

Specimen Collection: Quantity Not Sufficient (QNS)

Minnesota Newborn
Screening Program



Newborn Screening Heel Stick

- Confirm the following:
 - Card is not expired
 - Infant is appropriately identified
 - Demographic information is complete
- Procedures outlined by the Clinical and Laboratory Standards Institute (CLSI) should be followed
- Specimens should be collected by heel stick except in the NICU
- Warm the heel, clean the skin with an alcohol wipe, and allow to thoroughly air dry
- Use a sterile lancet or heel incision device to make a small incision

Filling the Spots

- Wipe away the first drop of blood and allow a large drop to form
- Touch the first circle on the screening card against the large blood drop and allow the blood to soak through the filter paper and fill the circle
- Every circle needs to be filled to the outer edge and saturated to the other side
- Apply the blood from only one side of the filter paper
- Blood can be applied from the front or the back of the card
- Do not apply multiple layers of blood drops to the same circle

Drying the Screening Card

- Dry on a clean, flat, non-absorbent surface for at least three hours
- Do not stack multiple cards or allow the blood to touch other surfaces or specimens while drying to avoid compression, which may impact the results¹
- Avoid direct sunlight or other heat sources
- Do not close the biohazard flap over the blood spots until they are completely dry

QNS Determination

- An article published by the CDC in 2015 indicates that variation in infant hematocrit impacts the accuracy of newborn screening²
- Scientists found that spots with less blood also have fewer red blood cells, which could lead to less accurate screening results²
- Minnesota's Newborn Screening Program has quality standards for assessing blood spots acceptable for screening
- From each spot, Newborn Screening Program staff need to take multiple punches with a diameter of 3 mm each in order to screen for more than 50 disorders
- Specimens which do not have enough blood in the circles for testing will be reported as QNS
- A QNS specimen will prompt a request for collection of another specimen

¹George, R. and Moat S., Effect of Dried Bloodspot Quality on Newborn Screening Analyte Concentrations and Recommendations for Minimum Acceptance Criteria for Sample Analysis. *Clinical Chemistry*. 2015, 62:2.

²Hall, E., Flores, S., and De Jesus, V., Influence of Hematocrit and Total-Spot Volume on Performance Characteristics of Dried Blood Spots for Newborn Screening. *Int. J. Neonatal Screen*. 2015, 1, 69-78.

