

## Tips & Tricks for Difficult Sticks

### Collecting the Best Specimen



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## Disclosure

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## Objectives

- Describe specific situations that are likely to increase the level of difficulty in the collection process.
- Identify which equipment choices are best for specific collections, providing the best specimen for testing.
- Identify techniques that can reduce the level of difficulty during a phlebotomy draw.

## Difficult Collections

- Physiological Factors
  - Vascular Conditions
    - Sclerosis - Cancer patients (Chemo) - Drug Addicts
  - Critical Care Patients (ICU, ED-Trauma)
  - Edematous patients
  - Obese patients
  - Elderly patients
  - Pediatric patients (and their parents)
- Psychological Factors
  - Needle-phobia
  - Combative patients (pediatric/elderly, confused, medicated)

## Vascular Scarring

Atherosclerosis, Drug-addicts, Chemo-patients.....

- Veins often easy to find, but scarring hampers needle insertion, resulting in vein movement when attempting to insert the needle (“roll”)
- Tips include:
  - Anchoring becomes critical
  - Learn to “punch” through scar-tissue
  - Where to stick?
    - Palpating a scarred vein often reveals good bounce above the scarred area – but that is not the best place to stick – look below!
    - Go Low - Based on blood-flow in veins, puncturing below the scarred area is best

## Critical Care Patients

- ICU and ED/Trauma patients
  - Hypovolemic/Hypotensive – difficult to palpate veins
    - Heat – Gravity (lower limb) – Equipment (BP-cuff, transilluminators)
  - Repeated punctures – hematomas increase difficulty and contamination risk
    - Avoid going above, swelling and scarring will have blood-flow hampered – best below
  - Injuries/incisions
    - May have to use other limb or even other areas (foot-stick) – follow your institutions guidelines
  - Limb restrictions
    - Never use this limb – for any reason – for any collection
    - Utilize the other limb – follow your institutions guidelines – if you have to use alternate sites, such as the foot. Contact provider

## Central Venous Lines

- Infusion lines (IV's, CVC, Arterial Lines)
  - Drawing from IV-starts – studies vary, but 5-24% rates of hemolysis common
    - Use evacuated system with leur-lock adaptor
    - Draw a waste – minimum of 2-ml
  - Central Venous Catheters (LTCVC – STCVC – PICC)
    - Contamination-risk! (previously infused products or flush). Cannot collect some tests (TDM, metals)
      - Flush with a minimum of 10-ml
      - Waste = 10 to 20-ml, dependent on specimen and infusions
    - Hemolysis-risk!
      - Use luer-lock evacuated system – avoid syringes (acceptable to use syringe for waste)
      - Intervene as necessary – try a different lumen, another flush, venipuncture

## Edema

- Edematous patients present difficulties:
  - Palpation difficult to impossible
  - Likely contamination from excess interstitial fluid
- Tips include:
  - Apply tourniquet & gauze to absorb fluid
  - Manually “push” fluid aside
- Contamination & Equipment Choices
  - Excessive interstitial fluid contaminates specimen
    - Evacuated tube-system best choice, allowing for discard tube to rid needle of fluids
    - Syringe/butterfly, allowing for discard waste in first syringe (if needle can reach vein)

## Obesity

- Obese patients pose difficulties:
  - Palpating veins – excessive subcutaneous fat deposits “hides” rebound bounce
  - Tourniquet application – fatty deposits cause tourniquet to “roll”, cutting into the arm
- Tips include:
  - Look between the “creases” (often there are 2 creases at the antecubital fossa)
  - Use gauze or washcloth under tourniquet to prevent tourniquet cutting into tissue
  - Assess cephalic vein (lateral/top of arm, less sub-Q/adipose tissue here)
  - Hand-vein
  - Equipment
    - Evacuated system or syringe & straight needle
    - Butterfly needle often too short to reach deeper vein

## Pediatric patients

- Challenges include the patient and the parents
  - Small vasculature
  - Combative
  - Parents – emotionally overwhelmed
- Tips
  - Needle size? Think S-M-A-L-L! (Assess veins on older children and use that which will give you the best sample)
  - Small syringes = less vacuum which means better vein integrity as well as less risk of hemolysis
  - Butterfly-needles “float” when child is combative
  - ALWAYS have assistance from another experienced phlebotomist to restrain child
  - Involve the parents, ask to assist. (Involve RN or physician if parents become “troublesome”)

## Elderly

- Concerns regarding the elderly include:
  - Loss of vascular elasticity (“blown” veins)
  - Muscular atrophy (veins not supported by muscle tissue = “roll”)
  - State of mind (confused-agitated-combative)
- Tips
  - Use a smaller needle to maintain venous integrity
  - Anchoring veins is very critical
  - Get assistance from another phlebotomist

## Needle-phobia

- Communication
  - Key point – do not ignore that patient that says – “I don’t do well with needles”
- Tips
  - Ask the patient if they have ever fainted
  - Ask the patient if they want you to tell them when you are going to put the needle in
  - What to say to the pediatric patient (no “poke”, “stick”, “pinch” or “sting”)
  - Keep the needle hidden
  - Don’t say – “We’re done” – until you have the needle out of their arm
  - Praise – you are setting the stage for the next encounter

