Newborn Bloodspot Screening

• Purpose
  • Newborn screening (NBS) is the practice of testing every newborn for harmful or potentially fatal disorders that are not otherwise apparent at birth.
  
  • Early detection and prompt treatment can make the difference between healthy development or lifelong impairment and possible death.
Screening vs. Diagnostic

• The newborn screen is just that… a *screen*.
  • Screening results, by themselves, *cannot* determine the presence or absence of a disorder.

• Diagnostic results refer to the combination of signs, symptoms, and test results that allows the doctor to *confirm* the diagnosis of a respective disease.
Who Decides?

• In 2022 the Oklahoma legislature passed statute stating that the Oklahoma NBS panel will match the national recommended uniform screening panel (RUSP) to the extent practicable.
• Once a condition is added to the RUSP the NBS Program (lab and follow up) will determine practicability and readiness.
• Then the Infant and Children's Health Advisory Committee will provide recommendations to the Commissioner of Health to add the disorder.
• The Commissioner of Health will give final approval.
• Oklahoma currently screens for over 50 possible hidden disorders.
• Oklahoma will continue to expand.
Most NBS disorders are autosomal recessive with the exception of:
- Congenital Hypothyroidism (CH)
- Some forms of Severe Combined Immunodeficiency (SCID)
- X-Linked Adrenoleukodystrophy

Usually no prior family history
Risk for each pregnancy if both parents are a carrier of a disorder:

Possible Outcomes for Offspring of Parental Disease Carriers
- 25% Not affected
- 25% Carrier
- 50% Disease
Parent Education

• NBS is collected on every baby born in Oklahoma.
• Importance of correct contact info & PCP for follow-up.
  • No news is not good news! Update NBS Program with changes in home address and/or PCP.
• Review hidden disorders, using NBS pamphlet as a guide.
• Specimens are kept by the OSDH lab for 42 days before being destroyed.
• Explain that most affected newborns do not exhibit signs & symptoms early on.
• Prompt identification & treatment of disorders is critical.
• Instruct parents to ask for screen results on first visit to PCP.
• Tell parents to bring the **Blue** or **Pink** slip to their baby’s first doctor’s visit.
Parent Education

• Review reasons why a repeat screen may be needed:
  • Unsatisfactory Specimen
  • Out-of-range results
    • Possible disorder identified
    • Hgb Trait condition
  • Specimens collected less than 24 hours
    • Risk for missing some disorders
  • Premature or Sick Infants (TPN & antibiotics could affect results)
  • Not collected prior to a blood transfusion
Specimen testing will be delayed if the form is incomplete!
Filling out the Form
Specimen testing will be delayed if the form is incomplete!

- Check expiration date
  - If the filter paper is expired, discard the paper, and check the stock of filter paper kits and discard all expired kits.
  - Collect the specimen on a kit that is not expired.
Filling out the Form: Specimen Information

Specimen testing will be delayed if the form is incomplete!

- If this is the first specimen collected for the baby, check the “First Screen” box.
- If baby has had a previous screen, check the “Repeat Screen” box.
  - List the previous OSDH Lab Number, if applicable.
If baby expires before a screen can be collected:

- Check the “Expired” box
- Enter the date that baby passed away
- Submit the filter paper form to the OSDH PHL
Filling out the Form: Specimen Information
Specimen testing will be delayed if the form is incomplete!

- If baby is transferred prior to specimen collection:
  - Check the “Transferred ” box
  - Enter the date that baby transferred and the facility that baby was transferred to
  - It is the responsibility of the receiving facility to collect the newborn screen
Filling out the Form: Specimen Information
Specimen testing will be delayed if the form is incomplete!

- Tests Requested: Check all that apply.
  - All Tests - always check unless test is for HGB Only or Phe Monitor. This ensures the lab screens for all disorders on the NBS panel.
  - HGB Only - Check if repeat screen is for follow-up of initial abnormal HGB result.
  - GALT - Check GALT in addition to All Tests if there is a family history of galactosemia or if baby is on lactose-free (soy) formula at time screen is collected.
  - Phe Monitor - Check only if baby has been diagnosed with PKU (typically metabolic specialists only)
  - CFTR - Check in addition to All Tests if baby has clinical concerns for CF, meconium ileus, and/or family history of CF.
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- Baby’s first and last name (use legal name as displayed on the birth certificate).
- If baby’s first name is unknown, “BG” or “Female”, “BB” or “Male” may be used.
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- Sex/Gender
  - Check “Male”, “Female”, or “Unknown”
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- **Date & Time** of birth
- Enter the time using the 24 hour clock. For example 1PM would be entered as 13:00.
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- **Date & Time** of specimen collection
  - Ideal time for well, term newborn: **24 hours + 1 minute of age**
  - Enter the time using the 24 hour clock. For example 1PM would be entered as 13:00.
Filling out the Form: Infant’s Information

Specimen testing will be delayed if the form is incomplete!

