Safe Medication Disposal
A white position paper
Pennsylvania Pharmacists Association
February 8, 2009

**Background and Situation Analysis:**
Consumers are rightly confused about what to do with their unwanted medications because they've received conflicting messages from government and environmental sources. Federal guidelines direct consumers which medications to flush and how to properly put others in the trash. But, landfills can leak, potentially causing medications to leach into the soil, and flushing can contaminate waterways. There have been many recent environmental reports of chemical compounds found in our natural water supplies, including trace amounts of medications. All of this has lead to a growing concern about the impact of medication disposal and its effect on the quality of our water supply, aquatic life and, ultimately, human life.

Most medications enter our waterways and water systems in two ways: when they are flushed down the toilet or when people pass the substances through their system. Many medications are only partially metabolized in the human system; the rest are excreted from the body through urine and fecal matter. While wastewater is treated before it is reintroduced to rivers and streams, most treatments do not remove all chemical residues. Many treatment systems have not been updated to include contemporary chemical additives. The Associated Press in March 2008 reported the results of a five-month investigation, which found that the drinking water in 24 major metropolitan areas contained a variety of prescription medicines in minute concentrations. The medications included sex hormones, antibiotics, mood stabilizers, anti-convulsants and many others. The effect on humans is unknown at this time.

Pharmaceuticals and other chemicals also enter the waterways from farms and animal excrement, landfill leaching, manufacturing, and medical waste. Drug disposal and medication waste from hospitals is also a major concern. Factor in the additional medication destruction generated by long term care facilities, clinics, and the like and the problem becomes even broader in scope. Healthcare systems spend thousands of dollars a year trying to safely manage their waste and protect waterways.

Unfortunately, at this point there does not seem to be an easy answer to a problem that impacts everyone. A broad-based solution must be found that addresses the problem from all fronts and takes a multitude of factors into consideration, only some of which will be discussed below.

**Current Practices:**
Patients, families and caregivers often have shelves or medicine cabinets filled with old, outdated, and potentially dangerous medications. If they choose to dispose these medications, they often do so by simply throwing them in the trash or flushing them down the toilet. Throwing them in the trash opens up opportunities for misuse, causes harm to landfills, and creates the potential for poisoning of children, pets, and wild animals. Flushing them down toilets or drains harms our waterways. Some people will take these medications to their pharmacy and ask the pharmacist to dispose of them. When possible, a pharmacist may agree to do so in order to ease a patient’s burden or prevent a potentially dangerous situation for a
patient’s family (i.e. the presence of small children in the home, or an elderly patient who is easily confused). They then typically dispose of them according to the recommendations outlined below. Despite warnings to the contrary, many people consider it appropriate to give their medications to another person. This is an extremely dangerous proposition for a variety of reasons: lack of verification of proper storage, medications “switched” into another prescription container, and most importantly, no professional oversight that the medications being shared are even safe and relevant to the recipient’s current health condition.

For many years, the U.S. Food and Drug Administration has been advising people to throw away their extra medications in the trash and to mix them with non-desirable substances such as coffee grounds or kitty litter to avoid drug diversion and to flush certain other medications down the toilet. A copy of their recommendation guidelines can be found at: http://www.papharmacists.com/Federal%20Guidelines-Medication%20Disposal.pdf

Recently, the Pharmaceutical Research and Manufacturers of America (PhRMA) signed a formal agreement to partner with American Pharmacists Association (APhA) and the U.S. Fish and Wildlife Service (FWS) in a program designed to help protect the country's fish and aquatic resources. SMARxT DISPOSAL is a consumer awareness–heightening program that highlights the environmental threat posed by medications that are disposed of improperly, with the key message being "crush, don't flush." More information on that program is available at http://www.smarxtdisposal.net/

There does not appear to be a single answer to this growing problem of safe medication disposal and it is important to consider several key points when formulating any policy in this area.

**Consideration – Sources**

As mentioned above, contaminated water is the end result of a multitude of sources. Left-over, old medications are only one factor. Solutions must address all the other sources of contamination as well.

**Consideration - Avoiding Drug Diversion**

One significant area of concern regarding the safe disposal of unused prescription medications is the risk of drug diversion and abuse. Drug diversion can occur in a variety of ways. Medications may easily be diverted and misused if simply discarded in trash receptacles with household waste. This method of drug disposal is clearly not appropriate for a variety of reasons, such as the potential for children, waste management employees, passersby, or other individuals to obtain access to the medication from the trash can.

Alternative medication disposal methods need to be carefully evaluated for their potential to allow drug diversion. Though preferable to simply “throwing drugs in the trash can,” bringing medications back to the pharmacy still poses drug diversion risks. The established supply chain for prescription medications was designed, in part, to avoid the risk of drug diversion. There are checks and balances in place to ensure that prescription medications are transported safely from the pharmaceutical manufacturer to the wholesaler to the pharmacy to the patient. Pharmacies do have a method of returning expired medications; but this comes with a price-tag and may not eliminate drug diversion concerns.
Consideration – Method and Cost
One way to dispose of medications permanently is to incinerate them, although appropriate facilities and extremely high temperatures are needed. There is a relatively high cost to this. Incineration also causes harm to the environment by fouling air quality.

