

Keeping Drugs Out of Drinking Water

Watershed Congress
March 9, 2013

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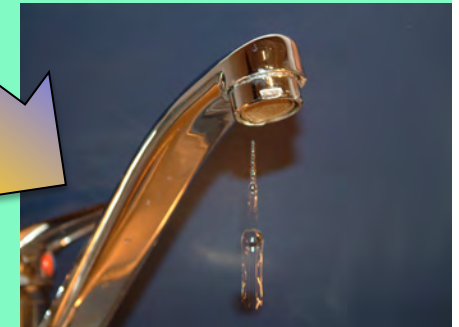
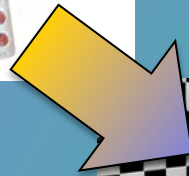
PSR Philadelphia

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Pharmaceutical Pollution Prevention (P5)*

Scope of the Issue

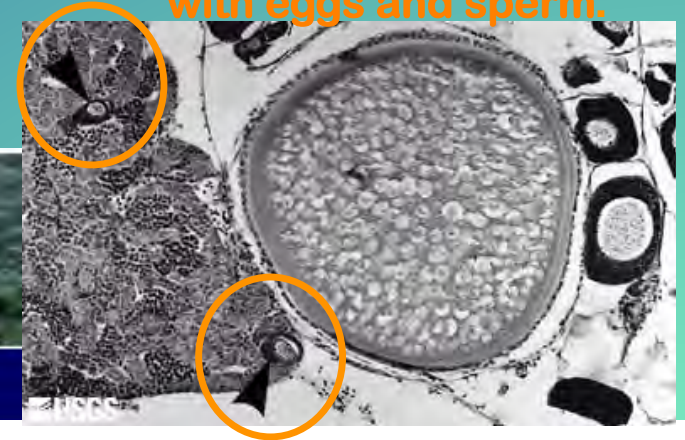


What happens to medications when they are unused, unwanted or expired?

Answer: The medications often get flushed and get into our waterways.

The Evidence

Abnormal fish gonad with eggs and sperm.



Toxic Substances Hydrology Program

Endocrine Disruption Found in Fish Exposed to Municipal Wastewater



ehp ENVIRONMENTAL
HEALTH
PERSPECTIVES

Long-Term Exposure to Environmental Concentrations of the Pharmaceutical Ethynylestradiol Causes Reproductive Failure in Fish

Environmental Health Perspectives Volume 112, Number 17, December 2004



Pharmaceuticals lurking in U.S. drinking water

Media attention increased awareness of pharmaceuticals in the drinking water

Press survey of 62 major water providers. Only $\color{red}{\bullet}$ research showing otherwise.

Pharmaceuticals in drinking water

- $\color{red}{\bullet}$ Water tested positive for pharmaceuticals
- $\color{green}{\bullet}$ Water tested negative for pharmaceuticals
- \circ Water not tested for pharmaceuticals
- \circ Test results pending



* In Virginia Beach, pharmaceuticals were found in source water but not in treated drinking water.
 ** Drinking water in Austin, Texas, was tested for only one prescription drug, a synthetic birth control chemical.

NOTE: All places include some surrounding areas except: Albuquerque, N.M.; Arlington, Texas; Fresno, Calif.; Long Beach, Calif.; Los Angeles; Memphis, Tenn.; New Orleans; New York City; and Orlando, Fla.

SOURCES: Drinking water providers' responses to Associated Press questions; AP review of scientific literature.

AP

Interconnection between Pharmaceuticals & the Environment

Ways Pharmaceuticals get into the environment

- **DIRECT:**

- Through excretion of human and animal waste (most common)
- Manufacture of pharmaceuticals
- Runoff from animal feeding operations
- Improper disposal, like flushing
- Leaching from landfills

