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 needle-sticks 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
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
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
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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
  - Kept between 2-8 ° C
  - 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.
How to give injections safely: Outline

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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
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
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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