

Connecticut Department of Consumer Protection Prescription Monitoring Program



Collection and Proper Disposal of Unwanted and Expired Medications

March 4, 2009



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Rx for Safe Disposal: Why now?

Pharmacy professionals have begun to take notice of the growing concern over the proper disposal of unwanted and expired pharmaceuticals. It is often the task of the pharmacist to advise patients or caregivers on how best to dispose of medications that are no longer needed in the home. This issue has risen to the forefront in recent years because of two distinct areas of concern: contamination of drinking water supplies with pharmaceuticals, and the rise of teen abuse of prescription medications.

Reports of trace amounts of prescription medicines being found in drinking water supplies across the country have spurred public interest in how medications are disposed of. Most people are under the impression that the best and safest way to dispose of unwanted or expired medications is to flush or pour them down the drain. In light of recent discoveries of common medications such as ibuprofen, naproxen, carbamazepine, and sulfamethoxazole in public water sources, it is clear that this practice is in need of review.

Parents of adolescents and teenagers need a safe and consistent means of disposing of unwanted medications. According to the Monitoring the Future Survey 2008 (National Institute on Drug Abuse), 15.4% of 12th graders in the United States report the nonmedical use of prescription drugs within the past year. The most prevalent drugs being used in this way include Vicodin (hydrocodone and acetaminophen), amphetamines, sedatives, tranquilizers, cough medicines, OxyContin (oxycodone), and Ritalin (methylphenidate). Most of the teens reporting use of these medications say that they obtained them from friends or family members, with one-fifth to one-quarter reporting taking them without the permission of said individual. Parents and caregivers need to understand the importance of safeguarding their prescription medications, as well as the magnitude of the situation if these medications are not disposed of properly.

We wish to educate the community about these issues and how best to approach the problem at hand, and have developed a method of medication disposal that provides the community with a safe and free means of properly disposing of their household medications. Programs such as this help to keep drugs out of the water supply and out of the hands of adolescents and teens who may choose to abuse them.

Monitoring the Future Survey, 2008, Overview of Findings and Full Press Release.
NIDA. 11 December 2008. www.drugabuse.gov (accessed 15 December 2008)

Leonig CD. Area tap water has traces of medicines. *Washington Post*. 10 March 2008.
www.washingtonpost.com (accessed 17 March 2008)

**Timeline for the Planning of a Proper Medication Disposal Event
in the State of Connecticut:**



CHECK WHEN
COMPLETE

1. Secure a Location and Date

- Suitable locations include Community Centers, Fire Department buildings, Water Department offices, etc.
- Hold the event on a Saturday or Sunday for best results.
- **NOTE:** Never hold a medication disposal event in the Pharmacy Department.
- Speak with the local Police Chief:
 - Hire a Police Officer for the day of the event (8 hours; \$400)
 - Ask if he/she will be willing to take control of the unwanted controlled substances until the next business day. These medications need to be kept in a sealed container until a drug control agent can pick it up the next business day.

2. Notify Board of Pharmacy Agent

- Call Gerry DeStefano, Senior Drug Control Agent
Drug Control Division
CT Department of Consumer Protection
(860) 713-6065
- Request Mr. DeStefano to arrange attendance by Drug Control at the medication disposal event if local Police will not take possession of controlled medications overnight.
- The proposal for the event will be placed on the agenda for the following month's Commission of Pharmacy meeting.

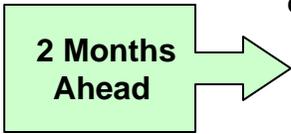
3. Hire a Waste Disposal Company

- Arrange to have the company deliver the containers needed for medication collection the day before the event, or request that they arrive at least 2 hours before the start of the event (approximately \$2000).

United Industrial Services
14 West Main Street
P.O. Box 902
Meriden, CT 06450
1 (203) 238-6745
1 (888) 276-0887

Clean Harbors
761 Middle Street
Bristol CT 06010
1 (860) 583-8917

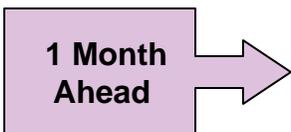
CHECK WHEN COMPLETE



1.

