

Lactation and Medication Safety

Most medicines are safe while breastfeeding — only a tiny bit gets into milk.

THE STORY IN ONE SENTENCE

Most medicines are safe while breastfeeding — only a tiny bit gets into milk.

“Nearly all medicines are fine during breastfeeding. Check LactMed (the free NIH database) when you are unsure.”

Normal anatomy — the body's job

Breast milk is made in the mammary glands (milk-making tissue in the breast) from the mother's blood. It delivers calories, antibodies (proteins that fight germs), and growth signals to the baby.

BODY'S JOB

The mammary glands filter blood plasma and pull in fat, protein, sugar (lactose), vitamins, and antibodies (especially IgA, which coats the baby's gut and blocks germs). Milk flows through ducts to the nipple, and the baby gets a perfectly balanced meal plus immune protection with every feeding.

1. Blood flows into the mammary glands through tiny capillaries (the smallest blood vessels).
2. Cells in the gland pull nutrients, water, and antibodies out of the blood and package them into milk.
3. Milk collects in small sacs called alveoli, then travels through ducts to the nipple.
4. The baby sucks, and milk is released — giving nutrition, hydration, and germ-fighting proteins all at once.

What breaks

When a mother takes medicine, some of it can cross from her blood into breast milk — the same way nutrients do. How much crosses depends on the drug's size, how tightly it sticks to mom's blood proteins, and how fat-loving it is (milk has fat). Most medicines transfer in

amounts too small to affect the baby, but a few reach levels high enough to watch for side effects.

CLINICAL TERM

Drug transfer into breast milk is governed by molecular weight (small drugs < 500 Da cross easily), lipid solubility (lipophilic drugs dissolve into milk fat), protein binding (highly bound drugs stay in maternal plasma), and ionization (non-ionized forms cross membranes). The infant dose is estimated as the milk/plasma (M/P) ratio times maternal dose, divided by infant weight. Most drugs yield a relative infant dose (RID) < 10%, considered safe. Concern arises when RID > 10%, the drug has a narrow therapeutic index, or the infant is premature or ill.

How the body compensates

The body does not 'compensate' for drug in milk — it is passive diffusion. Instead, the team uses strategies to minimize infant exposure while preserving breastfeeding whenever possible.

1. {'label': 'Choose a safer drug', 'detail': 'Pick a medicine with low M/P ratio, high protein binding, or short half-life. Example: prefer sertraline or paroxetine (antidepressants with low RID) over fluoxetine (longer half-life, higher infant levels).'}
2. {'label': 'Time the dose', 'detail': 'Take the medicine right after a feeding, so levels peak between feeds and drop before the next one. This cuts the amount in milk when the baby nurses.'}
3. {'label': 'Use the lowest effective dose', 'detail': 'Lower maternal dose → lower milk concentration → lower infant exposure. Titrate to the minimum that controls symptoms.'}
4. {'label': 'Monitor the infant', 'detail': 'Watch for sedation (extra sleepiness, poor suck), irritability, rash, diarrhea, or poor weight gain. If any appear, check drug levels (if available) or stop the medicine.'}
5. {'label': 'Pump and discard (temporary holds)', 'detail': 'For short-term meds (e.g., gadolinium MRI contrast, single-dose sedation), pump and dump for one or two half-lives, then resume nursing. Keeps milk supply going.'}
6. {'label': 'Stop breastfeeding only when unavoidable', 'detail': 'Reserve for true contraindications (chemo, radioiodine, drugs of abuse). Weigh the risk of the drug against the proven benefits of breastfeeding (lower infection, allergy, obesity, better bonding).'}

