

# Standardizing Preoperative Hair Removal to Reduce Surgical Site Infection Risk: A Nursing-Led Perioperative Quality Improvement Initiative in a Rural Operating Room

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## Abstract

This study evaluated a nursing-led perioperative quality improvement initiative aimed at standardizing preoperative hair-removal practices in the rural operating room of the Community Hospital of Anaconda (CHA) to strengthen perioperative process reliability and reduce modifiable surgical site infection (SSI) risks. Guided by Donabedian’s Structure–Process–Outcome (SPO) Model, the study utilized a perioperative quality improvement initiative (PQII) framework focusing on documentation reliability, staff competency, equipment readiness, workflow efficiency, and SSI-prevention practices. A retrospective baseline audit of 30 surgical cases revealed significant deficiencies, including documentation completeness of only 30%–40%, fewer than 10% of staff with current competency validation in clipper-based hair removal, clipping-related workflow delays of approximately 5 per 100 procedures, and an annual SSI rate of 3.5%. Evidence-based interventions aligned with AORN, CDC, and WHO recommendations were implemented, including a standardized clipper-based hair-removal protocol, competency-based staff training, EHR documentation enhancements, equipment readiness checklists, visual reminders, audit-feedback cycles, and KPI dashboard monitoring. Following implementation, documentation completeness improved to 85% within three months and stabilized between 80% and 90% by Month 6. Staff competency validation reached 92% on first-attempt evaluation and 100% after remediation. Clipping-related workflow delays decreased from 5.0 to 1.2 per 100 procedures, while the SSI rate demonstrated a downward descriptive trend from 3.5% to 2.0%. The findings indicated that structured, low-cost, and sustainable perioperative interventions improved process reliability, strengthened staff competency, enhanced documentation compliance, and supported safer perioperative care in a rural healthcare setting.

**Keywords:** *perioperative quality improvement, preoperative hair removal, surgical site infection, rural operating room, perioperative nursing*

## Introduction

Preoperative hair removal is a frequent component of perioperative care, aiming to improve access and sight of the operation field. But if done wrongly, it could raise the risk of surgical site infections (SSIs), which remain among the most frequent healthcare-associated diseases globally. Kwizera et al. (2012), are associated with substantial patient morbidity, prolonged hospital stay, increased healthcare expenses, delayed recovery and worse quality of care especially in resource-limited healthcare settings. Based on the available evidence from the Akcan and Arli (2025) and Gynecologists (2026), hair removal should only be performed when necessary before surgery, and should be performed with clipper-based methods rather than razors, to reduce trauma to the skin and bacterial colonization. However, perioperative hair removal practices still vary widely across many healthcare settings, especially in rural and critical access hospitals where staffing shortages, equipment shortages, workflow disruptions, and inconsistent competency validation may threaten adherence to evidence-based standards.

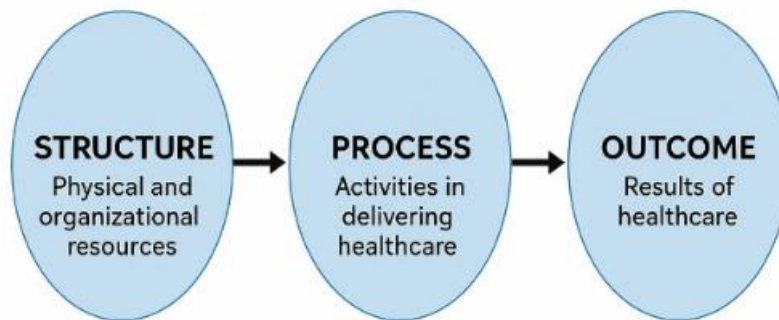
Recent perioperative literature has stressed the necessity of consistent hair-removal techniques to minimize the risk of unnecessary SSI and enhance the reliability of perioperative work flow. Ferrari et al. (2024) Microscopic skin abrasions are created by razors, making patients more susceptible to bacterial ingress and surgical site infections, whereas electric clippers cause less tissue stress and lead to safer surgical preparation. Additional studies published by Batista and De Almeida Cruz (2025) further support that variability in perioperative treatment and reduced adherence to SSI-prevention bundles can be due to uneven technique, limited documentation, suboptimal staff preparation, and poor equipment readiness. Greenhalgh et al. (2017), evidence-based perioperative programs are increasingly targeting competency validation, audit-feedback systems, documentation reliability, and process standardization as key components of patient safety and quality improvement.

