

Training Health Workers in the Management of Sharps Waste

Resources

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1. Annotated Bibliography

PATH. *Giving Safe Injections: Using Auto-Disable Syringes for Immunization* Seattle. 2001.

English: http://www.path.org/files/SI_Giving_Safe_Injections_complete.pdf

Russian: http://www.path.org/files/SI_Giving_Safe_Injections_Russian.pdf

French: http://www.childrensvaccine.org/files/Giving_Safe_Inj_Fr.pdf

This manual is designed to give injection providers a foundation in providing injections that are safe for the recipient, health worker, and the community. It discusses how health workers can unknowingly spread diseases through contaminated injections, it reviews the safe selection and reconstitution of vaccines, it covers how to arrange work stations and syringe disposal to prevent needlestick injuries, and it introduces the autodisable syringe.

PATH. *A Planning Guide for Medical Waste Management*. Seattle. 2004.

Email info@path.org to obtain a copy.

This document is designed help health workers plan sharps waste disposal systems. The guide details critical planning steps including mapping the district, reviewing sharps collection options, reviewing options for disposal, assigning disposal systems, and creating a district planning guide to calculate needs and plan implementation.

PATH. *Proper Handling and Disposal of Auto-Disable Syringes and Safety Boxes*. Seattle. 2002.

http://www.childrensvaccine.org/files/AD_and_Safety_Box_Disposal.pdf

This module is a training resource to increase the safety of immunization injection equipment handling and disposal at health posts and hospitals in the developing world. It is specially designed to be easy to adapt for specific country programs. The primary audiences for this module are health workers who regularly give childhood vaccinations, their supervisors, and clinic and hospital managers.

PATH. *Developing Health and Family Planning Materials for Low-Literate Audiences: A Guide*. Seattle. 1996.

http://www.path.org/files/DC_Low_Literacy_Guide.pdf

This manual offers guidelines for developing health and family planning support materials for illiterate and low-literate groups worldwide, using materials development techniques that rely heavily on the involvement of the target audience, such as focus group discussions and in-depth interviews.

Prüss A, Townend WK. *Teachers Guide: Management of wastes from health-care activities*. WHO. Geneva. 1998.

http://whqlibdoc.who.int/hq/1998/WHO_EOS_98.6.pdf

The *Teacher's Guide* complements the WHO publication *Management of wastes from health-care activities* (Geneva, 1999). The course outlined in the *Teacher's Guide* is designed to raise awareness on public health and environmental hazards associated with improper health care waste management and to enable course participants to develop training programs that will incorporate sound waste management practices and technologies into individualized waste management plans for their health care establishments.

WHO. “First do no harm”, *Introducing auto-disable syringes and ensuring injection safety in immunization systems of developing countries*.

WHO/V&B/02.26. Geneva. 2002.

http://whqlibdoc.who.int/hq/2002/WHO_V&B_02.26.pdf

This document aims to assist policymakers and program managers in planning the introduction of AD syringes as part of a comprehensive national policy and plan of action to improve injection safety, both for routine immunization and for mass campaigns.

WHO. *Management of Solid Health-Care Waste at Primary Health-Care Centres, A Decision-Making Guide*. WHO/PHE/IVB/04/ Geneva. 2005.

<http://whqlibdoc.who.int/publications/2005/9241592745.pdf>

This document provides guidance for selecting the most appropriate method for safely managing solid waste generated at primary health care centers in developing countries. It includes six decision trees aimed at assisting the user in identifying appropriate waste management methods. This guide may also be used to evaluate existing practices related to healthcare waste management. It is intended for staff working in primary healthcare centers and technical staff working in the local, state, or central administration.

WHO. *Managing health care waste disposal: Guidelines on how to construct, use, and maintain a waste disposal unit*. Funded by PATH. Harare. 2005.

Email info@path.org to obtain a copy.

These guidelines focus on specifications, installation, and operation and maintenance procedures of a waste disposal unit, using the De Montfort incinerator. They include a plan for training waste disposal unit operators and an operator's manual that outlines the best practices for disposing of health care waste.

2. Handouts

The following handouts were developed for these training materials. These handouts also appeared in each corresponding module. The CD ROM for this guide includes a catalog of the images that are included in these handouts to facilitate adaptation.