Domino effect

1. Mother takes a medicine; it enters her bloodstream. — Any drug absorbed from the gut, inhaled, or injected travels through the blood to reach its target — and blood also feeds the mammary glands.
2. The drug diffuses from blood into breast milk. — Milk is made from blood, so small, fat-loving, or poorly protein-bound molecules slip across the capillary membrane into milk naturally — no pump needed, just concentration gradient.
3. The baby nurses and swallows the milk (plus trace drug). — Every feeding delivers a small dose to the baby. How much depends on milk concentration, how much milk the baby drinks, and how often they nurse.
4. The drug is absorbed in the baby's gut and reaches their bloodstream. — Some drugs break down in stomach acid or aren't absorbed well (e.g., heparin, insulin) — those are safer. Drugs absorbed intact (e.g., sedatives, antibiotics) can affect the baby.
5. The baby's immature liver and kidneys clear the drug slowly. — Newborns have lower enzyme activity (especially CYP450s and glucuronidation) and slower kidney filtration, so drugs hang around longer and can build up with repeated feeds.
6. Drug accumulates or causes side effects if the dose is high enough. — Sedatives → drowsiness, poor feeding. Antibiotics → diarrhea, rash. Morphine (from codeine) → pauses in breathing (apnea). NSAIDs (usually safe) → rare gut bleeding if high dose. The baby's small size magnifies risk.
7. The team monitors the baby and adjusts or stops the medicine if needed. — Signs of toxicity (lethargy, poor weight gain, rash, GI upset) prompt a safety check. Often switching drugs or timing doses solves it without stopping breastfeeding.
8. In most cases, breastfeeding continues safely with the right medicine choice and monitoring. — Only a handful of drugs truly require weaning. The proven harms of stopping breastfeeding (more infections, allergies, less bonding, no antibodies) usually outweigh the tiny risk from medicine in milk — so the default is to keep nursing and pick a compatible drug.

Symptoms · what the patient feels, and why

- Mother needs to take medicine while breastfeeding: Many health problems (like infections, pain, or long-term illness) happen during the months or years a mother nurses her baby, so she may need treatment to stay healthy while still making milk.
- Worry that medicine will pass into breast milk: Nearly all medicines move from the mother's blood into her milk in small amounts because milk is made from blood; the amount that gets through depends on the drug's size, how it dissolves, and how tightly it sticks to proteins.

- Baby seems extra sleepy or fussy after mother takes certain medicines: Some drugs (especially sedatives, opioids, or medicines that act on the brain) can reach high enough levels in milk to make a baby drowsy, less interested in feeding, or irritable because the baby's liver and kidneys are still learning to clear drugs.
- Baby has a rash, diarrhea, or vomiting that started when mother began a new medicine: A few medicines (like antibiotics) can upset the baby's gut bacteria or trigger an allergic reaction when they pass through milk, causing rash, loose stools, or throwing up.
- Decrease in milk supply after starting a medicine: A small group of drugs (especially pseudoephedrine, high-dose estrogen birth control, or bromocriptine) can lower prolactin (the hormone that tells the breast to make milk) or dry out body fluids, so less milk is produced.
- Mother stops breastfeeding because she fears the medicine is unsafe: Conflicting advice or incomplete information can lead a mother to believe she must quit nursing, even when the drug is actually safe or a compatible alternative exists, causing unnecessary loss of breastfeeding benefits.
- Mother delays or skips needed treatment to avoid exposing the baby: Fear of harming the infant through milk may keep a mother from taking antibiotics, pain relief, or mental-health medicine she truly needs, putting her own health at risk.
- Baby shows signs of drug effect matching the mother's medicine (for example, jitteriness with stimulants or slow breathing with opioids): When a medicine reaches a high enough concentration in milk—especially if the baby is very young or premature and cannot break down drugs quickly—the baby can show the same side effects an adult would have.

