Where Does This Used Needle Go?

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Abstract

Many patients do not know how they should dispose of their used sharps. It is not uncommon for patients to see their pharmacist on a monthly basis to pick up their medications and their syringes. Pharmacists are in a unique position to provide information regarding syringe disposal. When patients obtain syringes, the pharmacist should speak with them about how to dispose of syringes after use. The United States Environmental Protection Agency has guidelines for sharps disposal, including several options available to patients; however, these may not be familiar to pharmacists or patients. This article provides a discussion of various methods of used sharps disposal.

Objectives:

(1) Discuss the importance of proper disposal and list the problems of current disposal methods.
(2) Identify individuals in the community who are at increased risk for accidental needlesticks.
(3) Compare and contrast the different options available for disposal and recommend an option for a patient.

Approximately 9 million syringe users will administer 3 billion injections each year for home health treatments such as diabetes, allergies, infertility treatments, arthritis, migraines, etc.[1] In addition, between 900 million and 1.68 billion insulin injections and up to 1 billion illegal drug injections occur each year in the United States.[2] With this many injections every year, where do the used sharps go?

Needlestick injuries (NSIs) continue to be a serious problem in our society today, both in healthcare and non-health care settings. Injuries from contaminated sharps present a potential risk of contracting blood-borne pathogens, including HIV, hepatitis B and hepatitis C.[3] According to data from the Centers for Disease Control and Prevention (CDC), approximately 385,000 NSIs are experienced by hospital-based healthcare personnel.[4] Healthcare providers typically realize that NSIs occur and that every precaution should be taken to avoid them. Consequently, the Occupational Safety and Health Administration (OSHA) published the Bloodborne Pathogen Standards to protect workers in health care settings.[5] Those same precautions are important to patients in the community and the public at large.

Needles have been found in many inappropriate locations, including trashcans, parks, playgrounds, and on sidewalks, while others are being flushed down the toilet.[2] Two factors that contribute to these practices are a lack of knowledge about disposal guidelines and a lack of available sharps containers in public places.[6] Furthermore, there are a number of potential consequences associated with improper used sharps disposal in the community.

Inappropriate disposal increases the risk of NSIs. The pain from the injury is topped by the uncertainty of the risk for transmission of bloodborne pathogens. The risk in the community from these medical wastes is real.[7] Under-reporting of community based incidents is inevitable, but incidents have been reported. A case of hepatitis C virus transmission by NSI in the community has been described.[8] The individual experienced an accidental NSI in a park and had negative seroconversion for hepatitis B or C on the day of injury. Follow up tests after three months were positive, suggesting that hepatitis C can be transmitted by accidental NSI.[8] Some used needles are flushed down the toilet[2] potentially causing accidental needlesticks for utility workers.

The risk of NSI among workers, both health professionals and non-health professionals, in healthcare facilities has been previously studied.[9,10] Outside of healthcare facilities, those groups at increased risk of experiencing an accidental NSI include sanitation workers, custodial staff, housekeepers, and law enforcement personnel.[2,11] Workers may have an accidental NSI but never report it for fear of getting into trouble or thinking it was their fault. While under-reporting is known to be a challenge,[10] studies suggest that larger numbers of people from different walks of life such as children, adults, and non-health care workers in the community have had injuries as a result of exposure to discarded sharps in public places.[11]

Previous recommendations by the Environmental Protection Agency (EPA) stated that used sharps should be placed in a hard, puncture-resistant container, such as a fabric softener container. When the container was full, the cap was to be closed tightly and securely taped, with “DO NOT RECYCLE” written on the container to prevent it from being sent to a recycling plant.[12] Even if all of these guidelines were followed, several issues could still arise. The containers could be sent to recycling plants inadvertently despite appropriate labeling, or the “DO NOT RECYCLE” message could rub off resulting in recycling. This could lead to an increase in NSIs occurring in recycling facility workers. Additionally, containers with used sharps could break open in garbage trucks, placing waste management workers at risk for accidental NSIs.[1]

As of 2004, the EPA recommends one of five options for disposal of used sharps: drop boxes/supervised collection sites, mail-back programs, syringe/needle exchange programs, at-home syringe destruction devices, and special waste pick-up.[2] The potential advantages and disadvantages of each method are discussed in Table 1. Additionally, Table 2 provides some resources that may be useful in helping patients find appropriate disposal solutions.

Drop Boxes/Supervised Collection Sites

Drop boxes/supervised collection sites are locations where full used sharps containers are accepted for disposal. The locations may include doctors’ offices, hospitals, health clinics, pharmacies, health departments, community organizations, police and fire stations, and

medical waste facilities.[13] Some states where this service is available include California, Florida, Michigan, New York, Rhode Island, and Wisconsin.[13-17] One such program in San Francisco, California, is funded as part of the community garbage collection rate. Residents can pick up a free sharps container at a specific location, and once it is full, the container can be returned to the same location designated by the recycling company, SF Recycling & Disposal Incorporated.[18]

Mail-Back Programs

Mail-back programs are designed to meet specific mailing and labeling requirements in order to ship used sharps via the United States Postal Service (USPS) to an organization for disposal. This option is particularly useful for individuals in rural communities or those who do not have any other disposal options.[1] However, the cost varies from $25 to $45 and even more for larger containers. Some examples of mail-back programs include options provided by Sharps Compliance Corporation , Medasend, Waste Management, and Stericycle.

