

Disposal of Unwanted Medicines

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Pharmaceuticals and Personal Care Products (PPCPs)

Prescription and over-the-counter (OTC) medications, soaps, cleaning agents, cosmetics, nutritional supplements, & skin care products

- Produced and used in larger volumes yearly
 - 2006: over \$274 billion was spent on over 3.7 million prescriptions
 - Consumption increased significantly in last 20 yrs
 - UN projects a 3-fold increase in next 25 years

Disposal of Unwanted Medicines

In some cases, medicines are not entirely consumed due to:

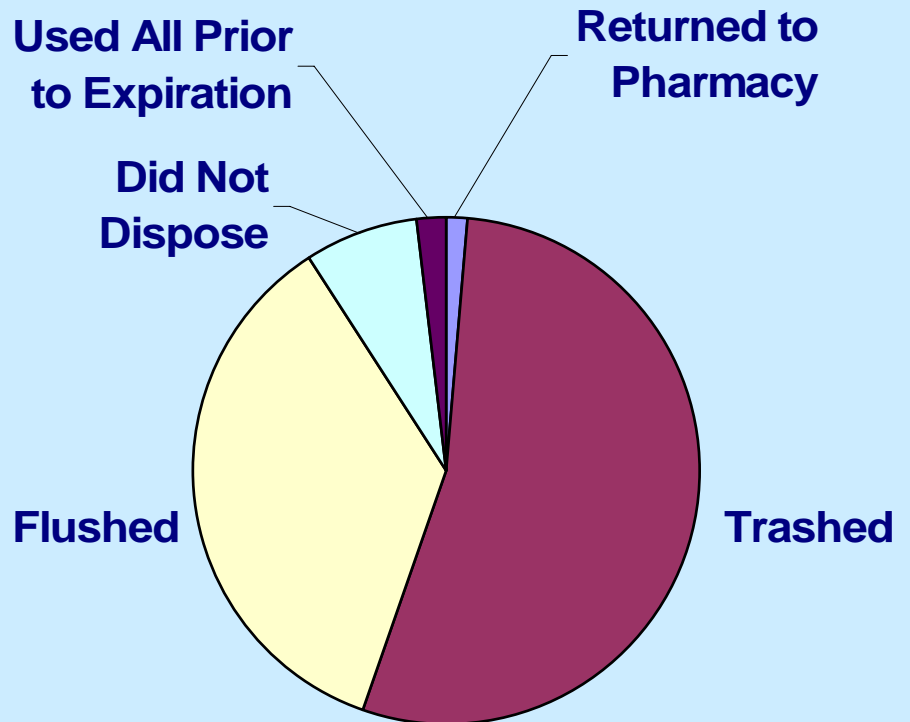
- Change in prescription
- Patient's health improves before finishing medicine
- Patient death
- Patient non-compliance
- Expiration date reached
- Bulk "economy size" containers of over-the-counter medicines contain more than is needed



Expired Medication Disposal Habits

500 patients surveyed:

- 54% disposed of medications in the trash
- 35.4% flushed drugs down the toilet or sink
- 7.2% did not dispose of medications
- 2% used all medication prior to expiration
- 1.4% returned medications to the pharmacy