Focused exam

- Baby's breathing rate and depth while nursing: Some medicines that pass into breast milk—especially opioids like codeine—can slow a baby's breathing dangerously. Because the baby gets the drug through milk, not from their own prescription, we have to watch carefully.
- Baby's alertness and how easy they are to wake: Medicines that make mom sleepy can make the baby drowsy too through breast milk. A baby who is floppy, hard to wake, or sleeping much longer than usual may be getting too much medicine.
- Baby's feeding strength and how long they stay on the breast: A weak suck or very short feeds can mean the baby is affected by mom's medicine. Babies this age should eat well and gain weight steadily—milk is their only food.
- Complete list of all medicines, herbs, and supplements mom is taking: Every medicine passes into breast milk in different amounts. Some are safe, some are risky, and some are dangerous. Missing even one herb or supplement can mean missing the cause of the problem.

- Baby's skin color—pale, yellow, or blue: Yellow skin can mean the baby's liver is struggling to clear a medicine that passed through milk. Blue skin means the baby is not getting enough oxygen, which is the most dangerous sign with opioids.
- How many wet diapers and stools the baby has each day: If the baby is not feeding well because of a medicine in the milk, you will see fewer wet diapers (fewer than six per day after the first week). Fewer wet diapers mean the baby is not getting enough milk or is getting dehydrated.

Diagnostics · every test answers a question

- LactMed (NIH) database lookup for each medication → Does this specific medicine pass into breast milk in amounts that can harm the baby?
- Infant serum drug level (if baby shows symptoms and mom takes a high-risk medicine) → Is the baby actually absorbing a dangerous amount of the medicine from breast milk?
- Baby weight check and feeding log → Is the baby growing normally and eating well, or is a medicine affecting feeding?
- Maternal medication timing log → When did mom start the medicine, and does the baby's symptom timeline match?
- Baby bilirubin level (if yellowing of the skin and eyes (jaundice) is present) → Is the baby's yellow skin from normal newborn yellowing of the skin and eyes (jaundice) or from a medicine slowing the liver?

Treatment logic

- Check LactMed (NIH database) for every medicine before prescribing or continuing it in a nursing mother → This tells you whether the drug passes into milk in meaningful amounts and whether it has caused harm in real babies. It replaces guessing with evidence and prevents avoidable injuries.
- Avoid codeine and tramadol completely; use acetaminophen or ibuprofen for pain instead → Codeine and tramadol are broken down unpredictably (due to genetic variation in the enzyme CYP2D6). Some babies get dangerously high levels that slow breathing and can cause death. Acetaminophen and ibuprofen pass into milk in tiny, safe amounts.
- Use sertraline or paroxetine (not fluoxetine) when treating postpartum depression in nursing mothers → Sertraline and paroxetine have shorter half-lives and lower milk concentrations, so less builds up in the baby over time. Fluoxetine has a very long half-life and can accumulate in the baby's blood.

- Time medicine doses right after baby finishes nursing (when possible) → The medicine peaks in mom's blood and milk a few hours after she takes it. If she nurses right before taking the dose, the next feeding happens before the peak, so the baby gets a smaller amount.
- Teach mother to watch for drowsiness, poor feeding, rash, fussiness, or breathing changes in the baby and report within 48 hours → Most medicine reactions in babies show up within the first few days. Early detection lets you stop or switch the medicine before serious harm happens.
- Continue breastfeeding through most common illnesses in mom (colds, flu, mastitis)—do not stop unless specifically told → Breast milk contains antibodies that protect the baby from the same infection the mother has. Stopping nursing removes that protection, causes painful breast engorgement in mom, and drops milk supply.
- If a truly incompatible medicine is necessary (chemotherapy, radioactive iodine), pump and discard milk to maintain supply, then resume nursing after the drug clears → Pumping keeps the milk-making system active so mom can return to breastfeeding once the dangerous medicine is out of her body (usually days to weeks, depending on the drug).

Medications

Acetaminophen (Tylenol) · Non-opioid pain reliever and fever reducer

Acetaminophen blocks pain signals in the brain and lowers the body's thermostat in the hypothalamus (the brain's temperature control center). Only tiny amounts pass into breast milk—far below the safe dose for babies.

