

# **Compilation of Pharmaceutical Messaging**

## ***To Help Federal Entities Align Messaging and Avoid Consumer Confusion About Pharmaceutical Disposal Best Practices***

**July 2021**

This document was developed by PG Environmental for the U.S. Environmental Protection Agency to support the work of the action team for National Water Reuse Action Plan (WRAP) Action 2.9 - "Align Policies and Communication Tools to Promote Best Management of Unused and Expired Pharmaceuticals to Support Water Reuse and Recycling." The information and links in this document were current as of July 2021 but are not being updated or maintained into the future.

## Introduction

Over thirty public websites were reviewed for select agencies and organizations to identify a representative sample of messages for proper disposal of unwanted pharmaceuticals. The purpose of this exercise is to identify differences in messaging specific to flushing pharmaceuticals, the potential environmental impacts of pharmaceuticals in the wastewater stream, and any linkages to potential impacts on the potential to reuse or recycle water sources impacted by pharmaceutical disposal.

The summaries are grouped by organization type:

- Federal Agency
- State Agency
- Local Agency
- Non-profit (Environmental/Sustainability and Pharmaceutical)
- Private Sector
- Other

Selected organizations in each category focus on water/wastewater issues or opioid crisis issues.

The summary for each organization includes information under the headings described below. If no information was found to address a particular topic, then the heading for that topic is excluded for that organization.

- **URL:** Link to the organization’s primary website(s) where the relevant information is posted
- **Summary of Disposal Recommendations:** A summary of the organization’s recommendations for how to dispose of unwanted pharmaceuticals, including priority and any specific information on flushing, if available.
- **Summary of Environmental Information:** A summary of the organization’s messaging on the potential impacts of pharmaceuticals in the wastestream.
- **Reuse/Recycling Connection:** Identifies whether the organization links pharmaceutical disposal with impacts on water reuse/recycling potential.
- **Relevant Resources:** Identifies any reports, fact sheets, etc. posted by the organization that might be useful resources to link from the National Water Reuse Action Plan (WRAP) online platform information for Action 2.9: Align Tools to Promote Best Management of Unused/Expired Pharmaceuticals.
- **Other Orgs/Types of Orgs That Adopt or Link to this Message:** Identifies “top-level” messaging that is adopted or linked by other organizations or organization types.

## Category: Federal Agency

### U.S. Food and Drug Administration (FDA)

#### URL

<https://www.fda.gov/drugs/ensuring-safe-use-medicine/safe-disposal-medicines>

#### Summary of Disposal Recommendations

Website states the best way to dispose of most types of medicines is through immediate drop off with a drug takeback program. If prompt takeback is not an option, the website recommends flushing drugs on the flush list and disposing of others in the trash (with instructions for safe disposal). Some medicines, including fentanyl patches, should be flushed immediately if a take-back program is not available, as directed on the label or on FDA's flush list; almost all medicines that are not on the flush list can be thrown in the trash (per safe disposal instructions). Flush list included on website.

Stresses that FDA only recommends flushing “a very small number of potentially dangerous drugs.” One area of the website, “[CDER Conversation – Safe medicine disposal options](#),” echoes these messages but in several areas also includes potentially contradictory or confusing statements, for example: “For a small number of drugs, we recommend immediate removal from the home by flushing them down the toilet or sink” and “Fentanyl patches should be flushed immediately.”

Links to resources available through National Institutes of Health, Drug Enforcement Administration, and Environmental Protection Agency.

#### Summary of Environmental Information

Generally states that the risk of harm from accidental exposure to drugs on the flush list far outweighs any potential risk to the environment from disposal by flushing. Stresses that excretion of ingested medicines is the primary source of drugs in water. Cites FDA study findings and states “scientists have found no evidence of harmful effects to human health from these few, select medicines in the environment” (study linked below).

FDA works with EPA and other agencies to better understand human health and environmental risks from medicines and works with drug manufacturers to develop safe alternative disposal systems.

