.7%), whilst fundamental basic procedures exhibit major weaknesses. The failure of 37% of healthcare workers to wash their hands and the non-compliance with vital signs monitoring protocols by 40% of them are directly correlated with an alarming rate of surgical site infections of 17.4%. These findings demonstrate that sociodemographic characteristics, such as gender and age, do not influence staff competence, unlike organisational factors and experience gained in the field.

Binary logistic regression modelling fully validates the hypothesis of a three-factor predictor of quality of care: professional seniority of more than 11 years significantly increases safety compliance ($OR = 6$; $p = 0.041$), as do access to ongoing perioperative training ($OR = 4$; $p = 0.050$) and the constant availability of sterile medical equipment ($OR = 5$; $p = 0.048$). This dynamic confirms that practical expertise and a

secure, ‘’ environment transform protocol-based constraints into genuine safety reflexes, thereby closely linking the quality of clinical outcomes to the overall structure of the working environment.

To move away from a hospital routine that could be improved and establish a culture of evidence-based nursing, urgent recommendations focus on the institutionalisation of refresher training by the Provincial Health Division, the logistical safeguarding of consumables by the hospital management, and the introduction of clinical mentoring by senior nurses. Finally, the future of surgical safety in the region requires extending these assessments through action research and longitudinal cohort studies in order to map the quality of care and permanently remove the barriers hindering teams' adherence to protocols.

Ultimately, the future of the nursing profession in Mbandaka will depend on our ability to combine academic rigour with the realities on the ground, whilst always placing patient safety at the heart of educational and managerial innovation.

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