

# Protocol for sterilizing instruments

Instructor: Yuxia Qiu

# Choosing the appropriate sterilization method and equipment

- For sterilization of acupuncture needles:
  - Autoclave
  - Dry heat
  - Chemical sporicides sterilant
  - Ethylene oxide
- Unacceptable procedures for sterilization:
  - Boiling water
  - Alcohol
  - Pressure cookers

- Autoclave

- 250 degrees Fahrenheit, 15 pounds pressure for 30 minutes.
- The pressure must be released quickly at the end of the sterilization cycle, the sudden drop in pressure breaks down the cell walls of resistant spores and is an essential part of the sterilization process.
- If the equipment is submerged in water being heated under pressure, sterilization is not accomplished.

- Dry heat sterilization

- 2 hours, 338 degrees Fahrenheit

# Classification and types of chemical disinfectants

- Classifications of disinfectants
  - CDCP:
    - High level disinfectants
    - Intermediate level
    - Low level
  - EPA
    - Sporicides
    - General disinfectants
    - Hospital disinfectants
    - Sanitizers

- Types of disinfectants
  - Dilutions of sodium hypochlorite (i.e., household bleach) solutions
  - Lysol: intermediate or low-level disinfectants
  - 70% alcohol: intermediate-level disinfectants
- Labeling of disinfectants
  - What the solution is
  - When it was mixed
  - The concentration

# The double sterilization procedure

- Preliminary sterilization
  - Used needles and other contaminated equipment should have a preliminary sterilization immediately after use, without cleaning or handling in any way.
  - It is recommended that instruments are soaked in a chemical disinfectant for the preliminary sterilization.
  - Autoclave is not recommended for this step.

- **Cleaning and inspection after the first sterilization**
  - Gloves should be worn during this procedure.
  - The instruments should be soaked in water to loosen any material that may remain, wiped carefully and rinsed thoroughly.

The cleaning itself will not kill infectious agents, it is the physical removal of organic material such as blood or other body tissue, but it is necessary for the final sterilization.
  - Inspect the needle to determine if it is defective.
  - Discard defective needles
  - The needles are to be reused may be sorted and packaged for final sterilization and storage.
- **Final sterilization**
  - Chemical sterilants are not suitable for this procedure

# Packaging instruments for autoclave sterilization

- Packaging must be judged by three criteria:
  - Is it packaged in such a way that the steam or hot air has full access to each needle and other instrument during sterilization?
  - Is all equipment fully protected from contamination once it is removed from the sterilizer?
  - Can single needles be removed without contaminating the remaining ones?

- Single-treatment packets: the safest system
- Covered trays:
  - The needles should be placed obliquely or vertically in a bed of cotton or gauze, in a position that single needles can be removed without touching the shaft of a needle or the interior of the container.
  - When the tray is put into the sterilizer, the lid must also be placed in the sterilizer in such a way that the container is not sealed.
  - When the sterilized material is dry, the container should be closed. The tray can be removed from the sterilizer.
- Sterilizing needles loose in the bottom of a tray is not desirable.

# Labeling Packages for sterilization

- It is strongly recommended that all sterilized equipment be clearly marked so as to distinguish it from equipment that has not been sterilized.
  - Use autoclave indicator tape on the exterior of the container.
- All individually sealed packages should be marked with the date of sterilization and load number.

# Loading the sterilizer

- The sterilizer must be loaded with enough air space between packages to permit full circulation and penetration of steam or hot air.
- Steel or glass containers must be vented during sterilization.
- Lids must also be sterilized, but must not be placed on the containers until after the sterilization cycle is completed.
- Packets containing individual patients' needles must be sealed and labeled prior to sterilization.

# Monitoring sterilization occurred

- Monitoring that sterilization has occurred with biological indicators.
- Indicator strips that change color, or glass-enclosed melting pellet indicators are not a reliable indication that sterilization has taken place, they are just useful to identify containers of equipment have been through sterilizer.

# Ensuring proper functioning of equipment

- All equipment should be operated, cleaned and serviced regularly.
- A record of all maintenance and testing must be kept.

- Biological monitors should be used before using new equipment, after any repair has been done on the sterilizer and as directed by the manufacturer or once a week thereafter.
- In addition to a biological indicator, an indicator paper or packet should be run at least weekly to determine if steam is reaching all areas of the sterilizer and if the vacuum is successfully removing all of the steam.

# Keep the equipment sterile

- The sterilized equipment should be handled and stored properly.
- The storage area should be maintained in a clean and dry manner and should be cleaned on a routine basis.