



Blood Collection

Teaching Aim

- To demonstrate how to apply quality to blood collection

Core Topics

- Pre-donation checks of equipment and materials
- Donor identification
- Donor arm cleansing
- Vein-puncture and blood collection
- Care of the donor
- Handling of donations and samples
- Quality issues at mobile sessions

Pre-Donation Checks of Equipment and Materials

- Safety of both donor and donation is a priority
- All equipment and materials must be
 - Correct
 - Safe to use
 - Ready to use
- Records of all materials used for each donor / donation – trace ability
 - Identity
 - Batch numbers
 - Labeling of donated units

Donor Identification

- Correct identification of the donor is essential
 - At reception
 - Immediately before vein-puncture
- Cross-check the donor with available records
 - Name, address, date of birth
- Re-check the donor's identity

Donor Arm Cleansing

- Cleansing of the arm prior to vein-puncture to minimize the risk of bacterial contamination
- SOP
 - Methodology
 - Selection of cleansing agent
- Training of staff
- Assessment of
 - Compliance
 - Effectiveness

Vein-Puncture

- SOP
- Methodology
 - Selection of vein
 - Arm cleansing
 - Donor identity checks
 - Pack checks: e.g. contamination, in date, correct pack type etc.
 - Vein-puncture

Blood Collection

- Constant monitoring during donation
 - Blood flow
 - Agitation of pack
 - Collection time
 - Volume collected
- Sample collection
 - Identity checks
 - Correct handling
 - Labeling

Care of the Donor

- The donor as a customer
- Donor care - before, during after donation
 - Donating blood should be pleasant experience
 - The venue should be a safe place for the donor
 - The venue must be comfortable – temperature, surroundings
 - Staff must be trained in interpersonal skills
- Adverse reaction
 - Facilities to deal with any reaction during or after donation

Handling of Donations and Samples [1]

- Donated blood and samples must be handles appropriately before processing / testing and storage
- Appropriate temperature
 - Storage
 - Transportation

Handling of Donations and Samples [2]

- Clean and secure environment
 - Prevention of contamination
 - Prevention of interference
 - Prevention of unauthorized removal
 - Prevention of inadvertent clinical use

Quality Issues at Mobile Sessions [1]

- Quality systems applies equally to both static and mobile sessions
- Logistics are more complex: e.g.
 - Transportation of staff and equipment
 - Packing and unpacking of all session equipments, documents, consumables & disposables
 - Suitability of venue
 - Confidentiality
 - Support may be far away

Quality Issues at Mobile Sessions [2]

- Venue environment is not so easy to control
 - Cleanliness
 - Security
 - Space
 - Services
- Storage and transportation
 - Temperature control

Phlebotomy (1)

- Done by trained technical person under observation of a qualified Physician.
- Strict aseptic precautions.
- Wash hands with soap & water
- Wear sterile gloves
- Place the bag on a balance and ensure that it is below the level of arm.

Phlebotomy (2)

- Anatomy of vein: palpable, straight, smooth, firm, large, skin free from any lesion, scar or infection.
- Check both forearms carefully during screening.
- Ante cubital area choose for phlebotomy.

Anatomy of a vein

Vein walls have three layers: the tunica adventitia, or outer surface; the tunica media, or middle layer; and the tunica intima, or inner lining of endothelium.

The *tunica adventitia* consists of connective tissue that surrounds and supports the vessel.

The *tunica media* is composed of the muscle and elastic tissues that constrict and distend the vein. This

is the layer that goes into spasm if the patient is tense.

The *tunica intima* supports the semilunar valves, which point toward the heart and prevent the blood from flowing back toward the extremities. Incorrect venipuncture may traumatize the tunica intima, producing roughened endothelial edges to which platelets can adhere and form a clot.