There are also operational problems rural hospitals face that add to practice heterogeneity Castellano et al. (2023). Limited staffing, cross-training demands, limited resources, and reliance on multifunctional workers may negatively impact perioperative uniformity and equipment readiness Nijkamp and Foran (2021). Thus, modest, sustainable and low cost interventions can be beneficial for rural healthcare environments to improve the reliability of processes without the need of major infrastructure upgrades. Wang et al. (2026) and Hu et al. (2026), the literature on quality improvement in rural healthcare emphasizes standardized protocols, competency-based education, enhancements to electronic health records (EHR), and audit-feedback cycles as effective approaches to enhance perioperative performance and minimize workflow inefficiencies in critical access hospitals. These approaches are most effective when led by perioperative nurses, whose leadership is critical in providing continuity of workflow, evidence-based practice, and patient safety.

Internal perioperative audits at the Community Hospital of Anaconda (CHA) revealed several modifiable deficiencies related to preoperative hair removal, including incomplete documentation of hair-removal method and timing, outdated competency records, inconsistent clipper-based techniques, and clipping-related workflow delays due to unavailable or malfunctioning equipment. These inadequacies were critical process gaps that would affect perioperative dependability and increase SSI risk. The agency also does not have standardized monitoring mechanisms to assess compliance and maintain quality improvement activities. The current literature clearly supports evidence-based hair removal procedures, but few studies have specifically evaluated structured perioperative quality improvement initiatives focusing on clipper-based hair removal in rural operating room settings. This gap was evident in the requirement for a pragmatic, nursing-led solution responsive to the realities of tiny healthcare facilities.

The researcher developed this perioperative quality improvement project, guided by Donabedian's Structure–Process–Outcome (SPO) Model, to standardize preoperative hair-removal methods in the rural operating room at CHA. The goals of the initiative were to increase documentation reliability, improve staff competency through hands-on validation and structured training, reduce workflow delays, and promote compliance with SSI-prevention practices through sustainable audit-feedback processes and KPI dashboard reporting. The findings of this study will add to perioperative nursing practice by offering evidence-based, low-cost, and sustainable approaches that can be used by other rural and resource-limited health care facilities as they strive to enhance perioperative process dependability and patient safety.

## Conceptual Framework



**Figure 1.** Donabedian's Structure-Process-Outcome (SPO) model developed by Avedis Donabedian in the 1960s

Figure 1 illustrates Donabedian's Structure–Process–Outcome (SPO) Model, which served as the study's conceptual framework. The “Structure” element relates to the physical and organizational resources needed to provide safe perioperative care and includes the availability of clippers, EHR documentation systems, competency tools, leadership support, and defined protocols. The "Process" component covers the practical implementation of evidence-based perioperative hair removal methods, including clipper-based hair removal, staff competency validation, audit-feedback cycles, and documentation monitoring. The “Outcome” section covers the results of the intervention, including improvements in documentation reliability, increased staff competency, reduced workflow delays, and reduced trends in surgical site infections. The concept suggests that improving healthcare structures will enhance clinical processes, leading to better perioperative results and safer patient care.

## Objectives of the Study

This perioperative quality improvement initiative aimed to standardize preoperative hair-removal practices in the rural operating room of the Community Hospital of Anaconda (CHA) to strengthen perioperative process reliability and reduce modifiable surgical site infection risks. Specifically, it aimed to:

1. Assess the baseline status of preoperative hair-removal practices in terms of:
  - 1.1 documentation completeness of hair-removal method, timing, and personnel;
  - 1.2 staff competency in clipper-based hair removal; and
  - 1.3 Clipping-related workflow delays due to equipment availability and readiness.
2. Develop and implement a standardized perioperative hair-removal protocol aligned with AORN, CDC, and WHO evidence-based guidelines.
3. Improve perioperative staff competency through hands-on competency validation and structured training on clipper-based hair-removal practices.
4. Enhance documentation reliability through the integration of standardized electronic health record (EHR) documentation fields for hair-removal practices.
5. Determine the effectiveness of the perioperative quality improvement initiative in terms of:
  - 5.1 documentation completeness;
  - 5.2 Staff Competency Validation Rates;
  - 5.3 clipper readiness and workflow efficiency; and
  - 5.4 descriptive trends in surgical site infection incidence.
6. Establish sustainable monitoring mechanisms through audit-feedback cycles and KPI dashboard reporting to support continuous perioperative quality improvement.