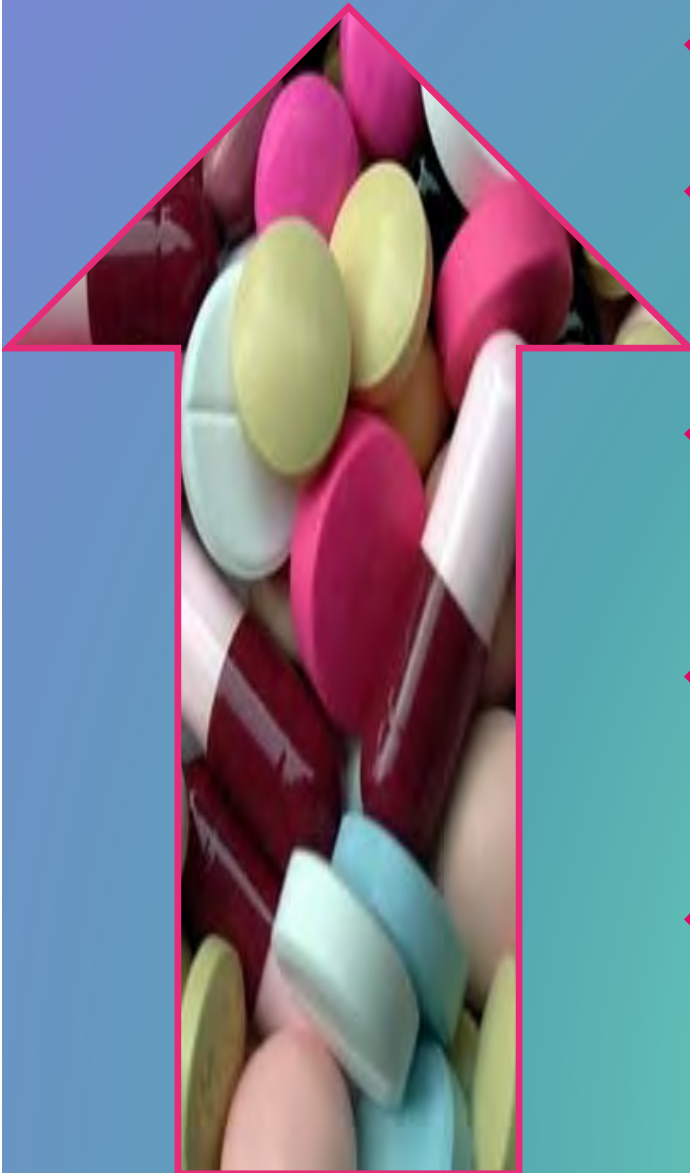
- **INDIRECT:**

- Irrigate farmland with wastewater containing pharmaceuticals

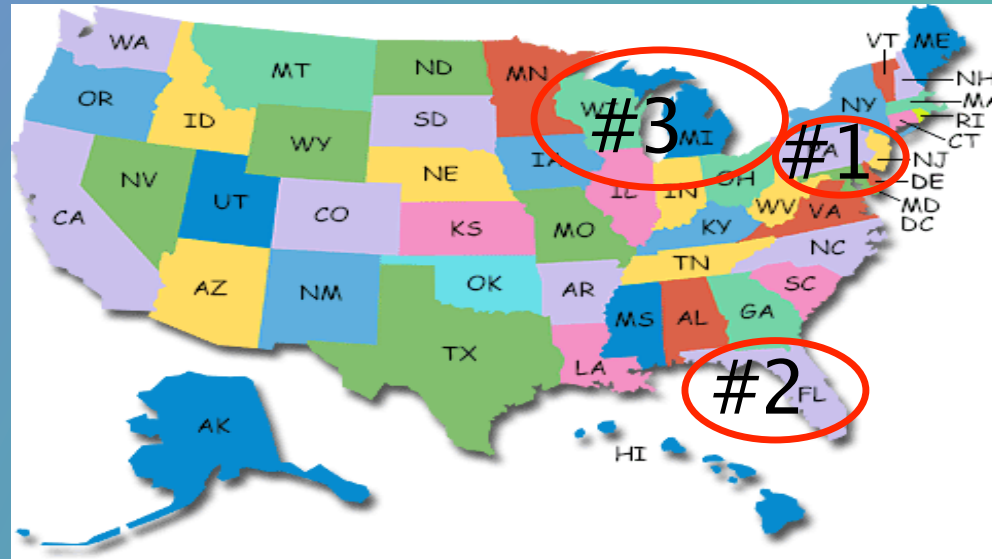


Pharmaceuticals & Health

- ◆ Older adults living longer
- ◆ Older adults living with multiple chronic diseases
- ◆ Younger adults living with chronic diseases
- ◆ Obesity and its related diseases
- ◆ Personalized and tailored medicine



Stakeholders' Perspectives



Who?