#### Relevant Resources

[Risks Associated With the Environmental Release of Pharmaceuticals on the U.S. Food and Drug Administration "Flush List"](#)

#### Other Orgs/Types of Orgs That Adopt or Link to This Message

Earth911, Kaiser Permanente, The State of Florida provides links to FDA website

## U.S. Drug Enforcement Administration (DEA)

### URL

<https://takebackday.dea.gov/>

### Summary of Disposal Recommendations

Encourages Americans to keep prescription drugs safe and secure until they can be properly disposed of. The DEA hosts a "National Prescription Drug Take Back Day" twice a year. DEA also hosts a search tool (linked below) for locating year-round collection sites. DEA's Unused Medicines pamphlet (2018) presents flushing as an option only if a takeback program is not available and disposal in household trash (using instructions for safe disposal provided in the pamphlet) is not an option and states "Do not flush medicines down the sink or toilet unless the prescription drug labeling or patient information that accompanied the medicine specifically instructs you to do so."

### Summary of Environmental Information

2018 pamphlet notes that some communities may prohibit flushing out of concern over drug residue in water supplies.

### Relevant Resources

[Controlled Substance Public Disposal Locations - Search Utility](#)

### Other Orgs/Types of Orgs That Adopt or Link to This Message

Centers for Disease Control (CDC), State of California, State of Florida, State of NY, State of Nebraska, State of Texas, City of Seattle/King County

## U.S. Department of Veterans Affairs (VA)

### URL

<https://www.pbm.va.gov/PBM/vacenterformedicationsafety/vacenterformedicationsafety/prescriptionsafety.asp>

### Summary of Disposal Recommendations

VA does not appear to have a single main page for drug disposal, but searching their site for "drug disposal" turns up several (apparently unconnected) resources. The site linked above encourages use of free, postage-paid mailers provided by VA to mail unwanted medications for disposal and notes that some VAs provide receptacles for unwanted medications. VA's MyHealthVet website (<https://www.myhealth.va.gov/mhv-portal-web/ss20170322-how-to-dispose-of-medications-safely-in-the-home>) does not mention the mailers but encourages the use of drug take back programs and provides instructions for safe disposal in the trash if a take back program is not available. This site states "Never dispose by flushing down the toilet or other drain" but also links to FDA's flush list. VA publicizes DEA's National Take Back Day on its blog, VAntage Point (<https://www.blogs.va.gov/VAntage/>).

### Summary of Environmental Information

Do not flush drugs down toilets or drains or throw them in the trash; this can harm the water supply and wildlife.

### U.S. Environmental Protection Agency (EPA)

#### URL

<https://www.epa.gov/hwgenerators/collecting-and-disposing-unwanted-medicines>

### Summary of Disposal Recommendations

Return unwanted or unneeded prescription and over the counter drugs to a drug take back program or follow the steps for household disposal. Provides links to DEA's take-back information. Household disposal in the trash is a 2nd choice if a take back program is not available (provides steps for safe household disposal and cites ONDCP). Don't flush medications unless prescription or patient information specifically instructs you to do so.

EPA's site also provides information for alternate audiences:

- Take-back event or program organizers: EPA encourages incineration for collected pharmaceuticals.
- Hospitals, Pharmacies, and other Businesses: These facilities are responsible for appropriately managing wastes (they generally cannot use take-back programs).

### Summary of Environmental Information

In homes that use septic tanks, prescription and over-the-counter drugs flushed down the toilet can leach into the ground and seep into ground water. In cities and towns where residences are connected to wastewater treatment plants, prescription and over-the-counter drugs poured down the sink or flushed down the toilet can pass through the treatment system and enter rivers and lakes. They may flow downstream to serve as sources for community drinking water supplies. Water treatment plants are generally not equipped to routinely remove medicines.

ORD published a white paper discussing the effects of pharmaceuticals in waterways ([https://www.epa.gov/sites/production/files/2015-08/documents/white\\_paper\\_aquatic\\_life\\_criteria\\_for\\_contaminants\\_of\\_emerging\\_concern\\_part\\_i\\_general\\_challenges\\_and\\_recommendations\\_1.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/white_paper_aquatic_life_criteria_for_contaminants_of_emerging_concern_part_i_general_challenges_and_recommendations_1.pdf)) but there is no discussion of pharmaceutical disposal or mention of water reuse.

