

Study examines rates, causes of emergency department visits for adverse drug events

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The prevalence of emergency department visits for adverse drug events in the United States was estimated to be 4 per 1,000 individuals in 2013 and 2014, and the most common drug classes involved were anticoagulants, antibiotics, diabetes agents, and opioid analgesics, according to a study appearing in the November 22/29 issue of *JAMA*.

Adverse drug events have recently received attention in national patient safety initiatives. The Patient Protection and Affordable Care Act of 2010 incentivized new programs that target adverse drug event prevention within hospitals and during care transitions between inpatient and outpatient settings. Updated, detailed, nationally representative data describing [adverse drug events](#) can help focus these efforts.

Nadine Shehab, Pharm.D., M.P.H., of the U.S. Centers for Disease Control and Prevention, Atlanta, and colleagues examined characteristics of emergency department (ED) visits for adverse drug events in the United States in 2013-2014 and changes in ED visits for adverse drug events since 2005-2006. The researchers analyzed nationally representative data from 58 EDs located in the United States and participating in the National Electronic Injury Surveillance System-Cooperative Adverse Drug Event Surveillance project.

Based on data from 42,585 cases, an estimated four ED visits for adverse drug events occurred per 1,000 individuals annually in 2013 and 2014, and 27 percent of ED visits for adverse drug events resulted in hospitalization. An estimated 35 percent of ED visits for adverse drug

events occurred among adults ages 65 years or older in 2013-2014 compared with an estimated 26 percent in 2005-2006; [older adults](#) experienced the highest hospitalization rates (44 percent).

Anticoagulants, antibiotics, and diabetes agents were implicated in an estimated 47 percent of ED visits for adverse drug events, which included clinically significant adverse events, such as hemorrhage (anticoagulants), moderate to severe allergic reactions (antibiotics), and hypoglycemia with moderate to severe neurological effects (diabetes agents). Since 2005-2006, the proportions of ED visits for adverse drug events from anticoagulants and diabetes agents have increased, whereas the proportion from antibiotics has decreased.

Among children ages 5 years or younger, antibiotics were the most common drug class implicated (56 percent). Among children and adolescents ages 6 to 19 years, antibiotics also were the most common drug class implicated (32 percent) in ED visits for adverse drug events, followed by antipsychotics (4.5 percent).

Among older adults (65 years and older), three drug classes (anticoagulants, diabetes agents, and [opioid analgesics](#)) were implicated in an estimated 60 percent of ED visits for adverse drug events; four anticoagulants (warfarin, rivaroxaban, dabigatran, and enoxaparin) and five diabetes agents (insulin and 4 oral agents) were among the 15 most common drugs implicated. Medications to always avoid in older adults according to certain criteria ("Beers criteria") were implicated in 1.8 percent of ED visits for adverse drug events.

"Targeting adverse drug events common among specific patient populations, such as among the youngest (age 19 years or less) and oldest (age 65 years and older), may help further focus outpatient medication safety efforts," the authors write.

"The question remains how to best leverage the existing system to improve the safety of the process of starting, monitoring, and discontinuing medications," writes Chad Kessler, M.D., M.H.P.E., of the Durham VA Medical Center, Durham, N.C., and colleagues in an accompanying editorial.

"Collaboration is needed among physicians and other health professionals in primary care, specialty care, pharmacy, and emergency medicine to answer these questions in the quest for safer models of patient care. Furthermore, this collaboration across health care locations and the continuum of care will affect how much benefit or harm patients receive from prescribed medications. Integrated health care systems can help lead the way through improved care coordination and transition of care models. The work by Shehab et al shines a spotlight on the problem of adverse drug events and highlights the need to address this important clinical issue in a more systematic and organized fashion."

More information: *JAMA*, [DOI: 10.1001/jama.2016.16201](https://doi.org/10.1001/jama.2016.16201)

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