- Medical record number
- Baby’s medical record number
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- Gestational Age
  - List gestational age at birth.
  - Lab cut off values for abnormal severe combined immunodeficiency (SCID) are gestational age dependent.
Filling out the Form: Infant’s Information
Specimen testing will be delayed if the form is incomplete!

- Birthweight (in grams)
- Lab cut off values for abnormal congenital adrenal hyperplasia (CAH) results are dependent on birth weight.
Filling out the Form: Infant’s Information

Specimen testing will be delayed if the form is incomplete!

- Birth order (if multiple birth is present)
- Indicate “A”, “B”, “C”, etc. if baby is of multiple birth (twin, triplet, etc.).
- Do NOT mark anything in this space if baby is a single birth.
Filling out the Form: Mom’s Information
Specimen testing will be delayed if the form is incomplete!

Note: If baby is adopted, be sure to check the Adoption box on the filter paper form and enter the agency/law firm information in this section. If DHS is involved, enter case worker information in this section and check the DHS Custody box.

• DHS Custody or Adoption
Filling out the Form: Mom’s Information
Specimen testing will be delayed if the form is incomplete!

- Mom’s first and last name
- Mom’s mailing address:
  - Street, Apt # (if applicable), City, State, Zip
- Mom’s telephone number:
  - Extremely important to include in case newborn screen results are abnormal and require follow-up.
Filling out the Form: Provider’s Information
Specimen testing will be delayed if the form is incomplete!

• Physician Ordering the NBS:
  • Include first and last name
  • Enter the NBS Provider ID #, if known
  • If Provider ID # unknown, document name and phone number
Filling out the Form: Provider’s Information

Specimen testing will be delayed if the form is incomplete!

- Primary Care/Follow-up Physician:
  - Planned health care provider upon discharge from birthing facility
  - Include first and last name
  - Enter the NBS Provider ID #, if known
  - **Extremely important** that this is correct in case newborn screen results are abnormal and require follow up
Filling out the Form: Medical/Feeding History
Specimen testing will be delayed if the form is incomplete!

- Check all that apply for baby at the time of specimen collection
  - If transfused enter the **date** and **time** of transfusion
  - NICU/Special Care Nursery
  - TPN/SNAP
  - Lipids/Carnitine/MCT
  - Lactose-Free (Soy) Formula
  - Meconium Ileus
  - Family History of Cystic Fibrosis (CF)
Filling out the Form: Submitter ID
Specimen testing will be delayed if the form is incomplete!

• Submitting Health Provider ID #
  • This is the ID of the provider/facility who collected the specimen
  • Write or stamp in facility name and address
Filling out the Form
Specimen testing will be delayed if the form is incomplete!

- Unsatisfactory Specimen Follow-up
  - Specimen collectors can place their initials and unit in the area below for identification purposes, in the event of an unsatisfactory specimen. This allows for easier identification of the individual who collected the specimen so that further education and/or training can be provided.

Note: Do not touch the filter paper in any other area when writing initials and unit.
Collecting the Specimen
Time of Screening: Healthy Newborn

“24 hours plus one minute” of age

Or

Prior to discharge

**WHICHEVER COMES FIRST**
Time of Screening: Premature or Sick Newborns

24 hours + 1 minute of age

Prior to red blood cell transfusion, even if collected at <24 hours of age

Collect no later than 3-7 days of age

14 days of age

Or immediately prior to discharge, whichever comes first
Specimen Collection

• **Heel Stick / Direct Application**
  • Preferred, recommended method

❖ **Start with clean, dry hands before handling the filter paper.**
Direct Application

Prepare the Site

• Warm the heel with a heel warmer or a soft cloth, moistened with warm water up to 41°C for 3 to 5 minutes.
  • Warmth leads to vasodilation, which increases bloodstream and chance of collection success.