**Methodology**

This study utilized a perioperative quality improvement initiative (PQII) framework to standardize preoperative hair-removal protocols in the rural operating room of the Community Hospital of Anaconda (CHA), a critical access hospital in Montana. The initiative aimed to improve documentation reliability, staff competency, equipment readiness, workflow efficiency, and adherence to surgical site infection (SSI) prevention practices (Mina et al., 2026).

The Community Hospital of Anaconda Quality Improvement Committee examined the project and categorized it as a Quality Improvement program; hence, formal Institutional Review Board (IRB) approval was unnecessary. The research was directed by Donabedian’s Structure–Process–Outcome (SPO) Model, which analyzed organizational structures, perioperative processes, and patient safety outcomes associated with preoperative hair removal. Participants comprised perioperative nurses, surgical technicians, and cross-trained personnel engaged in preoperative preparation. A retrospective audit of 30 surgical cases revealed significant deficiencies, including documentation completeness of merely 30%–40%, less than 10% of personnel possessing current competency validation in clipper-based hair removal, clipping-related workflow delays averaging 5 per 100 procedures, and an annual SSI rate of 3.5%. Process indicators encompassed adherence to protocols, completeness of EHR documentation, rates of competency validation, and compliance with equipment readiness. Outcome indicators comprised SSI incidence, workflow efficiency, and clipper readiness reliability, whereas balance indications encompassed skin irritation and clipping-related delays. Evidence-based interventions were formulated based on guidelines from AORN, CDC, WHO, and current perioperative research. The interventions comprised the execution of a standardized clipper-based hair removal protocol, competency-focused staff training, enhancements in electronic health record documentation, equipment readiness checklists, visual prompts, audit-feedback cycles, and key performance indicator dashboard monitoring to facilitate ongoing perioperative quality enhancement and sustainability (Domingo & Mina, 2024).

**Results and Discussion**

This section presents the results of the perioperative quality improvement initiative to improve documentation reliability, staff competency, equipment readiness, workflow efficiency, and surgical site infection prevention practices in the rural operating room of Community Hospital of Anaconda.

**1. Assessment of the Baseline Status of Preoperative Hair–Removal Practices**

Table 1. *Baseline Status of Preoperative Hair–Removal Practices at CHA*

Baseline Indicator	Baseline Result	Interpretation
Documentation completeness of hair–removal method, timing, and personnel	30%–40%	Low documentation reliability
Staff with current documented competency in clipper–based hair removal	Less than 10%	Very low competency documentation
Clipping–related workflow delays	5 per 100 procedures	Noticeable workflow inefficiency

Note: *The baseline audit of 30 surgical cases showed three major gaps in the perioperative hair-removal process: incomplete documentation, outdated competency records, and workflow delays caused by unavailable or malfunctioning clippers*

Table 1 shows that the baseline status of preoperative hair-removal practices at CHA was below the expected level of perioperative reliability. Documentation completeness was only 30%–40%, indicating that essential details such as method, timing, and personnel were frequently missing. This weakness could limit accountability and reduce the accuracy of SSI-prevention monitoring. Staff competency was also a

major concern, as fewer than 10% had documented competency in clipper-based hair removal. This indicates a high risk for inconsistent technique by perioperative staff. Other clipping-related delays occurred at about 5 per 100 processes, demonstrating the influence of equipment availability and readiness on workflow efficiency. These findings suggest the necessity for an organized quality improvement strategy. AORN supports standardized perioperative practice and competency validation, while CDC recommendations recognize evidence-based infection-prevention techniques as critical to SSI reduction Ferriero et al. (2019). Khattak et al. (2025) observed that hair removal by clippers supports safer practice as compared with inappropriate procedures. Munk et al. (2023) have also pointed out that effective EHR recording improves perioperative compliance and monitoring. Bosse et al. (2017), the baseline data thus provided a basis for developing a nursing-led standardization campaign.

