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Where and how should I properly dispose of my prescription medication?

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ABSTRACT

The usage of prescription (Rx) and over-the-counter medications (OTC) has surged in recent decades due to their accessibility, expanding social approval, heightened recognition of their efficacy in addressing issues, and the perception that they are secure, particularly among the youth. A recent study indicates that the water supply throughout the nation is polluted with small amounts of medicines that harm the environment and human health. Improper disposal methods, such as flushing medicines down the toilet or drain, are a significant cause of drug compounds being found in the aquatic environment. While medicine is crucial in controlling health issues, the proper disposal of prescription pharmaceuticals has become a significant public health issue. The inappropriate disposal of prescriptions may result in environmental contamination, unintentional poisoning, and abuse, highlighting the need to dispose of drugs appropriately. This article examines the rationales for proper disposal, suggested techniques, and the consequences of carelessness in this domain.

Key words: Drug take-back, unused drugs, environmental pollution, patient education.

INTRODUCTION

The World Health Organization deems drug use to be rational when administered correctly, in dosages that align with individual needs, and for sufficient durations. Nevertheless, it is prevalent for individuals to utilize medication irregularly and inconsistently. [1] Additionally, there are several reasons why drugs are prescribed, administered, or marketed incorrectly. [2] Due to various factors, most customers often find themselves with leftover medicines at some point.

A significant number of individuals acknowledge storing unwanted or expired drugs in their households. [3] Two primary factors drive this practice. The first factor is inertia: it requires effort to dispose of anything but no exertion to leave it in its current position. A second consideration is our inherent tendency to retain anything that may have future use, especially if obtaining it again would be cumbersome or costly.

Patients may perceive that if a drug had a beneficial effect in the past, it may potentially have a similar effect once again. Analgesics serve as an exemplary illustration in this context since individuals often tend to address pain as it emerges promptly. Opioids are usually administered in excessive amounts, even for discomfort that lasts for a short duration. Research conducted on 212 individuals who had dermatologic surgery revealed that 33% of them were administered painkillers. Just 41% of the pills that were given out were utilized, with 86% of the patients failing to take all the recommended prescriptions.

Additionally, over 50% of these patients expressed their intention to retain the unused medications. [4] Another such example is the improper use of antibiotics. A comprehensive analysis revealed that over 33% of patients failed to adhere to the recommended antibiotic regimen, and over 25% of patients used leftover medications for treating new illnesses. [5] A cause of specific worry is the inappropriate and excessive use of prescription analgesics, sometimes known as opioids, which ranked as the second most frequently cited substance, as reported by the National Institute on Drug Abuse. According to a survey commissioned by the Substance Abuse

and Mental Health Services Administration (SAMHSA), there were about 9.9 million individuals aged 12 and above who misused prescription pain relievers in 2018. In comparison, 808,000 individuals used heroin during the same year. According to the research, individuals aged 12 or above who abused painkillers obtained them from acquaintances or family members. Some received them at no cost (39%), others purchased the medicines (10%), and others took them without permission (3%). Indications imply that a significant number of medications that enter the general population are obtained unlawfully from individuals who were first prescribed the drug for a valid medical reason. [6]

In January 2014, a report published in Environmental Pollution brought renewed public attention to a long-standing issue: the presence of pharmaceuticals in the water system, which has been the research subject for many years. [7]Evidence indicates that a significant number of Americans use water that contains small amounts of medicinal substances. Extensive testing undertaken by state and federal organizations has shown that the drinking water supplies of at least 46 million Americans contain various medications, including anticonvulsants, mood stabilizers, hormones, and antibiotics. [8]Disposing of medications by flushing them down the toilet or in drains allows chemicals to flow through the sewage system and contaminate our streams, lakes, and rivers. [8]

The presence of unused prescriptions in households has been a growing problem due to the potential for accidental overdose, the unauthorized distribution or sale of prescription drugs, and its impact on environmental safety. According to the American Association of Poison Control Centers (AAPCC), the total incidence of poison exposures reported to AAPCCs in 2019 was 643 per 100,000 individuals. Among these cases, children aged five years or less constituted 42.8%. [9]

Ways for disposing of medication

By utilizing a medicine disposal site, one can most effectively eliminate unused medications.

The U.S. Drug Enforcement Administration (DEA) regularly organizes National Prescription Drug Take-Back endeavors. Prescription medicines may be safely disposed of in temporary collection locations established in communities. Additionally, several regions have established permanent locations. Access the official DEA website to locate a disposal facility close to your location.

Figure 1: Drug disposal options by the Food and Drug Administration

Some medications, like opioids, may be particularly hazardous if used improperly or unintentionally. If no take-back option is available, the U.S. Food and Drug Administration (FDA) advises promptly disposing of them by flushing them down the toilet. Refer to the drug label or the patient information leaflet accompanying the medicine for guidance on proper disposal methods. Additionally, the FDA maintains a compilation of medications that should be disposed of via flushing in cases where a take-back program is inaccessible (referred to as the "flush list")

Remember, don't flush your medicine unless it is on the flush list.