❖ *Follow your hospital protocol regarding which warming device to use*
Direct Application

Prepare the Site

- Encourage skin-to-skin contact between newborn and parent during specimen collection.
  - Decreases stress response in newborn
  - Encourages bonding
- Position the infant’s leg lower than the heart.
  - This increases venous pressure, which results in increased blood flow and a greater chance of collection success.
- Wearing gloves, wipe the infant’s heel with 70% isopropyl alcohol.
- Allow the heel to air dry!
  - Residual alcohol can affect NBS results and/or lead to unsat specimens.
Direct Application

Lancet Placement

• Hatched areas are safe for puncture
• Damage to nerves and/or the heel bone may occur for punctures outside of the hatched region.
Direct Application

Perform the Puncture

• Using a sterile lancet, perform the puncture.
• Gently wipe off the first drop of blood with a sterile gauze or cotton ball.
• Apply gentle pressure with thumb and around heel but not near the puncture site; ease intermittently as drops of blood form.
• Avoid “milking” the puncture site.
Direct Application

Application

• Gently touch the filter paper card to the blood drop and fill each printed circle with one large drop of blood.

• Apply blood to one side only.

• Observe the saturation of each printed circle as the blood flows through the filter paper.
Alternative Specimen Collection

What about capillary tubes?

- **Not preferred**
  - Higher risk for collection error

- If used, must be sterile/clean & plain.
  - No additives! Must be anti-coagulant free.
  - However… no anti-coagulants = risk for clotting

- Risk of scratching the filter paper.
  - Avoid touching the capillary tip to the paper.
  - Use a new tube for each pre-printed circle.

Anti-coagulants
- EDTA, citrate, & heparin - interfere with test results!
What about venous samples?

- Discouraged
- May be appropriate under certain circumstances (e.g. NICU).
- More invasive than a heel stick.
- Do not draw blood from extremity with infusing IV fluids.

- Please refer to current CLSI guidelines for more information.
What about umbilical catheters?

- **Discouraged**
  - May be appropriate under certain circumstances (e.g. NICU).
  - Ensure the line is cleared by withdrawing 2 – 2.5 cc (mL) of blood prior to collection a specimen for NBS.

- Please refer to current CLSI guidelines for more information.
Alternative Specimen Collection

What about umbilical cord blood?

- Discouraged
- May be appropriate under certain circumstances (e.g. NICU).
- Risk for maternal blood contamination.
- Repeat the newborn screen using the heel stick method when indicated.

- Please refer to current CLSI guidelines for more information.
Specimen Collection: What NOT to Do

- Do NOT dab or “color in” the filter paper circles.
- Do NOT apply multiple drops of blood per circle.
- Do NOT scratch the filter paper.
- Do NOT contaminate specimens.
  - insufficient drying of alcohol, oils on hands, lotions, compressing the circles, spills, etc..
- Do NOT stack specimens.
  - risk for leaching & cross-contamination between specimens
- Do NOT submit wet specimens.
- Do NOT place specimens in direct sunlight or in front of air vents or other sources of moving air.
- Do NOT place specimens in plastic bags.
- Do NOT batch (hold onto) specimens.
Collection Reminders

Pre-collection:

- **Check the Expiration Date of the filter paper**
  If filter paper is expired, discard the paper, check the stock of filter paper kits it came from to ensure they are not all expired, and collect on a kit that is not expired.

Post-collection:

- **Air dry specimen horizontally for 3-4 hours**
  - Transporting wet specimens can make them unsatisfactory for testing.

- **Send specimen with Courier within 24 hours of collection**
  - Delayed receipt of specimens to the Public Health Laboratory can delay identification of and treatment for a disorder, which can result in lifelong disability or even death for Oklahoma newborns.
  - Know the courier schedule and location for your facility! Ensure all staff involved in newborn screening are also aware of the process.

- **Maintain specimen collection log & ensure screening results are received & recorded**

- **Ensure that everybody who handles the filter paper or is involved in the newborn bloodspot collection process is trained**
NBS Filter Paper Review

Unsatisfactory ("Unsat") Specimen Examples
Filter Paper

- The filter paper is part of the NBS Form. It is a medical device designed to absorb a specific volume of blood within each pre-printed filter paper circle.
- If an analyte for any disorder is either too high or too low, this is an indication that additional testing is needed.
- Accurate results depend upon proper absorption of blood onto the filter paper.
  - Too much or too little blood may result in inaccurate results.
Why Unsat?