Plan and Begin Advertising

- Generally, the more advertising you do, the better the response will be; the community must be aware of the date, location, and purpose of the event.
- Advertise to your target audience:
 - elderly members of the community;
 - households with children; and
 - anyone who has more than 1 medication at home.
- Examples of advertising strategies:
 - Prepare a press release for local radio, TV and newspapers (see Appendix for a sample press release);
 - Send informational letters to local senior citizen and community centers;
 - Post fliers in local town halls and senior citizen and community centers (see Appendix for a sample flier);
 - Print fliers to be included as an insert in area newspapers; and
 - Request recognition on local environmental groups' websites and/or within their newsletters.



1.

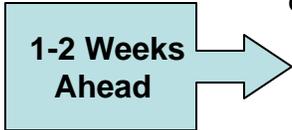
Recruit Volunteers

- Determine how many pharmacy personnel the event will need and request participation of local professionals.
- Determine how many non-pharmacy personnel the event will need and recruit volunteers.
- Refer to pages 2-4 of the Rx for Safe Disposal summary document for details on volunteer requirements.

2. Verify Police Involvement

- Call the local Police Chief to verify that a Police Officer is scheduled to attend the event.

CHECK WHEN COMPLETE



1. Purchase and Gather Supplies

Equipment & Supplies:

- 6ft. Tables (at least 6)
- Folding chairs (at least 10)
- 3 Extension cords
- 2 Trash barrels
- Trash bags
- Pens and sharpie markers (1 box each)
- 3 laptops
- 1 printer
- 1 Kirby counting machine
- Table clothes
- 2 Counting trays
- 2 Spatulas
- 2 boxes surgical gloves
- 2 bottles of hand sanitizer
- Confidential trash bags



1. Site Set-up

- Refer to pages 1-2 and Appendix of the Rx for Safe Disposal summary document for details on set-up.

2. Meet Waste Disposal Company

- Collection containers should be delivered to the site the day prior to the event, or the waste disposal company should arrive at the venue at least 2 hours before the event is to begin.
- Set up one large drum (50 gal) for collection of non-controlled medications, and one small bucket (10-20 gal) for collection of controlled substances.

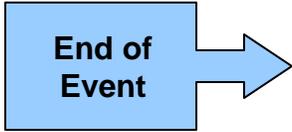
3. Assign Tasks to Volunteers

- Brief entire staff on the workflow for the event and the tasks that each work station will complete.
- Assign volunteers to work stations and review tasks and responsibilities with each station.

4. Inventory Controlled Substances

- As controlled substances are collected, each must be inventoried and listed (see Appendix for sample inventory sheet and pages 4-5 of summary document for instructions).

CHECK WHEN
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1. Sign Controlled Substances Inventory Sheets

- The controlled substances inventory sheets must be signed by the pharmacist responsible for the inventory, as well as the individual taking possession of the medications at the end of the day. This individual may be a Drug Control Agent or a Police Officer.

2. Secure all Medication Awaiting Disposal

- Verify that all non-controlled substances are secured in disposal containers by the disposal company at the end of the event.
- Secure all controlled substances as per state and federal requirements. Controlled substances should be sealed in a collection bucket or tote (using zip-ties or other method) before being removed from the event by either the Drug Control Agent or Police Officer.
- An arrangement should be made in advance wherein a Drug Control Agent will pick up and take custody of the controlled substance container(s) at the police department on the Monday following the weekend collection. The list of controlled substances collected should also be available for the agent.

Sample: Previous Event

The following is an example of the conclusions drawn from a previously held event.