Table 1: Drugs that are Safe to Flush or Pour Down the Drain

Drugs that are safe to Flush or Pour Down the Drain
Acting lozenges (fentanyi citrate)
Avinza capsules (morphine sulfate)
Baraclude tablets (entecavir)
Daytrana transdermat patch (methylphenidate)
Demerol tablets (meperidine HCI)
Duragesic transdernal system (Fentanyi)
Fentora tablets (fentanyi buccal)
OxyContin tablets (oxycodone)
Percocet tablets (oxycodone and acetaminophen)
Reyataz capsules (ataznavir sulfate)
Tequuin tablets (gentifloxacin)
Xyrem oral solution (sodium oxybate)
Zerit for oral solution (stavudine)

Source [10]

For medicines that are not included in the list, regardless of whether they are restricted substances, the SMARXT DISPOSAL alliance recommends disposing of unwanted drugs by placing them in the household garbage, following a set of recommended steps:

Step a) Transfer the medicine into a plastic bag that can be securely closed. If the drug is solid, such as a pill or liquid capsule, it should be crushed or dissolved in water.

b) Mix kitty litter, sawdust, coffee grounds (or anything else that may be mixed with the medicine to reduce its attractiveness to cats and youngsters) into the plastic bag. c) Securely close the plastic bag and dispose of it in the garbage.

d) Before recycling or disposing of drug containers, it is essential to eliminate and obliterate all identifiable personal information, such as prescription labels.

The objective is to deter other adults, children, and domesticated or wild animals from directly ingesting the medicines discarded in the garbage. It is important to note that the coalition advises anyone inquiring about these processes to seek guidance from a pharmacist. [10]

Syringe Disposal

Presently, there are over 21 million individuals in the United States who have been officially diagnosed with diabetes. Approximately 30% of diabetic individuals use insulin to regulate their glucose levels in the comfort of their homes [11]. Annually, about 2 billion needles and syringes are used by individuals who self-administer injections, mainly for the management of diabetes. [12]

Proper sharps disposal is a universally accepted and essential procedure in healthcare institutions. Nevertheless, the issue of disposing of sharps in the community and its potential health consequences is often overlooked. Consequently, many lancets, needles, and syringes are being improperly discarded, which puts patients, their families, and other individuals who come into contact with them in an avoidable danger of needle-stick injuries. Costello and Parikh [13] conducted a study in the United States and found that a mere 16% of patients received education on appropriate disposal from a healthcare professional. However, the study did not specify the type of healthcare professional. beaw et al. [14] found that previous guidance on the proper disposal of sharps has been shown to substantially enhance the rate of appropriate sharps disposal [14]. Prior formal training in disposal procedures was significantly correlated with better rates of proper disposal practices. This indicates that placing

more focus on educating healthcare providers and patients may result in considerable improvements in good disposal habits.

Role of pharmacist

Pharmacists have a crucial responsibility in ensuring the safe disposal of leftover medications, which significantly benefits public health and environmental safety. Due to their competence and accessibility, they are highly regarded as vital tools for educating patients and aiding the safe disposal of drugs. Pharmacists may assist in several ways:

Patient Education

Increasing Awareness: Pharmacists can educate patients about the hazards linked to incorrect pharmaceutical disposal and the significance of securely disposing of them.

Instructions that give precise guidance on the safe disposal of medications may be provided. This includes specifying which pills can be flushed, which ones should be brought to a take-back program, and how to dispose of drugs in the household garbage in a manner that reduces possible risk.

Disposal Programs Take-Back Services: Numerous pharmacies engage in drug take-back programs or organize events in partnership with local law enforcement or health authorities. Pharmacists may provide patients with guidance on how to make use of these services.

Pharmacies have implemented drug disposal kiosks that allow patients to discard their unneeded or expired drugs conveniently and anonymously. Pharmacists can guide patients to these kiosks and explain their functioning to them.

Mail-Back Programs: Pharmacists may provide information regarding mail-back programs to patients who have difficulty accessing take-back sites or kiosks. These programs enable patients to return unneeded drugs securely by mail.

Engagement with the community and implementation of public health programs

Pharmacists can arrange or participate in community education initiatives focused on properly disposing of pharmaceuticals. This may help reach those who only sometimes visit pharmacies.

Engaging in collaboration with local organizations, such as environmental groups, public health organizations, and local government agencies, may enhance the dissemination of information on safe drug disposal and expand the accessibility of disposal choices.

Policy Advocacy: Pharmacists, utilizing their professional associations, can campaign for policies that facilitate and enhance medication disposal for all individuals. This includes advocating for legislation that promotes the growth of take-back programs and environmental conservation.

CONCLUSION

Ensuring proper medication disposal is of the utmost importance to prevent drug abuse, safeguard the environment, and promote community health. By adhering to appropriate disposal protocols, individuals can protect against the accidental acquisition of medications and prevent environmental damage. To dispose of unused or expired medications, pharmacies, community take-back programs, and specialized disposal kiosks provide secure and convenient alternatives. In addition, specific medications can be disposed of securely within one's residence when alternative methods are unavailable; however, caution must be exercised to avoid potential damage to aquatic ecosystems and wildlife. All individuals must possess knowledge regarding and assume accountability for the proper disposal of their medications, as this combined endeavor substantially enhances the safety and well-being of the community. By increasing awareness and promoting education, individuals can reduce risks associated with unsafe medication disposal.

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