



Unwanted Medication

The Problem

Short-term Solutions

Long-term Options



The Problem: Drugs are found in...

- Sanitary sewer systems
- Sewage sludge
- Tap water
- Rivers and lakes
- Groundwater
- Landfill leachate

Origins

- Excreted into sewers
- Flushed down toilets or sinks
- Leach from landfilled trash;
leachate goes to treatment plant

Rapidly Emerging Waste Issue

- Three billion drug prescriptions in 2006
- 50% of Americans take one prescribed medication.
- 50% of those 65 and over take 3 or more prescribed medications.

Other Issues

- Poisonings
 - In Houston, more than 50,000 toddlers each year suffer drug poisoning.
- Rising reports of stolen meds, especially from grandparents

USGS Study

- Analyzed water samples from 139 streams in 30 states
- 82 of 95 pharmaceuticals tested were detected at least once in every stream.
- 75%: more than one
- 50%: 7 or more
- 34%: 10 or more

Drugs in Our Water

- Steroids
- Nonprescription drugs = in 80% of streams
- Antibiotics
- Painkillers, tranquilizers
- Anti-inflammatory
- Hormones
- Anti-depressants
- Chemotherapy
- Epilepsy treatment
- Anti-cholesterol

Fish & Aquatic Organisms

- Canaries in the coal mine?
- Estrogen, antidepressants, other chemicals
- Neurological and physiological changes
- Feminization of male fish in Potomac, Lake Mead, UK & others linked to estrogens

Antibiotics

- Found in 50% of streams
- Ampicillin-resistant bacteria found in every U.S. river tested in a 1999 study.
- All samples of Ohio River water and two tributaries contained *E. coli* with some degree of resistance to penicillin, tetracycline, and vancomycin.

Hazardous Waste Law

- Household waste exempted under RCRA
- Some medications are hazardous:
 - Epinephrine, nicotine, nitroglycerin, warfarin...
 - Lindane, Mercury, Phenol, Saccharin, Toluene, Chemotherapy...

Federal Drug Law

- Controlled drugs cannot be returned to pharmacist
- Reverse distributors cannot accept
- Must be incinerated/rendered non-recoverable
- If collected for disposal they must remain in the control and custody of law enforcement.

Non-Controlled Substances

- Cannot transfer possession of drugs once dispensed by pharmacy
- Sole exception: collection for disposal purposes

Collection Options

- Pharmacy-based take-back
- HHW Facility/Single-day collection
- Triad/Senior collection
- Law enforcement drop-off

Single Day Collections

- Collect with other household hazardous waste
 - Requires pharmacist on site to inventory all meds and to separate controlled from non-controlled substances
 - Requires police officer on site to take possession of controlled substances

On-Site Details

- Staffing
- Traffic flow
- Security
- Equipment
 - Laptop, printer, table, pill counter, gloves
- Shelter & electricity
- Safety
- Privacy

Packing of Materials

- Drums for non-controlled substances
- Aerosol/inhalers packed separately
- Ziploc bag for controlled substances
 - Keep in small bucket during collection.
 - In vicinity of police officer at all times
 - Tape & initial seal (officer) after final count
 - Place inventory list inside of bag and on outside.

Disposal Controlled Substances

- Controlled substances range from 6% - 36% of total!
- Must be delivered to a DEA approved incinerator by law enforcement officers
- Must be considered a “witnessed” burn





Montague Senior Center

- Target seniors
- 6 participants
- 140 medications
- 25 controlled
- 115 non-controlled
- Disposal charge \$450





CVS Pharmacy Collection South Portland, ME

- 52 participants
- Average items per person: 14
- Three 16-gallon drums (119 pounds)
- One 5-gallon pail inhalers (5 lbs.)
- Controlled substances: 5% of total
- Disposal charge \$1,150



Permanent Collection

- Modeled after CA programs
- Set up collection boxes in police stations
- More convenient than one-day events
- No need for pharmacist to inventory meds*

Permanent Collection

- Barriers to program are
 - cost of drop box: \$600+
 - coordination with police so no additional staff time required
 - cost for officers to empty box and then transport to incinerator (DPH requires 2 officers in possession at all times)
 - disposal up to \$100 per 5-gallon pail

Permanent Collection

- Plan to prevent sharps and thermometers from getting into collection box
- Secure tag for pails
- Tracking system
- Coordination with end disposal facility

Permanent Collection



Next Steps

- Waiting for Covanta to relax its requirement for pill inventory
- Reconnect with police departments (5 initially interested)
- Purchase drop box
- Public education

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