

COLLECTION OF NEWBORN SCREENING SPECIMENS

This document is a quick guide for collecting newborn screening dried blood spot specimens.

Newborn Screening is Mandatory

Newborn screening (NBS) has the potential to save or greatly improve the life of a newborn; therefore, NBS is mandatory in New York State (NYS) per Public Health Law Section 2500-a. Responsibilities of the birth attendant are described in 10 New York Codes, Rules and Regulations (NYCRR), Section 69-1.4. Written consent from the parent(s) is **NOT** required.

SPECIMEN COLLECTION:

Collecting a specimen properly is key to timely and efficient testing. Please confirm that all staff are thoroughly trained on proper specimen collection techniques before collecting any specimens.

Training on specimen collection **must occur annually** for all staff, and completion of training must be documented and made available to the Newborn Screening Program (NBSP) upon request.

In addition to this guide, staff can use the following resources:

- “Simple Spot Check” poster lists possible causes of unsuitable specimens and illustrates examples of unsuitable specimens. The poster can be ordered [here](#).
- The back of the blood collection form contains instructions for specimen collection.
- Clinical and Laboratory Standards Institute video: [Making a Difference Through Newborn Screening: Blood Collection on Filter Paper \(NBS01-Ed7\)](#)

BLOOD SPOT COLLECTION FORMS:

The NYS NBSP tests dried blood specimens collected via heel stick. Drops of blood from the heel stick are used to saturate the marked circles of the specimen collection form. The specimen collection card may be referred to as: DOH-1514, the filter paper card, the MCH3 form, or the blood collection form.

Specimen cards are shipped quarterly to most birth hospitals, to the attention of the designated hospital employee. Shipments should be received by **1/1**, **4/1**, **7/1**, and **10/1**. If you do not have your shipment by this date, please contact the NBSP by emailing nbsinfo@health.ny.gov. To obtain additional blood specimen cards at no charge visit our [website](#).

The blood collection forms are regulated by the Food and Drug Administration (FDA) as medical devices. Be sure to check the **expiration date** on the back of the cards. A specimen collected on an expired card will be unsuitable for testing.

Any questions regarding the blood collection forms can be directed to the NBSP by calling (518) 473-7552 or emailing nbsinfo@health.ny.gov.

UNUSED BLOOD COLLECTION FORM STORAGE:

- Improper storage of blood collection forms can affect specimen quality.
- Cards should be stored in a cool, dry location, out of direct sunlight until they are ready for use.
- Cards should be stored in their original wrapping and stacked in a manner that avoids compressing the filter paper.
- Store cards upright, **NOT** flat. This helps to keep the fibers within the filter paper from becoming compressed. Compressed fibers lead to uneven saturation and specimen quality issues.

COMPLETION OF DEMOGRAPHIC INFORMATION ON THE BLOOD COLLECTION FORM:

The NBSP uses the information on each infant's blood collection form to interpret screening results and disseminate the results to the appropriate parties quickly. It is extremely important that staff double check every blood collection form for completeness and accuracy prior to shipping, paying extra attention to all required and critical data fields. Inaccurate or illegible information could result in delays in diagnostic testing and treatment of affected infants.

Critical data fields:

- Date of Birth
- Time of Birth (4-digit, military time)
- Date of Specimen
- Time of Collection (4-digit, military time)
- Gestational Age (2-digit weeks and 1-digit day)
- Birth Weight (grams)

All information requested on the blood collection form should be filled in using only blue or black ballpoint pen. This information must be accurate and legible, please **DO NOT** write in cursive.

Filling out the blood collection form:

1. The **PARENT COPY** (the pink top copy) must be given to the parent along with the brochure, "Newborn Screening: For Your Baby's Health" in the parent's native language, as available. Brochures can be ordered from our website in multiple languages [here](#).
2. The **NBS LAB COPY** (1st and 2nd white copy) must have all fields completed.
3. The **SUBMITTER COPY** (green copy) is kept by the hospital and must be added to the infant's medical record.

Hospitals may opt to submit demographic information in an electronic format by using Health Level 7 (HL7) electronic transfer of demographic data. HL7 hospitals transmit demographic information from their electronic medical record system directly to the NYS NBSP. For more information on HL7, visit our [website](#).