Consideration - Current Law and Public Perception
A pharmacy, by law, cannot accept back medications for redistribution. However, it is possible that the public could believe redistribution is occurring if the pharmacy becomes the collection point for unused medications. Costly systems and separate storage and removal mechanisms would have to be in place that would keep new and returned medication inventories separated.

Pennsylvania Pharmacy Act Section 5(a)(9)
“The following acts on the part of a pharmacist are hereby declared to constitute grossly unprofessional conduct of a pharmacist… the acceptance back and redistribution of any unused drug, or a part thereof, after it has left the premises of any pharmacy, whether issued by mistake or otherwise, unless it is in the original sealed container with the name, lot number and expiration date on the original intact manufacturer’s label. The pharmacy shall maintain records of all such returns, and a full refund shall be given to the original purchaser, including a third-party payor.”

Consideration - Controlled Substance Act
This Act currently restricts consumers from delivering narcotics to anyone other than law enforcement agencies and most police departments are (not?) prepared to accept these unused medications. Pharmacies may not take these medications back. Disposing of narcotics is even more complicated because of the increased potential of abuse and diversion. The DEA would need to change their interpretations of current law or the law must be amended.

Consideration – Format
Many people initially think only of prescription medications when discussing safe medication disposal. Many over-the-counter (OTC) medications are also contributing factors in waterway problems and must also be included in the solution. Also not all medication, prescription or OTC, comes in a tablet or capsule form. There are liquids as well. How are they to be handled?

Consideration – Privacy
Under current HIPAA law, one must be careful with the handling of private health information. There would need to be careful consideration given to the disposal process, as this private health information is protected and must not be available for anyone to see. Conversely, simply allowing or encouraging the public to throw away prescription containers, with their personal identification on the label, is creating undue risk for an unsuspecting public.

Some Recommended Solutions
1) Nationwide, a commitment must be made to find resources to fund major initiatives to resolve this problem in a multitude of ways. All of the following items involve substantial investment to accomplish.

Page 3 of 5
Adopted February 8, 2009
2) Some physicians and other prescribers may need education and information to avoid wasteful prescribing.

3) Insurers need to reconsider processes that foster the dispensing of larger than necessary prescription medication quantities (e.g. mandatory 90 day mail order supplies). Stories abound of patients accumulating large quantities of unused medications secondary to a change in therapy, etc. This scenario only heightens the concern about medication safety and disposal.

4) Waste water plants need to update their operations and begin processing the chemicals not currently removed from the water supply.

5) Other sources of chemical contamination (e.g. farm waste, pesticides, fertilizers, livestock hormones and antibodies) need to be addressed. It is short-sighted to think that human prescription medication waste is the sole source of concern.

6) A safe method for handling controlled substance returns must be found which alleviates concerns about abuse and diversion. Federal law or its interpretation needs to be changed to permit this. The DEA must be required to address this issue in a way that simplifies the process; encouraging the legitimate return of controlled substances to the proper entities. Safeguards against diversion and abuse are to be expected but cannot create undue burden on law enforcement and/or the pharmacist.

7) Communities, through state mandates to the county level, must be called upon to set up collection and disposal systems. This might be accomplished through various collection points and/or specific days and dates. Currently, there are programs for hazardous waster, needle collection, tires, and other items, which might be replicated in some way. Many programs also look for funding from the producer of the product. Any community collection program can only be effectively done if solution point seven is addressed.

8) Pharmacies may elect to be collection points as long as other additional methods are also identified and there is a plan for regular and safe collection from the pharmacy by the community. Some communities are providing large metal locked boxes for use at pharmacy collection points. This can only be effectively done if solution point seven is addressed, allowing people to dump any and all prescription and/or OTC medications into the secure collection container.

9) Incineration appears to be the most logical form for permanent removal. Additional points of incineration and increased efficiencies in this method may need to be developed.

10) Public education regarding the problem of medication disposal and the various options to address it needs to happen. As solutions are developed they must be effectively communicated and promoted to the public. One avenue for this would be that plans for collection and return as well as disposal could potentially be distributed through pharmacies on a voluntary basis.

The issues of medication disposal is a vast and complex one. There does not seem to be one easy answer and many organizations and federal and state agencies all have very different
perspectives based on their framework of concern. It appears that the best thing that can be done at this time is to acknowledge the issue, engage in ongoing discussions among all stakeholders, work towards solutions while avoiding unintended consequences, and encourage public awareness. Any solution must be accessible, affordable, sustainable, replicable, and environmentally sound.