Table 2. *Baseline Documentation Completeness of Preoperative Hair Removal*

Documentation Component	Required Documentation	Baseline Status
Hair-removal method	Clipper-based or not performed	Frequently incomplete
Timing of hair removal	The time hair removal was completed	Frequently incomplete
Personnel responsible	Name/role of staff who performed it	Frequently incomplete
Overall documentation completeness	Complete method, timing, and personnel	30%–40%

Table 2 presents the baseline documentation completeness of preoperative hair-removal practices. The findings show that only 30%–40% of cases contained complete documentation of hair-removal method, timing, and personnel. This indicates that more than half of the audited records lacked or had incomplete documentation. Incomplete documentation in perioperative practice can compromise accountability, reduce the accuracy of surveillance, and make it difficult to ascertain whether evidence-based protocols were followed. Tarasconi et al. (2020), this is a noteworthy discovery, as hair removal is closely related to SSI-prevention efforts, especially when the method and timing are poorly documented. Bunkenborg et al. (2019) states that perioperative documentation should facilitate safe and standardized practice. Nandy et al. (2005) standards also need reliable data gathering for infection surveillance. Tanny et al. (2023) demonstrated that integrated documentation prompts in electronic health records (EHRs) improve documentation reliability in rural hospital settings. Atkins et al. (2017) have pointed out that audit and feedback depend on reliable records to uncover gaps in practice and drive development. Team et al. (2015), the low baseline documentation completeness at CHA therefore supported the need for improved EHR fields, staff education, and ongoing audit-feedback monitoring.

Table 3. *Baseline Staff Competency in Clipper-Based Hair Removal*

Competency Indicator	Baseline Result	Interpretation
Staff with current documented competency	Less than 10%	Very low
Staff requiring updated competency validation	More than 90%	High need for training
Identified concern	Outdated or missing competency records	Risk for inconsistent technique

Table 3 shows that fewer than 10% of perioperative staff had current documented competency in clipper-based hair removal at baseline. This result indicates a significant competency validation gap, and most personnel need refresher training and formal evaluation. Good perioperative nursing competency is critical, as poor hair removal technique can damage the skin, create additional entry points for bacteria, and increase the risk of SSI. Emerson and Berge (2018), the lack of current competency records also raises

doubts about staff readiness and the consistency of practice. Competency validation is an essential criterion for safe perioperative care as identified by Gillespie et al. (2018). Perioperative nursing competency improves surgical outcomes and promotes safe clinical performance Oyediran et al. (2024). Kiong et al. (2019) also found that competency-based instruction improved hair-removal methods and staff confidence. Nelson et al. (2019) show that correct clipper-based practice decreases skin damage and supports SSI-prevention bundles. So the baseline is clear validation of the requirement for hands-on competency training, with checks and remediation procedures Lavanchy et al. (2021). Staff expertise had to be improved to enhance technique uniformity and provide safer preoperative preparation Baker et al. (2006).

Table 4. *Baseline Clipping-Related Workflow Delays*

Workflow Indicator	Baseline Result	Identified Cause
Clipping-related workflow delays	5 per 100 procedures	Unavailable or malfunctioning clippers
Equipment concern	Limited number of clippers	Delay in preoperative preparation
Readiness issue	Lack of daily readiness checklist	Inconsistent equipment availability

Table 4 shows that clipping-related workflow delays occurred at approximately 5 per 100 procedures before the intervention. These delays were mainly caused by unavailable or malfunctioning clippers. This data suggests that equipment readiness was a fundamental vulnerability in the perioperative workflow. Aslam et al. (2023), In a rural operating room, equipment difficulties can be more disruptive due to staff shortages and restricted resources, as there may be fewer possibilities for backup staff. Mulier et al. (2014) Delays in the preoperative phase might impact operating room efficiency, staff coordination and patient flow. AORN [1] states that readiness of equipment is a part of safe perioperative practice. Hyun et al. (2025) recognized the need for effective solutions for SSI prevention in small and rural hospitals in resource-limited settings. McNamara and McNamara (2009) demonstrated that inexpensive quality improvement initiatives can increase process dependability in critical access hospitals. Morrow et al. (2024) also highlighted the role of audit-feedback mechanisms in identifying recurring workflow problems and facilitating corrective action. Duffy et al. (2023), the baseline workflow delay rate warranted the purchase of extra clippers, the use of charging stations, and the implementation of a daily readiness checklist to increase perioperative efficiency and decrease preventable interruptions.