### Relevant Resources

<https://www.epa.gov/sites/production/files/2015-06/documents/how-to-dispose-medicines.pdf>

## Category: State Agency

### Florida Department of Environmental Protection

#### URL

<http://www.floridahealth.gov/newsroom/2013/12/121013-drug-disposal.html>

#### Summary of Disposal Recommendations

The Florida Department of Environmental Protection advises residents to dispose of unwanted medication by following safe trash disposal protocols if a city or county take-back program is not available and states consumers should not flush drugs down the toilet, but also links to FDA guidelines.

#### Summary of Environmental Information

The website briefly mentions that flushing of medication can result in contamination of surface and ground waters.

### Washington Department of Health

#### URL

<https://www.doh.wa.gov/forpublichealthandhealthcareproviders/healthcareprofessionalsandfacilities/safemedicationreturnprogram>

#### Summary of Disposal Recommendations

Washington has a Safe Medication Return program, also known as the Drug Take-Back program, established by statute, funded by drug manufacturers, and regulated by the Department of Health. Regulations (effective August 1, 2019) aim to create a single, uniform, statewide system of regulation for safe and secure collection and disposal of medicines. By late fall 2020, Washington residents will be able to return medications to a kiosk at any participating pharmacy, hospital, clinic, or law enforcement agency. Kiosks may also be located at participating long-term care facilities and substance abuse disorder treatment programs. Free, pre-addressed envelopes will be available to residents who wish to return their unwanted medications by mail. The program materials do not discuss flushing as a disposal option, other than a brief mention of environmental impacts in the FAQs.

#### Summary of Environmental Information

When you flush medicine down the toilet or throw it in the trash, it pollutes our water and soil.

## New York Department of Health and Department of Environmental Conservation

### URL

[https://www.health.ny.gov/professionals/narcotic/drug\\_take\\_back.html](https://www.health.ny.gov/professionals/narcotic/drug_take_back.html)

<https://www.dec.ny.gov/chemical/108213.html>

<https://www.dec.ny.gov/chemical/67720.html>

### Summary of Disposal Recommendations

The New York State Drug Take Back Act (2018) mandates that manufacturers establish, fund, and manage a New York state-approved drug take back program(s) for the safe collection and disposal of unused covered drugs. Pharmacies of ten or more establishments within New York and non-resident pharmacies that provide covered drugs to New York state residents by mail must implement such programs by providing consumers with a pre-approved method(s) of collection and disposal, free of charge to the consumer and pharmacy. New York State Department of Health and Department of Environmental Conservation (NYSDEC) partner to approve or deny proposed programs.

NYSDEC also sponsors a Pilot Pharmaceutical Take-Back Program that covers the costs of consumer drug collection boxes and disposal at retail chain and independent pharmacies, hospitals, and long-term care facilities for two years. It is not clear whether or how the pilot program is related to the product stewardship regulations. DEC requires pharmacies and other retailers that sell drugs to display a poster advertising drug disposal methods and advising consumers not to flush medications. DEC's recommended safe medication disposal for households stresses use of drug take-back or mail-back options and provides instructions for disposal in the trash to be used as a last resort. DEC links to the FDA flush list stating, some medicines may be flushed if no other disposal options are available.

### Summary of Environmental Information

- "- Flushed medications have been found in New York lakes, rivers and streams
- Fish and other aquatic wildlife experience behavioral and physical changes through continuous exposure to low levels of medications
- Drug-resistant bacteria can develop
- Wastewater treatment plants may not filter all medication"

## State Attorney General's Office (FL, GA, MN, NE, TX, WI); New Mexico Human Services Department

### URL

Florida: <https://doseofrealityfl.com/>

Georgia: <https://doseofrealityga.org/>

Minnesota: <https://doseofreality.mn.gov/>

Nebraska: <https://doseofreality.nebraska.gov/drug-take-back>

New Mexico: <https://doseofreality.com/>

Texas: <https://doseofreality.texas.gov/>

Wisconsin: <https://doseofrealitywi.gov/drug-takeback/>

### Summary of Disposal Recommendations

Several states have launched "Dose of Reality" campaigns to prevent prescription painkiller abuse. Websites are generally sponsored through the state Attorney General's office (except New Mexico's program which is hosted by the Human Services Department). Some counties have also adopted the same messaging; county programs are not listed here. The messaging promotes drug take back programs (DEA events, programs offered through local law enforcement agencies, mail-back programs, pharmacy programs, and in some cases state-sponsored drug take back programs). Websites advise against flushing unwanted prescription medication. State websites are listed; no national-level program or messaging was found.

