

# Connecticut Newborn Screening Blood-Spot Specimen Collection Guidelines

CONNECTICUT NEWBORN SCREENING PROGRAM • April 2020

## Newborn Screening Specimen (Filter Paper) Card

The Connecticut Newborn Screening Program's specimen (filter paper) cards come in various colors. It is important to check the expiration date located on right side beneath the circles on the filter paper. Specimens submitted on an expired card will be deemed unsatisfactory for testing. Collection instructions are located on the back of the card. It is important to accurately complete all information on the front of the card, especially the date and time of birth, estimated gestational age (EGA), birth weight and date and time of collection. This information is used in the interpretation of results. The information recorded on the card is also recorded in the CT Newborn Screening Program database (Maven) where available.

**FRONT OF CARD:**

SATURATE ALL CIRCLES COMPLETELY

EXP. DATE: 2022-02-28

LOT: 713/319/1111

**AFFIX BARCODE LABEL IN BOX OR PRINT PATIENT INFORMATION**

ACCESSION #: \_\_\_\_\_

HOSPITAL MEDICAL RECORD #: \_\_\_\_\_

MOTHER'S NAME: \_\_\_\_\_

INFANT'S NAME: \_\_\_\_\_

☐ MALE ☐ FEMALE

BIRTH WEIGHT (gm): \_\_\_\_\_

DOB: \_\_\_\_\_

ESTIMATED GESTATIONAL AGE: \_\_\_\_\_ ☐ AM ☐ PM

TIME OF BIRTH: \_\_\_\_\_

Date of Collection: \_\_\_\_\_

Time of Collection: \_\_\_\_\_ ☐ AM ☐ PM

TPN stopped ≥24 h before collection: ☐ YES ☐ NO ☐ NA

Did baby receive a transfusion of blood products before this specimen was collected: ☐ YES ☐ NO

Collector's Full Name: \_\_\_\_\_

☐ First Specimen ☐ Retest Specimen

PCP Name: \_\_\_\_\_

PCP Telephone #: \_\_\_\_\_

Specimen collected by facility of birth: ☐ YES ☐ NO

If not collected by the facility of birth, please complete the following:

Facility/Practice submitting specimen: \_\_\_\_\_

Submitter's Address: \_\_\_\_\_

Submitter's Telephone: \_\_\_\_\_

Do NOT use area below this line

State of Connecticut  
Connecticut Department of Public Health  
Dr. Katherine A. Kiley State Public Health Laboratory  
P.O. Box 1686  
Hartford, CT 06144  
860-820-0015

**BACK OF CARD:**

**INSTRUCTIONS: PLEASE PRINT**

- Check expiration date on card.
- Use ballpoint pen to fill out form completely.
- Store specimen cards in a cool, dry place.
- Do not handle filter paper portion. Skin oils will prevent proper saturation.

**SAMPLE COLLECTION:**  
The ideal collect time is 24-48 hours of age for an infant not receiving blood products.

**COLLECT SAMPLE FROM SHADED AREA**

1. Sterilize and dry skin. Puncture heel with sterile lancet. Wipe away first drop of blood.  
2. Allow large blood droplet to form.  
3. Apply blood specimen to front of the card ONLY. Touch filter paper to blood and allow to soak through completely in each circle. Total saturation of the circles must be evident when the paper is viewed on both sides.  
4. Do NOT use capillary tubes to apply blood. They may damage the filter paper.  
5. Air dry blood spots for four hours horizontally in the drying rack at room temperature. Keep away from direct sunlight, heat and humidity. DO NOT allow wet specimen to touch any other surface.  
6. Send filter paper cards to DPH lab within 48 hours of collection.

**ACCEPTABLE**  
Circle filled and evenly saturated

**UNACCEPTABLE**  
Layering  
Insufficient, multiple applications  
Scum rings present

**Note: Specimens may be unsatisfactory if:**

- Card is expired.
- Circles are not completely filled (QNS).
- Sample is oversaturated due to layering of blood or use of capillary tubes.
- Filter paper is poorly soaked.
- Card is contaminated.

a. Do not touch sample area  
b. Do not use card if damage is evident

front

back

Figure 1


## Obtaining a NBS Blood-Spot Specimen by Heel-Stick

### Demographics

Complete the demographic information within the square (fig. 1) of the NBS specimen card, including the accession number (an 8-digit number beginning with the numeral "7").

- If you do not have the accession number that was assigned to the baby, please contact the hospital of birth or the CT NBS program (860-920-6628).
  - If you do not have an accession number and are unable to immediately reach the CT NBS Program, submit the blood-spot specimen without the accession number and notify the CT when possible.

