

Preterm Labor

A plain-English guide for you and your family

WHAT IS HAPPENING

In a healthy pregnancy, the uterus stays quiet and the cervix (the doorway at the bottom of the womb) stays long, thick, and closed until around 37 weeks. At that point, hormones like oxytocin (the signal that tells the uterus to squeeze) and prostaglandins (messengers that soften and open the cervix) start labor naturally when the baby is ready. But sometimes the labor switch flips too early — before week 37 — because of infection in the uterus or the water bag, too much fluid stretching the uterus, poor blood flow to the placenta, high stress releasing cortisol (the body's main stress hormone), a weak or short cervix that cannot hold the pregnancy closed, or bleeding where the placenta attaches to the uterine wall. When that happens, the uterus begins squeezing in a regular pattern and the cervix starts to thin out (efface) and open (dilate). You might also see the water bag break early or vaginal bleeding. If the baby is born before the lungs finish making enough surfactant (the slippery soap-like substance that keeps the tiny air sacs from sticking shut), the newborn will struggle to breathe and may develop respiratory distress syndrome (RDS), along with other problems like bleeding in the brain, trouble feeding, and infections the immune system is not ready to fight. None of this is random — each sign (contractions, cervical change, ruptured membranes, bleeding) traces back to one upstream trigger, and the body is racing to protect both mother and baby. The doctor's job is to slow or stop labor long enough to give steroids that speed up lung development, antibiotics if infection is the trigger, and magnesium sulfate to shield the baby's brain, then choose the safest time and place for delivery.

What you might feel

- Regular contractions that come every 5 to 10 minutes or closer
- The cervix (the opening at the bottom of the uterus) starts to thin out or open up before 37 weeks
- Low, dull backache that does not go away
- Pelvic pressure or a feeling that the baby is pushing down
- Leaking fluid or a gush of watery fluid from the vagina

- More vaginal discharge than usual, or discharge that looks different (watery, mucus-like, or streaked with a small amount of blood)
- Cramping low in the belly that feels like menstrual cramps
- Vaginal bleeding (bright red or dark brown)

Call the doctor right away if...

- Leaking or gushing watery fluid from the vagina (sign the amniotic sac may have broken, raising risk of infection and early delivery)
- Vaginal bleeding that is more than spotting or streaking (can mean the cervix is opening fast or the placenta is pulling away)
- Fever over 100.4°F (38°C) with contractions or leaking fluid (sign of infection inside the uterus, which can harm the baby and mother)
- Contractions that keep coming every few minutes and do not stop with rest or changing position (means labor is progressing and the cervix is likely changing)
- Baby is not moving as much as usual (can mean the baby is not getting enough oxygen or is under stress)

What the care team will do

- Place the patient on continuous external fetal monitoring to watch the baby's heart rate and count contractions
- Start an IV line with normal saline or lactated Ringer solution
- Give betamethasone or dexamethasone intramuscular injection if the patient is between 24 and 34 weeks and delivery is expected within 7 days
- Administer tocolytic medicine such as nifedipine by mouth or indomethacin by mouth or rectum as ordered to stop contractions
- Start magnesium sulfate IV infusion if the baby is less than 32 weeks gestation
- Give IV antibiotics such as penicillin or ampicillin if the patient is GBS-positive or GBS status is unknown
- Monitor vital signs every 15 to 30 minutes especially blood pressure and heart rate if the patient is receiving tocolytics or magnesium sulfate
- Keep the patient on bedrest in left lateral position and provide a calm quiet environment

Medicines you may be given — and why

Betamethasone or Dexamethasone (corticosteroids)

These steroids are given to the mother between 24 and 34 weeks when birth might happen in the next 7 days. They cross the placenta and reach the baby's lungs, brain, gut, and blood vessels. They tell the baby's lung cells to start making surfactant (the slippery coating that keeps air sacs open so the baby can breathe after birth). They also strengthen the fragile blood vessels in the baby's brain and gut, making them less likely to tear and bleed. This dramatically lowers the risk of respiratory distress syndrome (trouble breathing), intraventricular bleeding (hemorrhage) (bleeding inside the brain), necrotizing enterocolitis (parts of the gut dying), and death in the first weeks of life.

