

Medication mistakes to avoid



Why children are especially vulnerable to medication errors

Medication errors are preventable events that may cause or lead to inappropriate medication use or patient harm. In children, the margin for error can be narrower than in adults because doses often depend on weight, age, organ maturity, formulation concentration, and the indication being treated. A liquid antibiotic, an antipyretic, and a rescue inhaler may all be appropriate medicines, yet each can become risky if the wrong concentration, route, interval, or device is used.

Children also move between settings: home, school, daycare, urgent care, hospital, grandparents' homes, and pharmacies. Each transition can create information gaps. A medication may be restarted after it was stopped, a home dose may not match the discharge summary, or two caregivers may each believe the other has not yet given the evening dose. These are classic medication-use process failures, not moral failures.

It helps to treat every child's medicine as a small clinical workflow. The key steps are: confirm the medicine, confirm the child, confirm the dose, confirm the route, confirm the timing, document that it was given, and monitor for expected benefit or adverse effects. This is especially important for high-risk

medicines, narrow-therapeutic-index drugs, sedating medications, insulin, anticonvulsants, opioids, anticoagulants, and any medicine newly started after an emergency visit or hospitalization.

Mistaking milligrams, milliliters, and concentrations

One of the most important medication mistakes to avoid is confusing the dose with the volume. A prescriber may order a medicine in milligrams, while the bottle label tells caregivers how many milliliters to give. Liquid medicines can also come in more than one concentration, so the same number of milliliters may contain very different amounts of active drug.

For example, a label might say a child needs a certain number of milligrams per dose, but the caregiver must measure a smaller or larger liquid volume depending on the product strength. This is why using old instructions with a new bottle is unsafe, even when the medicine name looks familiar. The same caution applies when pharmacies change manufacturers, when families use leftover medicine, or when a child's weight has changed since the last prescription.

To reduce risk, ask the prescriber or pharmacist to state dosing instructions in plain language: the medicine name, the strength, the exact number of milliliters per dose, how often to give it, the maximum daily amount if relevant, and the planned stop date. For children, weight-based dosing for children should use a current weight, ideally in kilograms in clinical settings, with the final home instruction translated into a measurable volume when a liquid is dispensed.

If the pharmacy label, discharge instructions, and verbal advice do not match, do not average the instructions or choose the one that sounds most familiar. Call the pharmacy or prescribing clinician and clarify before giving the next dose unless the child needs emergency treatment.

Using kitchen spoons or the wrong measuring device

Kitchen teaspoons and tablespoons vary widely and are not accurate medication tools. A common pediatric safety improvement is to use an oral syringe medication dosing device marked in milliliters. Oral syringes allow more

precise measurement, particularly for infants and toddlers who receive small volumes. Dosing cups can be acceptable for some older children, but they are easier to misread and are less precise for small doses.

Several practical habits help prevent measurement errors. Use the device that came with the medicine or one supplied by the pharmacist. Check that the units on the device match the label; avoid devices marked only in teaspoons when the label uses milliliters. Measure at eye level on a flat surface, remove air bubbles when using a syringe, and do not use a syringe that is missing its markings.

Caregivers should also avoid mixing a dose into a full bottle or large cup of food or drink unless a clinician specifically recommends it. If the child does not finish the entire amount, the dose received is uncertain. If taste is a barrier, a pharmacist may suggest compatible flavoring, refrigeration if permitted, or a technique that makes administration easier without changing absorption or stability.

After giving liquid medicine, wash or safely store the measuring device so it is ready for the next dose. Keeping a dedicated syringe with each medicine can reduce mix-ups when more than one child in the home is taking medication.

Giving duplicate medicines with the same active ingredient

Over-the-counter products are a frequent source of unintentional duplication. Fever reducers, pain relievers, cough-and-cold combinations, allergy medicines, and sleep aids may share active ingredients even when the front of the package highlights different symptoms. Duplicate active ingredients can lead to overdose, excessive sedation, cardiac effects, liver injury, or other serious adverse events depending on the drug.

The safest habit is to read the Drug Facts label active ingredients section before each use. Do not rely on brand names, colors, flavors, or marketing categories such as "cold," "flu," "nighttime," or "multi-symptom." If a child is already taking a prescription medicine, ask a pharmacist before adding an over-the-counter product, herbal supplement, vitamin, or home remedy. "Natural" does not always mean interaction-free or dose-safe.

Be particularly cautious with products that contain acetaminophen, ibuprofen, diphenhydramine, decongestants, or multiple ingredients. Some medicines are not recommended for young children, and cough-and-cold products can cause harm when used inappropriately. Pediatric OTC medication safety depends on matching the child's age, weight, symptoms, medical conditions, and other medicines with the specific product and dose.

A simple home rule helps: use single-ingredient products when appropriate and approved by the child's clinician, and write down every dose. If more than one caregiver is involved, a visible medication log can prevent a well-intentioned second dose given too soon.