### Summary of Environmental Information

Improperly disposed pharmaceuticals can contaminate water supplies.

## Virginia Attorney General's Office

### URL

<https://www.oag.state.va.us/programs-initiatives/drug-take-back-program>

### Summary of Disposal Recommendations

The Virginia Attorney General's office lists drug take back programs as the safest methods of disposal but if unavailable provides guidelines on disposing of drugs in the trash. They say drugs should never be flushed down the sink or toilet.

### Summary of Environmental Information

The website indicates that pharmaceutical contaminants in water have been shown to cause serious harm to fish and wildlife living in or near rivers and lakes and can end up in drinking water supplies. However, the long-term human health effects remain unknown.



## Category: Local Agency

### National Association of Clean Water Agencies (NACWA)

#### URL

<https://www.nacwa.org/docs/default-source/news-publications/Advocate/2019-Wiinter/take-back-responsibility.pdf?sfvrsn=2>

#### Summary of Disposal Recommendations

The link above is to an article in the Winter 2019 edition of NACWA's Clean Water Advocate (message summarized below). No other central, public-facing messaging found on pharms disposal identified; search of website turns up NACWA news articles on various state and federal actions related to drug disposal. NACWA was signatory to a 2016 letter urging FDA to end its flush list recommendation ([https://casaweb.org/documents/fda\\_sign-on\\_letter\\_dec11\\_final\\_12-14-15.pdf](https://casaweb.org/documents/fda_sign-on_letter_dec11_final_12-14-15.pdf)) and recent news articles on the NACWA website are consistent with that position.

NACWA advocates for easily accessible drug take back programs to keep drugs out of the hands of those who might abuse them. Article mentions mixed public messages from federal agencies, water organizations, and other groups and outlines recent changes in regulations that are making take back programs more viable.

#### Summary of Environmental Information

Wastewater treatment plants were not designed to remove pharmaceuticals from wastewater; drugs that are flushed can pass through the POTW and be discharged into receiving waters. Landfilled drugs end up in leachate that leaks into groundwater or is transported to wastewater treatment plants.

### Metropolitan Water Reclamation District of Greater Chicago

#### URL

<https://mwrdd.org/medication-disposal>  
[https://mwrdd.org/sites/default/files/2019-04/16\\_0517\\_Drug\\_Boxes.pdf](https://mwrdd.org/sites/default/files/2019-04/16_0517_Drug_Boxes.pdf)

#### Summary of Disposal Recommendations

"Homeowners are encouraged never to pour the pharmaceuticals down the toilet or drain or give or sell them to others." MWRD also advises against household trash disposal and encourages use of drug collection boxes located at their water reclamation plants and main office building and provides tips on ways to reduce the volume of waste pharmaceuticals. The website also publicizes the city of Chicago's drug collection boxes available at police stations and links to DEA's National Takeback Day website as well as several other local and state resources.

### Summary of Environmental Information

The website states that unused pharmaceuticals and drugs released into the sewer system has harmful impact on waterways and describes how flushed pharmaceuticals can pass through treatment plants.

## Seattle/King County

### URL

<https://kingcountysecuremedicinereturn.org/>

### Summary of Disposal Recommendations

This website provides information on the drug takeback stewardship program developed by Seattle/King County. The stewardship program is a network of disposal kiosks run by pharmacies and law enforcement and a free mail-back service, that properly disposes of pharmaceuticals. The website provides guidance on disposing of drugs through in person kiosks and by mail.

King County Board of Health adopted “Secure Medicine Return Regulations” ([Board of Health Ch. 11.50](#)) that establish the drug stewardship program. Producers that sell drugs in the county must participate in a plan for collection, transportation, and disposal of unwanted drugs that is financed, developed, and implemented by producers.

