

# Giving safe injections

A guide for nurses and  
others who give injections



World Health Organization  
International Council of Nurses



*The World Health Organization (WHO) defines a safe injection to be one that does not harm the recipient, does not harm the health care worker, and does not harm the community*



# Needles, syringes and other skin-piercing medical devices can harm:

- **The patient** when unsterile devices are reused and transmit disease
- **The health care worker** when they suffer needlesticks that can cause disease
- **The community** when the public can pick up and reuse syringes or when unsafe burning causes harmful emissions



# Outline: How to give injections safely

- Eliminate unnecessary injections
- Use sterile injection equipment and sharps
- Prepare and give injections without contamination
- Dispose of sharps to prevent reuse and harmful waste



# Eliminate unnecessary injections because injections may be dangerous

Injections can:

- Spread hepatitis B virus, hepatitis C virus, HIV and other pathogens
- Cause nerve and other tissue damage, which can lead to paralysis
- Cause abscesses and injuries



# Most injections are unnecessary

- A safer and equally effective drug may exist that can be given to the patient by mouth, through the skin or by rectum



# Eliminate injections that do not help the patient

- Injectable vitamins, tranquilizers, antibiotics and steroids are often given without a good medical reason



# It is unethical to give injections only to make money

- Raise money for salaries or clinic by activities that do not harm patients nor waste medications





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# Poor injection practices in the world



Unnecessary injections



Reuse of syringes without sterilization

Millions of cases of hepatitis B, C and other bloodborne diseases



# Reuse of injection equipment is dangerous and common

- Reuse of non-sterile syringes and needles spread:
  - HBV
  - HCV
  - HIV
  - Other bloodborne pathogens
- Do not give injections unless sterile equipment is available

Reuse of injection  
equipment  
in South Asia



# Assume needles and syringes are sterile if:

- Disposable, single use needles and syringes:
  - Are purchased from a reliable manufacturer and are in individual, undamaged and unopened packaging
- Sterilizable injection equipment:
  - Is cleaned before sterilization
  - Is processed in a sterilizer monitored with indicators
  - Is sterilized under routine supervision
  - Is designed to be re-usable



# Discard packages if punctured, torn or damaged by moisture

- Damaged packages are not sterile since germs or toxins can contaminate injection equipment if the outer package is damaged



Check each package  
for tears or damage



# Use a sterile syringe and a sterile needle to mix each vial of medication and diluent

- It is not safe to change the needle but reuse the syringe
- Do not use the same mixing syringe to reconstitute several vials



# Use a sterile syringe and sterile needle for every injection

- Open the package in front of patients to reassure them that the syringe and needle have not been used before



# If disposable syringes and needles are not available, sterilize equipment

- Only sterilize equipment designed for reuse
- Disposable equipment, especially narrow needles, cannot be sterilized safely with steam





# What is "sterilization" ?

- "Sterilization" refers to the steps that reduce the number of organisms on an item to a safe level
- Boiling in an open pan, soaking syringes and needles in alcohol or disinfectants does not "sterilize" and is not safe



## Steam sterilization requires:

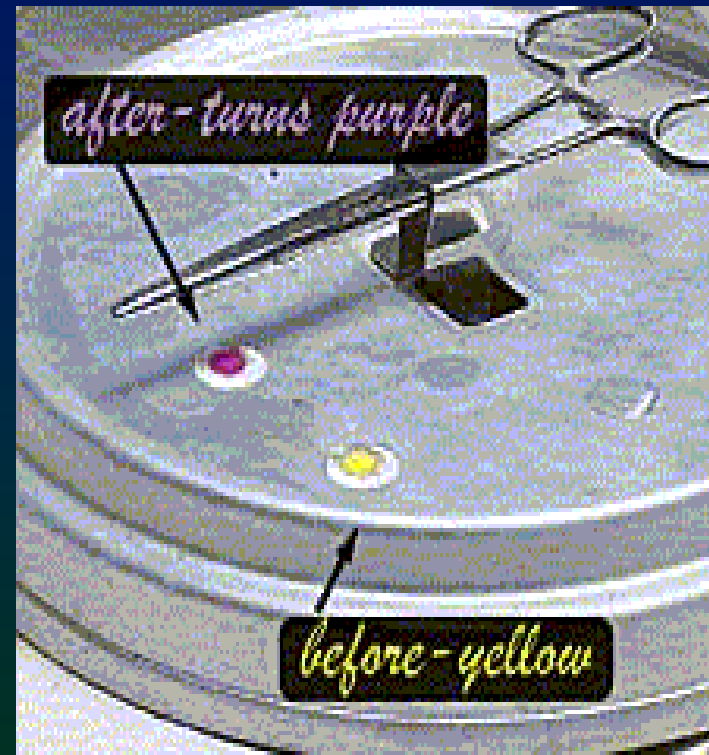
- Water, brushes and gloves to clean syringes and needles of all visible dirt before sterilization
- Use of indicators
- Storage of sterile syringes and needles in a dry, sealed container
- A system of routine supervision



