

Surveys miss majority of poisonings, underestimate cost by billions

April 15 2015, by Sharon Parmet

Health surveys may underestimate the number of poisonings in the United States by 60 percent to 90 percent, according to a report in the journal *Clinical Toxicology* by University of Illinois at Chicago researchers.

As of 2009, poisonings became the leading cause of fatal injury in the U.S., surpassing transportation-related deaths and gun-related deaths.

The researchers analyzed [hospital](#) billing records, patient demographics, exposure information, and outcomes for Illinois [hospital visits](#) related to poisonings in 2010. They also looked at poisoning incidence data from four prominent national health surveys: the National Electronic Injury Surveillance System, the National Health Interview Survey, the National Hospital Discharge Survey and the National Hospital Ambulatory Medical Care Survey.

They found that charges for hospital visits in 2010 in Illinois approached \$8 billion, representing 425,491 cases, with alcohol and [illicit drugs](#) accounting for the majority of visits. About half of patients were seen as outpatients in emergency rooms.

The most common exposures were alcohol, drug dependence/abuse, cannabis and hallucinogens, opioid analgesics, cocaine and barbiturates, and benzodiazepine. Deaths were rare: for outpatients and inpatients, the mortality rate was 0.78 percent and 1.82 percent, respectively. Incidents of intentional self-harm were also rare, representing 1.3 percent of

outpatient and 1.8 percent of inpatient cases.

Comparing the Illinois hospital data to the results of national health surveys, the researchers found that the surveys missed a significant number of poisoning cases.

"Definitions for poisoning used by these surveys often exclude exposure to alcohol, illicit drugs, and adverse effects from prescribed drugs," says Lee Friedman, associate professor of environmental and occupational health sciences in the UIC School of Public Health, and co-author of the study. "The actual burden related to poisoning to hospitals and society is actually much higher than previously thought." Friedman said analysis of hospital billing records in other states would likely reflect the same.

"It's important to reintegrate alcohol and therapeutic drug reactions into the definition of poisoning in order to get a more accurate picture of the magnitude and burden of poisoning," Friedman said.

Substance abuse was the most common type of poisoning and accounted for slightly over half of hospital charges related to poisonings at approximately \$4 billion. Alcohol exposures were identified in 44.4 percent of outpatient cases and 31.3 percent of inpatient cases. Adverse effects from therapeutic agents accounted for 32 percent of poisoning cases.

The average length of stay for patients admitted to Illinois hospitals for poisonings, the majority due to alcohol, was 5.5 days. "That's a very long hospital stay," Friedman said. Costs for inpatient stays totaled more than \$7 billion.

Friedman says these costs justify a public education campaign.

"We have done a very good job from a [public health](#) standpoint on

addressing smoking and communicating the negative [health](#) effects associate with tobacco," Friedman said. "We need to do something similar with alcohol abuse, because it's clear from the results of our study that we are underestimating the number of people who abuse alcohol—the suffering associated with it is astronomical." Friedman said warning labels similar to those on cigarette packaging should be used to communicate alcohol's risks, which include cancer, heart disease, liver disease and psychiatric disorders.

Based on billing records, poisoning affected approximately 3 percent of all Illinoisans in 2010, said Alison Krajewski, a graduate student in the UIC School of Public Health and lead author study. But she says the actual number of cases is probably even higher.

"Many instances of poisoning or possible poisonings result in calls to poison control center hotlines, where trained toxicologists can differentiate for callers between cases severe enough to require attention at a hospital and those that can be safely treated at home," Krajewski said. "Not every patient that makes a trip to the emergency room for [poisoning](#) needs to be there.

"Expanding the resources allocated to poison control centers could have a real impact on reducing hospital visits and costs associated with poisonings," she said.

Provided by University of Illinois at Chicago

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