

Delivering Safety: Reducing SSIs through Perioperative Best Practices in L&D



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Background

Cesarean sections (C-Sections) are among the most common surgical procedures in labor and delivery units, accounting for approximately 30.7% of all births in the United States¹ Globally, postpartum surgical site infection (SSI) rates following C-sections range from 3-20%.² with an incidence rate of up to 7% in the U.S.³ These infections lead to prolonged hospital stays, increased maternal morbidity⁴, and added healthcare costs of \$29,610-\$34,000 per occurrence.⁵

Despite these risks, many L&D units do not consistently apply perioperative best practices, such as clean closure techniques, standardized wound bundles, and glove changes at closure, that are proven to reduce SSIs in surgical settings. Multiple studies have demonstrated SSI rates are significantly impacted by surgical glove change prior to wound closure.^{6,7} Similarly, hospitals implementing SSI prevention bundles that include clean closure protocols reported up to 50% reductions in post-op infection rates.⁸

Failure to adopt these practices in obstetric surgery represents a critical gap in patient safety. Implementing perioperative best practices in L&D units for C-sections has the potential to significantly reduce SSI rates, improve maternal outcomes, and lower healthcare costs, aligning obstetric care with national infection prevention standards.^{9,10}

Objectives

The purpose of this project is to implement surgical best practices in a high volume L&D unit, averaging 600 births per month, without compromising maternal or neonatal care.

Objectives:

- Integrate evidence-based clean closure techniques into cesarean section procedures.
- Provide advanced perioperative education to L&D nurses through AORN's Perioperative 101 curriculum.
- Reduce surgical site infections (SSIs) and improve maternal outcomes in a high-volume obstetric setting, averaging 600 births per month.

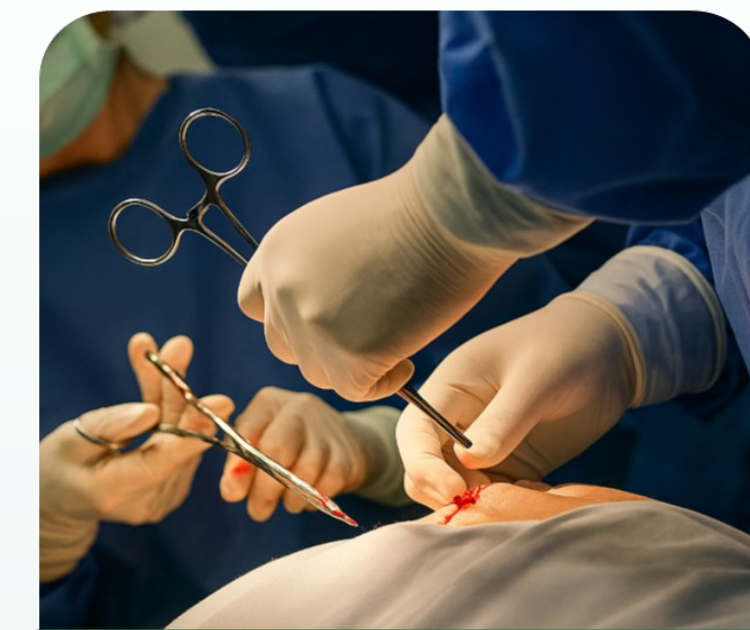
Workflow



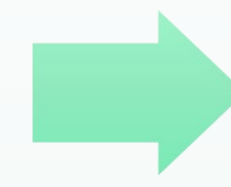
Additional Instruments
Adding a small set of clean instruments to the initial surgical count; these instruments will only be used after removal of placenta.



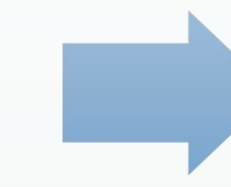
Glove Change
After removal of the placenta and prior to uterine closure, the surgeon and surgical technologist will change outer gloves to reduce contamination risk.



Clean Closure Instruments
Replace the Yankauer suction with a clean one and pull up the reserved clean instruments for the remainder of the case.



Strict Sterile Technique
Maintain standard prep and draping protocols; the additional steps require minimal time and resources.



Staff Education
Provide targeted RN education through AORN's Perioperative 101: Cesarean Section curriculum to reinforce best practices.

Methods

Implementation

Cost & ROI

Item	Per Procedure	Estimated Monthly	Estimated Annual
Disposable yankauer tip	\$0.45	\$67.50	\$810
Mayo Stand Cover	\$0.90	\$135	\$1,620
Sterile Gloves (MD, Assist, Tech)	\$2.31	\$346.50	\$4,158
TOTAL COST	\$3.66	\$549	\$6,588

Preventing 1 SSI = \$25,217 Annual Savings

Average cost of SSI (\$31,805⁵) – annual cost of additional supplies for all cases (\$6,588)

Key Stakeholders

Leads surgeon buy-in by advocating for evidence-based practice, addressing resistance, and modeling compliance with glove/instrument change.