## 2. Development and Implementation of a Standardized Perioperative Hair-Removal Protocol Aligned with AORN, CDC, and WHO Evidence-Based Guidelines

Table 5. *Standardized Perioperative Hair-Removal Protocol Implemented at CHA*

Protocol Component	Evidence-Based Action	Implementation Strategy	Expected Practice Outcome
Hair-removal decision	Remove hair only when necessary	Written protocol and staff reminders	Avoid unnecessary skin manipulation
Method of removal	Use clippers with disposable heads	Clipper-based protocol	Reduced skin trauma
Technique	Perform proper clipping technique	Hands-on staff training	Improved consistency of practice
Documentation	Record method, timing, and personnel	Required EHR fields	Improved documentation reliability
Equipment readiness	Ensure clippers are available, charged, and clean	Daily readiness checklist	Reduced workflow delays
Monitoring	Review compliance regularly	Weekly audits and KPI dashboard	Sustained protocol adherence

Table 5 presents the standardized perioperative hair-removal protocol developed and implemented at CHA. The procedure immediately addressed the foundational deficiencies revealed in the study, specifically inconsistent hair-removal practices, insufficient documentation, obsolete competency records, and process delays. The most notable aspect was its adherence to evidence-based principles, emphasizing that hair removal should occur only when warranted and that clippers with disposable heads should be used instead of razors. The policy boosted accountability by mandating documentation of methods, time, and personnel through enhanced EHR fields. Equipment preparedness was ensured by procuring more clippers and implementing a daily checklist. These efforts rendered the regimen both clinically and operationally effective. Ryan et al. (2024) endorses standardized perioperative protocols and competency-driven performance. Mishra et al. (2026) recognizes appropriate preoperative protocols as crucial to the prevention of surgical site infections (SSI). Eric et al. (2025) advises against unnecessary hair removal and recommends using clippers when removal is necessary. Mingo (2019) also found that clipper-based hair removal reduces skin stress and facilitates safer surgical preparation. Consequently, Norberg and Axelsson (2025) the executed protocol was suitable, pragmatic, and attuned to the rural operating room environment.

## 3. Improvement of Perioperative Staff Competency Through Hands-On Competency Validation and Structured Training on Clipper-Based Hair-Removal Practices

Table 6. *Staff Competency Validation in Clipper-Based Hair Removal*

Competency Indicator	Baseline Status	Post-Training Result	Interpretation
Staff with current documented competency	Less than 10%	100% after remediation	Marked improvement
First-attempt competency pass rate	Not established	92%	High initial mastery
Staff requiring remediation	Not specified	8%	Minimal additional support needed
Final competency validation rate	Less than 10%	100%	Full staff compliance

Table 6 shows a substantial improvement in perioperative staff competency after the implementation of hands-on competency validation and structured training on clipper-based hair-removal practices. At baseline, fewer than 10% of staff had current documented competency, indicating a serious gap in staff readiness and practice standardization. After the intervention, 92% of staff achieved competency on the first attempt, and 100% achieved competency after remediation. This outcome indicates that the training methodology was efficient, pragmatic, and attuned to the requirements of perioperative personnel (Subia & Bondoc, 2023). Amigo et al. (2008) Implementing a systematic checklist facilitated uniformity in assessing employee performance. Del Rosario (2025), this discovery is significant, as inadequate hair-removal methods may increase skin trauma and the risk of surgical site infections. Choirunanda and Subagiarta (2025) underscores the need for competency validation in ensuring safe perioperative practices. Rani (2022) elucidated that perioperative nursing proficiency enhances surgical safety and elevates clinical performance. Veldman (1995) discovered that competency-based education improves staff confidence and uniformity in hair-removal techniques. Saleem et al. (2023) reported that standardized clipper-based practices reduce skin damage and facilitate the implementation of SSI-prevention bundles. Consequently, Ghadermarzi et al. (2023) findings indicate that organized training enhanced staff competence and increased the reliability of perioperative processes.

