Tips & Tricks for Difficult Sticks
Collecting the Best Specimen

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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

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**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

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**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)
Next Upcoming Webinar

**Blood Cultures**

Kyle Rodino, Ph.D.
May 20, 2020
11am-12pm CT

Upcoming Conference

mayocliniclabs.com/2020phlebotomy