MATERIALS NEEDED FOR COLLECTION:

- Blood collection form
- Sterile lancet, with a tip not to exceed 2.0 millimeters (mm) in length
 - Standardized incision devices that produce a 1.0 mm deep incision are available
 - Devices developed specifically for premature infants are also available
- Sterile 70% alcohol pads or other appropriate cleansing agent
- Sterile gauze pads
- Warm compress
- Powder-free gloves
- Supplies for heel stick aftercare as per your institution's policy

TECHNIQUES FOR BLOOD COLLECTION, APPLICATION, AND DRYING:

Pre-Collection procedures:

- Obtain all materials necessary for collection
- Check the expiration date on the collection card
- Ensure demographic data on the blood collection form is correct, complete and legible; **verify the information on the card is for the infant from which you are collecting blood**
- Wash your hands, then put on gloves
- Avoid touching the preprinted circles before collection. Oils, lotions, and other materials from your hands can contaminate the circles even if there is no blood and can result in invalid specimens.
- Warm the heel with a warm compress to increase blood supply to the area

Drying procedures

- Specimens should be air dried FLAT for at least 3 hours prior to shipping
- Lay the specimen flat with the side of collection facing up
- While drying, specimens should be kept out of direct sunlight, away from any direct heat source, and away from any potential contaminants
- Air dry at 64 to 77 degrees Fahrenheit for 3 hours
 - Relative humidity **over** 50% will cause **longer** drying times
- **The wet bloodspots should NOT touch any surfaces while drying**
- The biohazard flap should be folded over the spots only after the specimen has fully dried



Image from Clinical Laboratory Science Institute (CLSI) NBS01-Ed7-QG

Techniques for specimen collection are listed in the table below.

1. Remove the heel warmer.	
2. Place infant's leg in position to increase venous pressure. Position the newborn's foot at the level of the heart or lower until blood collection is complete.	
3. Cleanse puncture site with a sterile alcohol pad.	
4. Then, wipe the site dry with sterile, dry gauze.	
<p>5. Hold the infant's heel firmly, to prevent sudden movement. The heel puncture should be made on the plantar (sole) surface, at the heel. The best area for heel puncture is toward the sides of the heel as shown in the cross hatched areas in the photo to the left.</p> <p><i>Do not</i> puncture on the posterior curvature of the heel, or on a previous puncture site.</p>	
6. Puncture heel using no longer than a 2 mm sterile lancet. Puncture the heel skin with one continuous, deliberate motion at a slight angle (a little less than 90 degrees).	
7. Wipe away first drop of blood with dry, sterile gauze , as it is likely to contain tissue fluids that will contaminate the specimen.	
8. Allow second, larger drop of blood to form by applying gentle intermittent pressure to the heel with your thumb. Do not "milk" the area surrounding the puncture site excessively. Milking may cause an admixture of tissue fluids with blood specimen, resulting in an invalid specimen.	
9. Gently apply a large drop of blood to the first preprinted circle on the filter paper, allowing blood to soak through and completely fill the circle. Specimens may be collected on either side of the filter paper but should NOT be applied to BOTH sides. Do NOT use capillary tubes or syringes for specimen collection. Do NOT use venous or cord blood draws. Do NOT touch the infant's heel directly to the paper.	
10. Apply ONE drop of blood per circle. Do not layer successive drops of blood or touch the heel to the same circle multiple times. Apply blood to only one side of the filter paper.	
11. Fill ALL circles completely with blood.	
12. To prevent contamination, avoid touching the wet bloodspots after collecting the blood.	
13. Allow blood spots to air dry thoroughly for at least 3 hours on a flat, nonabsorbent surface. The wet blood spots should not touch any surface during the drying process. Never lay one filter paper on another before thoroughly drying.	
14. Once blood spots are completely dry, place the biohazard flap over blood. Then, place the specimens inside of the package, all stacked in the same direction.	
15. Ship the dried blood collection forms with a transport form to the testing laboratory as soon as possible, within 24 hours of collection, using priority overnight delivery.	