Providers: Doctors, Nurse Practitioners,
Physician Assistants

Dispensers: Pharmacists

Payers: Insurers, Human Resource Contacts

Other groups: Advocacy groups, Consumer groups,
Pharmaceutical companies



Stakeholders' Perspectives Current Disposal Practices

- MOST participants did NOT discuss disposal options with consumers
- MOST did NOT know how to dispose of medications
- FEW knew where unused medications ended up or how disposed of
- ALL agreed they needed more education for professionals like themselves and would like materials to distribute to the public



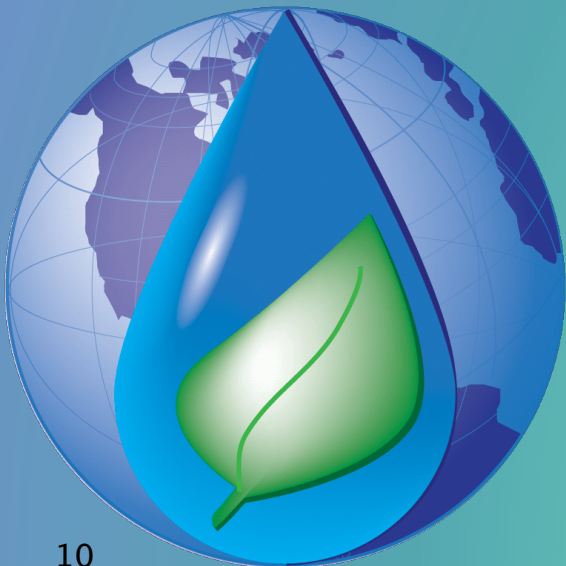
Stakeholder Interviews

Research Identified Key Strategies for Policies

- Short-cycle prescribing, partial co-pays
- Use vouchers/coupons instead of drug samples
- Reduce overprescribing
 - a. Limit direct-to-consumer advertising
 - b. Include prescribing and dispensing information as part of patients' electronic medical records
 - c. Better management of scripts written to decrease overprescribing
- Influence Joint Commission requirements
- Export an existing environmental toxicity database to influence prescribing/dispensing
- *Education of stakeholder groups*



Green Sticker Pilot Program



10

Medicines: The Right Way to Throw Away

Help protect our drinking water sources by throwing away any medicines you no longer want the right way.



Here's How

- 1 Remove and destroy all labels from medicine bottle, or use a marker to cross out your name, the doctor's name and Rx number.
- 2 Remove lid from an empty coffee can or other container.
- 3 Add coffee grounds or kitty litter to the container. Do not overfill.
- 4 Open the medicine bottle and dump the pills, tablets or liquid into the same container.
- 5 Place lid on container to seal it.
- 6 Throw sealed container into household trash.



Other Ways You Can Help

Think about the way you buy and use your medicines.

Buy only what you need.

Keep track of the medicines you have.

Always check expiration dates.

Check for local events that collect leftover medicines.

Ask your doctor and pharmacist to talk to people about the right way to throw away medicines.

Keep medicines out of reach of children and teenagers.

To learn more visit www.whitehousedrugpolicy.gov

Direct Link: www.whitehousedrugpolicy.gov/drugfact/faqs.html#18



Philadelphia Water Department
www.phila.gov/water



Women's Health & Environmental Network
www.WHEN.org

THANK YOU
FOR HELPING
TO MAKE OUR
ENVIRONMENT
SAFER

Green Sticker Pharmacy Pilot

If we build it, will they come?

1. Educational flyer

Will they read it?

If so, will they be able to recall the info?