#### 4. Enhancement of Documentation Reliability Through the Integration of Standardized Electronic Health Record (EHR) Documentation Fields for Hair-Removal Practices

Table 7. Documentation Reliability Before and After EHR Documentation Field Integration

Documentation Indicator	Baseline Result	Post-Implementation Result	Interpretation
Complete documentation of hair-removal method, timing, and personnel	30%–40%	85% within 3 months	Substantial improvement
Month 6 documentation compliance	Not yet established	80%–90%	Sustained reliability
Required EHR fields	Not standardized	Method, timing, and personnel included	Improved accountability
Staff perception	Documentation omissions common	EHR fields became more intuitive	Reduced the likelihood of missed entries

Note: Baseline documentation completeness was only 30%–40%, but it improved to 85% within 3 months after standardized EHR fields were introduced and stabilized at 80%–90% by Month 6.

Table 7 shows that integrating standardized EHR documentation fields substantially improved documentation reliability for preoperative hair-removal practices. At baseline, only 30%–40% of cases had complete documentation of method, timing, and personnel, indicating weak accountability for documentation. After the EHR enhancement, documentation completeness increased to 85% within three months and stabilized at 80%–90% by Month 6. This enhancement indicates that incorporating mandatory fields into the workflow reduced omissions and simplified compliance for personnel. Ramsay et al. (2010), The outcome is significant as dependable documentation underpins infection surveillance, personnel responsibility, and the assessment of compliance with SSI-prevention protocols. Albert et al. (2014) emphasizes the importance of documentation in ensuring safe, consistent perioperative care. McDonagh et al. (2021) emphasizes the need for precise infection-prevention data to monitor surgical site infection trends. Lee (2017) discovered that prompts linked to electronic health records enhance the trustworthiness of perioperative reporting in rural hospital environments. Pagano et al. (2025) underscored that audit-feedback systems rely on comprehensive documentation to discern practice deficiencies and facilitate enhancement. Schaller et al. (2025) indicate that standardized EHR fields effectively enhanced

documentation completeness, reinforced monitoring, and facilitated sustainable perioperative quality improvement.

### 5. Effectiveness of the Perioperative Quality Improvement Initiative

Table 8. *Effectiveness of the Perioperative Quality Improvement Initiative Based on Key Performance Indicators*

Effectiveness Indicator	Baseline Result	Post-Implementation Result	Interpretation
Documentation completeness	30%–40%	85% within 3 months; 80%–90% by Month 6	Improved documentation reliability
Staff competency validation rate	Less than 10%	92% first-attempt pass rate; 100% after remediation	Improved staff competency
Clipping-related workflow delays	5.0 per 100 procedures	1.2 per 100 procedures by Month 6	Improved workflow efficiency
SSI incidence	3.5% annual rate	2.0% over 12 months	Downward descriptive trend

Note: *The data reported measurable improvements in documentation reliability, staff competency, equipment readiness, workflow efficiency, and descriptive SSI trends after implementation of the perioperative quality improvement initiative.*

As shown in Table 1, the perioperative quality improvement project was successful in improving preoperative hair removal techniques at CHA. Documentation completeness improved from 30%–40% at baseline to 85% within 3 months, then remained at 80%–90% by Month 6, demonstrating enhanced reliability of technique, timing, and personnel for recording. Staff competency increased dramatically from less than 10% with verified competency to 92% first attempt pass rate and 100% after rehabilitation. By Month 6, clipping-related delays decreased from 5.0 to 1.2 per 100 processes, improving workflow efficiency. The SSI rate likewise had a decrease descriptive trend from 3.5% to 2.0%, however the study highlighted that low surgical volume hindered statistical interpretation. Kaya et al. (2020) promotes competency validation and standardized perioperative practices. Gupta and Gupta (2024) highlights the importance of accurate monitoring of SSIs through reliable data gathering. Gouda (2025) observed that clipper-based hair removal improves SSI-prevention measures. Ng (2016) also found that low-cost quality improvement initiatives can increase process dependability in critical access hospitals. To sum it up, Pandit (2019) indicate that the program enhanced process dependability and promoted better perioperative care.

