



PICO: Does vaginal cleansing with povidone-iodine prior to cesarean delivery reduce rates of post-cesarean endometritis, compared to no pre-operative vaginal cleansing?

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Problem Background

- Approximately 33% of newborns are born via cesarean in the United States.
- Antibiotics are given prior to cesareans to reduce post-operative infection, but some bacteria that normally inhabit the vagina are antibiotic resistant.
- The risk of post-operative endometritis is 10 times greater after surgical incision of the uterus than it is with vaginal delivery of a newborn.
- Bacteria counts in the uterus increase due to repeat vaginal exams, prolonged active labor, ruptured membranes, intrauterine monitoring, and failed antibiotic administration.
- Endometritis is characterized by fever, lower abdominal pain, uterine tenderness and enlargement, and foul smelling lochia.
- Endometritis negatively impacts maternal/newborn bonding, prolongs hospital length of stay, and increases maternal morbidity and mortality.

Methods of Data Collection

Searched online databases:

- Cochrane Database of Systematic Reviews
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Medline

Online medical references for characteristics of endometritis and nursing interventions.



Inclusion & Exclusion Criteria

Inclusion Criteria (5 articles)

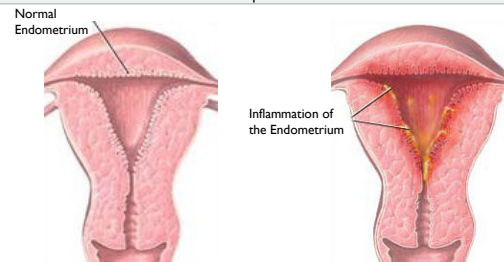
- Published between 2012-2017
- Key words searched:
 - Endometritis and cesarean section
 - Vaginal cleansing
 - Vaginal preparation

Exclusion Criteria (243 articles)

- Duplicate article between database searches
- Not available in full text
- Focus of research did not pertain to the PICO question:
 - Post-operative skin infections
 - Influences of preoperative antibiotic coverage
 - Sexually Transmitted Infections

Appraisal Methods

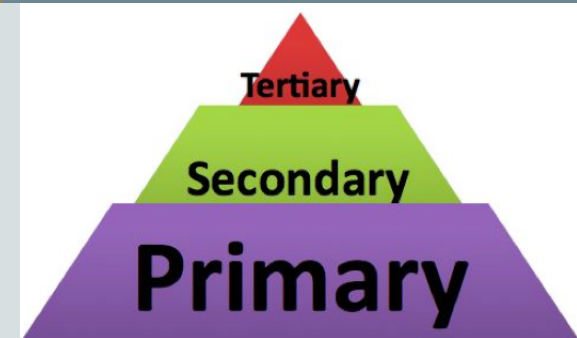
Article	Level of Evidence	Aspects of Article
Abdallah, 2015	II	Evaluation of the risk of post cesarean endometritis with preoperative vaginal cleansing. RCT of 400 women in Saudi Arabia.
Barat et al., 2016	II	Evaluation of the impact of preoperative vaginal cleansing on post cesarean infection. RCT of 400 low risk pregnancies in Iran.
Haas et al., 2014	I	Systematic review of 6 RCT examining the impact of preoperative vaginal cleansing on prevention of post cesarean endometritis.
Hassan & Fadel, 2016	II	Evaluation of the impact of preoperative vaginal cleansing on post cesarean endometritis rates. RCT of 150 elective cesarean sections in Egypt.
Leavell & Clark, 2017	IV	Explanation of Leavell and Clark's prevention model theory.
McKibben et al., 2015	I	Systematic review of 30 systematic reviews and meta-analysis to determine nursing practices that reduce post cesarean infections.
Rivlin et al., 2016	IV	Pathophysiology, etiology, and clinical presentation of endometritis.



Data Summary

- Two RCT found a statistically significant difference ($P < 0.05$) between the use of povidone-iodine solution for vaginal cleansing and no cleansing in favor of vaginal cleansing to reduce the rates of post-cesarean endometritis.
- Both systematic reviews favor the use of preoperative vaginal cleansing as an effective practice to reduce rates of endometritis
 - Subgroup analysis revealed that vaginal cleansing of women with ruptured membranes significantly reduced the rates of post-operative endometritis from 15.4% to 1.4% (RR 0.53 and CI 0.35-0.79)
- One RCT did not find a statistically significant difference between the use of povidone-iodine solution for vaginal cleansing and no cleansing on the rates of post-cesarean endometritis.
 - All cesareans were elective and low risk. All subjects received post-operative antibiotics which may have decreased the infectious potential for bacteria introduced into the vagina.

Leavell & Clark's Prevention Model Theory



Prevention to reduce the burden of mortality and morbidity from disease, illness, and injury

- Primary: Prevent problems before they occur
- Secondary: Early detection and intervention to limit disability
- Tertiary: Correction & prevention of deterioration of the disease state



Practice Implications

- Vaginal cleansing with povidone-iodine solution decreases the rates of post-operative endometritis in women undergoing cesarean section and should be implemented into daily practice.
- There is increased benefit for those with ruptured membranes prior to surgery, and little benefit to those at low risk.
- There were no adverse effects to any participants in the research.
- The intervention is inexpensive in comparison to treatment for endometritis.
- Rates of endometritis should be monitored after implementation into practice and compared to rates prior to implementation.
- Vaginal cleansing is an area for continued research in an effort to strengthen the body of research that already exists

References are available upon request.