Rx for safe disposal *Clinton, Connecticut*

Hosted By: Connecticut Water Company

Event Coordinators: Cindy Gaudino
Connecticut Water Company
93 West Main Street
Clinton CT 06413

Corinne Ewing, PharmD, RPh
Community Practice Resident 2008-09

Collection Site: Connecticut Water Company
93 West Main Street
Clinton CT 06413

Collection Date/Time: Saturday, 20 Sept. 2008, 10AM – 2PM

Collection Site Set-up:

The event was conducted and organized by the Connecticut Water Company's property, both outside and in a secure building. Participants were directed to stay in their vehicles, stop in a designated area to complete a survey, and then continue on to the Medication Drop Off area. Runners were utilized to take delivery of medications from the participants in each vehicle to prevent public access to the unwanted medication disposal area. The participants were next directed to continue driving through the property and back out onto West Main Street.

The design of this event offered several advantages over the traditional walk-in design:

1. Participants never exited their vehicles, making the concern about medications being "shared" or exchanged between participants much less significant.
2. Elderly or disabled participants did not need to park their vehicles and walk to the event, which provided an easier and more secure environment for these individuals.
3. Surveys were administered verbally, providing a fast and efficient means of acquiring demographic information about participants.

If weather or space does not permit a future collection event to be set up similarly, an indoor site can be used instead. To follow a similar design, there should be ample parking close to the entrance to the event. Instead of directing traffic, volunteers may be utilized to direct participants to enter the event through one designated door, form a line, and stop to provide survey data (if a survey is being conducted) before handing off medications to be destroyed. If the Event Coordinator chooses to conduct a survey, volunteers should administer the short survey verbally to encourage participation, and then ask participants to proceed to the Medication Drop Off area.

Unwanted medication collection events should NEVER be conducted within the pharmacy department. The risk of unwanted medications being mistakenly mixed into the pharmacy's medication stock is too great to warrant the use of this space for a collection event.

Enough space is required so that medications can be sorted and identified at several tables. The area in which an event is to be held should not be readily accessible to the public. The medication sorting and identification area can be kept separate from the Medication Drop Off area simply by using tables, temporary walls, or curtains as room dividers. A police officer **must** be present (and should be visible to the public, if possible) at all times to maintain the safety of the volunteers and the security of the medications being collected.

For more details on the design and set-up of the Clinton CT site, see the Site Diagram provided in the Appendix of this document.

Medication Disposal:

A reputable hazardous waste disposal company should be used to dispose of all OTC and non-controlled prescription medications collected at an event. Collection drums in several different sizes can be delivered prior to the event and picked up immediately following the collection, or the hazardous waste disposal company may choose to attend the entire event and remove the containers as soon as the event concludes. Several small (10-20 gallon) buckets should be provided to use for the smaller volume of controlled medications that will be collected.

Several medication collections have been conducted in the State of Connecticut using two extremely professional and reputable disposal companies. The use of either company for future collections is highly recommended:

United Industrial Services

14 West Main Street
P.O. Box 902
Meriden, CT 06450
1 (203) 238-6745
1 (888) 276-0887

Clean Harbors Environmental Services

761 Middle Street
Bristol CT 06010
1 (860) 583-8917

Volunteers and Workflow:

Throughout the day, 32 volunteers worked at the event. Volunteers included Connecticut Water Company staff members, pharmacy technicians, interns, and pharmacists, as well as Event Coordinators. Most volunteers helped out for 2 to 3 hours shifts, while others arrived early to help with set-up and stayed for the entire 4 hour event. Due to the public's interest in this event, as well as the large effort made towards advertising, the Event Coordinators anticipated a large turnout, and requested enough volunteers to meet the demand. Smaller events may require only a few volunteers. The only positions that are **absolutely mandatory** are: one Controlled Substance Quantifier (Registered Pharmacist) and one Police Officer. Additional positions can be utilized as the Event Coordinator sees fit.

For the event, several tables (see Appendix for Site Diagram) were set up for specific tasks to be preformed, and each volunteer had a specific job to complete.

Following this procedure allowed the Event Coordinators to assign volunteers to tasks that they were best suited to perform, and allowed for the event to run very smoothly.