# Sterilization must be monitored by indicators and supervisors

- Indicators for steam sterilization show if conditions of time, steam pressure and temperature (TST) have been met
- TST spots are recommended for immunization programmes

TST spot indicators



# Auto-Disable (AD) syringes prevent reuse

- AD syringes disable themselves after one use
- They have a fixed dose and are currently used in immunization and family planning programmes
- They prevent reuse, but not needle-sticks



AD syringe



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# Prepare injections in a clean, designated area

- Do not allow blood, specimens or contaminated supplies in this space
- Keep the area free of clutter so all surfaces can be easily cleaned and disinfected



# Wash hands under running water

- Wash hands with soap or disinfect with waterless alcohol solutions before preparing or giving injections
- Wash hands again after contact with soil, blood, or body fluids



# Follow manufacturers' instructions for the storage and use of each medication

- Some medications must be:
  - Discarded after opening since they have no preservatives
- OR
- Kept between 2-8 ° C
- OR
- Reconstituted only with a specific diluent





# Use single-dose vials rather than multi-dose vials, if possible

- Multi-dose vials have been linked to many outbreaks
- If syringes are reused with multi-dose vials the entire vial will be contaminated and can cause illness or death



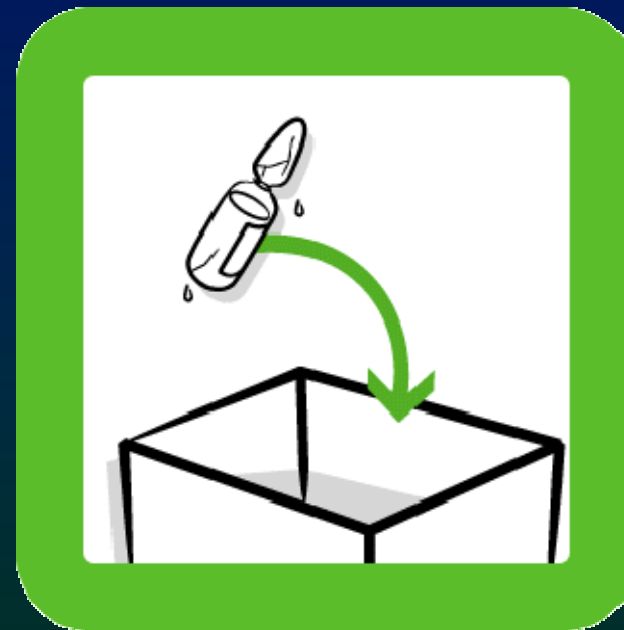
# Use a sterile syringe and needle to withdraw a dose and inject with the same needle

- Never leave a needle in the vial. A needle left in the septum opens the vial to contamination



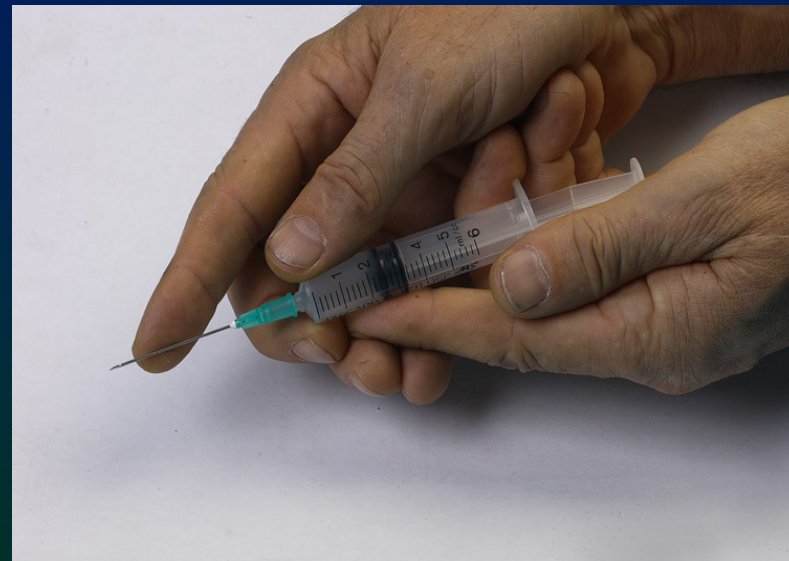
# Discard medication vials with cracks, leaks or visible contamination

- While deadly contamination may be invisible, visible contamination or cracks in the vial indicate that the vial should not be used
- When in doubt:
  - Throw it out