A page on the Secure Medicine Return website

(<https://kingcountysecuremedicinereturn.org/drug-enforcement-administration/>)

describes the DEA’s 2014 rule that defines protocols for the return of unwanted controlled substances, including DEA’s specification that flushing and trash disposal do not meet the non-retrievable standard for final destruction of controlled substances.

Flushing and trash disposal are not otherwise mentioned in the King County materials.

### Summary of Environmental Information

The stewardship program focuses on the public health impacts of improper disposal and doesn’t mention environmental impacts.

## San Francisco Department of the Environment

### URL

<https://sfenvironment.org/safe-medicine-disposal>

### Summary of Disposal Recommendations

The city of San Francisco recommends using their prescription drug disposal program. The program offers in person and by mail disposal. The San Francisco Department of the Environment states that drugs should be never be thrown in the trash or flushed.

### Summary of Environmental Information

The website briefly states that unused medicine is a threat to both human health and the environment. The website also contains a link to the Fact Sheet for the city ordinance that created the disposal program which states that improper disposal can cause pharmaceuticals to contaminate water and harm aquatic life. The website contains a presentation given when the ordinance was first being considered in 2015 which states the potential for the presence of low doses of pharmaceuticals in water can have an impact on aquatic life.

### Relevant Resources

[https://sfenvironment.org/sites/default/files/fliers/files/sf\\_environment\\_medicine\\_waste\\_characterization\\_study.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sf_environment_medicine_waste_characterization_study.pdf)

## Oakland/Alameda County MEDS Coalition

### URL

<https://www.acgov.org/medscoalition/disposal.htm>

### Summary of Disposal Recommendations

The website promotes use of a municipal drug disposal program developed as a result of county ordinance that established Extended Producer Responsibility for prescription medication take back. The website states that unused pharmaceuticals should be disposed of through the program but doesn't mention flushing or discarding into the trash.

### Summary of Environmental Information

The website mentions that improper disposal of pharmaceuticals can have negative effects on the environment. Further, the website provided a link to the county ordinance, which stated that improper disposal can have negative effects ground and drinking water.

### Reuse/Recycling Connection

The [county ordinance](#) states that unwanted, leftover, or expired pharmaceuticals are contaminating ground and drinking water, and are passing through wastewater treatment plants (6.53.010).

## City of Roseville, California

### URL

[https://www.roseville.ca.us/news/what\\_s\\_happening\\_in\\_roseville/medication\\_disposal\\_in\\_roseville](https://www.roseville.ca.us/news/what_s_happening_in_roseville/medication_disposal_in_roseville)

### Summary of Disposal Recommendations

Bi-annually the City of Roseville's Police Department partners with local Drug Enforcement Agency (DEA) office to host a prescription drug take-back event. During these events, residents are encouraged to look inside their medicine cabinets to identify and discard expired or unwanted medications and dispose of them safely at these take-back events.

Due to the ongoing health pandemic, the City did not host a drug take-back event in October 2020 as had been done in past years. Instead, the City has publicized several places in Roseville where residents can safely dispose of unwanted medications for free throughout the year.

Additionally, communications staff are sending regular reminders to keep prescription and over-the-counter medications in a locked cabinet or container until the next take back event occurs.

#### **Summary of Environmental Information**

The City's Utility Education Center (UEC) educates local families and students on the importance of proper pharmaceutical disposal with regard to water quality. UEC messaging also includes not throwing medications in the trash where someone might find and misuse them, and not flushing them down the toilet where they can pollute the water supply.

### **Los Angeles County Sanitation Districts**

#### **URL**

<https://nodrugsdownthedrain.org>

#### **Summary of Disposal Recommendations**

The website urges the public to use drug takeback sites instead of flushing or putting unused medications in the trash. The site also provides several links to other websites that have takeback kiosk locators, including DEA and Don't Rush to Flush.

#### **Summary of Environmental Information**

The No Drugs Down the Drain website displays the following paragraph regarding how medicine gets into wastewater, noting that the threat from medications is small, and urging the public to use a takeback location when needing to dispose of unwanted medications.

