



# MISOPROSTOL

Brand: Cytotec® • Prostaglandin E1 Analog



PHARMACOLOGY



OB / MATERNAL



GI

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## DEFINITION / OVERVIEW

- ▶ **Synthetic Prostaglandin E1 (PGE1) analog** — mimics natural prostaglandins.
- ▶ **Dual purpose drug:** ① Prevents NSAID-induced gastric ulcers ② Stimulates uterine contractions & softens cervix.
- ▶ **Why it matters:** Life-saving in postpartum hemorrhage (PPH), but **Pregnancy Category X** — can cause miscarriage, rupture, or fetal death if misused.



Protects stomach



Induces labor



Stops PPH bleeding



Softens cervix

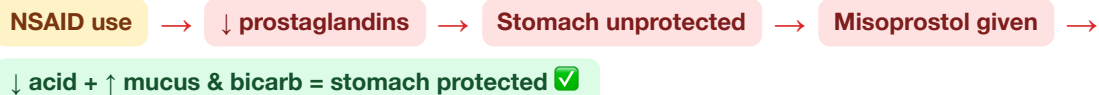
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## PATHOPHYSIOLOGY / MECHANISM



**GI PATHWAY (Ulcer Prevention):**



**OB PATHWAY (Uterine Action):**



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## SIDE EFFECTS / ADVERSE REACTIONS



### MILD / COMMON

- ▶ **#1 Diarrhea** — MOST common
- ▶ Abdominal pain / cramping
- ▶ Nausea & vomiting
- ▶ Headache
- ▶ Low-grade fever, chills, shivering
- ▶ Dizziness, flatulence
- ▶ Vaginal bleeding / spotting (OB use)



### SEVERE (🚨 RED FLAGS)

- ▶ **Uterine tachysystole** (>5 contractions/10 min)
- ▶ **Uterine rupture** (esp. prior C-section)
- ▶ **Fetal distress** — late decels, bradycardia
- ▶ **Severe hemorrhage**
- ▶ **Severe diarrhea** → dehydration, ↓K+
- ▶ **Miscarriage / birth defects** (Category X)

## 4 PRIORITY NURSING INTERVENTIONS (ABCS + SAFETY)

### ✓ BEFORE ADMINISTRATION

- **Confirm NEGATIVE pregnancy test**

(GI use)

- **Assess for prior C-section / uterine scar**

- contraindicated for induction
- Verify indication, dose, route
- Obtain baseline VS, FHR, contraction pattern

### 👁 DURING / AFTER

- **Monitor FHR continuously**

(OB use)

- **Assess contractions**

- freq, duration, intensity
- Monitor maternal VS (BP, HR, temp)
- Assess bleeding & fundus (PPH)
- Keep

**terbutaline**

at bedside (tocolytic for tachysystole)

### 🚑 IF TACHYSYSTOLE / DISTRESS

- **STOP**

drug / remove vaginal tablet

- **Side-lying**

position (left)

- **O<sub>2</sub>**

via non-rebreather 10 L/min

- **IV fluid bolus**

LR

- **Notify HCP**

— prepare terbutaline

## 5 PHARMACOLOGY SNAPSHOT

● **BLACK BOX WARNING: Pregnancy Category X • Uterine rupture risk • Do NOT use in pregnant women for ulcer prevention**

|                   |                                                                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Generic / Brand   | Misoprostol / <b>Cytotec®</b>                                                                                                                                          |
| Drug Class        | Synthetic Prostaglandin E1 (PGE1) analog                                                                                                                               |
| Routes            | PO, vaginal, buccal, sublingual, rectal                                                                                                                                |
| Indications       | ① NSAID ulcer prevention ② Cervical ripening / labor induction (Bishop <6) ③ Postpartum hemorrhage ④ Medical abortion (+ mifepristone) ⑤ Incomplete/missed miscarriage |
| Contraindications | <b>Pregnancy</b> (if for ulcer), <b>prior C-section / uterine surgery</b> (for induction), PG hypersensitivity, active cardiac/renal/hepatic disease                   |
| Key Side Effects  | Diarrhea (#1), cramping, N/V, HA, fever/chills, tachysystole, rupture                                                                                                  |
| Drug Interactions | ⚠ <b>Magnesium-containing antacids</b> — worsen diarrhea; avoid oxytocin within 4 hrs of last misoprostol dose                                                         |

## 6 NCLEX TEST TRAPS ⚠️

- ▶ ⚠️ **Pregnancy test REQUIRED** before giving for ulcer prevention — Category X!
- ▶ ⚠️ **Don't confuse with Methergine** (methylergonovine) — both treat PPH, but Methergine is contraindicated in HTN; misoprostol is the go-to if BP is elevated.
- ▶ ⚠️ **Don't confuse with Mifepristone** — they work together for medical abortion (mifepristone first, misoprostol 24–48 hr later).
- ▶ ⚠️ **Prior C-section = contraindication** for labor induction (uterine rupture risk) — pick a different priority action.
- ▶ ⚠️ **Tachysystole = >5 contractions in 10 min** → **STOP** drug is the #1 priority (before O<sub>2</sub> or position change on some test items — always re-read the stem).
- ▶ ⚠️ **Diarrhea is the most common side effect**, NOT bleeding — watch for dehydration & hypokalemia.
- ▶ ⚠️ **Avoid Mg-containing antacids** (Maalox, Mylanta) — worsen diarrhea.
- ▶ ⚠️ **Give with food** for GI use (opposite of most ulcer meds which are given on empty stomach).

## 7 PATIENT EDUCATION

- ▶ 🍽️ **Take with meals & at bedtime** to reduce diarrhea & cramping.
- ▶ 💊 **Use reliable contraception** during therapy (GI use) — drug causes fetal harm.
- ▶ 🚫 **Never share medication** — especially with pregnant women.
- ▶ ❌ **Avoid magnesium antacids** (Maalox, Mylanta) — worsens diarrhea.
- ▶ 📞 **Report immediately:** severe/persistent diarrhea, heavy bleeding, severe cramping, signs of preterm labor, chest pain, or s/sx of infection (fever >100.4°F with foul discharge).
- ▶ 💧 **Increase fluids** to prevent dehydration if diarrhea occurs.
- ▶ 🤰 For OB/miscarriage use: expect cramping & bleeding 1–4 hrs after dose; **follow-up visit required** to confirm completeness.
- ▶ 💊 Take full course exactly as prescribed; do not stop abruptly.

## 8 MEMORY BOOSTERS 🧠

### 📝 "M-I-S-O" — The 4 B's

- B** **Belly** — ulcer prevention (GI)
- B** **Baby** — labor induction / cervical ripening
- B** **Bleeding** — postpartum hemorrhage
- B** **Both ends** — miscarriage / abortion completion

### 🎯 "CYTOTEK" Safety Check

- C** Cramping expected
- Y** Your pregnancy test must be **NEGATIVE**
- T** Take with food
- O** Offer contraception education
- T** Tachysystole — **STOP** drug
- E** Educate: no Mg antacids
- C** C-section prior = contraindication

⚡ **Quick Association:** "Miso = **M**iscarriage + **S**tomach + **O**ut the uterus" — 3 main reasons you'll see this drug on NCLEX.

📌 **Pattern:** If the question mentions "NSAID + ulcer prevention" → think misoprostol. If it mentions "PPH in a hypertensive patient" → choose misoprostol (NOT Methergine).

