

## Why do we need pharmaceutical disposal management?

From the 2011 Government Accountability Office (GAO) report, *“Action Needed to Sustain Agencies’ Collaboration on Pharmaceuticals in Drinking Water”*

([www.gao.gov/assets/330/322471.pdf](http://www.gao.gov/assets/330/322471.pdf))

- National and regional studies by the U.S. Geological Survey, EPA, and others have detected pharmaceuticals in source water, treated drinking water, and treated wastewater; but the full extent of occurrence is unknown.
- GAO recommends that the Administrator of EPA establish a workgroup or other formal mechanism to coordinate research on pharmaceuticals and other contaminants in drinking water.

1999–2000: USGS sampled 139 streams in 30 states and found half contained seven or more of 95 chemicals, including hormones and human & animal drugs.

<http://toxics.usgs.gov/pubs/FS-027-02/>

From the 2011 World Health Organization report, *“Pharmaceuticals in drinking-water”*

([www.who.int/water\\_sanitation\\_health/emerging/info\\_sheet\\_pharmaceuticals/en/index.html](http://www.who.int/water_sanitation_health/emerging/info_sheet_pharmaceuticals/en/index.html))

- Pharmaceuticals can be introduced into water sources through sewage, which carries the excreta of individuals and patients who have used these chemicals, from uncontrolled drug disposal (e.g. discarding drugs into toilets) and from agricultural runoff comprising livestock manure. They have become chemicals of emerging concern to the public because of their potential to reach drinking-water.
- The ubiquitous use of pharmaceuticals (both prescribed and over the counter) has resulted in a relatively continuous discharge of pharmaceuticals and their metabolites into wastewater. In addition, pharmaceuticals may be released into water sources in the effluents from poorly controlled manufacturing or production facilities, primarily those associated with generic medicines.

From the Centers for Disease Control and Prevention (CDC)

([www.cdc.gov/HomeandRecreationalSafety/Poisoning/poisoning-factsheet.htm](http://www.cdc.gov/HomeandRecreationalSafety/Poisoning/poisoning-factsheet.htm))

- Between 2004 and 2005, an estimated **71,000 children** ( $\leq 18$  years of age) were seen in emergency departments (ED) each year because of medication poisonings (excluding abuse

and recreational drug use). Over 80 percent were because an unsupervised child found and consumed medications.<sup>1</sup>

- In 2005, poisonings led to **\$33.4 billion** in medical and productivity costs.<sup>2</sup>
- In 2008, 28,171 (91 percent) of all unintentional poisoning deaths were caused by drugs. The class of drugs known as prescription painkillers, which includes such drugs as methadone, hydrocodone, and oxycodone, were most commonly involved, followed by cocaine and heroin.<sup>3</sup>
- Among those treated in EDs for nonfatal poisonings involving nonmedical use of prescription or over-the-counter drugs in 2009, opioid pain medications and benzodiazepines (such as Valium) were involved most frequently.<sup>4</sup> (Nonmedical use includes misuse, abuse or otherwise not taking a drug as prescribed).
- Among children, ED visits for medication poisonings (excluding misuse or abuse) are twice as common as poisonings from other household products (such as cleaning solutions and personal care products).<sup>5</sup>



### From *“Secure and Responsible Drug Disposal Act of 2010”*

[www.gpo.gov/fdsys/pkg/BILLS-111s3397enr/pdf/BILLS-111s3397enr.pdf](http://www.gpo.gov/fdsys/pkg/BILLS-111s3397enr/pdf/BILLS-111s3397enr.pdf)

- The nonmedical use of prescription drugs is a growing problem in the United States, particularly among teenagers.
- Unintentional overdose deaths involving prescription opioids, for example, increased **114 percent** from 2001 to 2005.
- Violent crime and property crime associated with abuse and diversion of CPDs has increased in all regions of the United States over the past 5 years.
- Teens abuse prescription drugs more than any illicit drug except marijuana – **more than cocaine, heroin, and methamphetamine combined.**
- Drug take-back programs are a convenient and effective means for individuals in various communities to reduce the introduction of some potentially harmful substances into the environment, particularly into water.

**Related areas requiring further attention:**

- Run-off from agricultural operations (pesticides and veterinary antibiotics)
- Better filtration at wastewater treatment plants
- Long-term care facilities and hospitals (i.e., business) pharmaceutical waste

***Additional resources:***

[www.cdc.gov/homeandrecreationalafety/rxbrief/](http://www.cdc.gov/homeandrecreationalafety/rxbrief/)

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<sup>1</sup>Schillie SF, Shehab, N, Thomas, KE, Budnitz DS. Medication overdoses leading to emergency department visits among children. *Am J Prev Med* 2009;37:181–187.

<sup>2</sup> Finkelstein E, Corso P, Miller T. *The incidence and economic costs of injury in the United States*. New York: Oxford University Press; 2006.

<sup>3</sup> Centers for Disease Control and Prevention. Prescription painkiller overdoses in the US. *Vital Signs*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2011.

<sup>4</sup> Substance Abuse and Mental Health Services Administration. *Highlights of the 2009 Drug Abuse Warning Network (DAWN) findings on drug-related emergency department visits. The DAWN Report*. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration; 2010.

<sup>5</sup> Schillie SF, Shehab, N, Thomas, KE, Budnitz DS. Medication overdoses leading to emergency department visits among children. *Am J Prev Med* 2009;37:181–187.