

# How to Collect Blood Spot Specimens from Newborns (4:58)

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**Male Narrator:** The value of newborn screening in helping to rescue the lives of children is accepted in all parts of the world. The success of newborn screening depends to a great extent on the quality of the baby's blood specimen. (Pictures of moms, babies, family members, and medical personnel)

(0:24)

For the screening test to give reliable results, it is of critical importance that the specimen be properly collected. In this short video, we demonstrate how to take blood spot specimens from babies. (Pictures of baby and blood spot-filled specimen card)

(0:33)

The demonstration is in accordance with the 2013 approved standard of Blood Collection on Filter Paper for Newborn Screening Programs published by the clinical and laboratory standards of CLSI. (Picture of blue CLSI pamphlet cover)

(0:47)

Specimen collection for newborn screening is normally carried out between 24 and 48 hours after birth. However, the same method is appropriate with older babies, as when it's necessary to obtain a fresh specimen after some weeks. (Picture of mom and medical personnel with baby in crib preparing for blood specimen collection)

(1:00)

The blood specimen is taken from the baby's heel. Either foot may be used, but the puncture must be made on the side close to the heel, since puncturing the skin elsewhere may damage the bone.

(Diagram with picture of foot indicating suitable region for puncture)

Before sampling, gently warm the baby's heel. This will increase the blood circulation and make sampling easier. (Picture of mom and medical personnel with baby in crib showing the warming of heel procedure; close-up picture of baby's heel being warmed.)

(1:21)

The blood spots are collected onto a specimen card, according to the practice of your laboratory. (Picture of person's hand with pen filling out the demographics on the specimen card) Either fill in the baby's details or attach a barcode label to ensure positive identification. (Picture of hand attaching bar code label to card) Make sure there's a label on each layered copy of the blood spot card, and that the label includes all demographic information, and information that is listed on the blood spot card. Be careful to not touch the specimen collection area with your fingers. (Picture of card collection area without blood) Wash your hands before proceeding, and from then on wear gloves throughout the period while you're handling blood. (Picture of medical personnel washing hands) If you're taking

## HOW TO COLLECT BLOOD SPOT SPECIMENS FROM NEWBORNS

specimens from more than one baby, you should wash your hands and use new gloves for each baby. (Medical personnel putting on purple gloves) Clean the area for the puncture with an alcohol swab, (Picture of gloved personnel swabbing baby's heel) and allow the skin to dry. Make the puncture with a sterile lancet or a heel incision device to a depth not greater than 2 mm. (Picture of gloved hands holding baby's heel; gloved hand opening heel incision device; picture of gloved medical personnel performing puncture procedure with mom looking on) gently wipe away the first drop of blood with a dry, sterile gauze. (Close-up of baby's heel with medical personnel wiping blood away with gauze) Do not squeeze the foot, since this may cause hemolysis, and can also contaminate the blood sample with tissue fluids. Allow a drop of blood to form that will be large enough to fill the circle printed on the collection card. (Close-up of baby's face; close-up of baby's heel blood being applied to the card collection area) Apply only once to each circle and do not layer. (Close-up of medical personnel's face) Collect the blood on one side of the card only. (Picture of card collection area circles filled with blood) Make sure that the blood fills the circle completely and saturates the paper right through. (Split-screen picture of front and back of card collection area filled with blood) Although not the preferred method, specimen collection using a clean capillary tube, without EDTA and heparin, can be used for transferring the blood from the baby's heel to the filter paper. (Picture of gloved hand holding capillary tube) Caution is needed to prevent damage to the filter paper. See the CLSI standard document for recommended procedures. (Picture of CLSI standard document) Let the card dry for a period of at least three hours on a flat surface in the air at an ambient room temperature of 64 to 77 degrees Fahrenheit. (Picture of medical personnel with collection card in lab area. Picture of collection card area filled with blood) Do not stack the cards on top of one another while drying. Do not use heat or sunlight to dry the card. Check that the specimens are completely dry, and that all information has been given. Once dry, the biohazard flap can be closed, and the specimen collection card can be sent to the laboratory. Send specimens no later than 24 hours after collection. To some extent, you can check visually that the specimens you have prepared are valid. (Picture of specimen card collection area filled with blood) For comparison, the CLSI standard document provides several pictures of unacceptable specimens. (Picture of Blood Spot Check handout with pictures of unacceptable specimens) The most common pitfalls in specimen collection include insufficient quantity of blood, layering of the specimen, milking or squeezing of the heel such that tissue fluids contaminate the sample, or abrasion. (Pictures of what unacceptable specimen card collections look like: insufficient quantity of blood, clotted or layered blood spots, specimen appears diluted, discolored or contaminated) If you follow the steps described in this video, the dried blood spot specimen you sent to the laboratory will almost always be valid. (Picture of Blood Spot Check handout with pictures of unacceptable specimens and close-up of handout's acceptable specimen sample picture)

(4:30)

To summarize, the blood should be evenly applied and cover all printed circles. The specimen should be completely dry and sent to the laboratory no later than 24 hours after collection. (Picture with following text: This educational video has been produced by PerkinElmer. We are grateful for the help given by the Hospital District of Southwest Finland. We would like to thank the staff of TYKSLAB as well as others who participated. PerkinElmer for the better logo)