Syringe/Needle Exchange Programs (SEPs)

The North America Syringe Exchange Network (http://www.nasen.org/) allows users of syringes/needles to exchange used needles for new needles. Funding for these programs often comes from the state or local government, and they are usually run by community organizations.[19] This option for disposal is available in California, Illinois, Massachusetts, Michigan, Minnesota, New York, North Carolina, Ohio, Oregon, Pennsylvania, and Washington.

At-Home Needle Destruction Devices

At-home needle destruction devices destroy used needles to make them safe for disposal. The devices destroy needles by either snipping or breaking the needle (e.g., the BD Safe-Clip™ device by Becton, Dickinson, and Company) or melting the sharp/needle into a non-hazardous pellet (e.g., the Disintegrator® by American Scientific Resources or the NeedleZap® by E Med Future).[13]

If a device is used to clip or break the needle, the device must itself also be disposed by using one of the five options listed by the EPA to prevent an accidental NSI. A case report of a woman who utilized a needle clipping device underscores this fact. The report describes a woman with diabetes mellitus who was experiencing neuropathy in her feet. Upon examination, her healthcare providers found that needles from 2 clipped syringes were embedded in her foot.[20]

Special Waste Pick-Up

Special waste pick-up allows patients to place full sharps containers at the curbside for collection. Participants must set up the service individually for their home. The used sharps are treated as medical waste and will be collected by employees specifically trained in hazardous waste handling. This service may not be available in all areas so more investigation into your specific locality's sanitation company or the locality's government website is required before this option can be recommended to patients. This disposal service may be paid for by the patient or supplemented by the local government. A service of this type is available in Salem, Virginia.[21]

Although recommendations by the EPA provide guidance[22], state regulations do not consistently mirror them. For instance, Virginia regulations state that sharps should be placed in opaque, puncture-resistant containers. Once full, the lid should be securely taped onto the container and placed in a trashcan. These regulations do not specifically address any of the other options recommended by the EPA.[23] Since each locality can specify how sharps should be handled, it is important to find out what special procedures are required and what is available in each area. More information can be obtained through state laws and regulations or by contacting the local waste management authority.

Table 1. Advantages and Disadvantages

Feature	*Drop Boxes/ Supervised Collection Sites*	*Mail-Back Programs*	*Syringe/ Needle Exchange Programs*	*At-Home Needle Destruction Devices*	*Special Waste Pick-up*
Prevents sharps being introduced into the solid waste disposal system	Yes	Yes	Yes	No	Yes
Convenience of sites to all consumers	No	Yes	No	Yes	Yes
Availability to most consumers	No	Yes	No	Yes	No
Costs supported by local government or community organizations	No	No	Yes	No	In some areas
Cost of the program to the consumer	Low	High	Moderate	Low (clipping devices) Moderate-High (destruction devices)	Moderate
Privacy for the consumer	No	Yes	No	Yes	Yes

Conclusion

Each year, millions of patients in the United States administer medications via injections at home. The majority of these needles are discarded into the public solid waste system or improperly discarded. This poses a risk of injury. Needlestick injuries in the community are underreported thus the implications to public health underestimated. Monitoring mechanisms are not thorough and reporting compliance is low.

Collaboration is needed between the government, community, hospitals and the research community to address and monitor the problem more effectively. The Coalition of Safe Community Needle Disposal is working with the EPA to increase awareness efforts. Current recommendations by the EPA for disposal include drop boxes/supervised collection sites, mail-back programs, syringe/needle exchange programs, at-home needle destruction devices, and resident special waste pick-up.

As a pharmacist, it is important to learn more about what your state or locality offers and talk with your patients about the options available for safe disposal. It is important to talk with patients about their options and find the one that fits them the best

Table 2. Resources

Resources	Website
Organizations	
United States Environmental Protection Agency (EPA)	http://www.epa.gov/osw/nonhaz/industrial/medical/disposal.htm
Center for Disease Control and Prevention (CDC)	http://www.cdc.gov/needledisposal/index.htm
Coalition of Safe Community Needle Disposal	http://www.safeneedledisposal.org/
International Sharps Injury Prevention Society	http://www.isips.org/
Syringe mail-back programs	
Waste Management	http://www.wm.com/products-and-services/residential-other-waste-solutions/syringe-collection.jsp
Sharps Compliance Corporation	http://www.sharpsinc.com/disposal_mail_product_page.htm
Stericycle	http://www.stericycle.com/consumer-needle-disposal.html
Medasend	http://www.medasend.com/
Syringe destruction devices	
Disentegrator®	http://www.disintegratorplus.com/
NeedleZap®	http://www.needlezap.com/index.html
BD Safe-Clip™ Device	http://www.bd.com/us/diabetes/page.aspx?cat=7002&id=7416

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FDA launches website on safe disposal of used needles and other "sharps"

Improperly disposed sharps pose public health risks

The U.S. Food and Drug Administration today launched a new website (http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/HomeHealthandConsumer/ConsumerProducts/Sharps/ucm20025647.htm) for patients and caregivers on the safe disposal of needles and other so-called "sharps" that are used at home, at work and while traveling.

The website will help people understand the public health risks created by improperly disposing of used sharps and how users should safely dispose of them.

"Safe disposal of used needles and other sharps is a public health priority," said Jeffrey Shuren, M.D., director of the FDA's Center for Devices and Radiological Health. "This website provides information about how to keep used sharps from ending up in places where they could harm people."