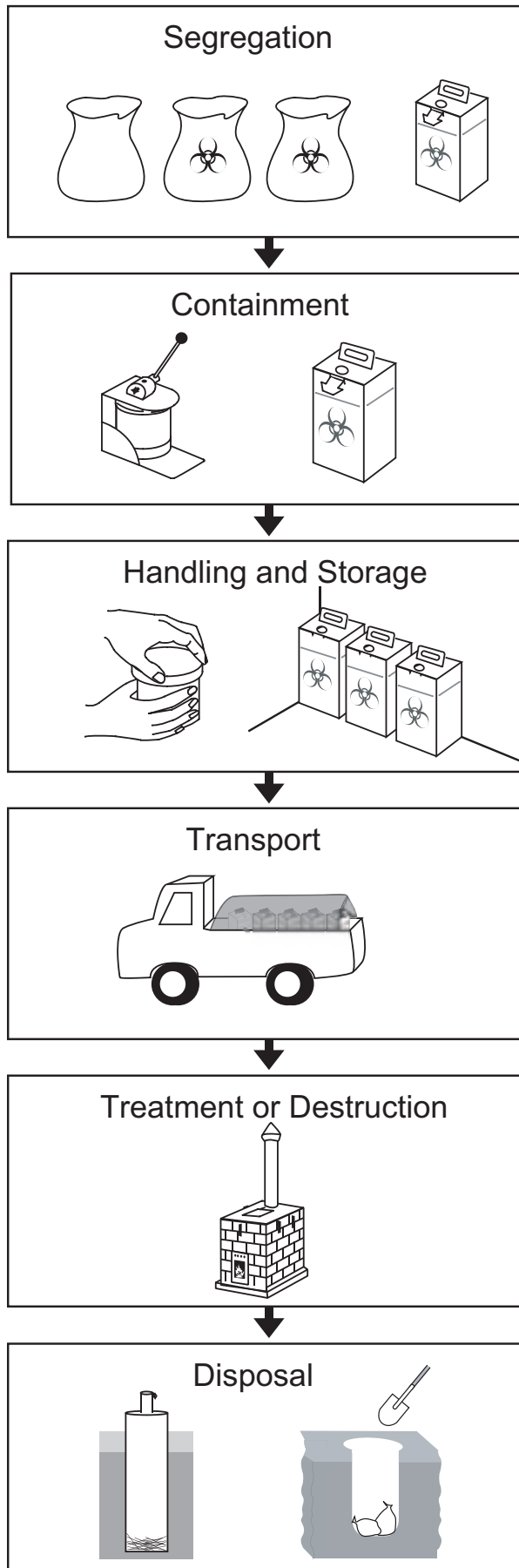
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Resources

Version 1

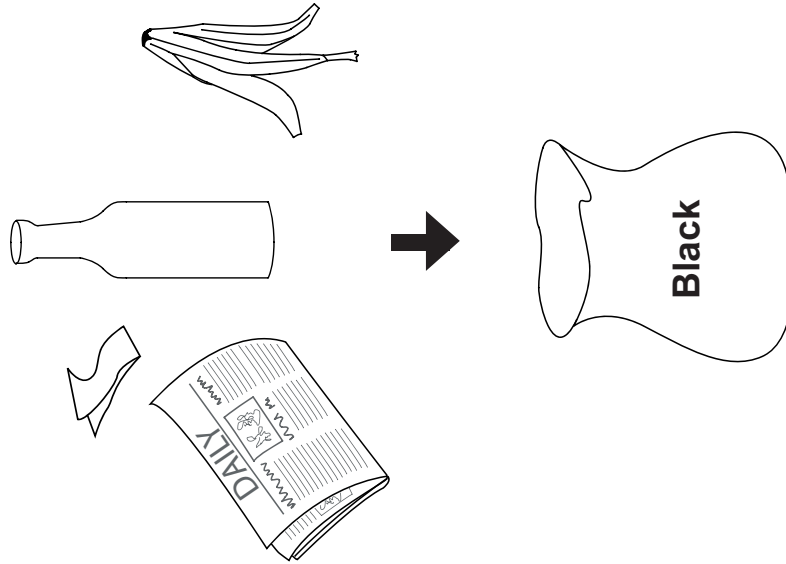
PATH

October 2005



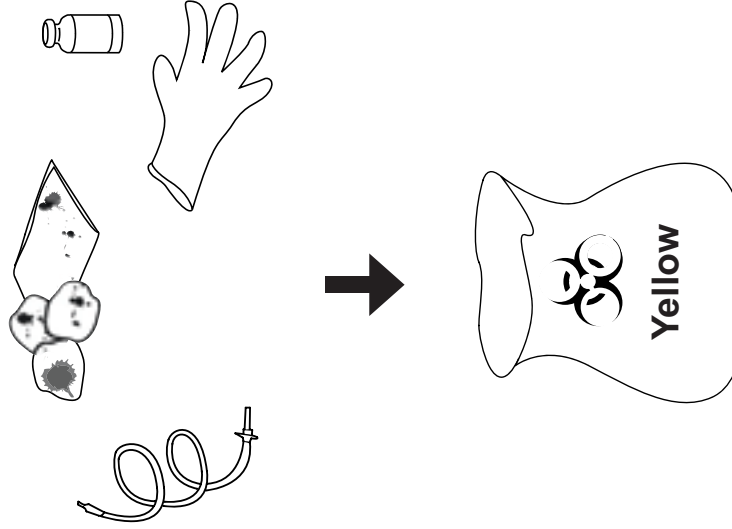
Noninfectious Waste

- Paper/Packaging material
- Bottles/Cans
- Glass
- Food



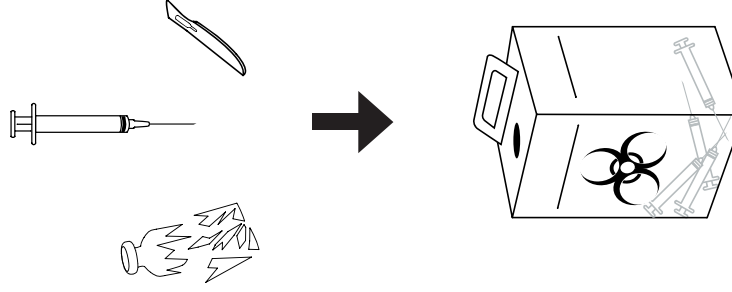
Infectious Waste

- Gauze/Dressing
- Blood/IV fluid lines
- Gloves
- Anatomical waste
- Pharmaceutical waste

