

Frontline health workers training on coronavirus disease 2019 (COVID-19)

Cleaning and Disinfection

Ministry of Health
Division of Disease Surveillance and Response
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Cleaning and disinfection

- Detergents
 - Remove dirt, soiling
 - Mechanical force essential
 - Flush with clean water
- Disinfectants
 - Kill viruses, bacteria
 - Decontaminate surfaces
 - Type depends on infectious agent
 - Use *after* detergent

Environmental cleaning guides

- Clean & disinfect surfaces or objects contaminated with aerosols or excretions ASAP
- Cleaning should precede disinfection to prevent inactivation of disinfectants by organic matter
- Decontamination should precede cleaning to reduce number of pathogens
- If not pre-prepared, prepare cleaning and disinfectant solutions daily
- Dry sweeping with a broom should NEVER BE DONE
- Rags holding dust should not be shaken out and surfaces should not be cleaned with dry rags

Environmental cleaning guides

- Cleaning from “clean” areas to “dirty” areas, in order to avoid contaminant transfer
- Clean and disinfect equipment between uses
- Moistened cloth helps to avoid contaminating the air and other surfaces with air-borne particles
- Clean then disinfect patient room daily
 - Bed rails
 - Bedside tables
 - Lavatory surfaces
 - Blood pressure cuff, equipment surfaces

Managing linens and laundry

- Use Standard Precautions
 - Gloves and hand hygiene
 - Gown
 - Mask
- Avoid aerosolization – do not shake
- Fold or roll heavily soiled laundry
 - Remove large amounts of solid waste first
- Place soiled laundry into bag in patient room

Managing linens and laundry

- Disinfect reusable PPEs (scrub suits, plastic apron, goggles, heavy duty boots, heavy duty gloves) with 0.5% chlorine solution, clean with water and soap then rinse with clean water
- Decontaminate patients clothes/linen using 0.5% chlorine solution then clean with water and soap then rinse with clean water
- With approval of the patient, burn heavily soiled clothes and provide new clothes to the patient
- Where burning is not possible soak heavily soiled linen in 1% chlorine for 15 minutes before cleaning
 - Clean with soap and water, rinse and disinfect with chlorine 0.5% solution for 5 minutes and rinse

General guide on disinfection with chlorine

Concentration

Use

1%

Disinfection of heavily soiled linen

Disinfection of body fluids

Disinfection of surfaces

Disinfection of toilets and bathrooms

0.5%

Disinfection of gloved hands

Disinfection of floors

Disinfection of beds and mattress covers

Footbaths

0.05%

Disinfection of bare hands and skin

Disinfection of medical equipment

Disinfection of laundry

Disinfection of eating utensils

Preparing chlorine solutions

1. How do you constitute required chlorine solutions from liquid compounds?
2. How do you constitute required chlorine solutions from granule compounds?
3. How do you constitute required chlorine solutions from tablet compounds?

How to make chlorine solutions for environmental disinfection

Example I - Using Liquid Bleach

Chlorine in liquid bleach comes in different concentrations. Any concentration can be used to make a dilute chlorine solution by applying the following formula:

$$\left[\frac{\% \text{ chlorine in liquid bleach}}{\% \text{ chlorine desired}} \right] - 1 = \text{Total parts of water for each part bleach}^\dagger$$

Example: To make a 0.5% chlorine solution from 3.5%[‡] bleach:

$$\left[\frac{3.5\%}{0.5\%} \right] - 1 = 7 - 1 = 6 \text{ parts water for each part bleach}$$

Therefore, you must add 1 part 3.5% bleach to 6 parts water to make a 0.5% chlorine solution.

† “Parts” can be used for any unit of measure (e.g. ounce, litre or gallon) or any container used for measuring, such as a pitcher.

‡ In countries where French products are available, the amount of active chlorine is usually expressed in degrees chlorum. One degree chlorum is equivalent to 0.3% active chlorine.

Example II - Using Bleach Powder

If using bleach powder,[†] calculate the amount of bleach to be mixed with each litre of water by using the following formula:

$$\left[\frac{\% \text{ chlorine desired}}{\% \text{ chlorine in bleach powder}} \right] \times 1\,000 = \text{Grams of bleach powder for each litre of water}$$

Example: To make a 0.5% chlorine solution from calcium hypochlorite (bleach) powder containing 35% active chlorine:

$$\left[\frac{0.5\%}{35\%} \right] \times 1\,000 = 0.0143 \times 1\,000 = 14.3$$

Therefore, you must dissolve 14.3 grams of calcium hypochlorite (bleach) powder in each litre of water used to make a 0.5% chlorine solution.

† When bleach powder is used; the resulting chlorine solution is likely to be cloudy (milky).

For disinfection, remember!