**6. Sustainable Monitoring Mechanisms through Audit–Feedback Cycles and KPI Dashboard Reporting to Support Continuous Perioperative Quality Improvement**

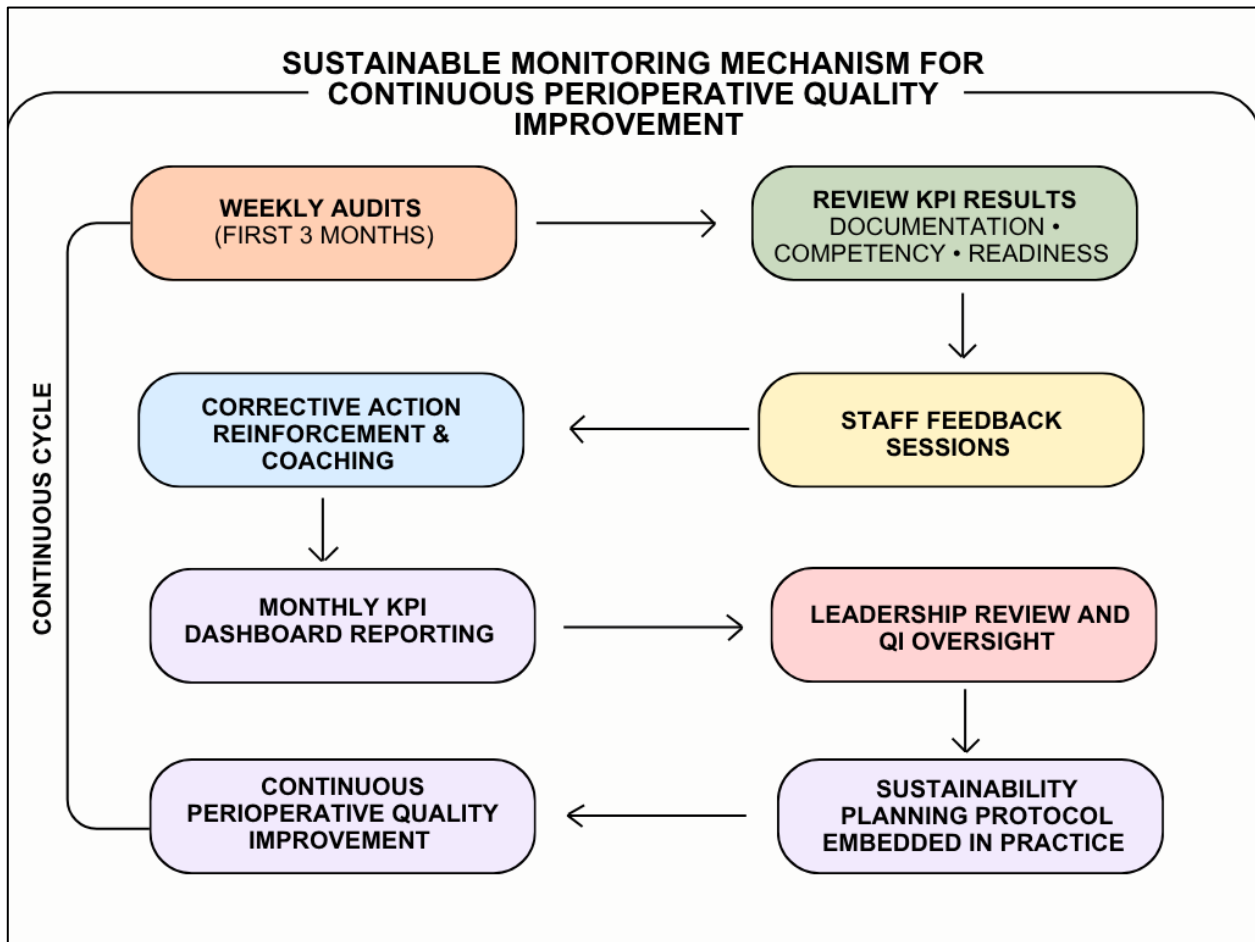


Figure 2. Sustainable Monitoring Mechanism for Continuous Perioperative Quality Improvement