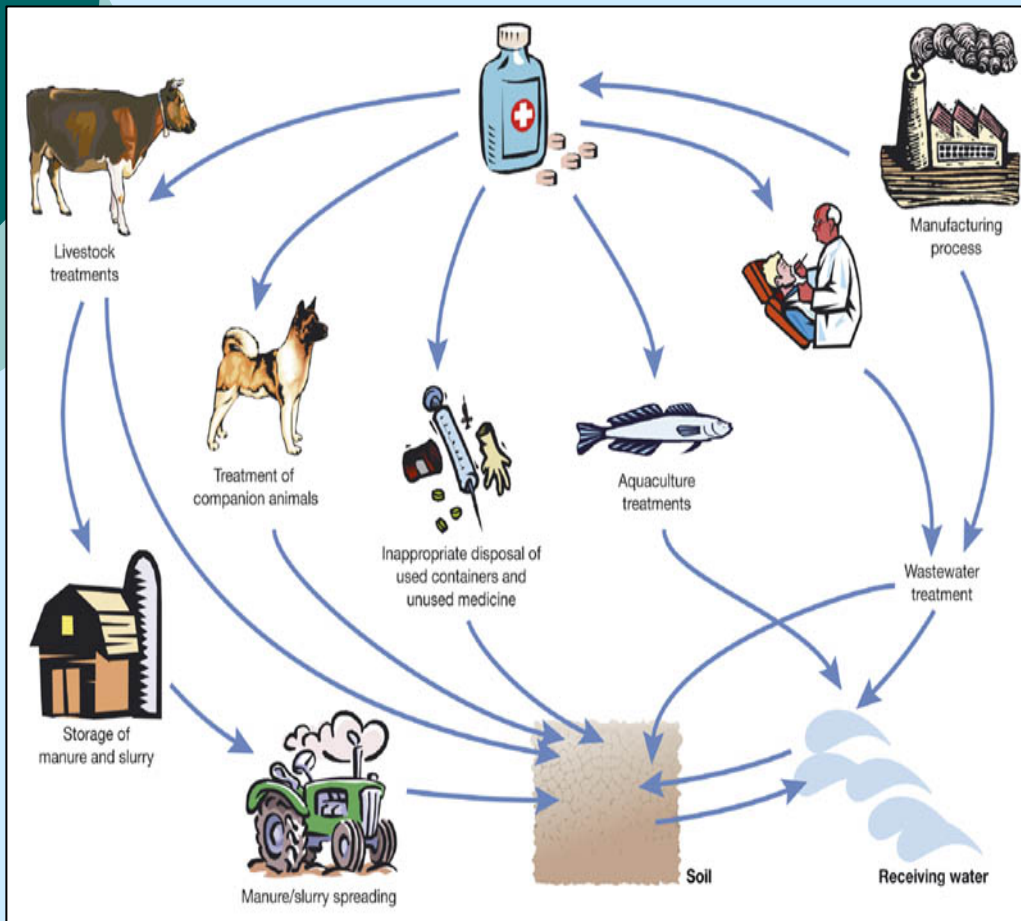




Main Risks of Improper Disposal Practices

- Damage to Sewage systems and Septic systems
- Environmental impact
 - Accumulation in waterways → potentially harmful effects on wildlife
- Accidental ingestion (children & elderly)
 - 78,000 children/year under 5 treated for unintentional medication poisoning in U.S.
- Illegal use or theft
 - Appropriation of pharmaceuticals by family and friends, workers in homes, and burglars
- Unnecessary accumulation & waste of health care \$\$\$

Entry Pathways of Medicines into the Environment



- Outflow from wastewater treatment plants
- Surface application of manure and biosolids
- Commercial animal feeding operations and aquaculture
- Landfill leachate sent to wastewater treatment plants
- Septic systems

Medicine Waste Management Issues and Barriers

- Communicating the issue
- Lack of conclusive research
- Safe disposal
- Controlled substances - Drug Enforcement Administration
- Convenience
- \$ Funding for staff, disposal & publicity
- Privacy of medical information
- Misinformation





IL-IN Sea Grant Resource Kit:

Disposal of Unwanted Medications

A Resource for Action in Your Community

<http://www.iisgcp.org/unwantedmeds/>

Purpose: Guide for communities who are looking for a solution for their drug disposal problem

Use: Solid waste officials, county and state officials, community groups, environmental and community organizations, pharmacists, researchers

Suceses: Educated 1000's of individuals on the issue, supported several outreach campaigns for communities holding events, created new networking groups

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Content

- 1. Introduction to the issue**
- 2. Case Studies of Take-Back Programs**
- 3. How to Hold a Collection Event**
- 4. Materials for Public Outreach and Education**
- 5. Pharmaceutical Donation/Take-Back Legislation**
- 6. International Policy on Medicine Donations**
- 7. Bibliography on Pharmaceuticals, the Environment, and Human Health**
- 8. Information for Nursing Homes and Assisted Living Facilities**
- 9. PowerPoint Presentation**



Types of Stewardship Activities

- One-time consumer collection events
- Short-term collection campaigns
- Permanent collection locations
 - On-going one-day events
 - Collection boxes at pharmacies
 - Police stations
 - HHW facilities
- Mail-back programs



Components of a Successful Collection

- DEA goal
 - Avoid diversion
- Comply with State regs
 - Board of Pharmacy
 - Dept. of Health
- Educate the public, health professionals, & pharmacists
- Involve pharmacists/Police



Successes of Stewardship Programs

- Medicines are kept out of the water
- Public awareness: preventing pollution & making a difference
- Partnerships develop that can be maintained for other community purposes



- Innovative approaches to a complex issue will lead to more permanent solutions

Challenges of Stewardship Programs

- DEA prohibition on accepting narcotics unless law enforcement is present and all controlled substances are documented results in labor-intensive events
 - DEA has not granted any waivers
- Funding
- Developing partnerships across many public agencies & private sector
 - law enforcement; pharmacies, water utilities, watershed orgs
- Local-specific issues lead to “reinventing the wheel”
- Responsibility is taken off the manufacturer of the medicines