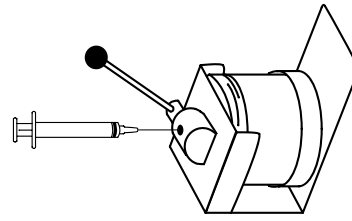


Sharps Waste

- Needles
- Infusion sets
- Scalpels
- Blades
- Broken glass

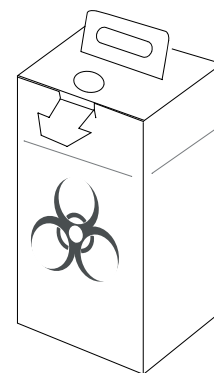


If using a
needle
remover



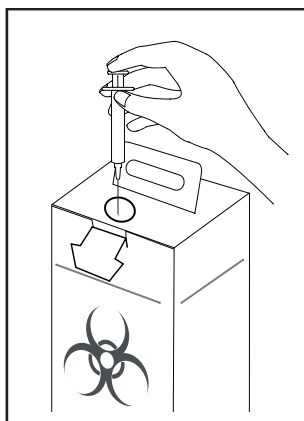
Guidelines for safe use

- Place a safety box at each injection station and within arm's reach of the injection provider.
- Use safety box immediately after injection is given.
- Do not recap syringes.
- Do not save syringes for later removal of needles.
- Do not hold the safety box while inserting needle into the opening.
- Do not overfill the safety box.
- Do not empty or reuse the safety box.

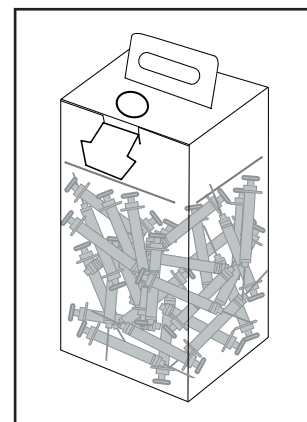


Instructions for use

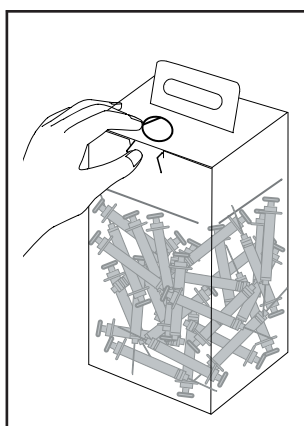
- 1** After injection, insert syringe into safety box.



- 2** When the fill line is reached (3/4 full), do not insert more syringes.



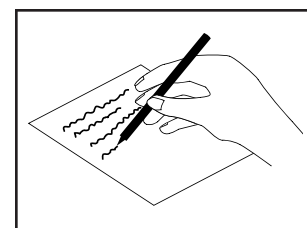
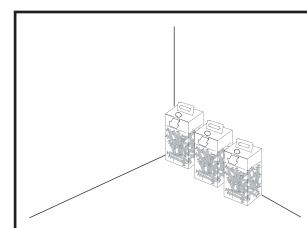
- 3** When safety box is full, close tab to secure box closed.



- 4** Dispose of safety box immediately or store in secure area.

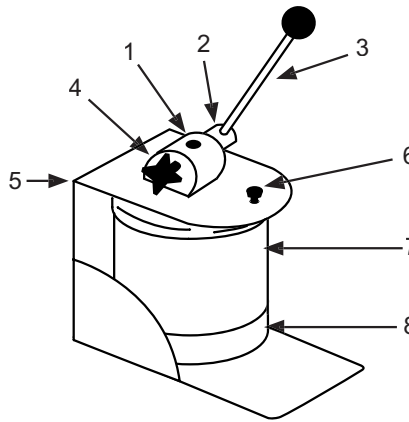
Keep safety box dry.

Keep record of safety boxes filled and destroyed.



Guidelines for safe use

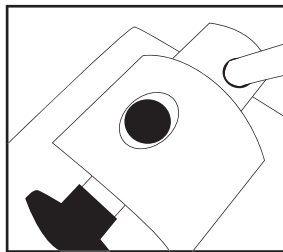
- Place a needle remover at each injection station and within arm's reach of the injection provider.
- Use device immediately after injection is given.
- Do not recap syringes.
- Do not save syringes for later removal of needles.



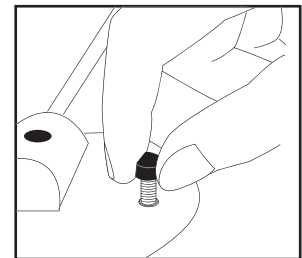
1. Insertion hole
2. Cutting drum
3. Handle
4. Cutting drum retention knob
5. Mount
6. Container retention screw
7. Needle container
8. Container lid

Instructions for use

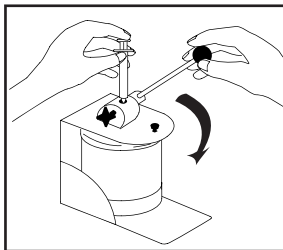
- 1** Move handle so that the insertion hole is fully open.



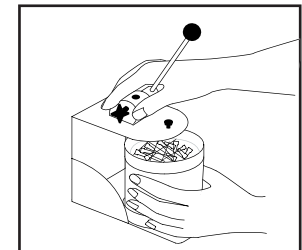
- 5** When container is full, unscrew container retention screw to full up position.



