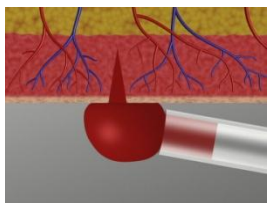


Tips for Successful Capillary Specimen Collections #3209



Obtaining a capillary blood specimen can be one of the most challenging types of collections. If done incorrectly, the specimen may be clotted, hemolyzed, or of an insufficient volume for testing. Practice is the only way to become proficient in obtaining good quality specimens by capillary puncture. By taking your time and following a few simple steps, most capillary collections can be successful.

Warming the intended puncture site is probably the most important consideration, and can promote a successful collection the first time. Studies have shown when a finger or heel has been sufficiently pre-warmed, the blood flow is increased seven-fold. Neglecting this important part of the process is likely to result in repeated punctures, pain for the patient, and frustration on the part of the specimen collector. Use a device specifically made for pre-warming puncture sites, or a warm, wet compress. Alternatively, immerse the finger in a container of warm water. Regardless of the method, the temperature should not exceed 42 degrees Celsius. Supplies can be assembled while the site is being pre-warmed.

There are two kinds of retractable lancets: puncture devices and incision devices. The puncture devices create a round, needle-like puncture and are adequate for most point of care testing when only a single drop of blood is required. Incision-type lancets are generally selected for filling microcontainers because they cut through more of the capillary bed, allowing optimal blood flow. The device used should be of an appropriate depth and length for the patient's age, weight, and location of the puncture. There are many puncture and incision-type devices on the market, so become familiar with the supplies available in your facility and choose the correct device to prevent patient injury and the need for repeat punctures.



Microcollection tubes have the same additives found in evacuated tubes, and come in several styles, each having a unique filling feature. Some are filled by removing the cap and allowing drops of blood to flow into the tube. Another has a funnel that users insert into the cap that is discarded when the collection is complete. Others have a straw-like insert that pulls the drop of blood into the tube. Make sure you become familiar with the microcollection tube in use at your facility before using it on a patient for the first time. Read the manufacturer's insert for correct usage and practice on a willing co-worker.

Examine the area to be punctured. You will notice little ridges in the skin that form the fingerprint, which follow the roundness of the finger tip. A puncture that runs in the same direction as the ridges will cause the blood drops to channel away from the site. Instead, place the device so that the blade crosses the ridges, as shown in the picture to the right. Use the middle and ring fingers of either hand for capillary punctures. Punctures should be performed on the fleshy pad of the fingers as illustrated, not on the tender area at the tip or sides. Avoid punctures to areas that are bruised or swollen.



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There is an art to getting blood out of a skin puncture site quickly and efficiently. Aim for 30 seconds from start to finish. Hold the hand or foot below the level of the heart. The puncture site should be facing downward and the finger held as shown. A frequent mistake is to keep squeezing the site without allowing adequate time for the capillary bed to refill with blood. Develop a rhythmic squeeze-and-release method and continue until the tube is filled to the desired level. Alternating squeezing and releasing at two-to three-second intervals should be sufficient to quickly fill the tube. Make sure the correct order of draw for microcontainer tubes is followed: EDTA,

followed by tubes with other anticoagulants, then serum tubes. EDTA comes first in a microcontainer order of draw because as soon as the skin is punctured, the clotting process begins, which could affect hematology testing. Micro-collection tubes must be labeled in the same manner as other collection tubes.

Review the Process:

1. Select the proper equipment to perform the task.
2. Select a puncture site and pre-warm the area.
3. Cleanse the puncture site and allow it to dry.
4. Perform the puncture across the ridges of the fingerprint.
5. Wipe away the first drop of blood unless the test requires the first drop be tested.
6. Position the finger below the plane of the heart, with the puncture site aimed directly downward.
7. Hold the first microcollection tube in place.
8. Squeeze and release the finger in a rhythmic motion.
9. Fill each container to the specified level, following the correct order of draw for each tube.
10. Apply gauze and pressure to the puncture site.
11. Invert the microcollection devices to mix the contents according to manufacturer's directions, then label them.

Troubleshooting:

Q. Sometimes the blood from a puncture site doesn't flow well. What else can I do to get enough blood?

A. 1. Make sure the patient is warm. A warmed blanket wrapped around the entire extremity may help.

2. Have the patient hang their arm down. 3. Be sure you are using a lancet device that will provide optimal blood flow.

4. Choose a puncture site that is fleshy and without calluses.

Q. If an inadequate amount of blood is obtained in two attempts, can the contents of the two tubes be combined?

A. Absolutely not. Like evacuated tubes, the blood-to-anticoagulant ratio must be maintained in microcollection tubes. Combining two tubes will double the amount of anticoagulant, which may cause the reporting of erroneous results. Repeat the collection being sure the site is warmed and use an incision device of a sufficient size.

Q. Why is the blood running all over my gloves and down the patient's hand, everywhere but in the tube?

A. The puncture probably runs parallel to the ridges in the skin, or the puncture site is not directed downward. The puncture should be across the ridges, not parallel to them. Point the puncture site downward. Make sure your gloves are not too large for your hand and that you are squeezing above the site.



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Test Your Knowledge

1. Pre-warming an intended puncture site may increase the blood flow to the area by how much?
 - a. twice
 - b. seven times
 - c. it only makes the puncture less painful and does not increase blood flow
 - d. none of the above
2. What type of lancet device should be used when microcollection tubes are to be filled?
 - a. one that is appropriate for the patient's age, weight, and puncture location
 - b. a device that will maximize blood flow
 - c. a retractable lancet
 - d. all of the above
3. Where should a finger puncture be performed?
 - a. across the ridges of the fingerprint, on the fleshy part of the middle and ring fingers of either hand
 - b. the tip of any finger
 - c. between the ridges of the fingerprint on the center fleshy area of the fingertip
 - d. none of the above
4. What method should be used to extract blood from a skin puncture site when filling a microcollection tube?
 - a. a sustained squeezing around the puncture site
 - b. milk the blood to the puncture site
 - c. a rhythmic squeeze and release to give the capillary bed opportunity to refill
 - d. all of the above will be sufficient to fill the tube
5. Can the contents of two or more insufficiently filled microcollection tubes be combined to create a full sample?
 - a. no, the sample will have an incorrect blood-to-anticoagulant ratio, rendering inaccurate results
 - b. only if the collector has determined that the blood has not yet clotted
 - c. two or more specimens may be combined to create a full sample
 - d. none of the above
6. Microcollection tubes do not require inversion to mix them.
 - a. true
 - b. false
7. The correct order of draw for the microcollection tubes listed below is:
 - a. serum, heparin, EDTA
 - b. EDTA, heparin, serum

Name: _____ Date: _____

Facility/Supervisor _____ Dept: _____