The following is a brief description of each volunteer task and required responsibilities:

- 1. Traffic Director:** 1 or 2 volunteers (Non-pharmacy personnel and/or Police Officer)
-This individual will stand by the entrance to the property to direct traffic (either cars or individuals on-foot).
- 2. Survey Administrator*:** 1 volunteer (Non-pharmacy personnel)
-This volunteer will administer the survey (several brief questions) to each visitor as they stop at a designated area leading to the drop-off area. The survey will be administered orally to each visitor and maintained by this volunteer during the event.
*This position is not mandatory, and is only needed if the Event Coordinator chooses to conduct a survey.
- 3. Medication Runners:** 2 volunteers (Pharmacy or non-pharmacy personnel)
-**Runner #1:** This volunteer will take delivery of medications to be disposed of from each visitor and hand them to Runner #2 inside the collection area.
-**Runner #2:** This volunteer will stand behind a table located directly inside the collection area and receive the medications to be disposed of from Runner #1. This volunteer will hand these medications to the Medication Sorters.
- 4. Medication Sorters:** 2 or more volunteers (Pharmacy and/or non-pharmacy personnel)
-These volunteers will take delivery of medications from the Runners, and sort them (based on labeling) into controls and non-controls, crossing out or removing all personal identifiers on medication labels. These volunteers will sit at a table inside the collection area in an area not directly visible to visitors of the event (to maintain the safety of the volunteers and medications).
-These volunteers will give all sorted medications to the Medication Identifiers and Controlled Substance Identifiers.
- 5. Medication Identifiers:** 2 or more volunteers (Pharmacy personnel)
-These volunteers will receive the medications to be disposed of from the Medication Sorters. These volunteers will sit at a table inside the collection area in an area not directly visible to visitors of the event (to maintain the safety of the volunteers and medications).
-Identification of the medications to be disposed of will follow several steps:

Step 1: The Medication Identifiers will inspect the prescription medications to make sure vials contain what is on their labels. They will also double check that they have not received any controlled medications, and if any are found, they will hand them to the Controlled Substance Identifiers.

Step 2: The Identifier will inform the Documenter of the identity of the medication and dispose of it in the container provided by the hazardous waste disposal company.

- 6. Medication Documenters:** 2 or more volunteers (Pharmacy personnel)
 - These volunteers will sit beside the Identifiers, and will each require a laptop to maintain data during the event.
 - These volunteers will receive information about the identity of OTC and non-controlled prescription medications to be disposed of directly from one or both of the Medication Identifiers. These volunteers will enter the information into a Microsoft Excel spreadsheet and maintain the data during the event.

- 7. Controlled Substance Quantifiers:** 1 or 2 volunteers (Registered Pharmacists)
 - These volunteers will sit at a table inside the collection area in an area not directly visible to visitors of the event (to maintain the safety of the volunteers and medications), and in an area where the Police Officer and/or Drug Control Official can observe the controlled substances at all times.
 - These volunteers will receive all medications identified as controlled prescription medications from the Sorters and Identifiers. They will determine the identity of the medication, *count the medication*, and enter this information into the spreadsheet log. These medications will then be disposed of in the containers provided by the hazardous waste disposal company designated for controls only.

- 8. Police Officers:**
 - A local Police Officer **MUST** oversee the collection of controlled substances during the event.
 - If necessary, a second Police Officer may be needed to help direct traffic outside the event.

- 9. Drug Control Agent:**
 - A Connecticut Division of Drug Control Agent will oversee the collection of controlled substances at the event. All controlled substances collected will pass immediately into the possession of this agent, to be transported to a secure location and destroyed at a later date.
 - If a Drug Control Agent is not available, speak with the local Police Chief to see if a Police Officer will take possession of the controlled substances collected and arrange for them to be transferred into the custody of the Drug Control Agent at a later time.

Medication Identification:

Most medications that will be collected will arrive in original containers with original labeling. Controlled medications and any non-controls that are not labeled will need to be identified prior to disposal. Several resources are available to accomplish this, and are accessible via the internet or for download onto a PDA. These resources require the shape, color, and imprint of each tablet or capsule to be entered into the database. The program then provides a list of possible matches with descriptions, drug names, and photographs of the drug in question.