1. You swallow the pill and it enters your bloodstream.
2. It travels to the brain and blocks enzymes (COX enzymes) that make prostaglandins—chemicals that trigger pain and fever.
3. The hypothalamus resets the body's temperature set-point lower, so fever drops.
4. Only about 1-2% of the dose enters breast milk, which is safe for the nursing baby.

SAFETY WATCH

Very safe during breastfeeding at normal doses (up to 4,000 mg per day in divided doses). · High doses or long-term daily use can harm the mother's liver. · Watch for signs of liver trouble in mom: yellow skin or eyes, dark urine, severe fatigue, or belly pain on the right side.

Ibuprofen (Advil, Motrin) · Nonsteroidal anti-inflammatory drug (NSAID)

Ibuprofen blocks enzymes (COX-1 and COX-2) all over the body that make prostaglandins—chemicals that cause pain, fever, and swelling. Almost none gets into breast milk.

1. You take the pill and it enters your bloodstream.
2. It blocks COX enzymes wherever inflammation or pain is happening.
3. Without prostaglandins, pain signals weaken, fever drops, and swelling goes down.
4. Less than 1% of the dose passes into breast milk, far below a baby dose.

SAFETY WATCH

Preferred NSAID during breastfeeding because very little enters milk. · Avoid if mom has stomach ulcers, kidney disease, or heart failure. · Long-term use can irritate the stomach lining or raise blood pressure. · Safe at standard doses (200–400 mg every 6 hours as needed).

Sertraline (Zoloft) · Selective serotonin reuptake inhibitor (SSRI) antidepressant

Sertraline blocks the brain's serotonin recycling pumps (reuptake transporters) in the spaces between nerve cells. This keeps serotonin (a chemical messenger that steadies mood, sleep, and anxiety) working longer, which lifts mood over time. It passes into breast milk in very low amounts.

1. You take the pill daily and it builds up slowly in your bloodstream and brain.
2. Sertraline blocks the serotonin transporter pump on nerve cells.
3. Serotonin stays in the synapse longer instead of being sucked back into the sending cell.
4. Over 2–4 weeks, this steady serotonin signal rebalances mood circuits.
5. Only tiny amounts enter breast milk and even less reaches the baby's bloodstream.

SAFETY WATCH

Preferred SSRI during breastfeeding because infant blood levels are usually undetectable. · Watch the baby for unusual sleepiness, irritability, or poor feeding in the first weeks. · Mom may feel nausea, headache, or jitteriness early; these usually fade. · Never stop suddenly—taper slowly with your doctor to avoid withdrawal symptoms (dizziness, shock-like sensations). · Current guidelines (ACOG, AAP) support use when depression risk outweighs minimal infant exposure.

Fluoxetine (Prozac) — USE WITH CAUTION · Selective serotonin reuptake inhibitor (SSRI) antidepressant

Fluoxetine works the same way as sertraline—it blocks serotonin reuptake pumps in the brain. But fluoxetine and its active breakdown product (norfluoxetine) stay in the body for weeks, so they build up in breast milk at higher levels than other SSRIs.

1. You take the pill and it enters your bloodstream and brain.
2. Fluoxetine blocks serotonin reuptake transporters.
3. Serotonin levels rise in the synapse, stabilizing mood over weeks.
4. The drug and its active metabolite have very long half-lives (4–6 days for fluoxetine, up to 16 days for norfluoxetine).
5. This means both accumulate in breast milk and can reach measurable levels in some nursing babies.

SAFETY WATCH

NOT the first-choice SSRI during breastfeeding—sertraline or paroxetine are preferred. · Infant blood levels can be 20–50% of the mother's dose in some cases. · Watch baby closely for colic, irritability, poor sleep, or poor weight gain. · If mom was already stable on fluoxetine before pregnancy, some providers continue it; otherwise switch to a shorter-acting SSRI. · LactMed and AAP list it as 'usually compatible' but with more caution than sertraline.