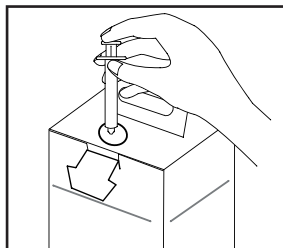
- 2** Insert needle completely into hole and use other hand to push the handle down until cutting is complete.



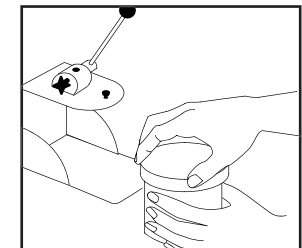
- 6** Squeeze the sides of the container and gently slide out of device mount, taking care not to spill contents.



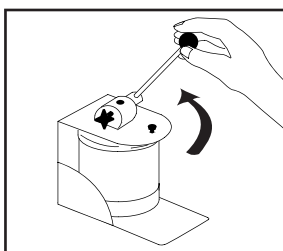
- 3** Place syringe into safety box or infectious waste bag.



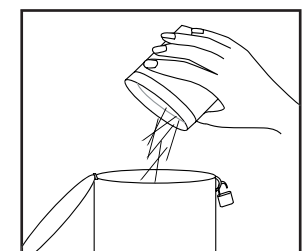
- 7** Immediately place lid on top of container and screw on securely.



- 4** Move handle up to realign insertion hole; detached needle will fall into the needle container.



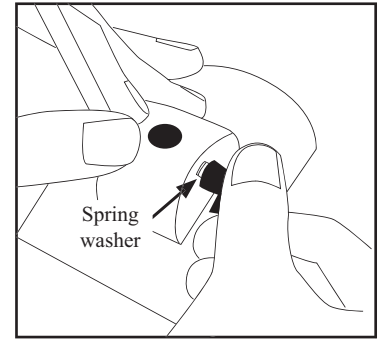
- 8** Empty the container into protected sharps pit.



Using a Needle Remover (continued)

Cleaning device

1. Remove container from device mount and secure with lid.
2. Holding the handle steady, unscrew the cutting drum retention knob. Pull out the drum, taking care not to misplace the spring washer.
3. Clean device with hot water and mild detergent. Do not use bleach.
4. Ensure device is dry and place small amount of oil or Vaseline on the cutting drum.
5. Insert cutting drum into device, place spring washer back on screw, and screw retention knob firmly into position.



Unscrew and remove cutting drum retention knob.

Cleaning container

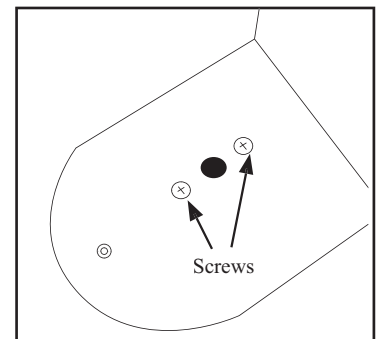
If needles are being emptied into a needle disposal pit, container may be reused after it is cleaned.

1. Clean empty container in a bleach solution.
2. Wash with mild detergent and rinse with hot water.

Rotating blade

The needle remover is expected to last for more than 100,000 uses. If the blade seems to be getting dull after many uses, it can be rotated for another 100,000 uses.

1. Remove container from device and secure with lid.
2. Remove the two screws from the bottom of the device mount that hold the cutting assembly in place. (For easier access to the bottom screws, the mount may be removed from the stand by loosening the two screws at the back of the device.)
3. Rotate the cutting assembly 180°, reattach, and tighten screws.



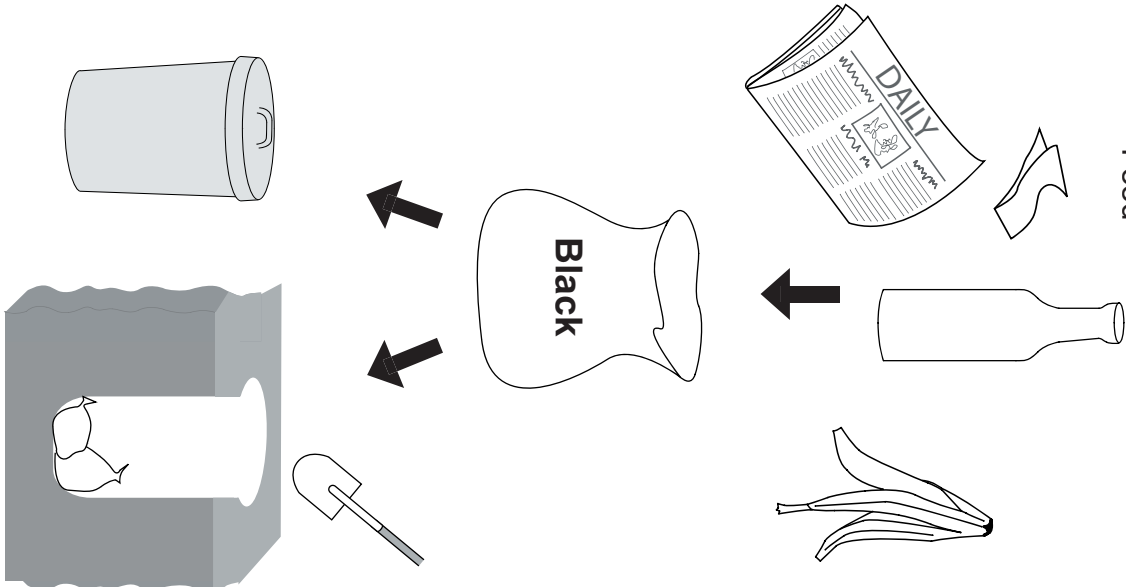
Bottom of mount.

