

Tips & Tricks for Difficult Sticks Collecting the Best Specimen



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Disclosure

- Relevant Financial Relationship(s)
 - List: None
- Off Label Usage
 - List: None

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

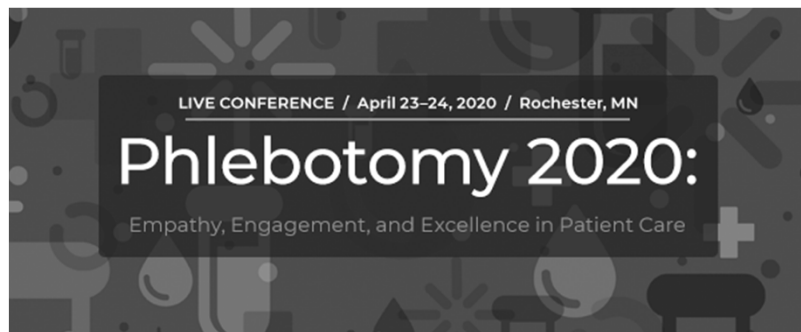
Blood Cultures

Kyle Rodino, Ph.D.

May 20, 2020

11am-12pm CT

Upcoming Conference



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