One-Time Collection Events



Northeast Recycling Council (NERC)	Collection events in small ME, MA, NH, VT, VA communities
San Fran Bay Area	39 sites (senior centers, Walgreens); 1,500 citizens; 3,600 lbs
Greater Chicago	25 sites (police stations, senior centers, hospitals); 1,300 citizens; 1,600 lbs.
Earth Keeper Initiative	Regional event; 19 sites (churches); 2,000 citizens, > 1 ton (incl. \$500,000 in narcotics)
Milwaukee, WI	2 single events: 3,211 lb of non-controlled; 35,000 controlled

Permanent Collection Locations

- Los Angeles and Orange County
 - Public education campaign
 - <http://www.nodrugsdownthedrain.org/>
 - HHW facilities (non-controlled only)
- Monroe County, IN
 - TRIAD – police, sheriffs, & senior orgs
 - HHW facilities year-round (non-controlled only)
 - Single events for controlled substances
- La Crosse, WI
 - HHW facility
 - 4 staff members deputized by county sheriff
 - Flyers distributed at local pharmacies
- Olmstead Falls, OH (8,600 people)
 - Hospital security office (24/7) (non-controlled only)



Mail back programs



- Maine - Disposal of Unwanted Medications Pilot
 - Designed to meet Maine legislation
 - Unique situation - State DEA accepting unwanted medicines (including controlled substances)
 - Pharmacies to provide for mailer pick up and drop off
 - Phase I – Spring 2008; 4 counties; no marketing
 - Phase II – Fall 2008; statewide; marketing campaign

- Wisconsin Pilot launching on Earth Day
 - Includes Reverse distribution company
 - Need DEA waiver

Solid Waste Agency of Northern Cook County (SWANCC) Illinois

SWANCC's Disposal Program



This program is for residents that live in one of SWANCC's 23 member communities. No prescription drugs or sharps from businesses, schools or hospitals will be accepted. ID's will be checked for verification of residency.

General tips:

- Prescription drugs that are more than a year old should be disposed of properly.
- Turn in non-prescription medicines without an expiration date that are more than six months old.
- Keep pharmaceuticals in their original containers with labels to identify contents.
- All sharps need to be placed in a rigid container with a sealed lid. Put the container in a zippered plastic bag prior to dropping off. A new sharps container will be provided.

Acceptable Items:

Unused prescription medications
Expired prescription medications
Prescription cough syrup
Prescription eye drops
Expired over-the-counter medications
Residential sharps (needles/syringes)

Unacceptable Items:

Institutional or business waste
Non-prescription liquids
Latex gloves
Household Chemical Waste

For Your Information

Dangers of medicine in the water system



Recent research conducted by the U.S. Environmental Protection Agency and the U.S. Geological Survey found substantial amounts of antibiotics and steroidal hormones in rivers, lakes and wells from samples analyzed in 36 states. For more information, visit www.epa.gov/nerfesdl/chemistry/pharma.

Dangers of needles in trash



According to the US Environmental Protection Agency, each year, 8 million people use more than 3 billion on needles, syringes, and lancets, also called sharps, to manage medical conditions at home. Some sharps users throw their used needles in the trash or flush them down the toilet. Used sharps left loose among other waste can hurt sanitation workers during collection rounds, at sorting and recycling facilities and at landfills, or become lodged in equipment, forcing worker to remove them by hand.

Children, adults and even pets are also at risk for needle-stick injuries when sharps are disposed improperly at home or in public settings. For more information, visit www.epa.gov/osw.

Personal Sharps Containers



Any resident that lives in a SWANCC-member community and administers home-injections is eligible to receive a 1 quart sharps container. They need to go to the designated prescription drug drop-off site in their community to request one.

For sources of facts and information, visit www.swancc.org.

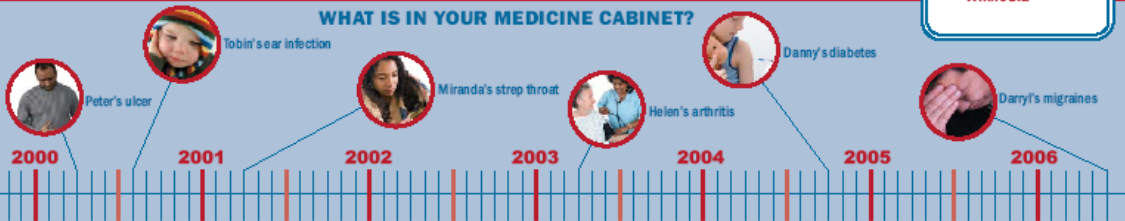
SWANCC Communities

Arlington Heights
Barrington
Buffalo Grove
Elk Grove Village
Evanston
Glencoe
Glenview
Hoffman Estates
Inverness
Kenilworth
Lincolnwood
Morton Grove
Mount Prospect
Niles
Palatine
Park Ridge
Prospect Heights
Rolling Meadows
Skokie
South Barrington
Wheeling
Wilmette
Winnetka

