Disposal of Unwanted Medicines

Todd Nettesheim
U.S. EPA Great Lakes National Program Office

Susan E. Boehme & Elizabeth Hinchey Malloy
Illinois-Indiana Sea Grant Specialists & Liaisons to the U.S. EPA GLNPO
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
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
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

Source: www.york.ac.uk/.../gsp/esm/images/pharma1.jpg
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

**Successes:** Educated 1000’s of individuals on the issue, supported several outreach campaigns for communities holding events, created new networking groups
IL-IN Sea Grant Resource Kit:
Disposal of Unwanted Medications
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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

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

- **Los Angeles and Orange County**
  - Public education campaign
  - [http://www.nodrugsdownthedrain.org/](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

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)
Example of what is being returned from a Wisconsin Collection
Typically 5-10% of total is controlled substances

- 0% federal control
- 3% hazardous substances
- 1% non-controlled substances
- 96% state controlled substances
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/