## Techniques: Alternate Sites

- There are other places to find veins. Individuals may assess antecubital area and finding nothing, go immediately to the hand
- Tips
  - Top of arm (cephalic) often overlooked
  - Back of the arm (upper bicep to hand)
  - Thumb side of wrist (cephalic)
  - Hand (between the knuckles – check for bounce)
  - Foot (follow institutional policy, written order required). Outpatient – foot should be elevated for 2-hours

## Techniques: Re-examine the site

- Tips:
  - Flex the arm (lifting the arm may reveal a vein)
  - Extending the arm (this is especially true for individuals with deep veins – or individuals that are obese or with some edema)
    - Avoid exaggerated “hyperextension”, this can be uncomfortable, especially with the elderly
  - Rotate the wrist (maintain position of the arm, but rotate the wrist)
    - Also an excellent way to “move” veins/tendons away from each other

## Techniques: Massage

- Tips:

- Massage the arm
  - Elevate arm at the elbow
  - Massage from the wrist to the elbow
    - this “forces” blood up and fills the vein (massaging down defeats the purpose)
- Massage the vein
  - Once located, you can cause increase distention via massage, or “exaggerated” palpation (pressing repeatedly over the top of the vein)
  - **AVOID** “snapping” fingers over the vein (painful and can initiate clotting activity, skewing test results)

## Techniques: Wet Massage

- Often times, wetting the area, followed by deep massaging/palpating, will reveal (or “confirm”) vein location
- Tips:
  - Technique is enhanced wearing gloves
  - Alcohol – or other antiseptic, is used to wet the site, then pushing down with the flat of the finger often reveals the top curvature of the vein
  - Water – water may also be used to perform this technique – but not “warm water” – follow your institutional guidelines/policies



## Techniques: Gravity

- Use gravity to assist you in locating veins
- Tips:
  - Lower the patients arm for a few minutes prior to applying the tourniquet
  - Hospitalized patients, raise the head of the bed (check with RN first)
  - Outpatient areas, have the patient hold their arm/s at their side for a few minutes
  - Gravity alone will often reveal hand-veins not visible/palpable earlier
  - Once the vein is located, the arm may be returned to horizontal position for collection

## Techniques: Heat

- Application of heat will cause vasodilation, making them easier to palpate, or perhaps see
- Tips:
  - Follow your institution's policy!
  - Be careful using "wet/damp" washcloths – what's warm to you could burn someone else
  - Commercial heat-packs are best – temp max at 105° F
  - Blankets or towels from a "warmer"
    - Apply heat for a minimum of 3-5 minutes and assess for vein

## Techniques: “The Combo”

- Often times, combining techniques can mean the difference between finding a vein – or not.
- Tips:
  - Utilize a combination of massage/heat/gravity
    - Basic combination – lower the arm while applying heat (heat will dilate the veins and gravity will help assist in filling those veins)
    - Adding massage while applying heat and allowing gravity to assist may allow you to locate a vein

## Techniques: Equipment - Sphygmomanometer

- Utilizing a blood-pressure cuff can make veins easier to find
- Tips:
  - Follow your institutional policy (physician approval?)
  - Staff must be trained to use the BP-cuff
    - CLSI guidelines suggest 40mm-Hg
    - Alternate process:
      - Nursing staff assists
      - Nurse takes patient's BP
      - Re-inflate cuff to 30mm Hg above systolic reading and maintain pressure for 1-2 minutes
      - Deflate cuff – apply tourniquet immediately

## Techniques: Equipment - Transilluminators

- Transilluminators utilize high-intensity light that is directed down through the skin
- Reflecting off the sub-cutaneous tissue, this light “colors” sub-cutaneous and adipose tissue(usually an orange or pinkish/red). Veins will appear as a dark line
- Tips:
  - Remember, these devices are not “x-ray” machines, their ability to locate deep veins simply is not there
  - Best area of application is the hand and/or lower-arm
  - Often used as a “confirmation”

## Seek Assistance

- Request the assistance of another phlebotomist (or 2)
  - Often times, someone else may find something that you cannot
- Are there other resources available
  - IV team
  - Pediatric RN's
  - Anesthesiologists
  - Others

## Techniques: Capillary option

- A final resort is the capillary collection, or “micro-amount” – utilizing micro-tubes
- A drawback is that it limits what tests can be done – or not - for example:
  - Coagulation tests (PT, APTT, D-Dimer)
  - Blood-cultures
  - Any test that requires a minimum amount of serum/plasma greater than a micro-tube yields
- Tips:
  - Capillary collections are an excellent alternative for a pediatric collections when dealing with:
    - “Needle-phobia”
    - Distraught parents
    - Simple testing requirements (bilirubin)

## QUESTIONS & DISCUSSION

## Next Upcoming Webinar

### ***Blood Cultures***

Kyle Rodino, Ph.D.

May 20, 2020

11am-12pm CT

## Upcoming Conference



[mayocliniclabs.com/2020phlebotomy](https://mayocliniclabs.com/2020phlebotomy)