- When bloodspots overlap or touch, as is the case in the sample above, it creates an uneven absorption of blood.
- Analyte levels cannot be accurately measured.
- Testing these specimens will result in inaccurate results.
Clotted or Caked Blood

Why Unsat?
- Clots can occur using capillary tubes or if too much blood is applied to the pre-printed circles.
- Samples with clots are not suitable for testing.
Serum Rings

Why Unsat?

- Notice the halos around the periphery of most of the pre-printed circles above. This can occur due to the following:
  - Insufficient drying of alcohol on the baby’s heel prior to heelstick
  - Drying the specimen vertically instead of horizontally
  - Closing the flap of the filter paper on top of the circles while the specimen is still wet
  - Placing wet specimens in plastic bags
  - Milking or squeezing the puncture site
Inadequate Amount of Blood

Why Unsat?
- The above filter paper circles are not sufficiently filled with blood for testing.
Why Unsat?

- Notice how the blood has not soaked all the way through the filter paper. There simply is not enough blood in this sample for testing.
Acceptable Filter Paper

Why Acceptable?

- Pre-printed circles are completely filled with blood
- Blood has soaked all the way through the filter paper
- Absence of clots or caked blood
- Absence of serum rings
Are All 5 Circles Needed?

**Yes!**

**Why?**

- If a result is flagging out-of-range, the specimen will be retested and the final result will be an average of three results. Each test requires an additional punch to be taken from the pre-printed circles.
- If the results for Congenital Adrenal Hyperplasia (CAH) are out-of-range, **two entire pre-printed circles** will be removed & shipped to another laboratory for steroid profile testing.
- Disorders will continue to be added to the newborn screening panel.
- The specialist and family may request for the specimen to be sent to another laboratory for additional testing to assist in determining diagnosis.
For Reference…

• Refer to *Clinical and Laboratory Standards Institute* (CLSI) for collection guidelines.
NICU & Special Considerations
NICU Special Considerations

**Infant**
- Prematurity & LBW may affect TSH & 17-OHP results
- Hypoxia, CMV, septicemia, trisomies, biliary atresia may affect IRT levels
- Liver immaturity may affect amino acid results
- Carrier status may affect all NBS results

**Treatment**
- TPN, SNAP, & carnitine may affect amino acid, fatty acid, or organic acid results
- Steroids may affect 17-OHP results
- ECLS & blood transfusions may affect all NBS results

**Maternal**
- PTU therapy or radioactive iodine may affect infant TSH results
- Steroids may affect infant 17-OHP results

**Collection Issues**
- Contamination: oils/lotion from hands, spills, standing water, residual alcohol, heat/humidity
- Early/delayed specimen collection
- Transit time delays
- Unsatisfactory specimens
Additional Information
Hospital Responsibilities

• Ensure **all** infants are screened prior to discharge.
• Ensure specimens are received in a timely manner to the OSDH PHL for testing.
• Infants who are transferred:
  • Receiving hospital to ensure the NBS is collected.
• Submit **Satisfactory** specimens:
  • Collected properly
  • **All** requested information is documented on the filter paper
  • Submitted timely
Refusal

- Religious Tenets and Practices only.
- **Check the box(es) on the filter paper form if parents refuse the NBS and/or the pulse oximetry screen.**
  - Provide parents with a NBS blood spot and/or pulse oximetry brochure(s) & answer any questions they might have about the screen(s).

- Ensure the parents fill out a Refusal Form. Keep a copy for baby’s record & fax a copy to the NBS Program using fax # 405-900-7556.
Transit Time

Prompt delivery of specimens to the Public Health Laboratory for testing can make all the difference.
Transit Time: What is it?

• “The time between the collection of a newborn screening specimen to its receipt at the OSDH Public Health Laboratory for testing.”
Transit Time

• **Guidelines:**
  • Specimens should be received at the OSDH Lab within **48 hours** from the time of collection.

• **Oklahoma Law:** *OS 63 Sections 1-533 and 1-534*

  - Delays in receiving the specimen
  - Delays in testing the specimen
  - Delays in diagnosis & treatment
Transit Time: Tips for Improvement

- Ensure everyone involved in NBS collection/handling knows about courier pick-up time, location, and importance.
- Do not batch specimens.
- Ensure the NBS is collected at 24 hr + 1 min of age & goes out with the courier as soon as possible after it has dried (~3-4 hours of drying time).
- Set timelines and goals specific for your facility.
- Maintain a courier/transport log.
- Review transit time reports.
- Contact the PHL if the courier does not present to pick up the NBS specimens.
Pulse Oximetry Screening
Pulse Oximetry Screening

Purpose:

• Screen all newborns between 24-48 hours of life with pulse oximetry to detect select defects related to critical congenital heart disease.