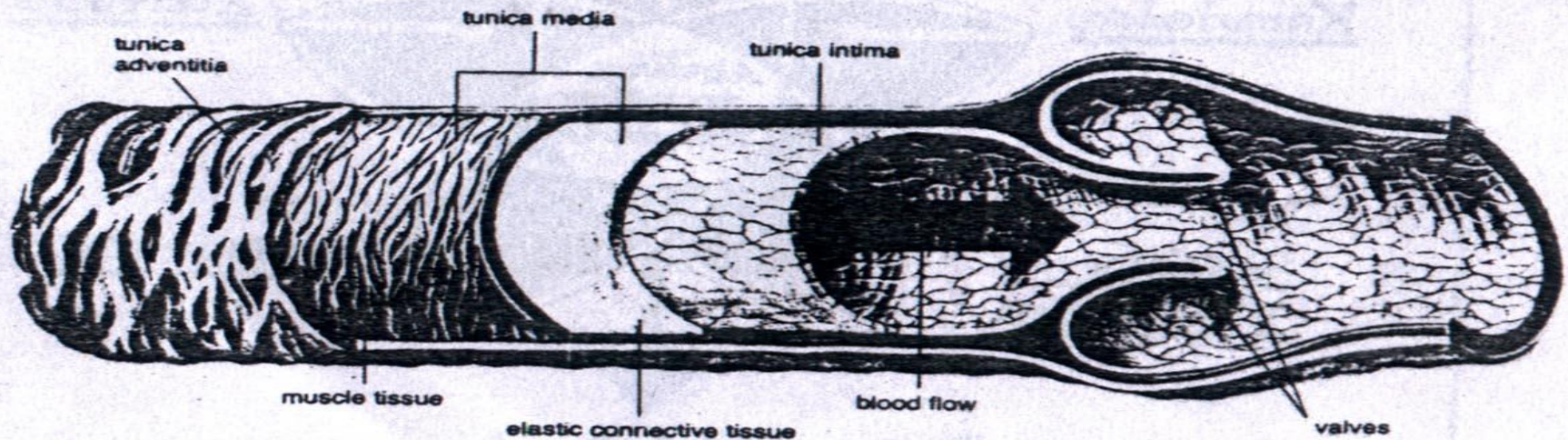


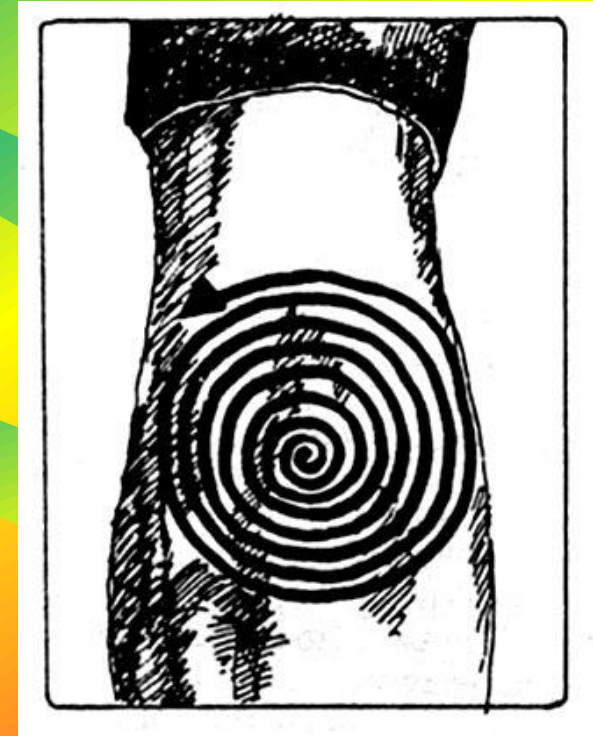
Figure 3-2. Anatomy of a vein.

Phlebotomy (3)

- Skin preparation: apply blood pressure cuff
- Pressure 40-60 mm of Hg
- Choose vein & palpate
- Identify Donor by name.
- Check bag for any damage & check anticoagulant for clearness.