### Procedure

- **Collect supplies**
  - sterile lancet (approx. 2.0 mm tip)
  - sterile alcohol prep
  - sterile gauze pads
  - soft cloth
  - gloves
  - NBS specimen card with demographics completed
- **Check the expiration date**
  - Expiration date is located next to hour glass (fig. 1).
  - Discard expired cards or cards without dates. Specimens submitted on expired cards will be deemed unsatisfactory (UNSAT) and require collection of another bloodspot specimen.
- **Select proper site for heel-stick**
  - Hatched  areas (fig. 2) indicate safe areas for puncture.
  - Hold the infant's limb in a dependent position and gently massage site.
  - Warm the heel by applying a warm moist towel for 3 minutes (not hotter than 42°C).
  - Clean site with alcohol swab (do not use Betadine/providone iodine).
  - Allow site to dry thoroughly before puncturing.
    - Not allowing site to dry thoroughly can result in dilution of the specimen and a specimen that is UNSAT for testing.
  - Puncture heel with lancet.
    - Wipe away the first drop of blood with sterile gauze.
    - Allow a large drop of blood to form.

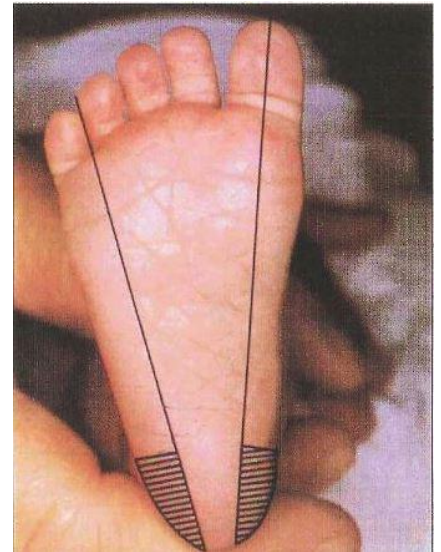


Figure 2

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- Touch the filter paper circle on the front of card (fig. 3) to blood drop.
  - Allow the blood to soak through until the circle is fully saturated from front to back (blood should be visible on back of card). Do not apply blood to the back of the card.
  - Do not layer blood (don't apply multiple drops to one circle).
  - Do not touch the filter paper to the baby's skin or with your fingers.
  - For very ill or very low birth weight babies, it is more important to saturate as many circles as possible rather than to put a small amount of blood in each circle.

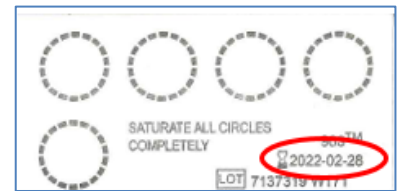


Figure 3



### Completion of Specimen Collection Information and Drying

- Complete the remainder of the information on the lower portion of the specimen card.
  - It is essential to complete all requested information on the lower portion of the card
  - Parenteral Nutrition (PN or TPN) and transfusions (platelets, plasma and RBCs) can affect certain tests, making the results the invalid, so please record this information on the specimen card and in Maven (when available).
- Enter specimen collection information in Maven and generate the NBS barcode label (where available).
  - Place the barcode label over the square with the demographic information on the NBS specimen card (fig. 1).
- Allow the blood spots to dry at least 4 hours in a horizontal position.
  - Do not stack specimens
  - Dry in a climate controlled area, free from possible contamination

### Shipping

- Place the dry specimen in the envelope provided
- Shipping within 24 hours of specimen collection is recommended and is consistent with national timeliness guidelines. [See CT NBS Timing of Blood-Spot Collection Guidelines.](#)
  - Send by same day (preferred) or next day courier or place in mail.
  - Record shipping date and tracking number (if applicable) in Maven and/or patient record (for quality assurance purposes).
- The State Laboratory receiving personnel and/or security guards will accept specimen delivery 24 hours per day, 365 days per year.
- If mailing the NBS specimen please send to the CT NBS Program, State Laboratory, PO box 1689, Hartford, CT 06144-1689. Next day or two day delivery is preferred.
- Couriers are to deliver NBS specimens directly to the CT NBS Program, State Laboratory, 395 West Street, Rocky Hill, CT 06067. Instruct the courier to avoid exposing the envelope to sunlight, heat and humidity, as this can affect screening results.
- See the Centers for Disease Control and Prevention Blood-spot Shipping Guidelines at [https://www.cdc.gov/labstandards/pdf/nsqap/Bloodspot\\_Transportation\\_Guidelines.pdf](https://www.cdc.gov/labstandards/pdf/nsqap/Bloodspot_Transportation_Guidelines.pdf).