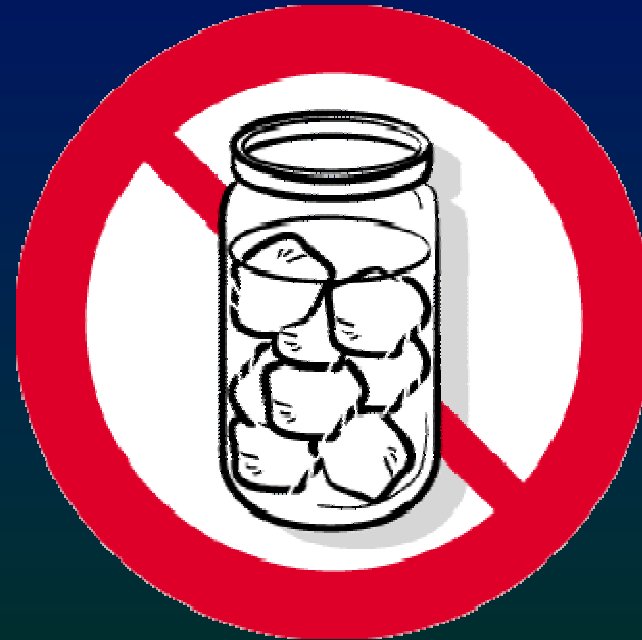
# Discard needles that touch hands, surfaces or non-sterile objects

- Surfaces and hands contain microbes (germs)
- Sterile devices become non-sterile if touched



# Swabbing the tops of vials or ampoules with a disinfectant is unnecessary

- Never store cotton wet in disinfectant. All disinfectants can become contaminated and spread disease
- If vials are swabbed, use individually packaged isopropyl alcohol, or ethanol
  - Never methanol



# Swabbing the skin prior to injection is unnecessary

- Clean visibly dirty skin with clean water and dry with clean cotton
- If skin is swabbed, use an individually packaged swab of isopropyl alcohol or ethanol
- **DANGER!**
  - Most cleaning agents and other alcohols (methanol or methyl-alcohol) are not safe for human use



# Do not open glass ampoules with bare fingers

- Staff often cut their fingers when opening glass ampoules
- Bleeding fingers contaminate vials, syringes and the work setting



# Protect fingers from cuts when opening ampoules

- Use clean pliers, two small hinges, clamps made from clean bent bottle caps, rigid pieces of plastic or a carved piece of wood
- While rigid materials protect fingers better, a piece of gauze may offer some protection





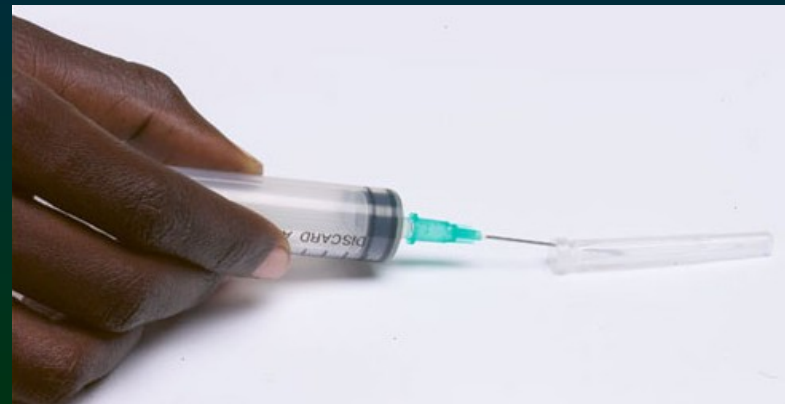
# During injections, prevent sudden patient movements that may cause needle-sticks

- Many needle-sticks occur when children or adults move unexpectedly. Restrain children gently and securely in the lap of an adult with arms and legs held
- Assess the mental condition of bed-ridden patients and ask a co-worker to help restrain adult patients who may be confused



# Do not recap needles

- Recapping commonly leads to needle-sticks
- If recapping is necessary, use a one-handed technique



# Gloves are not usually needed when giving injections

- Disposable gloves may be used to give injections if excessive bleeding is expected

Gloves



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# After use, immediately put syringes and needles in a puncture-proof sharps container

- Keep a safety box where the injections are given
- Do not store used sharps in an open container where they can be reused or cause needle-sticks when dumped



# Close safety boxes when they are 3/4 full and lock boxes in a secure area

- Seal boxes to prevent persons from removing needles to reuse them. Locked storage may be needed if persons sell used syringes.
- Needle-sticks can occur if boxes are overfilled



# Know how syringes are stored and destroyed at your facility

- Tour your facility to see if used injection equipment is visible in public areas
- Know how and where used syringes are stored
- Find out how syringes are destroyed at your facility
- Used sharps in the environment is a sign that the medical waste handling needs to be improved



Health care waste in the environment in Africa



Use of an incinerator in Central Asia



# Unfortunately, managing waste in an efficient, safe and environment-friendly way is not easy

- Without efforts to keep syringes separated from routine waste, syringes can appear on the clinic grounds and lead to reuse and needle-sticks
- Facilities with incinerators need supervision, skilled staff and procedures to encourage safe management





# Technical information on medical waste disposal is available from WHO



[www.healthcarewaste.org](http://www.healthcarewaste.org)



# These recommended techniques should be applied only to ID, SC and IM injections

- Different recommendations, including those for skin preparation and use of gloves, exist for:
  - Intravenous administration of medication and fluids
  - Blood cultures
  - Needle-free injections



## For more information...

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Email: [sign@who.int](mailto:sign@who.int)

[www.injectionsafety.org](http://www.injectionsafety.org)