Clinical Pharmacology
www.clinicalpharmacology.com

FirstDataBank/AHFS
www.firstdatabank.com

Ident-A-Drug Reference*
www.therapeuticresearch.com
*Also available in print format.

Data Collection:

Non-controlled and OTC medications do not legally need to be counted or logged prior to disposal. The Event Coordinator of Rx for safe disposal in Clinton CT chose to use a Microsoft Excel spreadsheet to log the identity of each non-controlled and OTC medication collected in order to obtain data on which types of medications were dropped off. In future collection events, this process will be at the discretion of the Event Coordinator.

Identification and quantification of ALL controlled medications collected is required by the Connecticut Commissioner of Pharmacy. A registered pharmacist should identify the medication, count each tablet, capsule, or milliliter, and enter this information into a Microsoft Excel spreadsheet before placing the container of medication in the disposal container. At the conclusion of the event, this spreadsheet will need to be printed and signed by both a Registered Pharmacist and either the Drug Control Agent or Police Officer who will be taking possession of the medications. If a Drug Control Agent is not available to attend the event, accommodations should be arranged ahead of time to ensure that the controlled substances are transferred from police custody into the custody of the agent following the collection event.

Survey:

Administration of a short survey during a collection event allows Event Coordinators to quantify how many individuals attended the event, what towns they traveled from, etc. Conducting a survey is not mandatory and the results do not need to be reported to any state or local agency.

A survey was administered to each participant as they entered the Clinton CT collection event. Participants were advised to stay in their cars and drive through a delineated area on the Connecticut Water Company's property. Volunteers were stationed at the first stop (see Appendix for Site Diagram) to administer the survey verbally to each participant. 100% of participants arriving in vehicles provided survey information. Approximately 15 participants arrived either by foot, or were participating in the event as volunteers, and did not provide survey information.

A brief summary of survey data is provided below:

1. What town are you from?

- A total of 19 communities were represented, with the majority of participants identifying themselves as residents of either Clinton or Madison (35% and 22%, respectively).

Table 1: Participant demographics.

Town	Percent of Total Participants
Clinton	35%
Madison	22%
Westbrook	10%
Killingworth	7%
Guilford	6%
Old Saybrook	5%
Essex	3%
Deep River	2%
Old Lyme	2%
Avon	<1%
Beacon Falls	<1%
Branford	<1%
Chester	<1%
Colchester	<1%
East Haddam	<1%
East Hampton	<1%
Haddam	<1%
Ivoryton	<1%
Vernon	<1%

2. Are you a Connecticut Water Company customer?

- One-half (50%) of participants identified themselves as customers of the Connecticut Water Company.

Table 2: Customers of the Connecticut Water Company.

CT Water Company Customers	
Yes	50%
No	48%
Unknown	2%

3. What pharmacy do you use to fill prescriptions?

- Customers of three major pharmacy retailers (CVS/pharmacy, Walgreens, and Rite Aid) participated in this event, as well as customers of Wal-Mart, Stop & Shop, and Shaws pharmacies.

Table 3: Pharmacy demographics.

Pharmacy	Percent of Total Participants
CVS/pharmacy	44%
Stop & Shop	17%
Combination (> 1 pharmacy)	11%
Walgreens	10%
Mail order	6%
Rite Aid	4%
Shaws	3%
Wal-Mart	3%
Higganum Drug	<1%
Variety	<1%
Jolly	<1%
Unknown	<1%

4. How did you learn about this event?

- Several strategies were employed to promote the event:
 - Posters (36" x 48") were hung in each of 7 local pharmacies
 - Approximately 100 fliers (printed 8.5" x 11") were included with customers' purchases at the Clinton CVS/pharmacy
 - A press release was created and released by the Connecticut Water Company
 - Fliers were included in 4 local newspapers in the Shoreline Region service area (Shore Publishing)
 - Fliers were posted in shoreline region town halls
 - Letters outlining the details of the event were sent to 7 local senior citizen centers
 - The event was noticed in:
 - Dialogue – customer newsletter that is included with Connecticut Water Company bills
 - In Your Community – newsletter for town officials
 - Consumer Confidence Report – a report on water quality that goes to all Connecticut Water Company customers
 - Advertisements were posted on websites by:
 - Department of Environmental Protection
 - Department of Public Health
 - Several shoreline region towns
 - Partners of the Connecticut Water Company
 - CRERPA handed out fliers to participants who attended a household hazardous waste collection

Table 4: Success of event advertising.

Advertisement	Percent of Total Participants
Newspaper article	43%
Flier (included in newspaper)	20%
Flier (posted)	9%
Other	9%
Combination of above	6%
Word of mouth	5%
Ct water bill insert	4%
Newsletter	2%
Unknown	2%

A similar survey may be used at future collection events to help coordinators determine the demographics of the population participating in the event. The survey should be limited to 3 or 4 short, direct, and easy to answer questions, and should be administered verbally. This process promotes participation and keeps visitors from waiting too long in line to drop off their unwanted medications.

Outcomes:

Approximately 130 individuals participated in the Clinton CT collection event, of which 115 individuals provided survey data. As a result of this 4 hour event, approximately 215 gallons of unwanted or expired medications were collected for disposal. The volume of medications collected was composed of 195 gallons (90.7%) non-controlled medications, and 20 gallons (9.3%) controlled medications.

A log of the identity, but not the quantity, of non-controlled and OTC medications was kept during this collection. Based upon the limited nature of the data collected, the top ten categories of non-controlled medications could be estimated by the number of times each type of item was dropped off.

Top 10 Categories of Non-Controlled Medications Collected:

1. Topical preparations (Rx and OTC)
2. OTC cough & cold products
3. Acetaminophen
4. Ibuprofen
5. Aspirin
6. Diphenhydramine products (including topical)
7. Naproxen
8. Metered-dose inhalers
9. Amoxicillin (including amoxicillin/clavulanate)
10. Thyroid hormone

A complete log of the identity and quantity of each controlled medication must be kept during a collection event. As may be expected, the majority (64.1%) of the total quantity of controlled medications collected at the Clinton CT event were identified as medications used primarily for the treatment of pain. This type of medication is often prescribed for short-term use after surgery, dental procedures, or injuries, and many patients do not use the entirety of the medication before they are feeling better. Medications used for cough suppression also made up a large portion (22.8%) of the total controlled medications collected. Again, this type of prescription medication is usually used short-term, and often is not used up by the time the patient's cough has resolved.

Table 5 provides a summary of the total controlled medications collected broken down by general indication.

Table 5: Percentage of total controlled medications collected by indication.

Indication	Number of Units	Percentage of Total Controls
pain	4256	64.1%
cough suppression	1510	22.8%
ADHD/narcolepsy	414.5	6.2%
sedation/anxiety	371.5	5.6%
diarrhea	48	0.7%
unknown*	35	0.5%
TOTAL:	6635	100%

Table 6 provides a further breakdown of the percentage of total controlled medications collected by active ingredient.

Table 6: Percentage of total controlled medications collected by active ingredient.

Primary Active Ingredient	Number of Units	Percentage of Total Controls
hydrocodone	1661	25%
codeine	1625	24.5%
oxycodone	918	13.8%
morphine	906	13.7%
methylphenadate	327	4.9%
pregabalin	221	3.3%
lorazepam	205.5	3.1%
opium	150	2.3%
propoxyphene	120	1.8%
hydromorphone	99	1.5%
amphetamine salts	87.5	1.3%
diazepam	74	1.1%
fentanyl	66	1%
alprazolam	59	0.9%
diphenoxylate	48	0.7%
unknown*	35	0.5%
clonazepam	23	0.3%
zolpidem	10	0.2%
TOTAL:	6635	100%

*3 ounces of an unidentifiable white powder, as well as 32 tablets of unidentifiable tablets were collected and were included as controlled medications.