Figure 2 shows that sustainable monitoring was established through a continuous cycle of weekly audits, KPI reviews, staff feedback, corrective actions, monthly dashboard reporting, leadership reviews, and sustainability planning. Weekly audits were conducted during the first three months, followed by monthly monitoring and KPI dashboard reporting to maintain leadership oversight and continuous quality improvement. This mechanism was appropriate because perioperative process reliability depends not only on protocol implementation but also on regular monitoring and reinforcement. The figure also shows that staff feedback and corrective action were important in translating audit results into improved practice. Søndergaard et al. (2026) supports continuous monitoring of perioperative standards to maintain safe practice. Mpinda-Joseph et al. (2019) emphasized that audit-feedback mechanisms improve adherence to SSI-prevention practices. Amoh et al. (2026) found that documentation systems (Bondoc et al., 2025) and dashboard-based monitoring strengthen perioperative accountability. Annemans et al. (2009) likewise reported that low-cost quality improvement strategies are effective in critical access hospitals. Therefore, O’Connor et al. (2016) the monitoring cycle promoted sustainability, accountability, and long-term improvement in rural perioperative care.

**Conclusion and Recommendation**

The study found that a nursing-led perioperative quality improvement effort made hair removal practices before surgery a lot better in the rural operating room of the Community Hospital of Anaconda (CHA). The effort improved the accuracy of documentation, raised the level of skill of perioperative nurses, sped

up workflow, made clippers more ready, and encouraged people to follow evidence-based practices for preventing surgical site infections (SSIs). Standardized electronic health record documentation fields, competency-based staff training, audit-feedback cycles, and KPI dashboard tracking all worked together to make the perioperative process more reliable and patient care safer. The results also showed that perioperative quality improvement interventions that are both low-cost and long-lasting could successfully fix operational problems that are common in rural operating rooms. Due to the small number of surgeries, the decrease in surgical site infections was only a descriptive downward trend. However, the program was successful in promoting consistency, accountability, and evidence-based nursing practice during surgery. The study's results showed that perioperative quality improvement programs should keep going and get stronger. These programs should focus on standardized preoperative hair removal protocols, competency validation, and systems for constant monitoring. To stay in line with SSI-prevention standards, rural operating rooms should keep up with regular audit-feedback cycles, KPI dashboard reporting, and competency-based perioperative nurse education. Larger sample sizes and longer monitoring periods were also suggested for future studies that want to find out more about the long-term effects of standard preoperative hair removal techniques on surgical site infections and patient safety during surgery.

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Appendix A. *SWOT Analysis: Preoperative Hair Removal Practices at CHA*

 <b>STRENGTHS</b>	 <b>WEAKNESSES</b>
<ul style="list-style-type: none"> <li>• Dedicated perioperative team with strong teamwork culture</li> <li>• Leadership support for quality improvement initiatives</li> <li>• Staff openness to training and competency validation</li> <li>• Existing EHR system adaptable for documentation changes</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistent documentation of hair removal method, timing, and personnel</li> <li>• Limited number of clippers leading to workflow delays</li> <li>• Outdated or missing competency records for clipper use</li> <li>• Variability in technique among cross-trained staff</li> </ul>
 <b>OPPORTUNITIES</b>	 <b>THREATS</b>
<ul style="list-style-type: none"> <li>• Ability to align practice with updated AORN and CDC guidelines</li> <li>• Low-cost interventions feasible in a rural setting</li> <li>• Potential to integrate KPIs into ongoing quality dashboards</li> <li>• Strong sustainability potential through audit-feedback cycles</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of SSI events due to inconsistent technique or documentation gaps</li> <li>• Staff turnover affecting competency maintenance</li> <li>• Equipment malfunction or supply delays</li> <li>• Limited surgical volume making outcome trends harder to interpret</li> </ul>

**Appendix B. Gantt Chart**  
**Implementation Timeline (6-Month PQII)**  
**PROJECT TIMELINE (6-MONTH PLAN)**

ACTIVITY	MONTH 1 (Weeks 1-4)	MONTH 2 (Weeks 5-8)	MONTH 3 (Weeks 9-12)	MONTH 4 (Weeks 13-16)	MONTH 5 (Weeks 17-20)	MONTH 6 (Weeks 21-24)
 Baseline audit and gap assessment	X	X				
 Development of standardized protocol	X	X	X			
 EHR documentation field updates	X	X				
 Procurement of additional clippers	X	X				
 Staff education and competency training		X	X	X		
 Implementation of daily readiness checklist			X	X	X	X
 Visual reminders (posters pocket cards)			X	X	X	
 Weekly audits and feedback		X	X	X		
 Monthly audits and KPI dashboard reporting				X	X	X
 Sustainability planning					X	X