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# Uses of Misoprostol in Obstetrics and Gynecology

Rebecca Allen, MD, MPH and Barbara M O'Brien, MD

Department of Obstetrics and Gynecology, Women and Infants' Hospital and Warren Alpert Medical School of Brown University, Providence, RI



## Abstract

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Misoprostol is a synthetic prostaglandin $E_1$ analogue that is used off-label for a variety of indications in the practice of obstetrics and gynecology, including medication abortion, medical management of miscarriage, induction of labor, cervical ripening before surgical procedures, and the treatment of postpartum hemorrhage. Due to its wide-ranging applications in reproductive health, misoprostol is on the World Health Organization Model List of Essential Medicines. This article briefly reviews the varied uses of misoprostol in obstetrics and gynecology.

**Key words:** Misoprostol, Induced abortion, Induction of labor, Postpartum hemorrhage, Cervical ripening, Hysteroscopy

Misoprostol is a synthetic prostaglandin $E_1$ analogue marketed as an oral preparation used to prevent and treat gastroduodenal damage induced by nonsteroidal anti-inflammatory drugs (NSAIDs). However, misoprostol is used off-label for a variety of indications in the practice of obstetrics and gynecology, including medication abortion, medical management of miscarriage, induction of labor, cervical ripening before surgical procedures, and the treatment of postpartum hemorrhage. Misoprostol's effects are dose dependent and include cervical softening and dilation, uterine contractions, nausea, vomiting, diarrhea, fever, and chills.[1] Although misoprostol is not approved by the US Food and Drug Administration (FDA) for these indications, in 2002, pregnancy was removed from the label as an absolute contraindication to misoprostol use.[2] Misoprostol's advantages over other synthetic prostaglandin analogues are its low cost, long shelf life, lack of need for refrigeration, and worldwide availability (Figure 1).[3]

Figure 1

World map of misoprostol approval. Produced by Gynuity Health Projects. Reproduced with permission from Gynuity Health Projects. Copyright © 2008. Access at www.gynuity.org.

## Pharmacokinetics

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Routes of misoprostol administration include oral, vaginal, sublingual, buccal, or rectal. Pharmacokinetics studies (Figure 2) comparing oral and vaginal administration have shown that vaginal misoprostol is associated with slower absorption, lower peak plasma levels, and slower clearance, similar to an extended-release preparation.[4–6] Vaginal misoprostol is also associated with a greater overall exposure to the drug (area under the