Magnesium sulfate

Magnesium sulfate is given to the mother when delivery is expected before 32 weeks. It travels through the placenta to the baby and acts like a shield around the baby's developing brain. It blocks calcium from flooding into brain cells (too much calcium can kill cells when blood flow is low or unsteady). It also dials down the release of glutamate (an excitatory brain messenger that, in excess, over-stimulates and damages neurons). By calming this chemical storm, magnesium reduces the risk of cerebral palsy (permanent movement and muscle problems caused by brain injury) and other serious brain damage in very premature babies.

Nifedipine (calcium channel blocker tocolytic)

Nifedipine is the first-choice medication to temporarily slow or stop preterm labor contractions. It works by blocking calcium channels in the smooth muscle cells of the uterus. Muscle cells need calcium to squeeze (contract). When nifedipine blocks calcium from entering, the uterine muscle relaxes and contractions slow down or stop. The goal is to buy 48 hours so that corticosteroids have time to work in the baby's lungs and brain. Nifedipine does NOT cure the cause of preterm labor—it just pauses it long enough to give other treatments time to help the baby.

Indomethacin (NSAID tocolytic)

Indomethacin is a second-choice tocolytic (medicine to slow labor) used before 32 weeks when nifedipine is not working or cannot be used. It works by blocking cyclooxygenase (COX), the enzyme that makes prostaglandins (chemical messengers that trigger inflammation and muscle contraction). The uterus uses prostaglandins to start and strengthen contractions. When indomethacin stops prostaglandin production, contractions weaken and may stop. Like nifedipine, the goal is to delay delivery for 48 hours so steroids can work, not to prevent preterm birth altogether.

Penicillin or Ampicillin (for Group B Streptococcus prevention (prophylaxis))

Group B Streptococcus (GBS) is a common bacterium that lives harmlessly in the vagina or rectum of about 1 in 4 pregnant women. During labor, the baby can swallow or breathe in GBS as it passes through the birth canal, leading to serious infections like pneumonia, meningitis (infection of the brain lining), or sepsis (blood infection) in the first days of life. Penicillin or ampicillin is given through an IV during labor to mothers who are GBS-positive (tested positive earlier in pregnancy) or whose GBS status is unknown and who have risk factors (preterm labor, fever, ruptured membranes for many hours). The antibiotic floods the mother's bloodstream, crosses the placenta, and reaches the baby. It kills GBS bacteria in the birth canal and in the baby's system before they can multiply and cause infection. This is called intrapartum antibiotic prevention (prophylaxis) (IAP).

Ampicillin PLUS Azithromycin (for preterm premature rupture of membranes, PPRM)

When the amniotic sac (water bag) breaks too early—before 37 weeks and before labor starts—it is called preterm premature rupture of membranes (PPROM). The broken sac is no longer a sealed barrier, so bacteria from the vagina can climb up into the uterus and reach the baby and amniotic fluid. This can cause chorioamnionitis (infection of the membranes), and infection is a major trigger for preterm labor and can make the baby very sick. Ampicillin kills common bacteria like Group B Streptococcus and *E. coli*. Azithromycin kills other bacteria (like *Ureaplasma* and *Mycoplasma*) that often live in the genital tract and can sneak into the uterus when the membranes are broken. Together, these antibiotics kill a broad range of bacteria, lowering the risk of infection in the mother and baby, delaying the start of labor, and reducing complications like respiratory distress, bleeding in the baby's brain, and necrotizing enterocolitis. Current ACOG guidelines (2024) recommend this combination over the older regimen that included amoxicillin and erythromycin.

Where this information comes from

- ACOG Practice Bulletin No. 171: Management of Preterm Labor, 2016 (reaffirmed 2023)
- CDC Preterm Birth Data and Prevention
- Cochrane Review: Interventions for Preventing Preterm Birth
- Society for Maternal-Fetal Medicine (SMFM) Clinical Guidelines

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