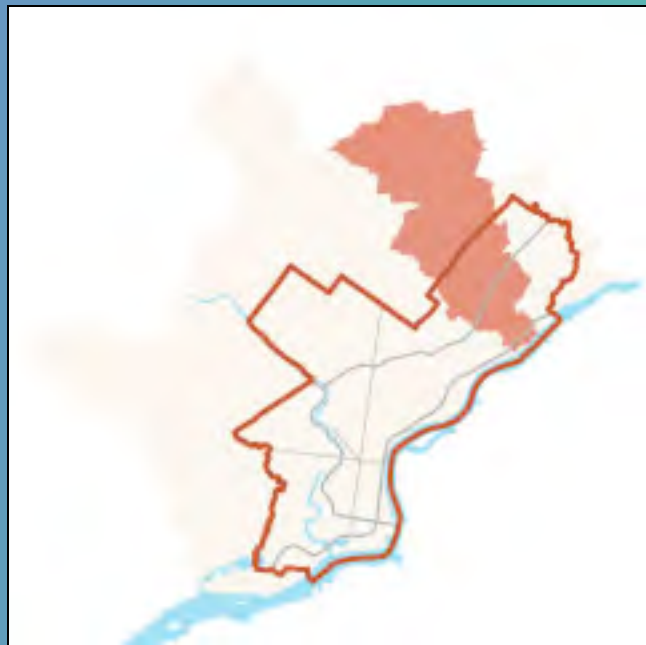
2. Will the logo on medications and in-store help people to recall instructions on proper disposal?

3. Does this pilot result in behavior change?

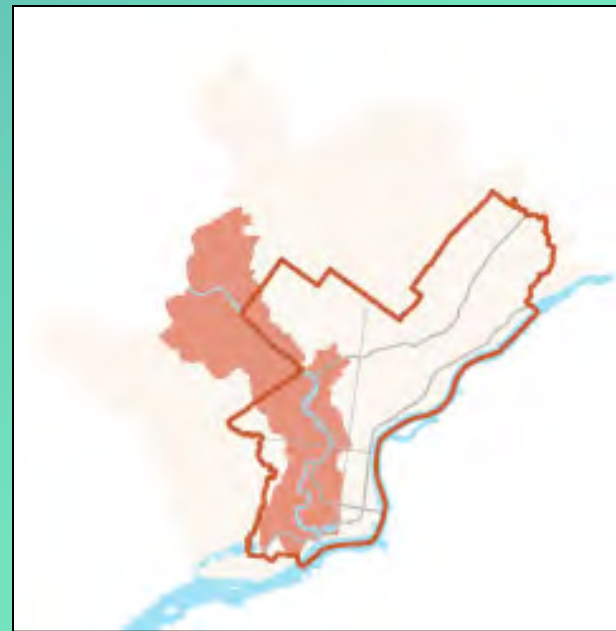


Watersheds

Pennypack
Northeast
Philadelphia



Schuylkill
Roxborough
& Norristown



Pilot Design

1



2



3



Results of Green Sticker Pharmacy Pilots



**271 Pre-Implementation Surveys
completed**

**151 Post-Implementation Surveys
completed
(currently conducting final
surveys in Norristown, PA)**




**Authors' Note: Full results removed
from this presentation for web posting.**

DEA Collection



Got Drugs?