- Always dilute disinfectants according to manufacturers instructions
- Add chlorine compounds to water not the other way round
- Change in-use disinfectant solution every 24hrs
- Disinfectants do not sterilise. Cannot be used for surgical instruments.
- Use gloves when mixing chlorine

Waste management

- Waste should be segregated at point of generation
- Collect all solid, non-sharp, infectious waste using leak-proof waste bags & covered bins
- Bins should never be carried against the body (e.g. on the shoulder)
- Infectious wastes can be autoclaved before disposal
- An incinerator is recommended for destroying solid waste

General waste

Paper
Packaging material
Food



Infectious waste

Gauze/dressing
Used IV/ fluid lines
Used gloves
Infusion set



Pathological waste

Anatomical waste
- Teeth
- Placenta
Pathological waste
- Sputum container
- Test tube containing specimen



Sharp Waste

Cannula/branula Retractable
Broken slides Scalpels
Broken vial Blades
Broken ampules Needles
Lancet Suture needles



Waste management

- Waste can also be placed in a designated pit of appropriate depth : 2 meters and filled to a depth of 1-1.5 m
- After each waste load, the waste should be covered with a layer of soil 10 -15 cm deep
- Placenta and anatomical samples should be buried in separate pit
- Control disposal sites to prevent entry by animals, untrained personnel or children
- Liquid waste and waste water can be disposed of in sanitary sewer or pit latrine

Injection safety and management of sharps

- Do not bend, break, or manipulate used needles, scalpels, or other sharp instruments
- Do not recap needles
- Have a sharps container nearby when giving injections
- Discard needles and syringes immediately after use without passing to another person
- Close, seal & send sharps containers for incineration before they are completely full

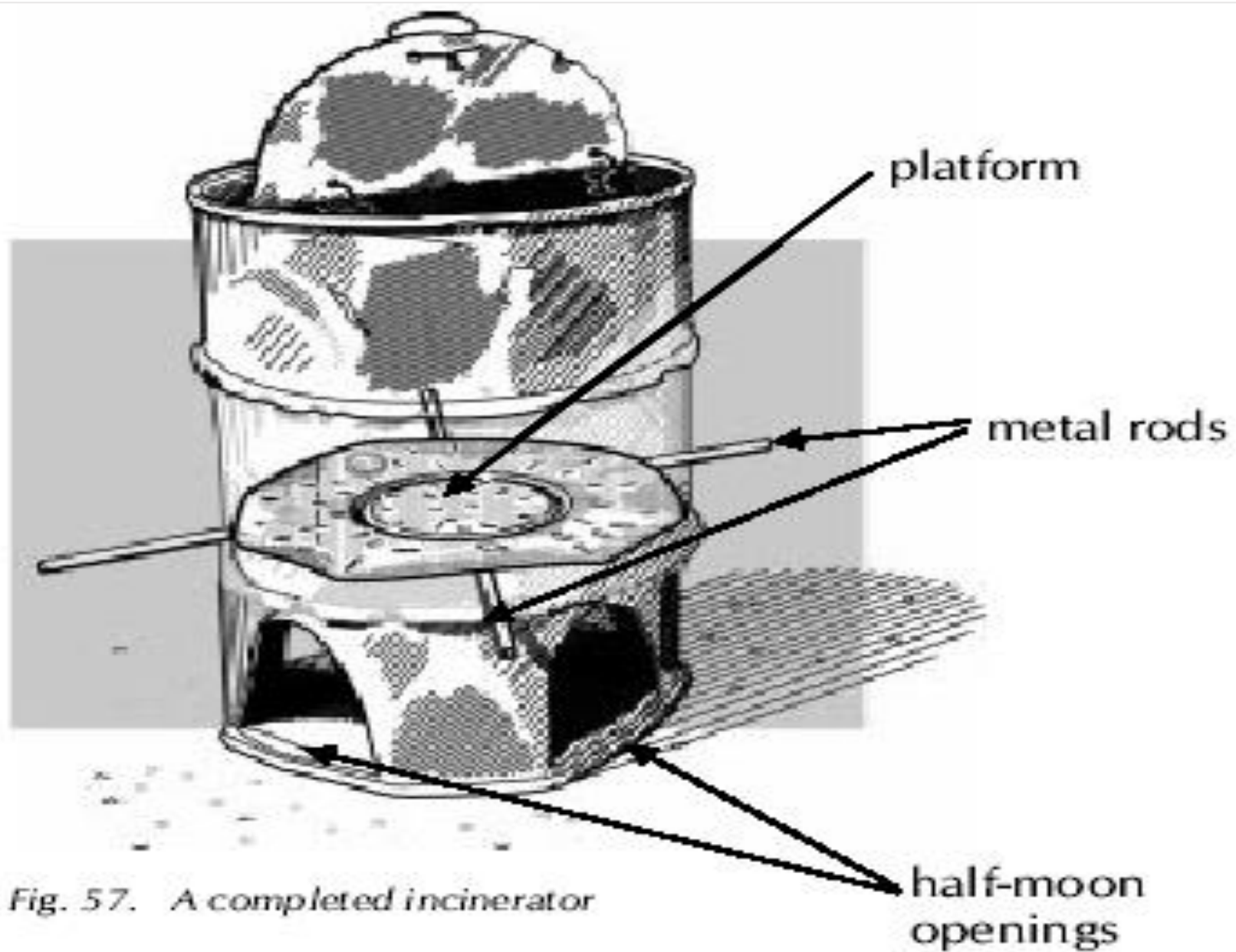


Fig. 57. A completed incinerator



Thank you