

Study finds rate of medication errors resulting in serious medical outcomes rising

July 10 2017



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Every 21 seconds someone in the United States calls Poison Control because of a medication error. A new study from the Center for Injury Research and Policy and the Central Ohio Poison Center at Nationwide

Children's Hospital analyzed calls to Poison Control Centers across the country over a 13-year period about exposures to medication errors which resulted in serious medical outcomes. These exposures, which occurred outside of health care facilities, primarily in the home, affected individuals of all ages and were associated with a wide variety of medications.

The study, published by *Clinical Toxicology*, found a 100 percent increase in the rate of serious [medication](#) errors per 100,000 U.S. residents (from 1.09 in 2000 to 2.28 in 2012). Medication error frequency and rates increased for all age groups except children younger than six years of age. Among children younger than six years, the rate of medication errors increased early in the study and then decreased after 2005, which was primarily associated with a decrease in the use of cough and cold medicines. According to the study authors, this decrease is likely attributable to the Food and Drug Administration's 2007 recommendation against administering these products to young children.

The medication categories most frequently associated with serious outcomes were cardiovascular drugs (21%), analgesics (i.e., painkillers) (12%), and hormones/hormone antagonists (11%). Most analgesic exposures were related to products containing acetaminophen (44%) or opioids (34%), and nearly two-thirds of hormone/hormone antagonist exposures were associated with insulin. Cardiovascular and analgesic medications combined accounted for more than two-thirds (66%) of all fatalities in this study.

"Drug manufacturers and pharmacists have a role to play when it comes to reducing medication errors," said Henry Spiller, MS, D.ABAT, a co-author of the study, and director of the Central Ohio Poison Center at Nationwide Children's. "There is room for improvement in product packaging and labeling. Dosing instructions could be made clearer, especially for patients and caregivers with limited literacy or numeracy."

Overall, the most common types of medication errors were taking or giving the wrong medication or incorrect dosage, and inadvertently taking or giving the medication twice. Among children, dosing errors and inadvertently taking or giving someone else's medication were also common errors. One-third of medication errors resulted in hospital admission.

"Managing medications is an important skill for everyone, but parents and caregivers have the additional responsibility of managing others' medications," said Nichole Hodges, PhD, lead author of the study and research scientist in the Center for Injury Research and Policy at Nationwide Children's. "When a child needs medication, one of the best things to do is keep a written log of the day and time each medication is given to ensure the child stays on schedule and does not get extra doses."

Everyone can follow a few guidelines to help prevent medication errors in their homes:

- Write it down. Parents and caregivers can write down what time medications are given to prevent another caregiver from unintentionally giving the medication a second time. This is even helpful for adults taking more medication than usual.
- Ask questions. Physicians and pharmacists can teach patients, parents, and caregivers how to take or give medications to minimize the likelihood of medication errors. Parents and patients can ask questions until they fully understand how and when to take medications. If a question arises at home, call your pharmacist or physician.
- Child-resistant packaging. While most medications enter the home in child-resistant packaging, people who take multiple medications often repackage them into weekly pill planners. If you are going to use a pill planner, use a child-resistant one and store it up, away, and out of sight.

Provided by Nationwide Children's Hospital

Citation: Study finds rate of medication errors resulting in serious medical outcomes rising (2017, July 10) retrieved 19 April 2024 from <https://medicalxpress.com/news/2017-07-medication-errors-resulting-medical-outcomes.html>

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