Medications enter the sewer system and wind up at wastewater treatment plants in two ways: (1) human excretion, and (2) disposal of medications down the drain. Wastewater treatment plants remove most pollutants; however, not all medications are entirely removed. The levels of medication are small enough that they do not normally pose a threat to public health and the environment. To keep our treated water safe, please dispose of unwanted medications at a [drug takeback location near you](#) and encourage others to do the same.

#### **Reuse/Recycling Connection**

The No Drugs Down the Drain website does not make any direct connection to water reuse or recycling. However, it is housed within LACSD's overall website, which includes extensive information about the agency's water recycling program, which can be found at <https://www.nodrugsdownthedrain.org/waterreuse/default.asp>. When you visit the water reuse webpage, it includes a link in its directory to the No Drugs Down the Drain webpage.

### Partners and Relevant Resources

The No Drugs Down the Drain website provides a list of six supporting agencies, including the Cities of Los Angeles, Riverside and San Diego; Los Angeles County Department of Public Works; the Inland Empire Utilities Agency; and the Orange County Sanitation District. These agencies provide a mix of services, including treating and supplying water, wastewater and recycled water; managing solid waste; and providing household hazardous waste collection sites and opportunities. Some of them include additional information about pharmaceuticals, such as the Orange County Sanitation District, which supplies recycled water to the Groundwater Replenishment System, a large potable reuse project operated in partnership with the Orange County Water District (see fact sheet link below).

<https://www.ocsd.com/Home/ShowDocument?id=28907>

## Category: Non-profit, Environmental/Sustainability

### Natural Resources Defense Council (NRDC)

#### URL

<https://www.nrdc.org/resources/dosed-without-prescription-preventing-pharmaceutical-contamination-our-nations-drinking>

#### Summary of Disposal Recommendations

No primary website or central messaging on drug disposal. NRDC developed a white paper in 2009 that explores the ways pharmaceuticals enter the waste stream and provides general recommendations related to drug design, approval, production, use, and disposal including a recommended national ban against flushing.

#### Summary of Environmental Information

The Introduction to NRDC's white paper summarizes human health and environmental concerns with sections specific to antimicrobials and hormones and endocrine disruptors.

#### Relevant Resources

[Dosed Without Prescription: Preventing Pharmaceutical Contamination of Our Nation's Drinking Water](#)

### Product Stewardship Institute (PSI)

#### URL

<https://www.productstewardship.us/page/Pharmaceuticals>

#### Summary of Disposal Recommendations

Product Stewardship Institute (PSI) advocates for extended producer responsibility laws; their recommended method of disposal is a drug take back program when available. They offer a "How-to Guide for Drug Take-back" for pharmacies. The PSI Safe Drug Disposal Portal provides a state by state guide to proper drug disposal. PSI guidelines for consumers

([https://cdn.ymaws.com/sites/www.productstewardship.us/resource/resmgr/Pharms\\_reports\\_factsheets/PSI\\_Pharms\\_Disposal\\_2014\\_WEB.pdf](https://cdn.ymaws.com/sites/www.productstewardship.us/resource/resmgr/Pharms_reports_factsheets/PSI_Pharms_Disposal_2014_WEB.pdf)) recommend use of drop off locations and mail back envelopes for disposal. Household disposal (with a summary of safe disposal guidelines) is presented as a last resort; the guidelines clearly state "Don't flush!" However, some of the state-specific guidelines linked from the PSI website may recommend flushing.

#### Summary of Environmental Information

PSI's Safe Drug Disposal Portal (<https://www.productstewardship.us/page/GoToGuide>) has a page describing the dangers of leftover meds, including an environmental hazards section of their website that discusses how prescription drugs can end up in waterways and drinking water and the prevalence of pharmaceuticals in waterways and landfill leachate. The site states, "There is ample evidence that long-term exposure to trace amounts of pharmaceutical ingredients (and short-term exposure during critical stages of human development) is harmful to human health" but does not provide references. References are provided for statements describing effects on aquatic species.

