

# Unused and Expired Drugs: A Patient Safety & Public Health Epidemic in the Making

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## ABSTRACT

Unused and expired medications in the U.S. and other countries exact an incredible toll on patient safety and public health. In the U.S., an estimated minimum of \$1 billion of prescription drugs are thrown away each year. Increasing availability, marketing, and purchase of prescription and over-the-counter pharmaceutical products, coupled with the tendency of patients to stockpile drugs at home, is a unique phenomenon that has long been ignored. Compounding this problem is that no state or federal program exists to safely collect unwanted drugs and dispose of them properly, except through reverse distributors and only for large healthcare institutions.

Many significant problems are associated with unused and expired drugs in the home. While medication errors are commonly studied in hospital settings, few studies investigate patient safety related to medications after the patient is discharged. Elderly patients, who use the most prescription drugs, must deal with cumbersome lists of drugs, dosages, and time schedules. Drugs often are left unsecured in cabinets and on counters. Improper use of drugs may cause an overdose and drug interactions. Accidental poisoning from ingestion of drugs among children and pets often occurs in homes where medicine is easily accessible. About 40% of poisoning among children occurs in grandparents' homes. Drug diversion, involving theft, burglary, illegal possession, and drug abuse, is a major crime in households where narcotics are present. All are a significant patient safety problem of epidemic proportion. Furthermore, the disposable of unwanted drugs as household trash or by flushing them down the sink or toilet is unwise and dangerous to the environment, potentially contaminating the water supply.

The Main Benzodiazepine Study Group, Northeast Occupational Exchange, and CRG Medical Foundation for Patient Safety have assumed the leadership to study the problem of unused and expired medicine. Using the new concept and methodology of Community of Competence™, this study group, consisting of many experts from numerous professions located in different states and countries, convenes monthly to discuss this universal problem and develop solutions. One solution was to establish the *Unused Medicine Registry* to collect information about any drugs that should be removed from the home. This study presents the methods, data collection instruments, and preliminary results from several community-based drug return programs to safely collect and transfer the unused and expired drugs from the patient's home to the proper authorities for approved destruction.

Preliminary analyses of *Registry* data show unique patterns of frequently unused medications, including those that are federally controlled. In one community in Maine, approximately 40% of the prescription drugs were returned unused by the patients. *Antidepressants* were the most commonly unused drugs. In another community in Maine, an estimate cash value of the returned drugs was calculated at more than \$67,000, from a collection involving 106 individuals who returned more than 1200 drugs. Average time of storage at home is 2-3 years; some drugs were kept up to 10 years.

Medicine should be taken by patients as prescribed by doctors in order to maximize therapeutic benefits. Otherwise, when patients stop taking them, it becomes a medical compliance issue, as well as a tremendous financial cost. Stockpiling unused and expired drugs beyond expiration

is a patient safety problem. Indiscriminately disposing of these drugs creates an environmental hazard with potential long-term consequences. Results from one Canadian study showed that *antibiotics* and *anti-infectives* were the most commonly unused and discarded drugs, which promote multiple-resistant bacteria when they are introduced into the ground water.

Presently, no systematic program exists to collect and destroy patients' unwanted drugs. Patients cannot return dispensed drugs back to the first registrants--physicians and pharmacists. The *Unused Medicine Registry* is a first step to collecting the data for understanding the magnitude of the problem. Data from the *Registry* will be used to design better community-based collection programs to remove unwanted drugs from the home and safely destroy them. An immediate and far-reaching application of the *Registry* data is to improve international donations of needed drugs as humanitarian aids in preparation for or during the aftermath of a natural catastrophe, such as the tsunami in Indonesia and the recent earthquake in Pakistan. Other research and solutions applications of data are being considered.

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