Q&A: Every eight minutes, a child experiences a home medication error. Here's how to prevent it

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Every eight minutes, a child experiences a medication error at home. These mistakes can be life-threatening.

Errors can include administering the wrong medication, the wrong dose, wrong concentration or preparation, for the wrong duration or frequency. These are more likely to occur in children six years of age and younger.

We asked Ulfat Shaikh how to prevent home medication errors. She recently published a paper on this topic in *Clinical Pediatrics*. Shaikh is a UC Davis pediatrician and medical director of health care quality at UC Davis Health,

Are there specific groups who are more at risk for medication errors?

Children with complex medical conditions are at high risk for medication errors since they often take multiple medications that may have complex administration instructions. But any child receiving medicine at home is at risk. Each year, approximately 300,000 medication errors are reported annually to poison control centers in the United States; 90% of these errors occur at home.

The most common errors are giving the wrong medication or the wrong dose, administering medicines that their child has known allergies to, missing doses or taking more than they should. There are also problems with swallowing medication when it should be applied on the skin.

What kinds of medications are responsible for the most medical errors?

Liquid medications for children are most frequently misused compared to tablets. Many parents use household spoons to measure liquid medication and these spoons can vary widely in size and shape. Five milliliters (ml.) is a teaspoon but household spoons can vary from 2 ml.

to 10 ml. It is much safer to use an oral medication syringe to measure out liquid or use the dosing tool that comes with the medication or that your pharmacist gives you.

What are other common medication errors?

There are also mistakes with the wrong strength or concentration. Many medications like Tylenol are available in infant's strength and children's strength. What people don't know is that infant's strength is much stronger, more concentrated than children's strength. Parents can easily make a mistake by giving a higher dosage of infant's strength medicine, thinking that this is not as strong as children's strength. Always check the label for your child's weight and age to find the right dosage.

This can also happen with inhalers. If your child has asthma, they may have two inhalers: a rescue inhaler, which is a short acting inhaler when they are having symptoms, and a maintenance inhaler, a long-acting inhaler that they should use every day. Often families get confused and their child uses the wrong inhaler at the wrong time. Sometimes the inhalers are both the same color or they look very similar. It's critical to keep these apart.

One trick is to create a label that reads "everyday" for the everyday inhaler and an "emergency" label for the rescue inhaler. You can use different colored duct tape or painter's tape to label them or ask your pharmacist if they can make visible labels.

What should parents do if an error occurs?

Look closely at their child. If they have mild or no symptoms, call Poison Control at 800-222-1222. Add this phone number to your cellphone's contacts.

If your child is having serious symptoms like they are having trouble breathing, if they are extremely drowsy or having seizures, call 911.

What are other ways that parents can avoid medication errors?

Don't give your child medicine for fever if you have already given your child cold medicine. Cold medicine often has a fever medicine in it and can result in a double dose.

If you have been alternating between acetaminophen (Tylenol) and ibuprofen (Advil) to reduce your child's fever, I advise parents to pick one to treat your child's fever instead of alternating. It's best to avoid alternating in young children because alternating raises the likelihood of errors.

Children should never take adult medicine. Keep in mind that those under 4 years old should not be given cough and cold medicine that has a decongestant or an antihistamine because of the risks of dangerous side effects including convulsions and rapid heart rates.

Parents should be sure to throw away expired medication and never share prescriptions or antibiotics among children.

Why should parents not save antibiotics and give them to their children?

If your child is prescribed antibiotics, they should take the full treatment and not stop halfway through once they are feeling better. There should not be any antibiotic leftovers. But for any prescriptions, keep in mind that this was meant for a child's specific weight, age and medical condition and you don't want to share it with others.

What's a good way to dispose of medication?

Some pharmacies and local law enforcement agencies have drop-off kiosks or take-back days for dropping off medication. Don't flush medication down the toilet or pour it down the sink unless the medication instructions indicate that it is safe to do so. Medication can be thrown away in the garbage, but it's best to remove it from its original containers and make it less appealing for people who may be looking for drugs. Mix it into old coffee grounds, dirt or used cat litter before throwing it into the garbage.

How can doctors help parents avoid medication errors?

Approximately 40% to 80% of health information that patients receive during medical visits is incorrectly remembered or not retained at all. Patients with limited English should request and use an interpreter to ensure they understand the medication prescribed and the dose. Doctors should use plain language in non-medical terms. Doctors should use the "teach back" technique and ask the parent to explain the information that was explained to them. Let them know it's not a test of a parent's knowledge but a test of how well a doctor has explained something.

Parents should take notes on a notepad or their phone. Ask to record what a doctor is saying so they can go back over it later or share it with another caregiver. Doctors should also provide this same information as printed instructions in the after-visit summary or on the patient portal.

What are some safety tips for older children who are self-managing their medication?

For older children who use over-the-counter medication on their own, be

sure you go over instructions with them and use the 'teach back' technique to confirm your child's understanding. Reinforce that they should never share over-the-counter medication with friends, siblings or any children whom they are babysitting. And they should never use someone else's medicine. Always store medication out of reach.

For teens, make sure they add the Poison Control number to their cellphone list so it's readily available to them if needed.

More information: Ulfat Shaikh et al, Implementing Strategies to Prevent Home Medication Administration Errors in Children With Medical Complexity, *Clinical Pediatrics* (2023). DOI: 10.1177/00099228231196750

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