

# New Guidance: Updated WHO Recommendations on the Prevention and Treatment of Maternal Peripartum Infections

## AlignMNH Synthesis Brief

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### Background

Direct maternal infections around the time of childbirth account for about one-tenth of the global burden of maternal death. Women who develop peripartum infections are also prone to severe morbidity and long-term disabilities such as chronic pelvic pain, fallopian tube blockage, and secondary infertility. Maternal infections before or during childbirth are also associated with an estimated 1 million newborn deaths annually.

Women undergoing operative intervention during birth, whether cesarean section or operative vaginal delivery, are particularly at high risk for developing peripartum infection. In 2019, in response to the availability of new evidence, the Executive Guideline Steering Group for the World Health Organization (WHO) maternal and perinatal health recommendations prioritized updating three WHO recommendations for women undergoing cesarean section (prophylactic antibiotics, vaginal cleansing before cesarean section, and preoperative skin preparation) and the existing WHO recommendation for women having an operative vaginal delivery. This set of four recommendations supersedes the previous [2015 guideline, WHO recommendations for prevention and treatment of maternal peripartum infections](#).

## Key Messages from the WHO's 2021 Four Updated Global Recommendations

- Bacterial infections around the time of childbirth account for about one-tenth of maternal deaths and contribute to severe morbidity and long-term disability for many affected women.
- **For antibiotic prophylaxis for cesarean section**, WHO recommends a **single dose of first-generation cephalosporin or penicillin** in preference to other classes of antibiotics, **given 30–60 minutes prior to skin incision**.
- WHO recommends **vaginal preparation with povidone-iodine (1% to 10%) or chlorhexidine gluconate (0.05% to 0.25%) for 30 seconds immediately before cesarean section in all women undergoing cesarean section**.
- For **preoperative skin preparation for cesarean section**, WHO recommends **use of alcohol-based chlorhexidine gluconate (e.g., 2% chlorhexidine gluconate in 70% alcohol)** in preference to other antiseptic agents; where chlorhexidine gluconate is not available, other antiseptic agents such as **povidone-iodine can be considered a suitable antiseptic agent** for preoperative skin preparation, although it is not as effective as alcohol-based chlorhexidine gluconate.
- WHO recommends **routine antibiotic prophylaxis for women undergoing operative vaginal birth** (i.e., vacuum-assisted vaginal delivery or use of forceps). Available evidence, from high-income countries, strongly supports the use of a **single dose of intravenous amoxicillin (1 g) and clavulanic acid (200 mg) administered as soon as possible after birth and no more than 6 hours after birth**; where this combination is not available, providers should consider the use of an alternative regimen based on similar spectrum of activity, safety profile, availability, and cost.

## Four Updated WHO Recommendations on the Prevention and Treatment of Maternal Peripartum Infections

### 1. WHO recommendation on Prophylactic antibiotics for women undergoing caesarean section

<https://apps.who.int/iris/bitstream/handle/10665/341865/9789240028012-eng.pdf>

**Recommendation:** For antibiotic prophylaxis for cesarean section, a single dose of first-generation cephalosporin or penicillin should be used in preference to other classes of antibiotics.

#### Summary of clarifying remarks:

- For antibiotic prophylaxis for cesarean section, a **single dose of first-generation cephalosporin or penicillin** should be used in preference to other classes of

antibiotics. This antibiotic choice is based on **1) effectiveness**, and **2)** as part of efforts to **contain antimicrobial resistance**.

- **However, the choice of an antibiotic should be adapted to the local context:** informed by **local antimicrobial resistance guidance**, **local bacteriologic patterns** of post-cesarean infectious morbidity, **safety profile**, the **clinician's experience with that particular class of antibiotics**, **availability**, and **cost**.
- **Prophylactic antibiotics are recommended for women undergoing elective or emergency cesarean section and should be given 30–60 minutes prior to skin incision, rather than intraoperatively after umbilical cord clamping.**
- Emphasizes the importance of using a **simple and short (i.e., single dose, 30–60 minutes before surgery) antibiotic regimen for prophylaxis**, unless there are **other clinical factors** for consideration (e.g., high maternal body mass index, prolonged labor, prolonged duration of surgery, extensive surgical manipulation or massive blood loss) that might increase the risk of developing post-cesarean infections. Clinical judgment is needed to evaluate if a different regimen (e.g., **higher dose, second dose**) of prophylactic antibiotics is warranted in the presence of risk factor.