Troubleshooting guide

- ▶ **Loose Handle:** If the handle becomes loose, use a wrench or screw driver to tighten it.
- ▶ **Stiff Handle:** With the handle rotated away from you, apply a small amount of oil or Vaseline on the closed insertion hole. Immediately rotate the handle towards you until it opens and completely closes again. Repeat application of oil or Vaseline. Rotate the handle back and forth several times to spread the oil or Vaseline.

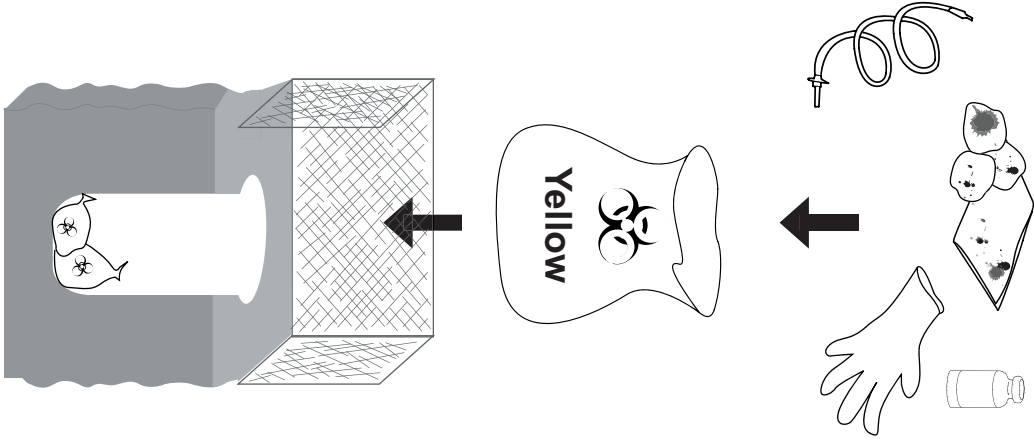
Noninfectious Waste

- Paper/Packaging material
- Bottles/Cans
- Glass
- Food



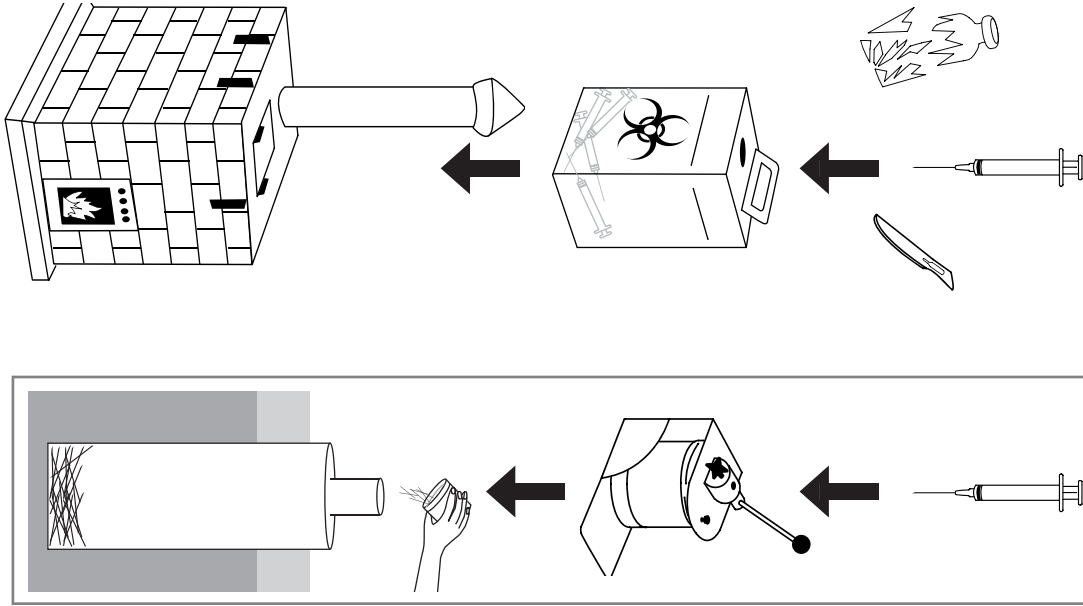
Infectious Waste

- Gauze/Dressing
- Blood/IV fluid liner
- Gloves
- Anatomical waste
- Pharmaceutical waste