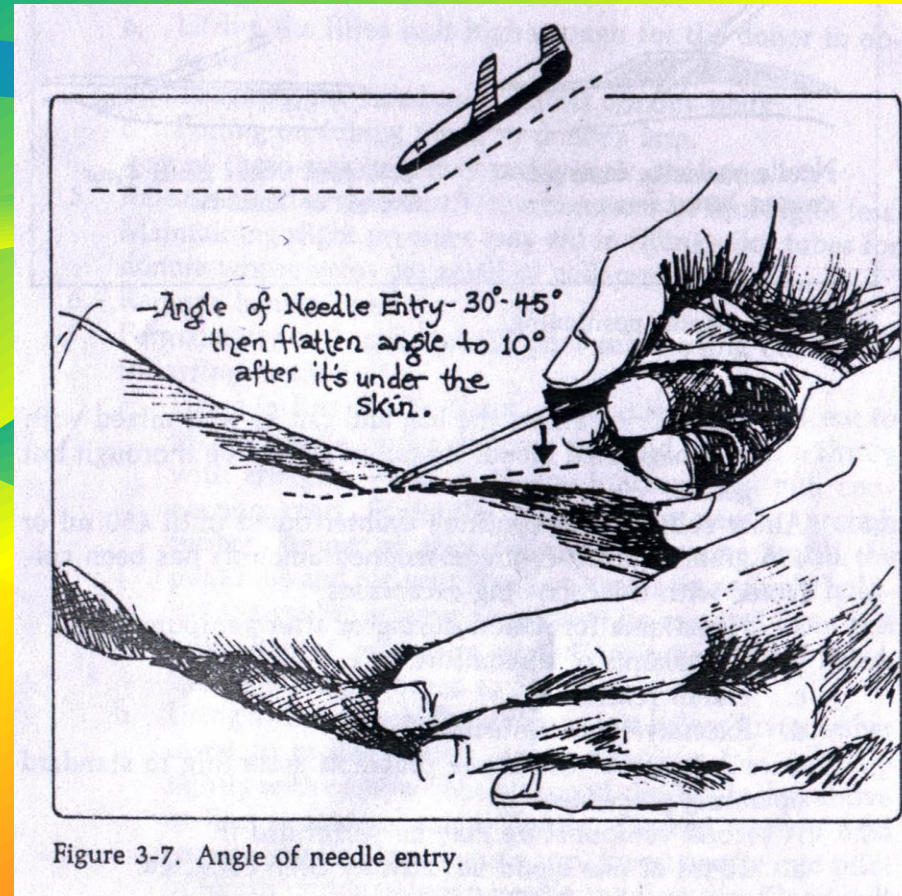
Phlebotomy (4)

- Release pressure and clean 4-5 cm. area of skin.
- First methylated alcohol or IPA
- 10% iodine & allow to dry.
- Use alcohol to clean it.
- Use concentric method from inside out.
- Don't touch vein after preparation.



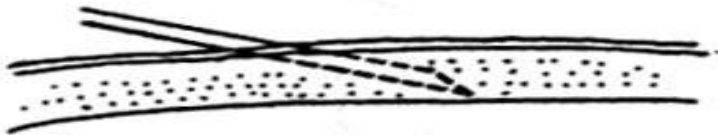
Phlebotomy(5)

- Apply pressure by BP. Cuff 40-60 mm Hg & close fist
- Uncover needle immediate before venipuncture.
- Tighten skin & enter into skin by zigzag root
- First 45° then 15° angle.

