

In women undergoing cesarean section, does anti-septic vaginal preparation vs no preparation reduce postpartum endometritis?



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Clinical Question: In women undergoing cesarean section, does anti-septic vaginal preparation compared with no anti-septic preparation reduce postpartum endometritis?

Answer: Yes. In pregnant women, the use of anti-septic vaginal preparation reduces the risk of postpartum endometritis.

Level of Evidence for the Answer: A

Conclusions: Meta-analyses of randomized controlled trials demonstrated that vaginal preparation with an anti-septic prior to the surgery reduced the incidence of postpartum endometritis.

Search Terms: Endometritis, povidone-iodine, infection, vaginal delivery, cesarean, vaginal preparation, anti-septic

Inclusion Criteria: Pregnant women, randomized-controlled trials, meta-analysis, systematic reviews, cohort studies

Exclusion Criteria: Articles older than 2001, cross-over design, studies that used patients who have an allergy to povidone-iodine, trials that did not include antibiotic prophylaxis

Background: Cesarean section is a surgery performed when a vaginal delivery poses risk to either mother or baby and abdominal delivery is more likely to provide a better outcome.¹

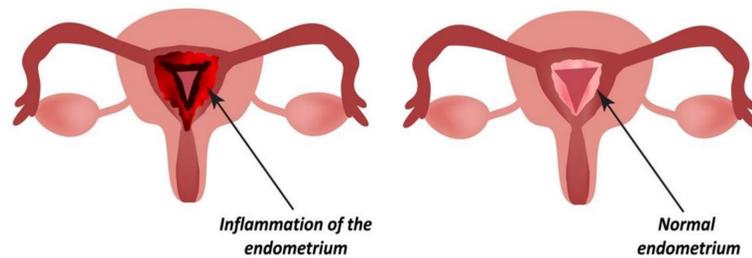
According to the CDC, 32% of all deliveries are performed by cesarean and is the most common surgery performed in the US.¹

The surgery has increased the incidence of successful births but it is also the greatest risk factor for postpartum endometritis which is most commonly caused by ascending extension of vaginal flora to the peritoneal cavity.²

Figure 1: Vaginal Preparation Tray



Figure 2: Schematic of Endometritis⁵



Summary of the Evidence:

In **2018 Haas et al.** published a systematic review evaluating the effectiveness of vaginal preparation with anti-septic solution for the reduction of post-operative infections in cesarean deliveries.³ The review included **11 trials** with a total of **3403 women** in whom an antiseptic solution was used for vaginal preparation. 5 of the 11 trials took place in the United States. These were pregnant women who were soon to undergo an elective or urgent cesarean section, as well as women who were in labor. Trials that did not use antibiotic prophylaxis or trials where vaginal preparation had been used during labor were excluded. 8 of these trials used povidone-iodone and the rest used either two-chlorhexidine or benzalkonium chloride. Vaginal preparation was applied with sponge sticks, douches or soaked gauze. The control groups did not use any preparation or used saline rinse.

In this review, the control group showed a **3.8% reduction** in incidence of post-cesarean endometritis whereas the group that used vaginal preparation with antiseptic solution showed a **8.7% reduction**.³ This analysis did not include reductions in patients who were in labor or who had ruptured membranes before the preparation was used. The quality of evidence was deemed moderate and it was concluded that the use of anti-septic probably reduced incidence of postpartum endometritis. The largest weakness of this literature is that the providers were not blinded to which cohort patients were placed in. However, due to the large number of participants a strength of this review is that it is adequately powered.

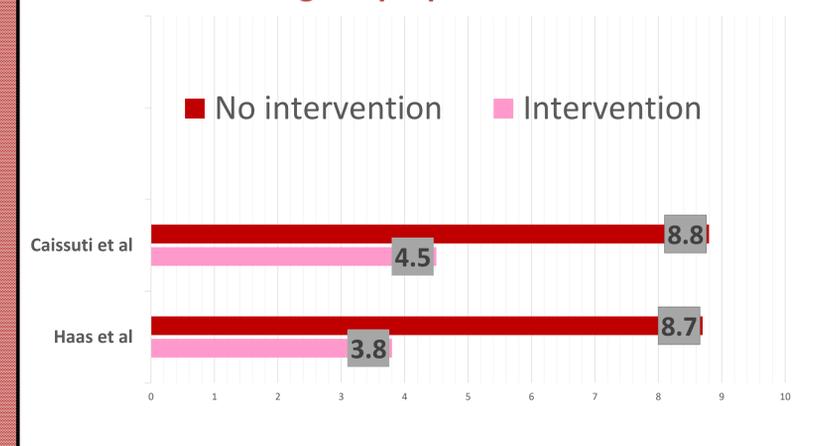
Another systematic review in **2017 by Caissuti et al.** examined **16 randomized controlled trials** and compared the use of vaginal preparation to either no cleansing or placebo, with **4873 women**.⁴ Trials with women undergoing vaginal delivery were excluded.

Summary of the Evidence (continued):

Most studies used povidone-iodine as the intervention and the most common method of cleansing was using a sponge stick. All trials used IV antibiotics as prophylaxis. The studies demonstrated lower incidence of endometritis and post-operative fever: **4.5% with intervention vs 8.8% in the placebo group**.⁴ These results were statistically significant. Limitations of the study were that only 4 trials were double blinded. The subgroup analyses showed statistically significant reduction in incidence of endometritis in those in labor as well as those with ruptured membranes. With this information the review concluded that the simple intervention of vaginal preparation with anti-septic should be implemented.

The two systematic reviews both conclude that using vaginal anti-septic preparation before cesarean deliveries reduces the incidence of postpartum endometritis.

Graph 1: Incidence of endometritis with no intervention vs vaginal preparation



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