Relying on memory instead of medication reconciliation

Medication reconciliation means comparing the medicines a child is supposed to take with what the child is actually taking. It is a core safety practice because errors often occur during transitions: after hospital discharge, after a specialist visit, when changing pharmacies, or when a chronic medicine is adjusted. Families can support reconciliation by keeping an up-to-date medication list.

A useful list includes each medicine's generic and brand name if known, strength, formulation, dose, route, timing, reason for use, start date, planned stop date, allergies or prior adverse reactions, and the prescribing clinician. Include prescription medicines, over-the-counter products, supplements, topical medicines, inhalers, eye drops, ear drops, and medicines used only as needed. Bring the list to every appointment and pharmacy visit.

Memory is especially unreliable when a child has recently been ill, caregivers are sleep-deprived, or instructions have changed. A written pediatric medication plan can make the difference between "I think we gave it at lunch" and "the 12:30 dose was given and documented." For children who spend time in more than one home, school, or childcare setting, the plan should specify who is authorized to give medicine and how doses are recorded.

When a medicine is stopped, remove it from the active dosing area and update the list. Do not keep discontinued antibiotics, steroids, or pain medicines "just in case." Reusing old medicines can delay evaluation, expose a child to

the wrong treatment, and contribute to antimicrobial resistance when antibiotics are involved.

Stopping, stretching, or sharing medicines without advice

Another common mistake is changing therapy without checking with the prescribing clinician. Families may stop a medicine as soon as symptoms improve, stretch doses to make a bottle last longer, restart an old prescription when symptoms seem similar, or share a sibling's medicine. These choices are understandable when access, cost, or worry is involved, but they can be unsafe.

Some medicines need a full prescribed course to reduce relapse or complications. Others should not be stopped abruptly because of withdrawal, rebound symptoms, or loss of disease control. Conversely, continuing a medicine longer than intended can expose a child to avoidable adverse effects. The right action depends on the diagnosis, medicine, dose, duration, and the child's response.

Sharing medicines is particularly risky in pediatrics. Two children may have different weights, allergies, kidney or liver function, diagnoses, or interacting medicines. Even siblings with similar symptoms may need different evaluation. Antibiotics, inhalers, topical steroids, sedatives, and prescription pain medicines should not be exchanged between children.

If a dose is missed, avoid automatically doubling the next dose unless the label or clinician has clearly instructed that approach. Missed-dose guidance varies by medicine. For high-risk drugs such as insulin, seizure medicines, anticoagulants, or cardiac medicines, call the care team promptly for individualized instructions.

Unsafe storage, access, and disposal

Safe storage is part of medication safety, not an afterthought. Young children explore by climbing, opening, tasting, and imitating adults. Child-resistant caps are not childproof, and medicines left in purses, backpacks, bedside drawers, diaper bags, weekly pill organizers, or visitors' luggage can be accessible within seconds.

Store medicines up, away, and out of sight, ideally in a locked container. Keep medicines in their original containers whenever possible so the label, concentration, expiration date, and child-specific instructions remain attached. Avoid transferring pills to unlabeled bags or liquids to household bottles. Separate each child's medicines to reduce wrong-patient errors, especially when siblings take similar-looking liquids or tablets.

Pay attention to storage requirements. Some medicines require refrigeration; others should be protected from moisture, heat, or light. Bathroom cabinets may be convenient but can expose medicines to humidity. If a medicine was left unrefrigerated or exposed to heat, ask a pharmacist whether it is still safe and effective.

Dispose of expired, discontinued, or unused medicines through pharmacy take-back programs or community disposal options when available. If immediate disposal is needed, follow local guidance or pharmacist instructions, particularly for controlled substances or medicines that could cause severe harm after one accidental dose.

What to do when a mistake may have happened

If you think a medication mistake occurred, take a breath and gather facts before acting. Identify the child, medicine name, strength, amount possibly taken, time taken, route, and whether other medicines were involved. Keep the container available. Do not induce vomiting or give food, drink, or another medicine to "counteract" the dose unless a poison center or clinician instructs you to do so.

Seek urgent help immediately if the child has trouble breathing, severe sleepiness, seizures, fainting, blue or gray color, severe allergic symptoms, confusion, repeated vomiting, or any rapidly worsening condition. For possible ingestion, overdose, wrong medicine, or uncertainty about toxicity, contact a poison center or emergency service according to your local system. For non-urgent questions, a pharmacist or pediatric clinician can help determine whether monitoring, dose adjustment, or evaluation is needed.

After the immediate issue is addressed, review how the error happened without

blame. Was the label unclear? Were two products similar? Did caregivers lack a shared log? Was the measuring device wrong? This kind of review mirrors the safety culture promoted in clinical care: learning from near misses and errors so the system becomes safer next time.

Parents and caregivers deserve support, not shame. Reporting medication problems to healthcare professionals helps improve labels, counseling, reconciliation, and dispensing practices. Many serious harms are prevented because someone spoke up early.