Codeine and Tramadol — AVOID · Opioid pain relievers (prodrugs requiring liver conversion to active forms)

Codeine and tramadol must be broken down by a liver enzyme (CYP2D6) into active forms (morphine from codeine, O-desmethyiltramadol from tramadol) to relieve pain. Some women are ultra-rapid metabolizers—they convert these drugs much faster, flooding breast milk with dangerous amounts of the active opioid, which can sedate or even stop a baby's breathing.

1. Mother takes codeine or tramadol.
2. The liver enzyme CYP2D6 converts it to the active painkiller.
3. In ultra-rapid metabolizers (about 1–7% of people, depending on ethnicity), this conversion happens much faster.
4. High levels of morphine or active tramadol flood the bloodstream and breast milk.
5. The nursing baby receives a toxic dose, causing extreme sleepiness, weak muscle tone, slow breathing, or even death.

SAFETY WATCH

FDA BLACK BOX WARNING: codeine and tramadol are contraindicated during breastfeeding. · Infant deaths have been reported from codeine in breast milk. · Use acetaminophen, ibuprofen, or if needed, short-acting opioids like oxycodone or hydromorphone in the lowest dose for the shortest time. · Never assume 'a little bit is safe'—you cannot predict metabolism without testing. · Current guidelines (AAP, ACOG, FDA, LactMed): DO NOT USE.

Amiodarone — AVOID · Antiarrhythmic drug (treats dangerous irregular heartbeats)

Amiodarone blocks multiple ion channels (potassium, sodium, calcium) in heart muscle cells to stabilize the heart's electrical rhythm. It contains high amounts of iodine and stays in the body for months. It concentrates in breast milk and can overload the baby's thyroid gland, blocking normal thyroid hormone production and harming brain development.

1. Mother takes amiodarone to control life-threatening arrhythmia.
2. The drug and its iodine load build up in tissues, including breast tissue.
3. High concentrations pass into breast milk.
4. The baby's thyroid absorbs the excess iodine, which blocks thyroid hormone synthesis (the Wolff-Chaikoff effect).
5. Low thyroid hormone in infancy can cause permanent brain damage and developmental delay.

SAFETY WATCH

Contraindicated during breastfeeding (AAP, LactMed). · If mom requires amiodarone, she must not breastfeed. · Alternative antiarrhythmics may be safer; cardiologist must weigh options. · If amiodarone is essential and irreplaceable, formula feeding is required. · Risk of infant hypothyroidism, developmental delay, and growth problems.

Lithium — USE WITH CAUTION AND MONITORING · Mood stabilizer (treats bipolar disorder)

Lithium is a simple salt that stabilizes nerve cell activity by altering sodium and calcium flow across cell membranes and modulating neurotransmitter release. It passes freely into breast milk at levels 40–50% of the mother's blood level. Babies' kidneys are immature and clear lithium slowly, so it can build up and reach toxic levels.

1. Mother takes lithium daily to prevent manic or depressive episodes.
2. Lithium enters breast milk at nearly half the mother's blood concentration.

3. The baby drinks the milk and absorbs lithium.
4. The baby's immature kidneys cannot clear lithium efficiently, so it accumulates.
5. High infant levels can cause lethargy, poor feeding, low muscle tone, dehydration, kidney problems, and thyroid suppression.

SAFETY WATCH

Breastfeeding IS possible but requires close monitoring (ACOG, LactMed). · Check baby's lithium blood level, kidney function (creatinine), and thyroid (TSH) regularly. · Watch baby for lethargy, weak cry, poor suck, dehydration, or floppy muscle tone. · Keep mother's dose as low as effective; check her lithium level often. · If baby shows any signs of toxicity, stop breastfeeding immediately and check levels. · Risks vs. benefits: untreated bipolar disorder in mom is dangerous; careful monitoring makes breastfeeding feasible for many.