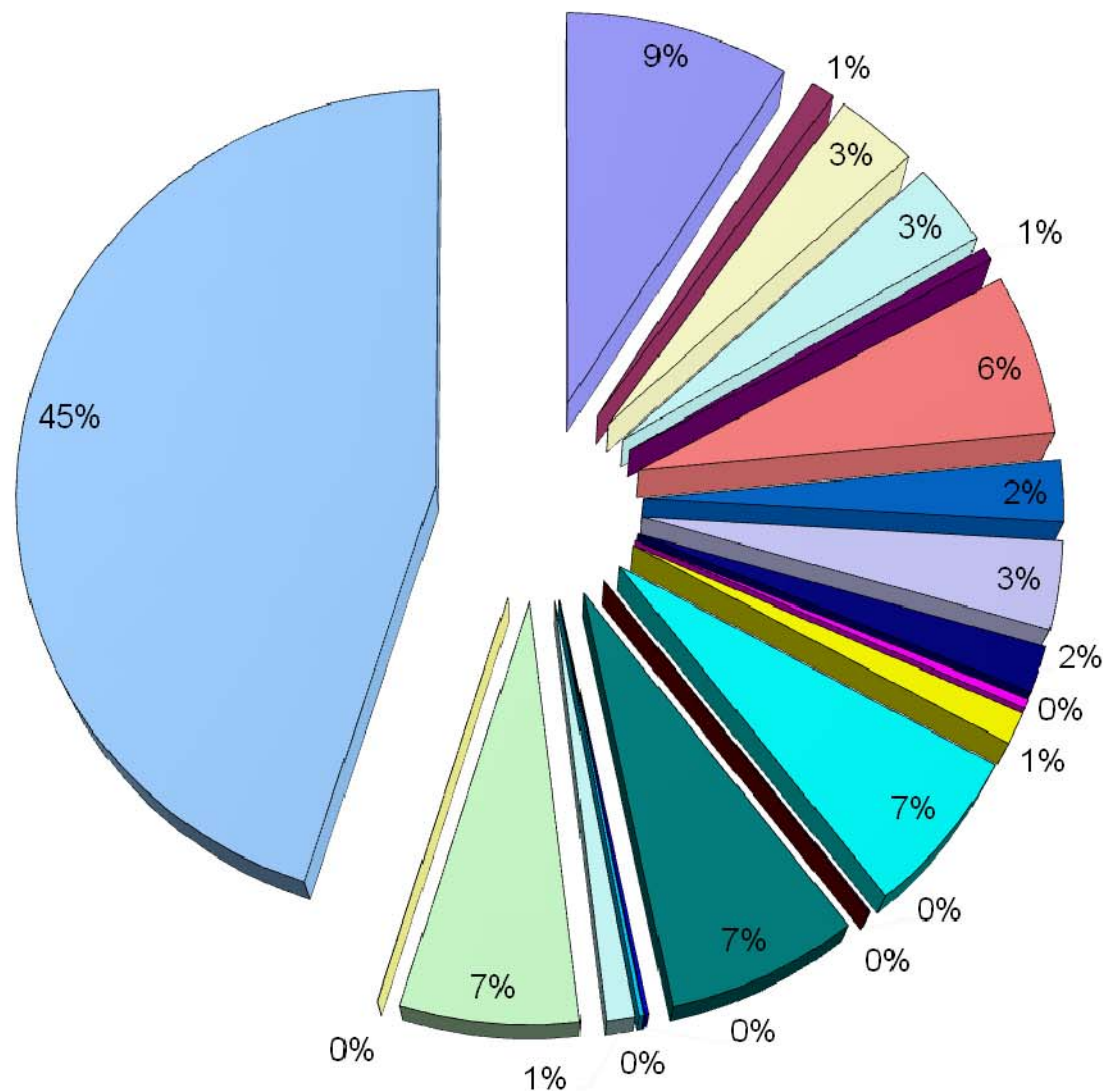
Pilot Program

- Serving about 23 municipalities and 1 million northern Cook County Residents
- Collecting meds and sharps at City Halls
- Paid for by revenue from transfer station
- Disposal costs expected to be about ~\$100K for program (\$0.10 per person)

WHAT IS IN YOUR MEDICINE CABINET?

