

NBS01-A6 QG

How to Collect an Acceptable Blood Spot Specimen

A1 Preparation

- A1.1 Wash hands vigorously.
- A1.2 Wear powder-free gloves and change gloves between newborns.
- A1.3 Confirm identity of newborn and ensure that all data elements on the form are complete, accurate, and consistent.

A2 Sampling Technique

- A2.1 **Warm heel for puncture (incision/stick) site.** Use a commercially available heel-warming device containing an exothermic thermochemical composition, or warm the site with a soft cloth that has been moistened with warm water (**less than 42°C**) for three to five minutes. In some situations, warming the site may not be necessary to increase blood flow and volume.
- A2.2 Position the newborn's leg lower than the heart to increase venous pressure.



- A2.3 Wearing gloves, wipe newborn's heel with 70% isopropyl alcohol.
- A2.4 Allow heel to air dry.



- A2.5 The puncture should be made within the shaded area as illustrated in the figure above.



- A2.6 Using a sterile lancet of recommended length, perform puncture (depth < 2.0 mm) as illustrated **or** use a retractable incision device. A retractable incision device may provide superior blood flow by making a standardized incision 1.0 mm deep by 2.5 mm long.
- A2.7 Gently wipe off the first drop of blood with sterile gauze. (Initial drop contains tissue fluids, which might dilute sample.)
- A2.8 Wait for formation of large blood droplet.
- A2.9 Apply gentle pressure with thumb around the heel, but not near the puncture site, and ease intermittently as drops of blood form.



- A2.10 Gently touch the filter paper card to the blood drop and fill each printed circle with a SINGLE application of blood. Do not touch the filter paper to the heel. Apply blood to one side only. Observe the saturation of each printed circle as the blood flows through the filter paper. After collection, examine both sides of the filter paper to ensure saturation.
- A2.11 All used items should be disposed of in an appropriate biohazard container.
- A2.12 After the specimen is collected, elevate the newborn's foot and, using sterile gauze, briefly apply gentle pressure to the puncture site until the bleeding stops. Do not apply adhesive bandages.

- A2.13 Allow blood specimen to **air dry thoroughly** on a horizontally level, nonabsorbent, open surface, such as a drying rack or plastic-coated test tube rack, **for a minimum of three hours** at ambient temperature. Keep specimen away from direct sunlight. (Do not stack or heat.)
(See Appendix F of NBS01-A6.)



- A2.14 After the specimen has dried, place in an approved container for transport (see local regulations).
- A3 **Pitfalls**
 - A3.1 (See Appendix B of NBS01-A6.) Failure to allow residual alcohol to dry might dilute the specimen and adversely affect test results.
 - A3.2 Puncturing the heel on posterior curvature will permit blood to flow away from puncture, making proper spotting difficult. **Do not use previous puncture sites.**
 - A3.3 "Milking" or squeezing the puncture site might cause hemolysis and admixture of tissue fluids with specimen.
 - A3.4 Do not layer successive drops of blood on the target spot. If blood flow diminishes to incompletely fill circles, **repeat** sampling technique A2.1 through A2.10.
 - A3.5 Avoid touching the area within the circle before and after blood collection. Do not allow water, feeding formulas, antiseptic solutions, or powder from gloves or other materials to come into contact with the specimen card before or after use.
 - A3.6 Do not place the specimens in the transport container until thoroughly dry. Insufficient drying adversely affects test results. Use of sealed plastic bags requires desiccation. Ideally, transport specimens within 24 hours of collection. Include tracking number and/or other identifiers on the envelope in case package is misplaced.

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