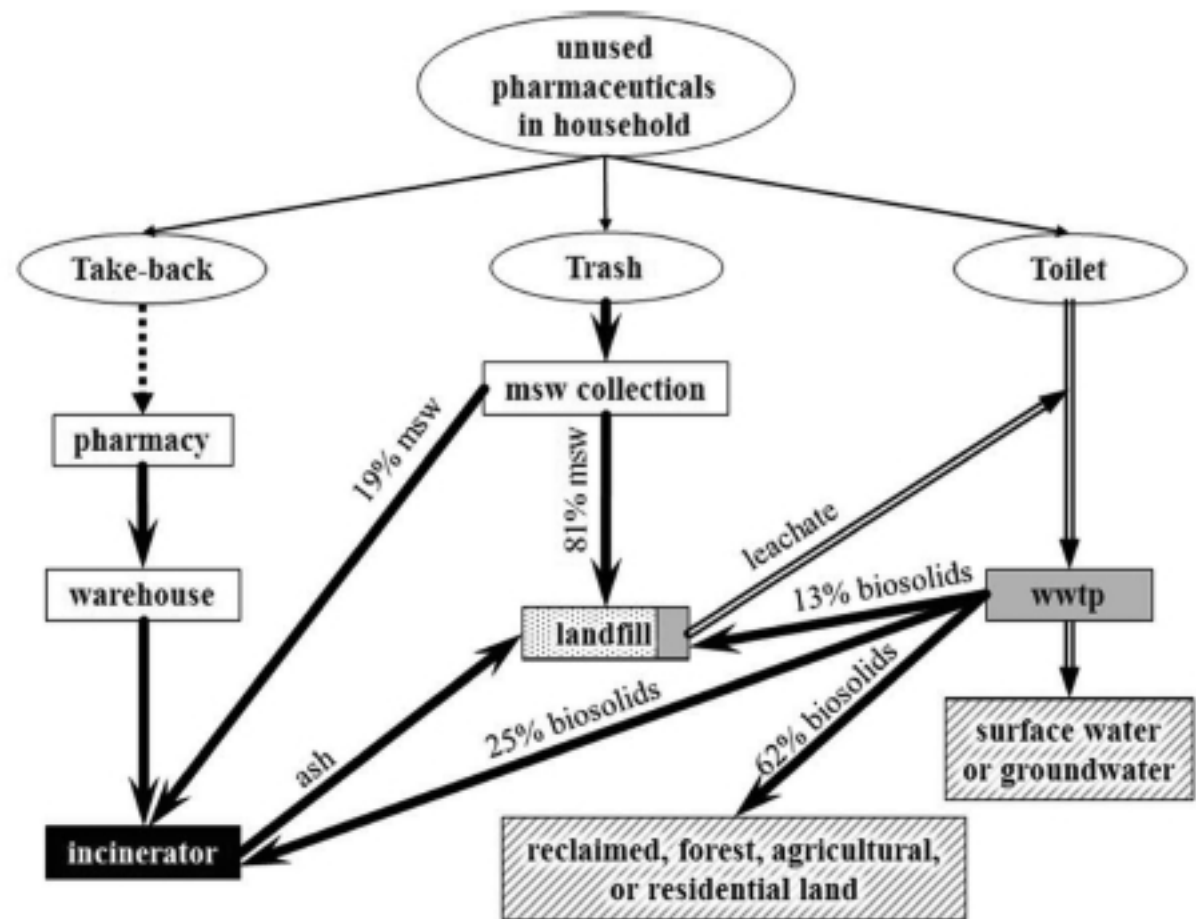
NATIONAL TAKE-BACK INITIATIVE

**Upcoming Take-Back Day — April 27, 2013
(10:00AM - 2:00PM)**

The graphic features the text 'Got Drugs?' in blue and red. To the right is an image of a blue pill with 'dispose' written on it, a white pill with 'unused Rx' written on it, and a yellow pill with 'DEA' written on it. Below the text are two horizontal red lines.

*Many law enforcement groups
participate*

University of Michigan Study



Transportation Key

- personal vehicle
- semi-trailer truck
- sewer system

API Fate Key

- rendered inert
- retained
- biotransformed
- emitted to environment

With thanks & gratitude... Partners

Philadelphia Partnership for Pharmaceutical Pollution Prevention (P5) is a collaboration among government, non-profit organizations, and academia to use research for implementing better practices in pharmaceutical waste management.



With thanks & gratitude... Students & Interns

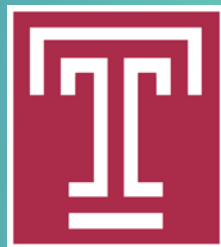
Arcadia University

Drexel University

Temple University

Thomas Jefferson University

University of the Sciences in Philadelphia





Mission is to promote social responsibility by protecting the health of people, the environment and communities through education, training, direct service, & advocacy

Environmental Health Programs:



Info@PSRphila.org

With thanks & gratitude... Financial Support



Water Resources Education Network
a program of the LWVPA Citizen Education Fund

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