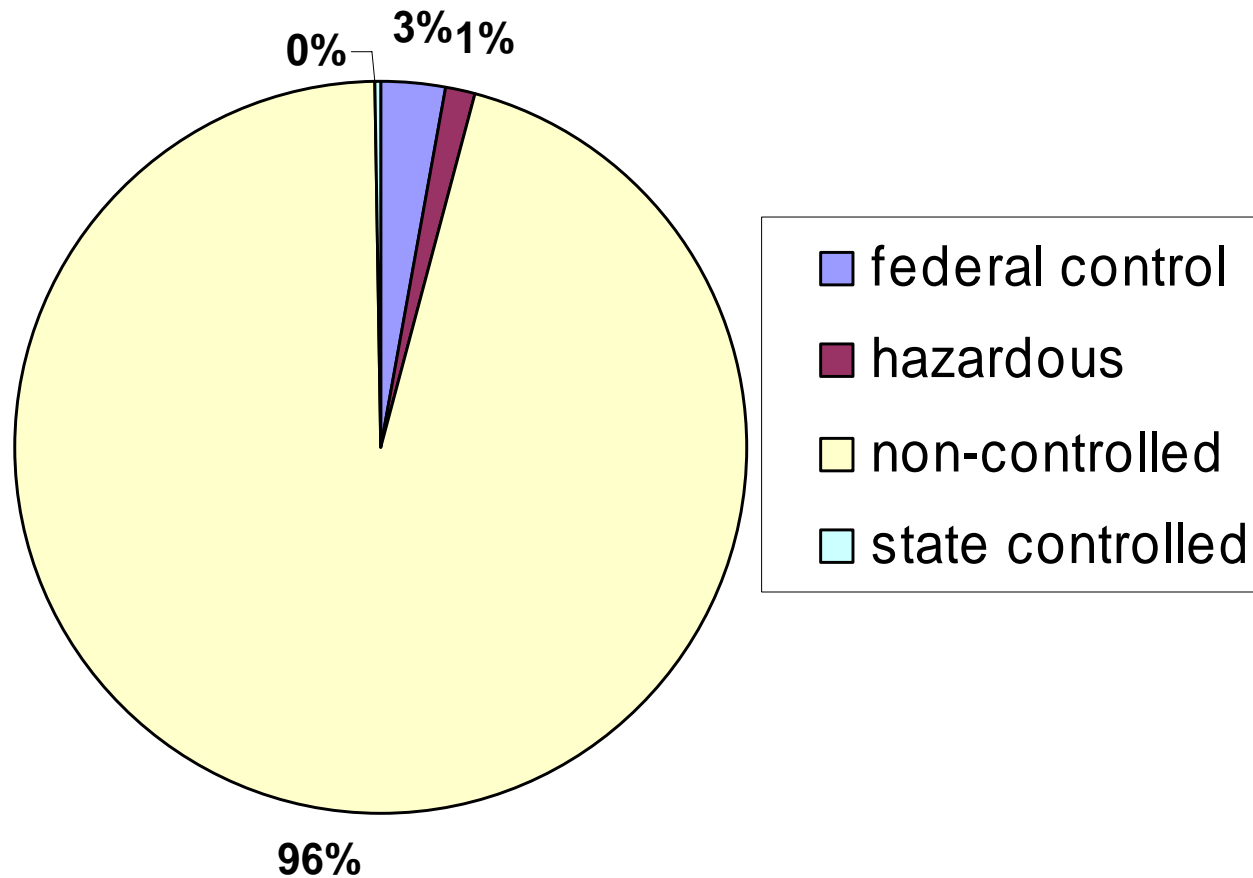


Example of what is being returned from a Wisconsin Collection



- analgesic
- antihistamine
- antihyperlipidemic
- anti-infective
- cough & cold
- diabetes
- diuretic
- gastrointestinal
- hemostatic
- hormone
- musculoskeletal
- neurological
- ophthalmic preparations
- overactive bladder
- psychotherapeutic
- respiratory
- sedative
- thyroid
- vascular
- veterinary use anti-emetic
- misc

Typically 5-10% of total is controlled substances



What is Still Needed?

- Humans, pets, livestock will always be taking medications, so solutions at the WWTP are needed
- Research on designer medications
- Quantify: excretion vs. disposal; farm vs. human
- Curb medicine waste (over-prescribing)
- Provide simple solutions for individuals, MDs, Pharmacies, Hospitals (VA), hospices, Rehab centers, schools, etc.

To Learn More

www.iisgcp.org/unwantedmeds

<http://www.epa.gov/ppcp/>