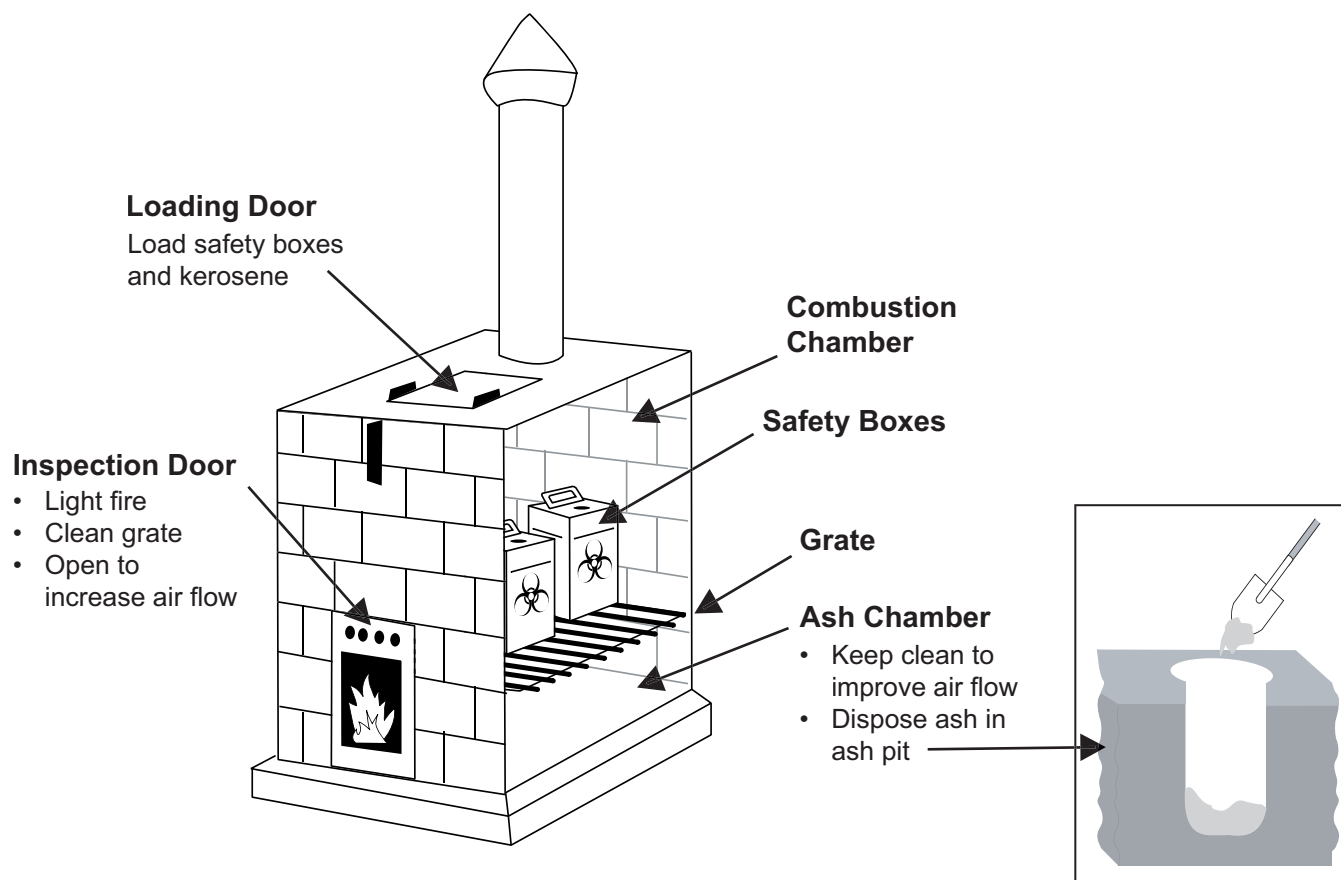
Sharps Waste

- Needles
- Infusion sets
- Scalpels
- Blades
- Broken glass



Operation

1. Remove ash from ash chamber and grate.
2. Load 4 to 8 safety boxes.
3. Pour $\frac{1}{2}$ to 1 liter of kerosene on safety boxes.
4. Light fire through inspection door.
5. Close doors when fire burns hot.
6. Reload additional safety boxes when fire is finished and loading door is cool to touch.

