

Standard Operating Procedure (SOP)

Sterile Technique for Needle Insertion and Blood Withdrawal

Purpose:

This SOP details the **sterile technique for needle insertion and blood withdrawal**, emphasizing proper hand hygiene, use of sterile gloves and equipment, skin antisepsis, correct needle handling and insertion methods, prevention of contamination, safe blood collection procedures, and appropriate disposal of sharps. The goal is to minimize the risk of infection and ensure patient safety during blood sampling and intravenous procedures.

Scope:

This procedure applies to all healthcare professionals performing blood withdrawal or intravenous needle insertion in clinical settings.

Responsibilities:

- All staff involved must adhere strictly to sterile technique throughout the procedure.
- The procedure must be performed by trained and authorized personnel.

Required Equipment:

- Sterile gloves
- Alcohol-based hand rub or soap and water
- Sterile needles and syringes/vacutainer sets
- Sterile gauze pads or cotton balls
- 70% isopropyl alcohol or chlorhexidine swab
- Sharps disposal container
- Tourniquet
- Adhesive bandage or tape

Procedure:

1. Preparation:

- Verify the patient's identity and explain the procedure.
- Ensure all necessary equipment is present and within reach.
- Check for allergies, especially to antiseptics or latex.

2. Hand Hygiene:

- Perform hand hygiene using soap and water or alcohol-based hand rub before and after the procedure.

3. Donning Gloves:

- Wear sterile gloves immediately before handling sterile equipment or touching the insertion site.

4. Skin Antisepsis:

- Apply 70% isopropyl alcohol or chlorhexidine swab to the selected puncture site. Allow to dry completely; do not touch the site after antisepsis.

5. Needle Preparation:

- Open needle and syringe/vacutainer set immediately before use to maintain sterility.
- Do not touch the needle or inside of the syringe cap.

6. Needle Insertion and Blood Withdrawal:

- Apply tourniquet as needed.
- Anchor the vein by lightly holding the skin below the puncture site (if required), avoiding contamination.
- Insert the needle bevel up at an appropriate angle.
- Withdraw required blood volume without contaminating the equipment or insertion site.

7. Post-procedure:

- Withdraw the needle smoothly and promptly apply sterile gauze or cotton to the puncture site.
- Apply pressure until bleeding stops, then secure with adhesive bandage or tape.
- Dispose of needle and syringe immediately in an approved sharps disposal container.

8. Aftercare:

- Remove and discard gloves.
- Perform hand hygiene.
- Label and process samples as per institutional protocol.
- Monitor patient for complications (bleeding, swelling, signs of infection).

Precautions:

- Do not reuse needles or syringes.
- Do not recap needles after use.
- Immediately dispose of all sharps in designated containers.
- If sterility is compromised at any point, replace gloves, re-clean the site, and use new sterile equipment.

Documentation:

- Record the date, time, site of needle insertion, the amount of blood withdrawn, and any complications observed.
- Sign and file the procedure in the patient's record.

References:

- WHO Guidelines on Drawing Blood: Best Practices in Phlebotomy
- CDC Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings