

TEXAS NEWBORN SCREENING SPECIMEN QUALITY GUIDE



TEXAS
Health and Human
Services

**Texas Department of State
Health Services**

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WHAT IS NEWBORN SCREENING?

Newborn screening (NBS) is a public health program that tests babies shortly after birth for serious but treatable conditions that may not show symptoms at birth. In Texas, newborns receive three screening tests shortly after birth: blood-spot based, hearing and critical congenital heart disease. Early detection and treatment can prevent serious illness, disability, or death.

Texas requires every baby receive two newborn screening blood spot-based tests for the conditions on the state newborn screening panel. Healthcare professionals collect a small blood sample using a heel stick and apply it to the newborn screening collection kit. The birth facility collects the first screen when the baby is 24 to 48 hours old. A pediatrician or other healthcare professional collects the second screen when the baby is 7 to 14 days old, a minimum of 168 hours. The physicians or other healthcare professionals then sends the specimen to the Texas Public Health Laboratory in Austin for testing.

Why does the Texas Newborn Screening program only provide qualitative test results?

The Texas Newborn Screening (NBS) Program reports qualitative results such as "normal" or "abnormal" and provides follow-up recommendations and timelines. Newborn screening identifies babies who may be at risk for certain conditions. It does not diagnose conditions.

The Texas NBS Laboratory develops, uses, and regularly reviews its own validated testing methods, reference ranges, and cutoff values to maintain accuracy. Because these values are specific to the Texas Laboratory's testing methods and instruments, physicians and other healthcare professionals should not compare them to values from outside laboratories.

However, they should review newborn screening results along with the clinical history of the baby. If symptoms, abnormal findings, or family history raise concerns, the physician or other healthcare professional should order diagnostic testing right away, regardless of the screening results. Follow-up recommendations may include diagnostic testing and consultation with condition-specific specialists.

Steps for Abnormal Results

- An abnormal result means the baby may be at a higher risk, not that the baby has the condition.
- Healthcare professionals need to conduct diagnostic testing to confirm or rule out conditions.
- The DSHS Clinical Care Coordination (CCC) Follow-Up Team provides healthcare professionals with the next steps when they report results. It is important to follow all recommendations made by CCC.
- Physicians and other health care professionals must ensure they complete confirmatory testing and immediately report results back to CCC in a timely manner.
- Contact DSHS CCC Staff at 512-776-3957 or newborn@dshs.texas.gov for support.



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NewbornScreeningLab@dshs.texas.gov
512-776-7585

Healthcare Professional Requirements to Collect the Newborn Screen

Texas is a two-screen state. Texas law requires every baby to receive newborn screening blood-spot-based tests for the conditions on the Texas Newborn Screening Panel.

- The birth facility or midwife collects the first newborn screen when the baby is 24 to 48 hours of age, before they discharge from the hospital or transfer to another facility.
- A pediatrician or other healthcare professional collects the second newborn screen when the baby is 7 to 14 days of age, with a minimum of 168 hours.

Completing the Texas Newborn Screening Collection Kit

*****Keep the protective flap over the filter paper until you collect the specimen. Once you collect the specimen and let it dry, close the protective flap over it. This stops hand contaminants, such as lotion and hand sanitizer, from touching the collection surface.**

Newborn Screening Parent Information (Page 1):

- Fill out the baby's information on the top of the Texas Newborn Screening Parent Information Form.
- Give this copy to a parent or guardian for all screens. For the first newborn screen, explain that the parent or guardian may take the form to the baby's doctor during the baby's 7 to 14 day checkup where the healthcare professional will perform the second newborn screen.

Storage and Use of Newborn Screening Blood Spots Form (Page 2):

- A parent, guardian, or submitter may fill out Section 1. A label with the requested information is acceptable.
- Parent or guardian reviews, completes, and signs the form.
- Submitter returns the Storage and Use of Newborn Screening Blood Spot Form to DSHS with any newborn screening specimen shipment.
- As an option, the parent or guardian may take the form home and return it to DSHS by mail later.

Demographic Form (Page 3/4):

- The Demographic Form serves as the official patient record for testing and follow-up. Confirm the newborn's identity and ensure that all data is complete. Accurate information on the demographic form is vital for testing and result follow-up. Please take extra care when completing this information.
- To ensure the information is readable and can be accurately scanned into our system, legibly print ALL information. USE black or blue ballpoint pen AND BLOCK CAPITAL LETTERS. Press hard for good copies. Do not use glitter pens; pieces of glitter can flake off and affect test results.
- If the information does not fit in the space provided, squeeze it in. Do not cut off any information. Fix demographic errors by making a single line through the incorrect information, writing the correct information above or adjacent to the error, and initialing and dating near the correct information.
- Newborn screening submitters who plan to implement a patient demographic label must coordinate with DSHS Laboratory to ensure the label meets requirements.
- **Mother's Information**
 - The information should be the biological mother's information. If adopted, fostered, born via surrogate, or a ward of the state, the information should reflect who will care for the baby after release from the health care facility.

- **Baby's Primary Care Provider Information**
 - Provide the name and contact information for the baby's primary care provider. This information is essential for follow-up if the newborn screening result is abnormal.
- **Newborn Information**
 - Enter the newborn's first and last name, medical record number, and birth order. Specimen must contain two patient identifiers, such as last name and date of birth.
 - Record the **Birthweight** in grams. For second screens, record the baby's birthweight at the time of birth, not the current weight.
 - Enter both the **Date of Birth** and **Date of Collection**, including **Military Time**. DSHS rejects specimens missing either because the laboratory cannot determine the infant's age or the specimen's age.
 - For second screens, if available, enter the serial number from the first screen in the **Previous Specimen Serial Number** box. The **Newborn Screening Parent Information** page from the first screen contains the serial number.
 - Indicate the baby's **Sex**, **Ethnicity/Race**, and **Status** using the appropriate codes.
 - **TPN** (Total Parenteral Nutrition) can significantly affect newborn screening results, even if the baby received TPN for a short time.
 - Indicate the baby's feed status by selecting applicable code listed on the demographic form. Options include breastmilk only, formula only, TPN +/- milk (total parental nutrition with or without milk), breastmilk & formula and NPO (nothing by mouth).
 - For NBS kits with serial numbers starting with 26XXXXXXX or higher, mark "Y" in the box if the baby received TPN at any time before or during specimen collection. Leave the field blank if the baby did not receive TPN.
 - Healthcare professionals define **Gestational Age** at birth as the weeks from the mother's last menstrual period to delivery. When available, document the gestational age in weeks and days at birth. Do not enter the corrected gestational age. If the gestational age is unknown, the specimen remains acceptable for testing.
 - If the infant receives a blood transfusion, intravenous immunoglobulin (IVIG), or extracorporeal life support (ECMO) enter the **Last Transfused Date**. Transfusions, including red blood cells, platelets, fresh frozen plasma, or cryoprecipitate-even those received in utero-can affect test results.
 - **Meconium Ileus** is a bowel obstruction in newborns caused by excessively thick and sticky meconium. The first stool blocks the small intestines, specifically the ileum. When meconium ileus is present, it can impact newborn screening by giving inaccurate results for the cystic fibrosis test. Check 'Yes' if the infant has meconium ileus. If there is no meconium ileus, leave blank.
- **Submitter Information**
 - Provide the full address where you want us to send the results. You can order pre-printed labels using the *Order Form for Newborn Screening Supplies*.
- After you provide the Parent Information and Storage and Use Form, check the box on the demographic information sheet that indicates "Check to verify Parent Information and Storage & Use Form was distributed."
- Remove the yellow submitter's copy of the Demographic Form (page 4) and keep it for tracking results.

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Newborn Screening Quality Improvement Hints

COMPLETING DEMOGRAPHIC INFORMATION ON THE NEWBORN SCREENING FORM

The demographic form serves as the official patient record for testing and follow-up. Accurate information on the demographic form is vital. Please take extra care when completing this information.

Essential Steps for Accurately Completing the Demographic Page

- Complete the demographic form before specimen collection. Keep the protective flap over the pre-printed circles on the filter paper until you begin the collection to prevent contamination.
- To ensure the information is readable and can be accurately scanned into our system, please complete the form only in black or blue ballpoint ink. Press hard for good copies.
- Do not use glitter pens; pieces of glitter can flake off and affect test results.
- Legibly print using BLOCK capital letters.
- Confirm the newborn's identity and ensure all data is complete.
- Specimens must have two patient identifiers, such as last name and date of birth.
- If the information does not fit in the space provided, squeeze it in. Do not cut off any information.
- Record the date of collection on every newborn screening specimen. DSHS Laboratory rejects specimens without a date of collection because the Laboratory cannot determine the specimen's age. Newborn screening specimens must arrive at DSHS Laboratory by day 13, with the day of collection equal to day one, or the specimen will expire and require a recollection.
- You can fix demographic errors by making a single line through the incorrect information, writing the correct information above or adjacent to the error, and initialing and dating near the correct information.
- Remove the yellow submitter's copy of the demographic form (page 4) and keep it for tracking results.
- To access detailed instructions for completing the demographic form, visit: bit.ly/4hhdYU2.

AS A BEST PRACTICE:
have parents
review all
demographic
information
prior to
collection of the
blood on the
filter paper.



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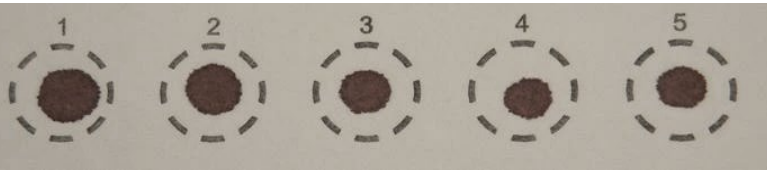
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Newborn Screening Quality Improvement Hints

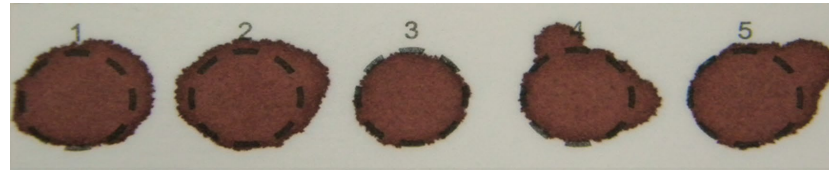
BLOOD DID NOT COMPLETELY FILL SPECIMEN CIRCLES

Healthcare professionals must completely fill and saturate all pre-printed circles on the filter paper. DSHS Laboratory needs enough blood to punch samples using automated equipment. If healthcare professionals do not completely fill all the pre-printed circles, the laboratory may not have enough blood to complete all required tests. The laboratory will mark these specimens as unsatisfactory for testing.

Not Enough Blood For Testing



Enough Blood For Testing



Key Steps to Ensure Fully Filled Specimen Circles

- For complete specimen collection instructions, visit: bit.ly/4hhdjU2.
- Warm the newborn's heel at the intended puncture site for three to five minutes to support good blood flow.
- Use a sterile, retractable disposable heel lancet and apply firm, controlled pressure.
- Gently squeeze the newborn's heel to allow a LARGE round drop of blood to form.
- Lightly touch the LARGE drop of blood to center of the pre-printed circle.
- Do not touch or rub the heel on the filter paper.
- Apply blood to one side of the filter paper only.
- Check the opposite side of the filter paper to confirm full saturation.
- Fill each pre-printed circle completely before moving to the next.
- If a circle does not completely fill, move on, do not layer additional blood.
- Ensure blood fully and evenly soaks through to the back of the filter paper.
- If the blood flow diminishes, repeat the specimen collection procedure using a new lancet.

In 2025, over 650 newborn screening specimens were rejected because the blood did not completely fill specimen circles. All of these specimens required a recollection and caused critical delays to testing.



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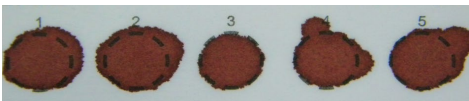
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Recommended Specimen Collection Techniques

Avoid contaminating the pre-printed blood collection circles on the filter paper in the Newborn Screening (NBS) Collection Kit. Do not use antiseptic solution, powder, lotion, or other materials that could affect the testing process.

1. Check the NBS Collection Kit expiration date. Do not use an expired kit; obtain a new NBS Collection Kit that has not expired.
2. Confirm the newborn's identity and ensure all data required on the NBS Collection Kit are complete and accurate.
3. Wash your hands vigorously. Wear gloves and change gloves between newborns.
4. Warm the newborn's heel around the intended area of the skin puncture site. You can use commercially available heel-warming devices or a warm, moist towel to do this. Warm the puncture site for three to five minutes to a temperature of no higher than 42 °C.
5. Clean the puncture site with alcohol.
 - a. **DO NOT** use any product with chlorhexidine gluconate, such as Chlorascrub swabs.
 - b. **DO NOT** use alcohol swabs with topical painkillers such as benzocaine.
6. Allow the skin to thoroughly air-dry.
7. Position the newborn's leg at the level of the heart or lower to increase venous pressure.
8. Place the sterile, retractable disposable heel lancet (depth of <2.0 mm for average-weight newborns and <0.85 mm for preterm and low birth weight term newborns) on the newborn's heel, apply gentle pressure to the lancet, and activate it to puncture the heel. You must follow the manufacturer's instructions for the orientation of the lancet. If there are no instructions provided, the puncture should be perpendicular to the heel prints, not parallel to them, which enables bigger drops of blood to form. The perpendicular puncture prevents blood from running down the grooves of the heel prints.
9. Wipe off the first drop of blood with a clean or sterile gauze pad; this eliminates the risk of dilution of the blood by tissue fluids and any residual alcohol.
10. Gently squeeze the newborn's heel to allow a LARGE round drop of blood to form. Gently touch the drop of blood to the center of a pre-printed circle on the filter paper. Do not touch or rub the newborn's heel on the filter paper. Apply blood to only one side of the filter paper. View blood absorption from the other side to ensure COMPLETE SATURATION OF THE ENTIRE PRE-PRINTED CIRCLE.



11. If, after blood application, the pre-printed circle is not full, do not apply more blood. This often causes the blood to cake, clot, or layer. Continue to the next circle and make sure that you form a LARGE drop of blood.

12. Complete one circle at a time and FILL ALL PRE-PRINTED CIRCLES. Examine both sides of the filter paper to ensure that the blood uniformly penetrates and saturates the paper. If the blood flow diminishes at any time, repeat the specimen collection procedure using a new lancet.
13. Allow the card to dry thoroughly at room temperature in a horizontal position for at least three hours. Do NOT allow the specimen to touch any surface.
14. Cover the dried specimen with the attached protective flap.
15. Ship dried specimens as soon as possible, using a courier service. If you do not have a courier service, contact 512-776-6030 to sign up for DSHS Lab Courier at no additional cost. Recommendations state that specimens should arrive at the DSHS Laboratory WITHIN 24 HOURS of collection.

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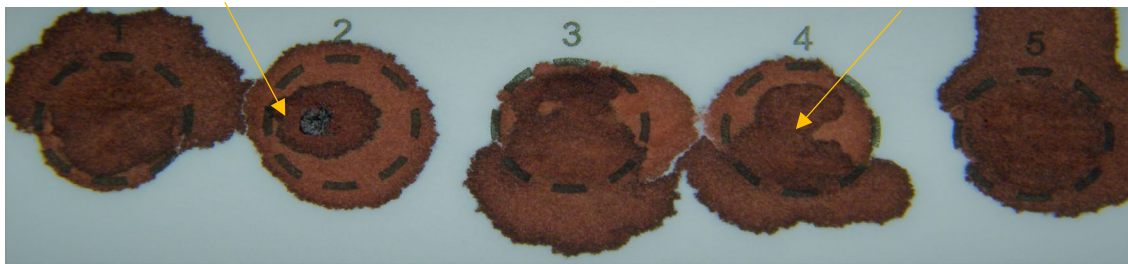
Newborn Screening Quality Improvement Hints

BLOOD WAS CAKED, CLOTTED, OR LAYERED ONTO THE FILTER PAPER

The design of the filter paper allows it to hold a specific amount of blood. Caked, clotted, and layered blood specimens have too much blood. Specimens that have too much blood can cause falsely elevated results; therefore, these specimens will be unsatisfactory for testing.

Example of clotting

Example of layering



TIPS TO AVOID A CAKED, CLOTTED, OR LAYERED SPECIMEN

- For complete specimen collection instructions, visit: bit.ly/4hhdyU2.
- Warm the newborn's heel at the intended puncture site for three to five minutes to support good blood flow.
- Use a sterile, retractable disposable heel lancet and apply firm, controlled pressure. Wipe off first drop of blood.
- Gently squeeze the newborn's heel to allow a LARGE round drop of blood to form.
- Lightly touch the LARGE drop of blood to the center of a pre-printed circle on the filter paper.
- Do not touch or rub the newborn's heel on the filter paper.
- Apply blood to one side only while viewing from the other side to ensure complete saturation of the entire pre-printed circle.
- If a circle does not completely fill, move on, do not layer additional blood.
- Complete one pre-printed circle at a time and fill all circles.
- Examine both sides of the filter paper to ensure that the blood fully and evenly soaks through to the back of the filter paper.
- If the blood flow diminishes, repeat the specimen collection procedure using a new lancet.

In 2025, over 2,500 newborn screening specimens were rejected because the blood was caked, clotted, or layered onto the filter paper. All of these specimens required a recollection and caused critical delays to testing.



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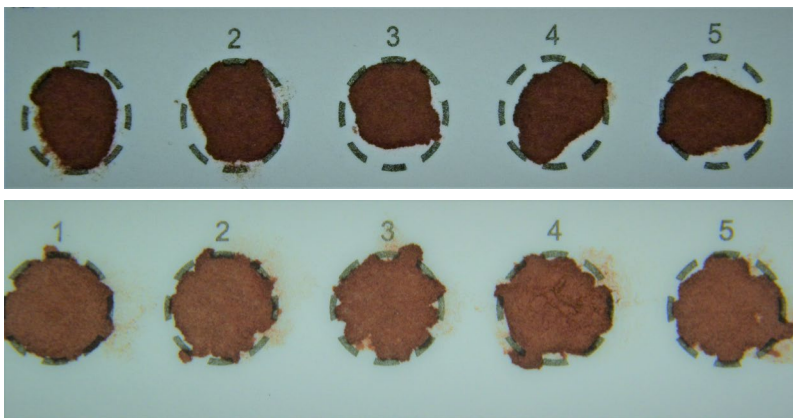
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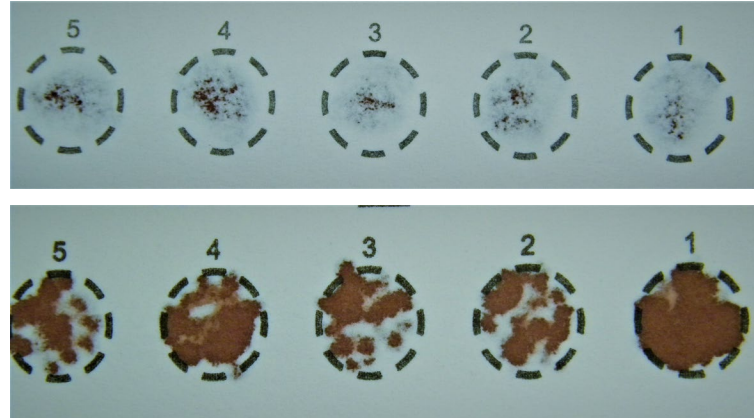
INCOMPLETE SATURATION

The design of the filter paper allows it to hold a specific amount of blood. Incomplete saturation will have too little blood for proper testing. An insufficient amount of blood may cause test results to be inaccurate; therefore, these specimens will be unsatisfactory for testing.