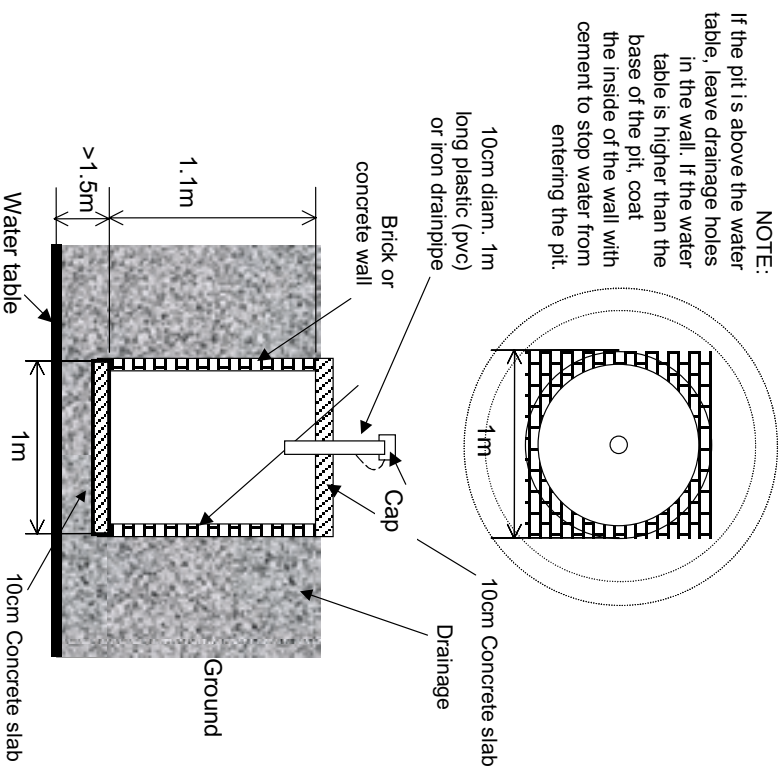


6-Month Maintenance

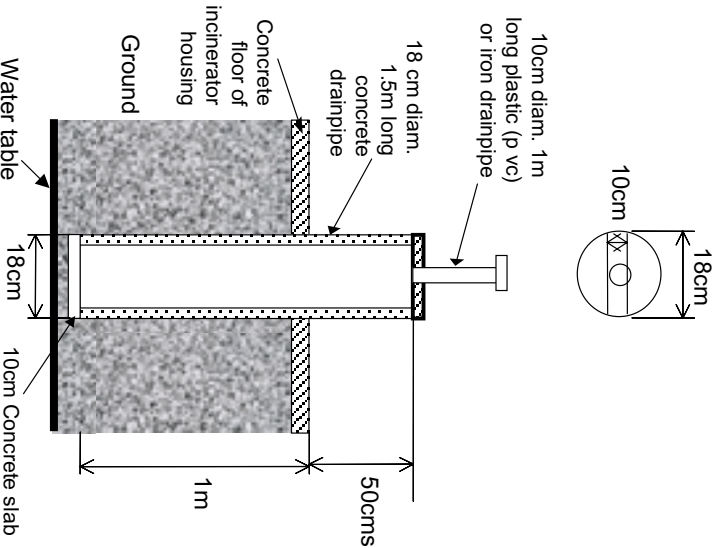
1. Masonry inspection and repair
 - Check for loose bricks and cracks in mortar—interior and exterior—and repair or replace damaged bricks.
2. Metal inspection and repair
 - Check doors, hinges, grate, chimney cap—replace if bent or damaged.
3. Chimney
 - Clean soot from inside of chimney.
4. Site maintenance
 - Clear brush from area around incinerator.
5. Ash pit
 - If ash pit is full, cover and dig new pit.

1. **Identify the appropriate location.** Locate protected sharps pit away from ground water sources.
2. **Identify a builder and purchase the necessary materials.** Follow the design drawings below.
3. **Build the protected sharps pit above the water table.** Consider installing a sharps barrel if the water table is an issue.
4. **Include drainage holes.** Leave drainage holes in the sides of the pit to facilitate drainage.
5. **Build a fence around the sharps pit.** The sharps pit must be fenced and protected to prevent unauthorized access.
6. **Lid should be kept on the needle chute when not in use.** This will prevent water from entering the pit.

Sharps pit (MSF style)



Sharps pit (Indonesian style)

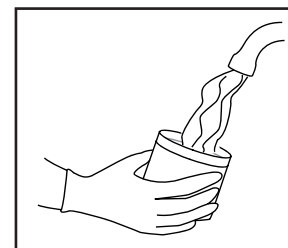
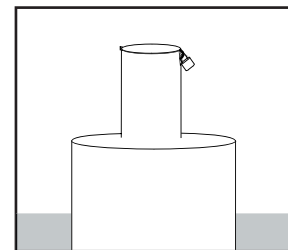
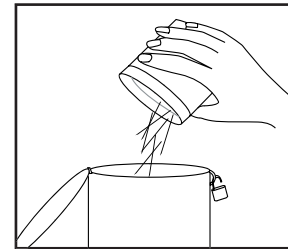
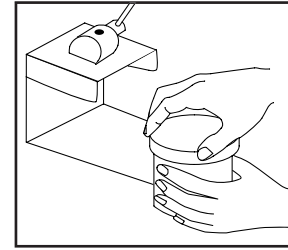


General use for disposal of needles

1. Remove the filled needle container from needle remover and immediately secure lid.
2. Keep the lid on the container when transporting the filled container to the sharps pit.
3. Unlock and lift pit lid.
4. Empty needle containers into pit with care to avoid spilling.

Do not use the sharps pit for any other type of waste.

5. Keep lid closed and locked when not in use.
6. Wearing plastic gloves, clean the container with bleach and hot water before reuse.



Cleaning needle spills

1. Put on protective gloves.
2. Pour bleach solution over needles and allow to sit for 15 minutes.
3. Using a dustpan and broom, carefully brush the needles off the ground and empty them into the sharps pit. Do not allow fingers or hands to come in contact with needles. Take special care to ensure that no needle fragments remain embedded in the broom.
4. After the needles have been removed, cover the area with a bleach solution.

Final disposal

It may take many years to fill the protected sharps pit. The fill level of the pit can be examined by looking directly down into the pit through the pipe. When it is full, the following steps should be followed:

1. Remove the pipe.
2. Fill the pit with cement to safely encapsulate the loose needles.

1. Manufacture a funnel.

Identify a sheet metal manufacturer to make the funnel according to the design drawings below.

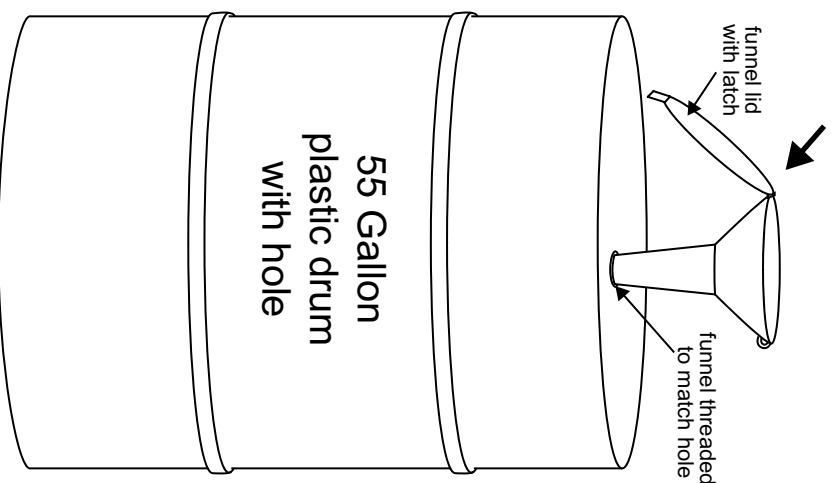
2. Select a barrel and identify an appropriate location.

