

'One pill can kill': Effects of unintentional opioid exposure in young children

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Medication poisonings among children are an important public health problem. During 2010-2011, an average of 1500 children under 6 years of age was evaluated in emergency departments each year due to unintentional exposure to buprenorphine. Ingestion of strong opioids, such as buprenorphine, can cause central nervous system depression, respiratory depression, and death in young children. In a new study scheduled for publication in *The Journal of Pediatrics*, researchers study how young children are gaining access to buprenorphine, as well as the effects of unintentional exposure to its different formulations.

Buprenorphine (or the [buprenorphine-naloxone](#) combination form), usually sold as a tablet or film strip, is used to treat adults who are addicted to [opioids](#), such as prescription [pain medication](#) and heroin. Tablets typically are dispensed in 30-day supply bottles with child-resistant caps, and film strips are dispensed in single-dose, child-resistant foil packs. Dr. Eric Lavonas and colleagues from the Rocky Mountain Poison and Drug Center, the University of Colorado School of Medicine, the University of Oklahoma, Integris Baptist Medical Center, Degge Group, and Venebio Group studied 2380 cases of unintentional exposure to buprenorphine in any form involving children under 6 years of age. The average age of the children was 2 years. Common effects of buprenorphine exposure were lethargy, respiratory depression, miosis (small pupils), and vomiting. Although most children had good outcomes, 587 children were admitted to the [intensive care unit](#) and 4 children died.

The researchers found that children were 3.5 to 8.8 times more likely to accidentally ingest the tablets as have unintentional exposure to film strips; 95% of cases involved tablets. In 57% of the cases, at least one root cause for the exposure was identified: 415 cases involved medication stored in sight, in 110 cases the child accessed the medication from a bag or purse, and in 75 cases the medication was not stored in the original packaging. Although most exposures were in the child's own home, 5% of exposures occurred while the child was being watched by another caregiver.

Buprenorphine can be helpful in adult patients who are struggling with addiction issues, but it should not be accessible by children because even a single dose can be life-threatening. Therefore, it is important for all caregivers to be especially vigilant in keeping medications in their original packaging and up, away, and out of sight of children. Although this study focused on just one medication used in a specific population, other more widely used medications, such as those used to treat high blood pressure or diabetes, can be as harmful in young children. According to Dr. Lavonas, "This study underscores the value of providing medications that are particularly dangerous when taken by children, in single dose, child resistant packaging." This approach is likely to be more effective at reducing unintentional exposure than additional efforts at education.

More information: "Root Causes, Clinical Effects, and Outcomes of Unintentional Exposures to Buprenorphine by Young Children," by Eric J. Lavonas, M.D., William Banner, M.D., Ph.D., Pamela Bradt, M.D., MPH, Becki Bucher-Bartelson, Ph.D., Kimberly R. Brown, B.S., Pradeep Rajan, ScD, Lenn Murrelle, MSPH, Ph.D., Richard C. Dart, M.D., Ph.D., and Jody L. Green, Ph.D., appears in *The Journal of Pediatrics*, [DOI: 10.1016/j.jpeds.2013.06.058](https://doi.org/10.1016/j.jpeds.2013.06.058)

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