Rationale

• Some newborns may appear healthy at first despite having a CCHD. Early detection and prompt treatment can prevent lifelong disability and early death.
Implications

- Congenital heart disease is the most common birth defect

- 1 in 110 infants will have a heart defect
  - 25% of those cases will have a CCHD

- Most affected are asymptomatic early on

- Most will require surgery shortly after birth
Normal Heart: Blood Flow

- Blood from body tissues goes to the right side of the heart and enters the lungs, where the blood becomes oxygenated. The blood is then delivered to the left side of the heart, which is responsible for pumping the oxygenated blood out to the body in order to provide oxygenation to the body tissues. After being utilized, the deoxygenated blood is returned to the right side of the heart, and the cycle continues. Valves within the heart help to prevent backflow of blood during this process.

- Fetal openings between the atria, ventricles, and blood vessels begin to close shortly after birth.
Fetal-Neonatal Circulation

• The first *breath of life* leads to important changes in neonatal circulation:
  • Makes way for use of neonatal lungs (The lungs were not utilized in utero, as the placenta provided oxygenation to the fetus; after birth, however, an enormous amount of pressure is necessary in order for the newborn to close the diversions used to bypass the lungs in utero and instead allow for use of the lungs.)
  • Increased pressure change in the left side of heart compared to the right (The left side becomes the body’s “pump”) resulting in:
    • Closure of the Ductus Arteriosus (fetal opening between aorta and pulmonary artery)
    • Closure of the Foramen Ovale (fetal opening between the right and left atria)

❖ Failure of closure of fetal openings can result in complications
CCHD: Screening Targets & Symptomatology
CCHD Targets

*Most likely detected by pulse oximetry screening*

- Hypoplastic Left Heart Syndrome (HLHS)
- Pulmonary Atresia
- Tetralogy of Fallot
- Total Anomalous Pulmonary Venous Return
- Transposition of the Great Arteries
- Tricuspid Atresia
- Truncus Arteriosus

*These heart defects lead to low levels of oxygen in the blood.*
CCHD Targets

Potentially detected by pulse oximetry screening

• Double Outlet Right Ventricle (DORV)
• Ebstein’s Anomaly
• Coarctation of the Aortic Arch
• Interruption of the Aortic Arch
• Single Ventricle

❖ Also potentially detected by pulse oximetry screening: other hypoxic cardiac or non-cardiac conditions.
CCHD: What to Watch For

Signs:

• Cyanosis
• Tachypnea
• Increased work of breathing
• Swelling
• Tires easily during feeds
• Sweating
• Poor weight gain

❖ If at any time, the newborn should become symptomatic, the family should *immediately* take the baby to the closest emergency room for evaluation.
Pulse Oximetry: the Screen & the Oximeter
Pulse Oximetry: Context

Who is screened?

- All newborns:
  - Must be calm & well; not crying
  - Warm extremities (temperature affects readings)
  - Skin clean & dry (dried blood affects readings)
  - Using room air; not on supplemental oxygen

When is screening performed?

- Healthy Newborn: Between 24-48 hours of life
- Sick Newborn: Between 24-48 hours of life
  - May delay if on supplemental oxygen

- Before 24 hours: higher risk for false positives (fetal-neonatal circulation transition not fully established)
- After 48 hours: delayed identification & treatment of affected newborns
The Pulse Oximeter

What is it?

- **Screening tool**: measures the percent of oxygen saturation of hemoglobin in the blood; and pulse rate
  - Simple
  - Painless
  - Non-invasive
  - Quick
The Pulse Oximeter

**Oximeter Probe**: 2 main parts

- light emitter
- Photodetector

**Where is the probe placed?**

- Right hand: preductal measurement
- Either foot: postductal measurement
Points to Consider

• Pulse oximeter must be FDA approved (AAP, 2015)

• Regular calibration of the oximeter is required

• Pulse oximetry readings are averages

• Skin color and jaundice do not affect pulse oximetry readings

❖ Continuous pulse oximetry monitoring does not replace the pulse oximetry screen.
Screening How-To, Protocol, & Guidelines
How is the Screen Performed?