Physician Champion



Drives bedside workflow integration through staff education, acts as liaison between clinical teams and management, and monitors adherence.

Nurse Champion



Ensures smooth glove/instrument transitions by managing instrument setup, clean tray processes, and count adjustments.

Surgical Tech Champion



Tracks SSI metrics and compliance through data analysis, pre/post audits, and performance dashboards to demonstrate outcomes.

Quality Department



Validates sterile technique and protocol alignment with CDC/AORN standards, guiding SSI prevention best practices.

Infection Prevention



Coordinates training programs and simulation drills while creating competency checklists and quick-reference tools for staff.

Education/Staff Development



Aligns workflows across surgical teams and L&D, supports OR standards, and ensures readiness for emergency protocols.

Perioperative Leadership



Potential Barriers & Mitigation Strategies

Physician Buy-In

Challenge: Resistance to changing established workflow and perception that glove/instrument change adds unnecessary time.

Mitigation: Share evidence from RCTs and cost-effectiveness studies (ChEETAh, Scrafford, Narice) showing SSI reduction and negligible cost impact.

Training & Compliance

Challenge: Staff unfamiliar with timing and technique for glove/instrument change, risking inconsistent application across teams.

Mitigation: Provide structured education (AORN Perioperative 101), competency checks, and visual aids in the OR.

Instrument Availability & Setup

Challenge: Need for extra clean instruments in the initial count and space constraints for staging clean trays.

Mitigation: Standardize a "clean closure tray" and integrate it into count sheets.

Emergency Situations

Challenge: Patient instability or hemorrhage may bypass glove/instrument change.

Mitigation: Pre-stock clean instruments in all C-section kits and train for quick retrieval without compromising patient care.

Cost & Resource Perception

Challenge: Concern about added cost for gloves/instruments despite negligible difference (Instrument purchase is a one-time cost, supplies \$3/66/case)

Mitigation: Present ROI data and SSI cost burden to demonstrate financial benefit.

Workflow Disruption

Challenge: Fear that extra steps will prolong surgery despite evidence of minimal time impact.

Mitigation: Demonstrate time-neutral workflow during training and emphasize glove change occurs after uterine closure when bleeding risk is low

Data & Monitoring

Challenge: Need for SSI tracking to prove benefit.

Mitigation: Partner with infection prevention and quality teams for pre/post SSI audits.

Discussion

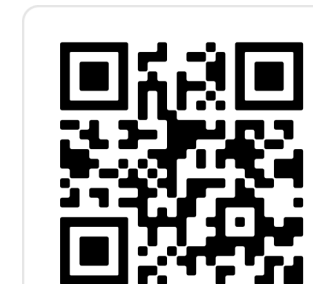
Extensive evidence supports clean closure bundles as effective strategies to reduce SSIs, yet these practices remain underutilized in obstetric care. Implementing these interventions in a high-volume L&D unit has potential to significantly lower infection rates, therefore reducing costly complications. Barriers such as physician resistance and perceived cost were anticipated, this initiative incorporates education and collaborative planning to ensure feasibility without disrupting workflow. Preventing even a fraction of SSIs translates into substantial cost savings. This project demonstrates how evidence-based practices, can close critical gaps in patient safety and operational efficiency.

Further Research

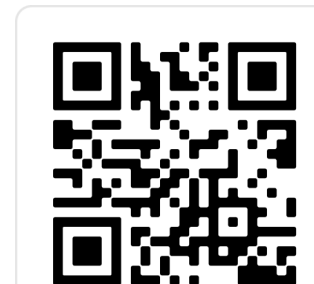
Future research should clarify cesarean-specific outcomes, optimal timing, cost-effectiveness, and workflow feasibility to support sustainable adoption.

- Cesarean-Specific Evidence:** Most large trials focus on general abdominal surgery; more RCTs specific to cesarean sections are needed.
- Optimal Timing:** Determine best timing for glove/instrument change (placental delivery vs uterine closure).
- Impact on Organ/Space Infections:** Clarify effect on endometritis and deep infections vs incisional/superficial infections.
- Cost-Benefit in High-Income Settings:** U.S.-specific ROI studies using local SSI costs.
- Workflow Feasibility:** Research on compliance barriers and solutions in high-volume obstetric units.
- Bundle vs Single Intervention:** Isolate effect of glove/instrument change compared to full SSI bundles.
- Environmental Impact:** Explore sustainability of increased supply use (i.e. gloves and mayo stand covers)

References & Contact



References



Contact Info