## **2. WHO recommendation on Vaginal preparation with antiseptic agents for women undergoing caesarean section**

<https://apps.who.int/iris/bitstream/handle/10665/341863/9789240028050-eng.pdf>

**Recommendation:** Vaginal preparation with chlorhexidine gluconate or povidone-iodine immediately before cesarean section is recommended.

### **Summary of clarifying remarks:**

- **All women undergoing cesarean section should have vaginal cleansing with povidone-iodine (1% to 10%), for 30 seconds performed immediately before cesarean section** (e.g., directly following preoperative urinary bladder catheterization to minimize the woman's discomfort).
- While the **evidence** on vaginal preparation before cesarean section **was largely derived from trials using povidone-iodine**, benefit was demonstrated overall for any antiseptic (either povidone-iodine or chlorhexidine gluconate) versus no antiseptic. Included trials used varying concentrations of chlorhexidine gluconate (0.05% to 0.25%) or **povidone-iodine (1% to 10%)**, and the base (aqueous or alcohol) was not described. **Alcohol-based antiseptic solutions should not be used** for vaginal preparation because of concerns around irritation of mucosa.
- **This recommendation pertains to all women undergoing cesarean section** regardless of their baseline risk of infectious morbidity following surgery (i.e., for

cesarean section in women before or during labor, and women with intact or ruptured membranes).

- **Vaginal preparation should be performed as close to the start of cesarean section as possible** (e.g., directly following preoperative urinary bladder catheterization) to minimize the woman's discomfort.
- The **duration of vaginal preparation varied from 30 seconds to 1 minute**. The Guideline Development Group noted that shorter application, i.e., **30 seconds**, and contact time are **likely to be associated with less maternal and fetal exposure, which is desirable**.

### **3. WHO recommendations on Choice of antiseptic agent and method of application for preoperative skin preparation for cesarean section**

<https://apps.who.int/iris/bitstream/handle/10665/341864/9789240028036-eng.pdf>

**Recommendation a:** The use of alcohol-based chlorhexidine gluconate for skin preparation prior to elective or emergency cesarean section is recommended.

**Recommendation b:** The method of application of alcohol-based chlorhexidine gluconate prior to cesarean section should be based primarily on instructions for use, the clinician's experience, and preferences.

#### **Summary of clarifying remarks:**

- There was a lack of evidence to recommend a specific concentration of chlorhexidine gluconate; however, **most trials included used 2% chlorhexidine gluconate in 70% alcohol**.
- **Where chlorhexidine gluconate is not available**, other antiseptic agents such as **povidone-iodine can be considered a suitable antiseptic agent for preoperative skin preparation**, although it is not as effective as alcohol-based chlorhexidine gluconate.
- A standard preoperative skin preparation technique that is appropriate for the intended skin incision must be followed (e.g., allowing antiseptic agent to dry and not wiping off).

### **4. WHO recommendation on Routine antibiotic prophylaxis for women undergoing operative vaginal birth**

<https://apps.who.int/iris/bitstream/handle/10665/341862/9789240027992-eng.pdf>

**Recommendation:** Routine antibiotic prophylaxis is recommended for women undergoing operative vaginal birth.

### Summary of clarifying remarks:

- “Operative vaginal birth” is the term used to describe delivery of the fetal head assisted by either vacuum extractor or forceps.
- Available evidence, from high-income countries, strongly supports the use of a **single dose of intravenous amoxicillin (1 g) and clavulanic acid (200 mg) administered as soon as possible after birth and no more than 6 hours after birth.**
- Intravenous amoxicillin and clavulanic acid may not be readily available or feasible to use in resource-limited settings and suggested that **where this combination is not available, providers should consider the use of an appropriate class of antibiotics with similar spectrum of activity, based on local antimicrobial resistance patterns, safety profile (including allergies), the clinician’s experience with that class of antibiotics, availability, and cost.**
- This recommendation relates to the use of antibiotics for women who are undergoing operative vaginal birth and who are not receiving postpartum antibiotics for other indications.