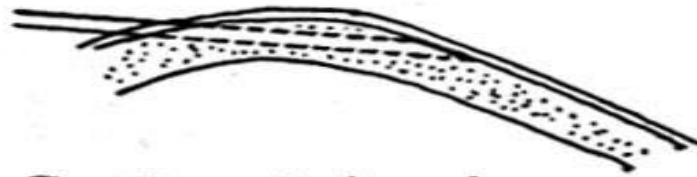


Phlebotomy(6)

Needle Positioning



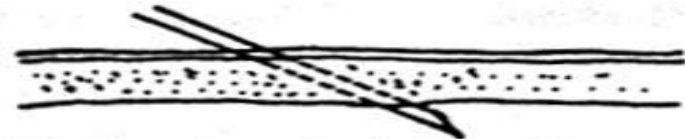
Correct insertion; blood flows freely into needle.



Bevel against vein upper wall does not allow blood to flow.



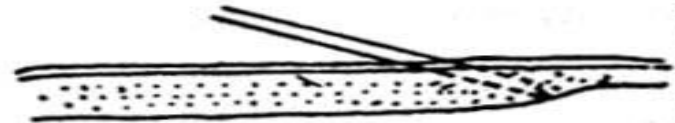
Bevel resting on vein lower wall does not allow blood to flow.



Needle inserted too far.



Needle partially inserted causes hematoma.



Collapsed vein. Blood flow slowed or halted.

Phlebotomy(7)

- Start BCM to mix blood with anticoagulant.
- Weight machine if BCM not Available.
- Mix blood with anticoagulant every 45 sec. (AABB)
- Blood should be collect in 10-15 min.
- Keep watch on donor during procedure.

Phlebotomy(8)

- Deflate cuff after procedure complete.
- Remove needle, keep fingers & apply bandage.
- Say thanks to donor.
- Flow reduce:
Check for kinking of tube
Low blood pressure,
Needle touch with vein wall,
high pressure of B.P. cuff.

Post donation Care(1)

- Send donor to refreshment area with technical person.
- Donor must rest for minimum 20 min
- During this time, give refreshment
- Continuously talk to donor and thank him for his contribution.



Post-Donation Care(2)

- Advice to drink more liquid
- Avoid smoking for one hour
- Avoid alcohol for 6 hrs
- Keep dressing for 12 hrs
- If bleeding, apply firm pressure & raise arm above heart level.
- If feeling dizzy, fainting--- lie down.
- Avoid exercise or sport for 24 hrs.



Adverse Donor Reaction(1)

- Most donor tolerate giving blood but occasionally adverse reaction occur
- Technical team must recognize & manage
- Phlebotomy team should know CPR



Adverse Donor Reaction(2)

- General treatment: remove B.P. cuff & withdraw needle.
- Check airway, breathing, circulation.
- Remove from crowded area.
- Head low position.
- Cold sponging & check blood pressure , pulse.

Adverse Donor Reaction(3)

- Syncope or Fainting or Vasovagal shock.
- Either sight of blood or people donating blood.
- Weakness, dizziness, pallor, perspiration.
- Unconsciousness, hypotension, convulsion.
- Apply general treatment .

Adverse Donor Reaction(4)

- Nausea & vomiting
- Make donor comfortable
- Instruct donor to breath deep & slowly
- Turn head to side.
- Provide him towel & cleansing tissue

Adverse Donor Reaction(5)

- Hematoma: rare reaction
 - May be due to arterial puncture
 - Apply firm pressure & raise arm above head
- Muscular Twitching: due to hyperventilation
 - To avoid it, divert donor mind

Adverse Donor Reaction(6)

- Convulsion: prevent donor from injuring himself.... tongue bite
securing airway
- Cardiac effect: rare
 - Give CPR until emergency care team not reach

Key Points

- Quality in blood collection protects the donor and the recipient
- Quality in blood collection ensure the quality of the product

Learning Outcomes [1]

You should now be able to :

- Identify the quality issues related to the process of blood collection
- Identify specific quality issues related to blood collection at mobile sessions

Learning Outcomes [2]

- Identify the actions required to ensure quality in blood collection
- Identify the role of the quality manager in ensuring quality in blood collection