1. **Select site:** right hand; either foot.
2. **Place** photodetector on outer aspect of hand/foot (under 4\(^{th}\)-5\(^{th}\) finger/toe).
3. **Wrap** sensor tape around extremity.
4. **Ensure** light emitter is **directly opposite** the photodetector.
5. If using a reusable sensor, secure the sensor using wrap recommended by vendor; **do not tape** or use hand to secure sensor to site.

Photo credit: Masimo 2011
Guidance for Screeners

**Pulse Ox Dos**

- If disposable, use a new, clean sensor; if reusable, clean between use
- Clean according to manufacturer recommendations
- Ensure newborn is calm and warm, not crying; encourage family involvement
- Ensure newborn skin is clean and dry
- Ensure no gaps between sensor and newborn's skin
- Light emitter and photodetector should be directly opposite of one another
- Use alongside physical examination
- Ensure pulse: no pulse, no oximetry!

**Pulse Ox Don’ts**

- Do not use an adult probe
- Do not tape pulse oximeter in place (use disposable wrap as indicated)
- Do not use your own hand to hold sensor in place
- Do not obtain reading from same extremity with blood pressure cuff
- Bilirubin lamps & surgical lights can affect accuracy of reading; cover pulse oximetry sensor with a blanket if such instruments are in use
- Do not use in isolation
Pulse Oximetry Screening Protocol
Interpretation of Results & Follow-Up
Screening Results

Negative Screen (Pass):
• Oxygen saturation ≥ 95% in Right Hand and/or Left or Right Foot AND
• Difference between the Right Hand and Left/Right Foot ≤ 3%

Positive Screen (Refer/Fail):
• Oxygen saturation < 90% in Right Hand or Left/Right Foot during any screen
• Oxygen saturation 90 - 94% for all 3 screens (1 hour between each screen)
• Difference between the Right Hand and Left/Right Foot > 3% for all 3 screens (1 hour between each screen)

❖ If at any time, the newborn should become symptomatic, the family should immediately take the baby to the closest emergency room for evaluation.
Interpretation of Results

**Negative = Pass**
- Results are in-range
- Blood oxygen level WNL
- CCHD still possible (if symptomatic, a cardiac evaluation is warranted)
- Monitor baby’s status:
  - Heart rate – too fast/slow?
  - Energy – overly sleepy/fussy/lethargic?
  - Appearance – pale/blue skin?
  - Respiration – too fast/slow?
  - Temperature – cold to touch?
  - Feeding – difficulties?

**Positive = Fail/Refer**
- Results are out-of-range
- Blood oxygen level is low
- High risk; not diagnostic
- Confirmatory procedures & referral for treatment are warranted
### Pulse Oximetry Screening for Critical Congenital Heart Defects (CCHDs) in Newborns without Cardiovascular or Respiratory Distress

#### Interpretation of Pulse Oximetry Results

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<th>Oxygen Saturation (%)</th>
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**Pass/Negative** 95% or higher in right hand (RH) or either foot (F) AND difference of 3% or less between RH and F.

**Rescreen** 90-94% in RH and F OR difference of 4% or more between RH and F. Screen up to 3 times, 1 hr between each screen.

**Fail/Positive** 89% or lower in RH or F (at any time)

Reference:
Reporting Results for CCHD: Filter Paper

Note: If parents refuse the pulse oximetry screen, provide them with a pulse oximetry brochure and answer any questions they might have about the screen. Ensure the parents fill out a Refusal Form; keep a copy for baby’s record & fax a copy to the NBS Program using fax # 405-900-7556.

• Pulse Oximetry Screen: Check Only ONE
  • Pass
  • Fail
  • Not Performed
  • Refused
  • Echo
Reporting Results for CCHD
Pulse Oximetry Result Form
Newborn Screening Contacts

• Bloodspot, Pulse Oximetry, & Hearing Screening
  Screening & Special Services
  123 Robert S. Kerr
  Oklahoma City, OK 73102-6406
  Phone: 1-405-426-8220
  Toll Free: 1-800-766-2223
  Fax: 1-405-900-7556
  NewbornScreen@health.ok.gov

• Public Health Laboratory
  Newborn Screening Section
  Public Health Laboratory Service
  4615 W. Lakeview RD
  Stillwater, OK 74075
  Phone: 1-405-564-7750
  Toll Free: 1-800-766-2223
  Fax: 1-405-900-7611
  PublicHealthlab@health.ok.gov