Front



Back



**These unsatisfactory examples show both sides of the same filter paper.*

In 2025, over 3,000 newborn screening specimens were rejected because the blood did not completely and uniformly penetrate to the other side of the filter paper. All of these specimens required a recollection and caused critical delays to testing.

TIPS TO ENSURE A COMPLETELY SATURATED SPECIMEN

- For complete specimen collection instructions, visit: bit.ly/4hhdyU2.
- Warm the newborn's heel at the intended puncture site for three to five minutes to support good blood flow.
- Use a sterile, retractable disposable heel lancet and apply firm, controlled pressure. Wipe off first drop of blood.
- Gently squeeze the newborn's heel to allow a LARGE round drop of blood to form.
- Lightly touch the LARGE drop of blood to the center of a pre-printed circle on the filter paper.
- Do not touch or rub the newborn's heel on the filter paper.
- Apply blood to one side only while viewing from the other side to ensure complete saturation of the entire pre-printed circle.
- If a circle does not completely fill, move on, do not layer additional blood.
- Complete one pre-printed circle at a time and fill all circles.
- Examine both sides of the filter paper to ensure that the blood fully and evenly soaks through to the back of the filter paper.
- If the blood flow diminishes, repeat the specimen collection procedure using a new lancet.



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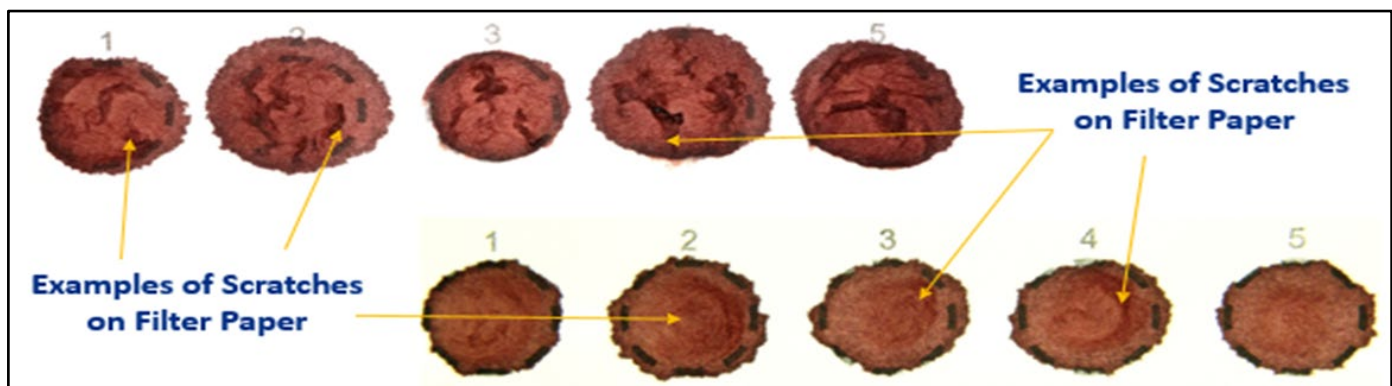
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Newborn Screening Quality Improvement Hints

HOW TO PREVENT SCRATCHED OR ABRADED FILTER PAPER

The design of the filter paper allows it to hold a specific amount of blood. When the filter paper gets scratched or abraded, it may result in an insufficient amount of blood for proper testing. An insufficient amount of blood may cause test results to be inaccurate; therefore, these specimens will be unsatisfactory for testing.



TIPS TO AVOID SCRATCHING THE FILTER PAPER

In 2025, over 600 newborn screening specimens were rejected because the filter paper was scratched or abraded. All these specimens required recollection and caused critical delays to testing.