#### Relevant Resources

- [State by State drug take back portal](#)
- [How-to Guide for Drug Take-Back](#) implementation
- [Drug Take-Back Outreach Toolkit](#)
- Resources to support [Extended Producer Responsibility legislation](#)

#### Other Orgs/Types of Orgs That Adopt or Link to This Message

San Francisco Department of Environment

### California Product Stewardship Council (CPSC)

#### URL

<https://www.calpsc.org/campaigns>

#### Summary of Disposal Recommendations

CPSC partners with the California Department of Health Care Services to administer the California Drug Take Back Program (<https://www.takebackdrugs.org/>). CPSC also administers a "Don't Rush to Flush" program (<https://www.dontrushtoflush.org/>) that encourages and facilitates use of drug take back bins. Websites for both programs include a map of all take back bins in the state. CPSC is a proponent of Extended Producer Responsibility (EPR) laws requiring pharmaceutical manufacturers to manage their products' waste.

#### Summary of Environmental Information

CPSC's A Prescription for Change advertising brochure ([https://4aef0410-d204-448c-9525-d5fbfceb006e.filesusr.com/ugd/ad724e\\_3ae3a6bd4094410b91e45ae321c92c7a.pdf](https://4aef0410-d204-448c-9525-d5fbfceb006e.filesusr.com/ugd/ad724e_3ae3a6bd4094410b91e45ae321c92c7a.pdf)) includes an article, "From Toilet to Tap" that mentions potential environmental and human health effects from flushing and landfilling drugs.

## Other Orgs/Types of Orgs That Adopt or Link to This Message

San Francisco Department of Environment

### Earth911

#### URL

<https://earth911.com/living-well-being/health/recycling-mystery-medication/>

#### Summary of Disposal Recommendations

Earth911 recommends using a drug take-back program if available, or disposing of medication in the trash and provides the FDA recommendations for household disposal. "Flushing medications is considered an option" but not preferred due to potential hazard to the environment; however, the website recommends checking the label to see if the drug can be safely flushed and links to FDA's flush list. Earth911 also advocates for donating excess medication and provides links to Organizations that accept donations.

#### Summary of Environmental Information

Flushing medication results in water pollution because water treatment plants cannot filter out molecules of all sizes. The website discusses a notable presence of pharmaceuticals in the nation's waterways and cites a WHO study and a WebMD article identifying risks of disposed drugs in water and states that EPA studies have shown ecological harm (no link or citation). The site also quotes the FDA study stating that "there has been no indication of environmental effects due to flushing."

### National Water Research Institute (NWRI)

#### URL

N/A – no public messaging on pharms disposal or environmental impacts.

#### Reuse/Recycling Connection

NWRI's Guidelines for Direct Potable Reuse in Colorado cites information on pharmaceuticals found in reclaimed water, recommends public outreach on proper pharmaceutical disposal as part of enhanced source control programs, and includes several articles in the references list that may be of interest.

#### Relevant Resources

[Guidelines for Direct Potable Reuse in Colorado](#)

## Category: Non-profit, Pharmaceutical

### National Association of Boards of Pharmacy

#### URL

<https://safe.pharmacy/drug-disposal/>

#### Summary of Disposal Recommendations

Recommends using take-back programs and provides a search tool to locate drug disposal boxes. Recommends against household disposal and flushing but provides at-home disposal guidelines for use when a disposal box is not available. Guidelines link to the FDA flush list and include procedures for safe disposal in the trash.

#### Summary of Environmental Information

Generally states that flushing can contaminate the water supply.

## Category: Private Sector

### Walmart

#### URL

<https://www.walmart.com/ideas/health-wellness-center/how-to-dispose-of-medications-safely/201837>

#### Summary of Disposal Recommendations

The Walmart website list several options 1) follow drug label recommendations 2) give to a take back program 3) Throw in to the trash 4) DisposeRx bags (drug disposal product - pharmaceuticals and warm water are mixed with a polymer gel powder and sealed in a bag for disposal in the household trash), and links to FDA disposal guidelines.

#### Summary of Environmental Information

Flushing can contribute to water pollution. DisposeRx bags are marketed as being environmentally safe but no further information is provided.

