

## Should you adopt the practice of vaginal cleansing with povidone-iodine prior to cesarean delivery?

➡ Among women with ruptured membranes or spontaneous labor, precesarean vaginal cleansing with povidone-iodine may reduce the risk of endometritis



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There are approximately 4,000,000 births annually in the United States, and about 32% of them occur by cesarean delivery. Compared with vaginal birth, cesarean delivery is associated with an increased risk of endometritis (defined as fever plus uterine or abdominal tenderness). Although surgical complications cannot be eliminated entirely, surgeons are deeply dedicated to the continuous improvement of surgical practice in order to reduce the risk of complications.

With cesarean delivery, many surgical practices have been adopted universally to reduce postoperative complications, including administration of intravenous (IV) antibiotics before skin incision to minimize postoperative infection and the use of postoperative mechanical or pharmacologic interventions to help prevent venous thromboembolism and pulmonary embolism. Preoperative vaginal cleansing with povidone-iodine may reduce the risk of postoperative endometritis, but the practice is not currently common in the United States.

Should you adopt a policy of preoperative vaginal cleansing prior to cesarean delivery? The data suggest perhaps you should.

### Data-driven support for povidone-iodine precesarean

Three large randomized trials published within the past 10 years concluded that preoperative vaginal cleansing with povidone-iodine reduced the risk of postcesarean endometritis in women who also received prophylactic IV antibiotics (TABLE, page 10).<sup>1-3</sup> Vaginal cleansing did not reduce the rate of postpartum fever or wound infection in these studies.

Clinical factors that increased the risk of postpartum endometritis independent of vaginal cleansing included:

- extended duration of cesarean surgery
- being in labor prior to cesarean delivery
- ruptured membranes
- advanced cervical examination
- maternal anemia

- use of intrapartum internal monitors
- prior history of genitourinary infection.

Authors of two recent, large nonrandomized studies also have reported that vaginal cleansing reduced the risk of postcesarean endometritis.<sup>4,5</sup> By contrast, investigators from one large trial from 2001 did not observe a decrease in endometritis with vaginal cleansing.<sup>6</sup>

### Cochrane review of precesarean vaginal cleansing

Authors of a Cochrane review, in which they synthesized 7 studies involving 2,635 women, reported that vaginal cleansing with povidone-iodine immediately before cesarean delivery was associated with a reduced risk of postcesarean endometritis: 8.3% vs 4.3% in the control and vaginal cleansing groups, respectively, (risk ratio [RR], 0.45; 95% confidence interval [CI], 0.25–0.81).<sup>7</sup>

The positive effect of vaginal cleansing was particularly noteworthy in the subgroup of women with ruptured membranes (3 trials involving 272 women). The rates of

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**TABLE** The effect of vaginal cleansing with povidone-iodine on the rate of postoperative endometritis<sup>1-3, \*</sup>

Study	No. of trial subjects	Rate of postcesarean endometritis, %		Relative risk	95% confidence interval
		No vaginal cleansing	Vaginal cleansing with povidone-iodine		
Starr 2015	308	14.5	7.0	0.44	0.190–0.997
Haas 2010	300	11.7	6.5	0.55	0.260–1.110
Yildirim 2012	670	11.6	6.9	0.59	0.360–0.970

\*According to 3 recent randomized clinical trials, vaginal cleansing with povidone-iodine reduces the rate of postoperative endometritis. All subjects received intravenous antibiotics.

endometritis in the control versus vaginal cleansing groups were 17.9% and 4.3%, respectively (RR, 0.24; 95% CI, 0.10–0.55).

Women who went into labor prior to cesarean delivery (523 women from 3 trials) also benefited from vaginal cleansing, with endometritis rates of 13.0% and 7.4% in the control and vaginal cleansing groups, respectively (RR, 0.56; 95% CI, 0.34–0.95).

In this review, again, vaginal cleansing did not significantly reduce the rate of postoperative fever or wound infection.

### Is vaginal cleansing prior to cesarean delivery best practice?

In the United States, precesarean vaginal cleansing is not a common practice. To close the gap

between current practice and what is potentially a best practice, two approaches to using vaginal cleansing could be instituted in delivery units.

**Approach #1: A liberal clinical protocol.** In this scenario, *all women* (who are not allergic to iodine or povidone-iodine) undergoing cesarean delivery should undergo vaginal cleansing. The World Health Organization conditionally recommends vaginal

## Prevention of postcesarean endometritis with vaginal metronidazole gel 5 g

To test the impact of metronidazole vaginal gel on postcesarean endometritis, 224 women undergoing cesarean delivery for various indications were randomly assigned to placebo vaginal gel or metronidazole vaginal gel 5 g prior to surgery initiation.<sup>1</sup> Most women also received intravenous antibiotics. The rates of endometritis were 17% and 7% in the placebo and metronidazole groups, respectively (relative risk, 0.42; 95% confidence interval, 0.19–0.92).

Vaginal antibiotic administration shows promise as an alternative to povidone-iodine cleansing in the prevention of postcesarean endometritis. Additional randomized clinical trials are necessary to fully evaluate the benefits and risks of this practice.

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## Vaginal cleansing with povidone-iodine or chlorhexidine gluconate with low alcohol content

Povidone-iodine is formally approved for vaginal surgical site cleansing. In women with allergies to iodine or povidone-iodine, the options for vaginal cleansing are very limited. Some centers use saline cleansing or dilute hydrogen peroxide cleansing.

The American College of Obstetricians and Gynecologists has noted that chlorhexidine gluconate solutions with high concentrations of alcohol are contraindicated for vaginal cleansing.<sup>1</sup> However, although not approved for vaginal cleansing, solutions of chlorhexidine gluconate with low alcohol content (4% alcohol concentration) are safe and may be effective for off-label use as vaginal cleansings.

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## Editorial

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cleansing for all women undergoing a cesarean delivery.<sup>8</sup>

**Approach #2: A focused clinical protocol.** For this protocol, only women (again, who are not allergic to iodine or povidone-iodine) who have ruptured membranes or are in labor upon advanced cervical examination should receive vaginal cleansing.

The advantage of a liberal protocol is that vaginal preparation becomes embedded within the standard

practice of cesarean delivery and, hence, is seldom overlooked. The upside of the focused protocol is that only those women most likely to benefit receive the intervention.

### Tell me what you think

Will you consider using vaginal cleansing in your practice? Please let me know your views on vaginal cleansing for cesarean delivery, as well as your clinical pearls on cesarean delivery surgery, at

obgmanagement.com. In addition, weigh in on the Quick Poll posted to OBG MANAGEMENT's homepage. Send your letter to the editor to [rbarbieri@frontlinemedcom.com](mailto:rbarbieri@frontlinemedcom.com).



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