- For complete specimen collection instructions, visit: bit.ly/4hhdYU2.
- Use the proper sized sterile retractable disposable heel lancet <2.0 mm depth for average-weight newborns and <0.85 mm depth for preterm and low birth weight newborns.
- Blood collection using capillary tubes is not recommended because it increases the risk of clotted, layered specimens or scratched or abraded filter paper. If a capillary tube is necessary, take care to keep the capillary tip away from the surface of the filter paper.
- Lightly touch the filter paper with a LARGE round drop of blood while watching it soak through completely from the opposite side.
- Do not touch or rub the newborn's heel on the filter paper. Allow blood to soak through the filter paper without manipulation.
- Complete one pre-printed circle at a time and fill all circles.
- Allow the card to dry thoroughly at room temperature in a horizontal position for at least three hours. Do NOT allow the specimen to touch any surface.

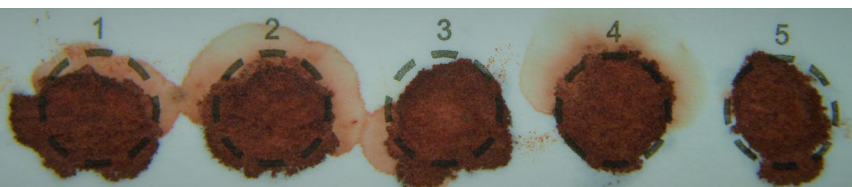
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Newborn Screening Quality Improvement Hints

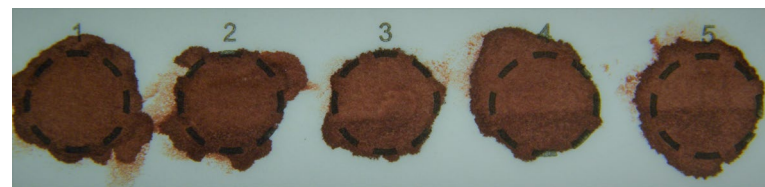
SPECIMEN APPEARED CONTAMINATED OR DISCOLORED

Contaminants can interfere with the test method and discoloration indicates an uneven application of blood on the filter paper; both can cause inaccurate test results. Therefore, these specimens will be unsatisfactory for testing.

Example of Contamination



Example of Discoloration



TIPS TO AVOID A CONTAMINATED OR DISCOLORED SPECIMEN

- Do not store specimens near areas where you keep food, beverages, or other possible contaminants.
- Do not allow filter paper to come in contact with alcohol, antiseptic solutions, water, hand lotions or powders. Avoid excessive handling of the specimen collection form. If necessary, handle with clean gloves, avoiding the circle collection areas.
- Do not use swabs containing chlorhexidine gluconate and/or topical pain killers.
- Do not use devices containing EDTA, citrate, or heparin anticoagulant.
- After you clean the collection site, wipe the area DRY with a sterile gauze pad or air dry before applying each blood drop to the filter paper.
- Air dry the specimen at least 3 hours on a flat, nonabsorbent surface in a horizontal position before mailing. Contact with a surface can contaminate the specimen or cause the blood to absorb unevenly.
- Do not hang specimens or dry them on the edge of a surface. When specimens dry vertically, the heavier components of the blood can separate and move within the filter paper. This separation can cause uneven blood spots and inaccurate test results.
- Do not place specimens in sealed plastic bags.

In 2025, over 300 newborn screening specimens were rejected because the blood appeared contaminated or discolored. All of these specimens required a recollection and caused critical delays to testing.



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General NBS Questions:

Newborn Screening Educators

Phone: (512) 776-7585

Fax: (512) 776-7157

Email: newbornscreeninglab@dshs.texas.gov

To Order NBS Supplies:

Container Preparation/Supplies

Phone: (512) 776-7661

Fax: (512) 776-7672

Email: containerprepgroup@dshs.texas.gov

To Obtain Patient Reports:

Laboratory Reporting

Phone: (512) 776-7578

Fax: (512) 776-7533

Email: LabInfo@dshs.texas.gov

NBS Follow-Up:

Clinical Care Coordinator Nurses

Phone: 512-776-3957

Fax: 512-206-3909

Email: newborn@dshs.texas.gov



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