Levothyroxine (Synthroid) for hypothyroidism · Thyroid hormone replacement

Levothyroxine is synthetic T4 (thyroxine), the same hormone a healthy thyroid gland makes. It replaces the missing hormone so every cell in the body can run its energy-making engines (mitochondria). Only tiny amounts enter breast milk, far below what the baby's own thyroid makes, so it is completely safe.

1. Mother takes levothyroxine daily to replace her low thyroid hormone.
2. It enters the bloodstream and binds to thyroid hormone receptors inside cells.
3. Cells use it to speed up metabolism, protein-making, and energy production.
4. A small, safe amount passes into breast milk—much less than the baby's own thyroid produces.
5. The nursing baby is not affected.

SAFETY WATCH

Completely safe during breastfeeding (AAP, LactMed, Endocrine Society). · No need to interrupt breastfeeding or adjust timing of dose. · Mother should have her TSH checked regularly to keep her dose correct. · Untreated hypothyroidism in mom harms milk supply and her health—treatment is essential.

Red flags

- Baby becomes hard to wake, feeds poorly, or breathes more slowly than usual after mother takes medicine (especially opioids, sedatives, or muscle relaxers)
- Baby develops a new rash, severe diarrhea, blood in the stool, or repeated vomiting shortly after mother starts a new drug

- Sudden large drop in milk supply or baby stops gaining weight appropriately after mother begins a medication
- Mother has a serious infection, blood clot, seizure, or mental-health crisis and is not receiving treatment because of breastfeeding concerns
- Infant is premature, under one month old, or has kidney or liver problems and is exposed to a drug that accumulates in the body

Nursing priorities

1. Check the specific medicine name and dose in LactMed database before the mother takes her next dose — LactMed provides evidence-based data on how much medicine passes into breast milk and actual reports of infant effects, which prevents giving unsafe drugs that could harm the baby
2. Assess the baby for signs of medicine side effects including unusual sleepiness, poor feeding, irritability, rash, or any behavior change — Babies cannot tell us they feel sick, so observation catches early toxicity (poison effects) from medicines in breast milk before serious harm like breathing depression or dehydration occurs
3. Teach the mother to take her medicine dose right after the baby finishes breastfeeding — Medicine levels in blood and breast milk peak 1 to 3 hours after taking a dose, so dosing right after feeding allows time for levels to drop before the next feeding when possible
4. Contact the prescribing provider immediately if the mother is taking codeine, tramadol, or any medicine LactMed lists as high-risk — These opioids (strong pain medicines) can cause life-threatening breathing problems in breastfed infants because genetic differences make some mothers produce toxic levels in their milk
5. Document the medicine name, dose, timing, and infant age in the medical record with a note that safety was verified — Clear documentation creates a safety trail so all team members know the medicine was reviewed and provides legal protection if questions arise later about prescribing decisions
6. Teach the mother which infant symptoms require immediate medical care: extreme sleepiness, trouble waking for feedings, weak cry, or blue color around lips — These symptoms signal respiratory depression (slowed breathing) or central nervous system depression from medicine in breast milk, which can become fatal without urgent treatment
7. Discuss safer medicine alternatives with the provider if LactMed shows the current drug has high milk transfer or known infant risks — Many conditions have equally effective treatments that pass into milk in tiny amounts or have decades of safety data in breastfeeding, protecting the baby while treating the mother

8. Schedule a weight check for the infant within one week if starting a new medicine that enters breast milk in moderate amounts — Poor weight gain may be the first sign that a medicine is causing feeding problems or sedation in the baby, and early catch allows intervention before failure to thrive develops

Sources

- LactMed (NIH database on drugs and lactation)
- ACOG Committee Opinion on Optimizing Support for Breastfeeding
- AAP Clinical Report on The Transfer of Drugs and Therapeutics Into Human Breast Milk
- CDC guidelines on medications during breastfeeding

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