

SAFE DISPOSAL OF HOUSEHOLD PHARMACEUTICALS

I. Background

Two major concerns dominate the discussion of household pharmaceutical¹ disposal:

1. Water pollution, and
2. Drug abuse

- 1. Water Pollution.** Water pollution is the first concern about individuals' disposal of pharmaceuticals in their homes. Historically, household residents flush their unused medication down toilets and sinks into the municipal wastewater treatment system. People and animals also excrete pharmaceutical components in their waste, which can travel to ground, surface, and drinking water.

Recently, scientists have been able to measure chemical content in water with greater precision. Tests now detect more chemicals, including common pharmaceutical compounds, at low concentrations in surface and drinking water. Scientists have also conducted extensive research, identifying pharmaceutical components in streams, water treatment plants and landfill leachate; and examining those pharmaceuticals effect on plants and animals. Specific research examples find that discarded pharmaceuticals impact fish. Research continues. What *kinds* of pharmaceutical components dissolve in waste water? *How long* does it take them to dissipate (for example, downstream of a water treatment plant or in a lined landfill's leachate)? What are the economic externalities of different disposal methods, the impact on fuel resources, air, water, and ground?²

¹ When this policy paper uses the words "pharmaceutical waste" it means not only the drug as produced and prescribed, but its subsequent components after disposal ("active pharmaceutical components" or APIs). It includes both prescription and over-the-counter drugs and dietary supplements in any form (liquids; tablets, capsules, lozenges, gum; lotions, ointments; antiseptics.

² Keep current with research reports at the USGS website / Water Toxicity / Science page.

See USGS Technical Announcement: Pharmaceuticals and Other Chemicals Common in Landfill Waste (August 11, 2014), http://toxics.usgs.gov/highlights/2014-08-12-leachate_pharm.html

The U.S. Environmental Protection Agency (EPA) is the primary governmental agency that regulates water quality, including consequences of disposing pharmaceutical components into ground, surface, or waste water. In Canada, regulation of water quality lies with the Provinces and Territories in partnership with the Federal Government.

2. **Drug Abuse.** Drug Abuse is the second major concern about disposal of household pharmaceuticals. The nation is experiencing increased diversion and abuse of unused or expired medication stored in home medicine cabinets, including accidental poisonings (overdoses) and abuse (recreational use). The U.S. Drug Enforcement Agency (DEA) wants residents to dispose of unused or expired drugs in their medicine cabinets as quickly as possible.³

The DEA and U.S. Food and Drug Administration (FDA) are the primary governmental agencies that regulate pharmaceuticals, especially “controlled substances” such as opiates and pain relievers.

II. Discussion: Household-Residents’ Disposal Options

MSW Stakeholders. Stakeholders in the discussion of household pharmaceutical disposal include state and local governments, the pharmaceutical industry, environmental and health organizations, citizens, and the solid waste management industry. MSW management includes:

1. **Incinerators:** medical waste incinerators (MWI) or waste-to-energy (WTE) facilities. As discussed below, incineration is the preferred form of pharmaceutical destruction;
2. **HHW:** Household hazardous waste collection. Some HHW facilities operated by MSW managers accept medications that are not “controlled substances” regulated by the DEA.
3. **Landfills:** Subtitle D / lined landfills, (or Canadian Equivalent), the EPA’s, DEA’s, and FDA’s second choice (after take-back/incineration) for pharmaceutical disposal. (Although the FDA nevertheless recommends flushing listed medications such as opiates and pain killers that pose significant dangers to health if abused.)

#1: Incineration. Communities do not have to incinerate discarded pharmaceuticals in a hazardous waste facility, either under law or to address safety.

³ 2016. **National Institute on Drug Abuse**, Prescription Drug Abuse, NIDA website, <https://www.drugabuse.gov/publications/research-reports/prescription-drugs/director>

- **Legal.** EPA stringently regulates emissions from MWIs (or WTE facilities). The EPA excludes pharmaceuticals from regulation as a hazardous material under the Resource Conservation and Recovery Act (RCRA). (States may adopt this exclusion.)
- **Safe.** MWIs (and WTE) facilities destroy pharmaceutical components effectively.

If communities incinerate their municipal solid waste, their residents can discard household pharmaceuticals in the trash. (This option assumes that the state excludes pharmaceuticals as “hazardous waste” under RCRA, as has the federal EPA.)