### Walgreens

#### URL

<https://www.walgreens.com/topic/pharmacy/safe-medication-disposal.jsp>

#### Summary of Disposal Recommendations

Walgreens advocates for using prescription drug disposal kiosks located at their pharmacies in 46 states where permitted by regulation. Pharmacies without a kiosk offer DisposeRx packets at no cost or other disposal options (not defined). The website makes no mention of flushing medications.



### Summary of Environmental Information

DisposeRx bags are marketed and described as environmentally-friendly; no other information is provided.

## Kaiser Permanente

### URL

[https://healthy.kaiserpermanente.org/health/care/consumer/ancillary!/ut/p/a1/hZDRToMwFIafxQtu6VF0YdwxFhVQwWgG9GYprGNNSktKHfL2li7GmGg4d22\\_-lhzAqERbkzFqimRSEz2e82t8nb9lmcx1Cdrv2IX6OHqP4JQUzqEA|wi2XtYWrk9Z94IADjRSaCq2oOFBFIQMIa0E6isqBabq3z596KaL01Julkv0SSS4kEQ3jnKhpcRl2QGWR50GQVTvYbpOoXIo0ly-YOErV\\_QiqQlF7fmuWpccZdT-UuZ6LBts0jqPbStly6jayM0V\\_RE5yMC5-k0YttvbBi1-t\\_Yd8BRD76Xu6W6cewM038M-EgPrOnzx-fqKFr-qyQMWXn0BGAKjcw!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/](https://healthy.kaiserpermanente.org/health/care/consumer/ancillary!/ut/p/a1/hZDRToMwFIafxQtu6VF0YdwxFhVQwWgG9GYprGNNSktKHfL2li7GmGg4d22_-lhzAqERbkzFqimRSEz2e82t8nb9lmcx1Cdrv2IX6OHqP4JQUzqEA|wi2XtYWrk9Z94IADjRSaCq2oOFBFIQMIa0E6isqBabq3z596KaL01Julkv0SSS4kEQ3jnKhpcRl2QGWR50GQVTvYbpOoXIo0ly-YOErV_QiqQlF7fmuWpccZdT-UuZ6LBts0jqPbStly6jayM0V_RE5yMC5-k0YttvbBi1-t_Yd8BRD76Xu6W6cewM038M-EgPrOnzx-fqKFr-qyQMWXn0BGAKjcw!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/)

### Summary of Disposal Recommendations

Kaiser recommends dropping unwanted medication at a drug take back kiosk or using a pre-addressed mailer; both are available to members at some participating pharmacies. Their guidelines go on to state that unwanted medications shouldn't be flushed down the toilet. However, they go on to say to check the FDA flush list if a take-back option is not available.

### Summary of Environmental Information

Flushed medications can pollute water supplies.

## Category: Other

### World Health Organization (WHO)

### URL

[https://apps.who.int/iris/bitstream/handle/10665/85349/9789241548564\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/85349/9789241548564_eng.pdf?sequence=1)

### Summary of Disposal Recommendations

No overall public messaging on drug disposal. WHO has published several reports that touch on pharmaceuticals in water.

### Summary of Environmental Information

Report on Safe Management of Wastes from Health-care Activities [linked above] notes, "There is no scientifically documented evidence of widespread illnesses among the general public due to chemical or pharmaceutical waste from hospitals. Excreted pharmaceuticals from patients do find their way into waterways, which can contribute to potentially serious environmental effects, including toxicity to wildlife and the generation of antibiotic resistance in bacteria (e.g. Guardabassi et al., 1998)."

### Reuse/Recycling Connection

Linked WHO report Pharmaceuticals in Drinking Water briefly mentions treatment potential of advanced oxidation processes used for indirect potable reuse and mentions water reuse guideline values for pharmaceuticals issued by Australian government.

### Relevant Resources

WHO Pharmaceuticals in Drinking Water technical report (<https://apps.who.int/iris/handle/10665/44630>): Identifies sources of pharms in drinking water (including uncontrolled drug disposal); summarizes studies describing the occurrence of pharms in drinking water, wastewater, and water sources; includes recommendations for control measures, risk management and investigative (but not routine) monitoring. Concludes that current levels of pharms are unlikely to pose an appreciable risk to human health but recognizes knowledges gaps.