Barrels should be plastic, as metal barrels could rust over time. Health facility supervisors and waste handlers should decide together on a site for the barrel. It should be dry, secure, and convenient.

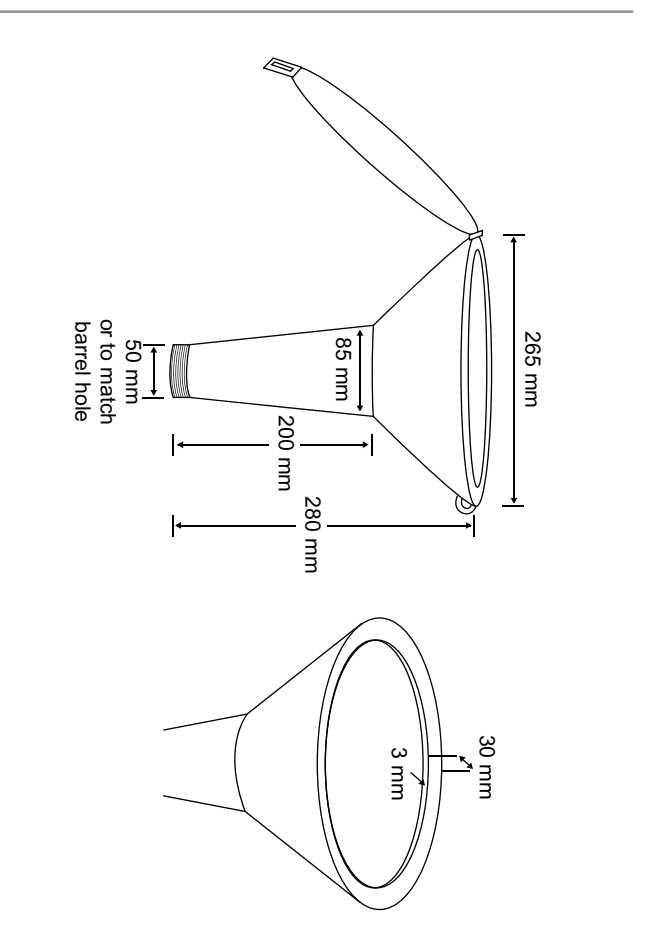
3. Attach the funnel to the sharps barrel.

Screw the metal funnel into the hole on top of the barrel. Rubber cement or other sealant may be used to help secure connection if needed.

Metal funnel



Funnel details



General use for disposal of needles

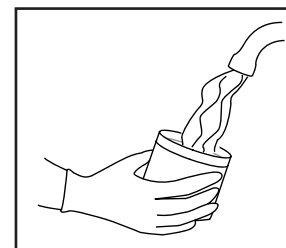
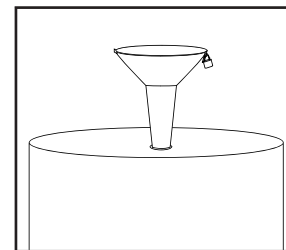
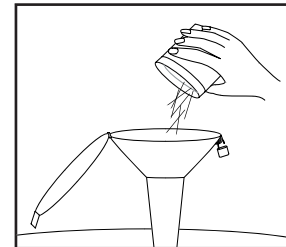
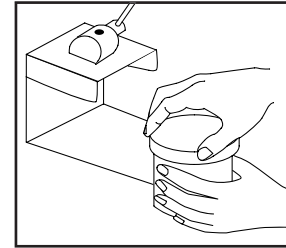
1. Remove the filled needle container from needle remover and immediately secure lid.
2. Keep the lid on the container when transporting the filled container to the sharps barrel.
3. Unlock and lift funnel lid.
4. Empty needle container into funnel with care to avoid spilling.

Do not use the barrel for any other type of waste.

5. Keep funnel lid closed and locked when not in use.
6. Occasionally the barrel may be rocked gently to settle the contents evenly inside.

Needles will tend to stack directly underneath the funnel opening; rocking helps to ensure that the entire barrel volume will be used.

7. Wearing plastic gloves, clean the container with bleach and hot water before reuse.



Cleaning needle spills

1. Put on protective gloves.
2. Pour bleach solution over needles and allow to sit for 15 minutes.
3. Using a dustpan and broom, carefully brush the needles off the ground and empty them into the sharps barrel through the funnel. Do not allow fingers or hands to come in contact with needles. Take special care to ensure that no needle fragments remain embedded in the broom.
4. After the needles have been removed, mop the area with a bleach solution.

Final disposal of barrel

The barrel is expected to hold approximately 150,000 needles before it is full. The fill level of the barrel can be examined by looking directly down into the barrel through the funnel. When it is full, the following steps should be followed:

1. Remove funnel. The funnel can be saved and used again for another barrel.
2. Fill the barrel with cement to safely encapsulate the loose needles.
3. Cap the hole and transfer the cemented barrel to landfill disposal.