#2: Product Stewardship / Take-Back Programs + Incineration. If communities do not incinerate their municipal waste, the EPA⁴, DEA⁵ and FDA,⁶ and Government of Canada⁷ recommend that residents dispose of their personal medicines in take-back programs that will subsequently incinerate them. (The FDA nevertheless continues to recommend flushing 45 listed-drugs in the toilet.⁸)

The DEA has authorized law enforcement agencies to accept pharmaceuticals, including controlled substances, for many years. Increasingly, local governments are enacting framework for pharmaceutical take-back programs, such as vanguard programs in Alameda

⁴ **EPA Proposed Rule. Proposed Management Standards for Hazardous Waste Pharmaceuticals: EPA Rule**, published in the *Federal Register* on September 25, 2015, <https://www.federalregister.gov/articles/2015/11/05/2015-28100/management-standards-for-hazardous-waste-pharmaceuticals>.

⁵ **DEA Rule.** Rule under the Secure and Responsible Drug Disposal Act of 2010, “*Disposal of Controlled Substances*” Federal Register Vol.79, No. 174, Tuesday, September 9, 2014, page 53529; www.deadiversion.usdoj.gov/fed_regs/rules/2014/2014-20926.pdf

⁶ **FDA Guidelines.** U.S. Food and Drug Administration, Drug Disposal Guidelines, “*How to Dispose of Unused Medicines*” <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm101653.htm>

⁷ Safe Disposal of prescription drugs, **Government of Canada**, Gouvernement du Canada, <http://healthycanadians.gc.ca/drugs-products-medicaments-produits/buying-using-achat-utilisation/disposal-defaire-eng.php>.

For description of take-back programs in Canadian Provinces and Territories, see also: <http://www.healthsteward.ca/>

⁸ **FDA** U.S. Food and Drug Administration, “*Medicines Recommended for Disposal by Flushing*”, <http://www.fda.gov/downloads/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/EnsuringSafeUseofMedicine/SafeDisposalofMedicines/UCM337803.pdf>

County, CA⁹ (and several other CA counties) and King County, WA. Some pharmacies are conducting pilot programs to accept drugs at kiosks in their retail stores.

The ideal pharmaceutical takeback program has the following characteristics. It is:

- **convenient**; (drop-off locations at pharmacies; mail back for the homebound)
- **safe** (chain-of-possession / manifests from take-back center to disposal; incineration);
- **cost effective** (using existing transportation), but also without charge to residents (no drop-off fee);
- **available** to the entire population, including the disabled or home-bound (public education); and
- include **criteria** to measure program success

#3. Trash Disposal in a Subtitle D, MSW Landfill. If incineration or take-back programs are unavailable, residents should discard their personal drugs in household trash for ultimate disposal in Subtitle D-regulated MSW landfills (or Canadian Equivalents). Although research continues (see above), both the USEPA and pharmaceutical companies have conducted research that showed:

- very low levels of active pharmaceuticals ingredients (APIs) in landfill leachate that they cannot measure confidently with current analytical equipment; and furthermore,
- negligible amount of landfill leachate leak into to groundwater and surface water (although landfill operators might send leachate to waste water treatment plants.)

Regardless, discarding medications in lined landfills will result in less discharge of active pharmaceutical ingredients into surface water than would flushing them into sewage systems.

III. Policy Position

SWANA, as an organization of solid waste professionals, supports the following policy positions on responsible disposal of unused or expired pharmaceuticals:

- **Pharmaceutical Disposal Hierarchy**

⁹ Alameda County, CA adopted and is implementing a take-back program that the 9th Circuit upheld against allegations of discrimination by pharmaceutical trade organizations. It also found that the program did not substantially burden interstate commerce. Benefits to the local community outweighed any incidental burdens. (This is referred to in Commerce Clause cases as “the Pike balancing test”, first articulated in *Pike V. Bruce Church, Inc.* 307 137 (1970)).

- (1) **Take-back Programs + Incineration.** Communities should work with the pharmaceutical industry (manufacturers, distributors, pharmacies / retailers), interested organizations, individuals, and other stakeholders to develop take-back programs as part of product stewardship. They should destroy the collected pharmaceuticals in MWI (or WTE facilities).
- (2) **Incineration.** Communities that dispose of their municipal solid waste at a MWI or WTE facility can allow their residents to discard pharmaceuticals in household trash.
- (3) **Lined Landfills.** Until communities have convenient, safe, cost-effective, and available take-back programs they should educate the public to mix waste pharmaceuticals with contaminants (coffee grounds, cat litter) and dispose of them in non-descript containers with household trash.

- **No flushing.**

- (1) **Public Education.** Communities should educate their residents not to discard and flush pharmaceuticals into the public sewer system.
- (2) **FDA Recommendation.** Communities should encourage the FDA to abandon its recommendation to flush listed pharmaceuticals.

Approved by the International Board on
July 6, 2017.

A handwritten signature in black ink, appearing to read "Michael Greenberg". The signature is written in a cursive, flowing style with a large, sweeping flourish at the end.

Michael Greenberg, International Secretary
Dated July 6, 2017