

# Best Practices to Improve Newborn Screening

**Collaboration of the Texas Hospital Association, OZ Systems  
and Texas Department of State Health Services**

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## Implementing Best Practices for Newborn Screening in Hospitals

Hospitals have a unique and important role to play in identifying certain conditions in newborns that with early and appropriate treatment and intervention can change a child's future and prevent life-long disability or death. Conditions such as hearing loss, critical congenital heart disease and metabolic and genetic disorders are more effectively treated if identified early.

Texas, like many other states, requires hospitals to conduct point-of-contact screening for critical congenital heart disease and hearing screening (screening preformed at birthing facility), and blood spot-based screening to detect specific congenital and genetic conditions on all newborns born in their facilities:

1. Congenital metabolic and genetic disorders (bloodspot).
2. Hearing.
3. Critical congenital heart disease.

This document, prepared in collaboration with the Texas Hospital Association, Texas Department of State Health Services and OZ Systems, the newborn hearing screening vendor for TDSHS, reviews best practices for newborn screening with the goal of improving newborn screening rates and decreasing difficulties for hospitals, providers and families.



## Texas Early Hearing Detection and Intervention

Texas has required newborn hearing screening since 1999. As many as six in every 1000 babies are born with permanent hearing loss. Early detection means infants identified and receiving intervention before 6 months of age can develop language similar to hearing children.

State law requires hospitals to use the TEHDI Management Information System for hearing screening. The TEHDI MIS is available for outpatient screening, audiology and referral to intervention.

### Activities Supporting Best Practices

- **Prepopulate the TEHDI MIS with demographics from the hospital EHR.** Many Texas hospitals use a data transmission standard called Newborn Admission Notification Information (NANI),\* which prepopulates the TEHDI MIS with demographic and birth information, updating information with name, providers and discharge dates.
- **Integrate testing devices and the TEHDI MIS.** The TEHDI MIS can receive direct transmissions of screening results from the state's approved hearing screening devices.
- **Ensure that all relevant staff consistently use the TEHDI MIS.**
- **Know your hospital's certification status.** There are four levels of certification:
  4. Preliminary (a new program).
  5. Provisional.
  6. Standard.
  7. Distinguished.

### Benefits

- Prepopulating information from the hospital EHR to TEHDI MIS ensures an accurate denominator of all hospital births — screened or unscreened. In addition, screening results can be messaged back to the hospital EHR, eliminating duplicate manual entry and providing an accurate screening record.

\*NANI is offered but not a TDSHS requirement.

- Direct integration of testing devices and the TEHDI MIS can reduce errors and omissions in results entry.
- Using the TEHDI MIS consistently will prevent over-screening, which can reduce result validity.
- Certification of a program helps ensure quality services to newborns, infants and families, increases patient safety and reduces hospital risk.



## Newborn Blood Spot Screening (heel stick screening)

Texas law requires that babies receive their first heel stick blood test at 24-48 hours of life to screen for congenital disorders. Nationally, more than 12,000 newborns yearly are affected by disorders identified through blood spot screening. In addition to collecting blood, hospital staff collect clinical and demographic information to ensure the specimen is processed in the laboratory without delay.

### Activities Supporting Best Practices

- **Ensure staff review each card for completion before submission.** States report that five to 30 percent of cards are missing information.
- **Use an electronic label.\*** Pre-populate the label with demographic information from the hospital EHR.
- **Add an electronic order form with alerts reminding staff to complete required elements.** This improves legibility and simultaneously sends an electronic lab order so the lab has real time data and can reduce rekeying information into its system.
- **Keep a list of specimens that are in each courier pack.** States provide courier services to assure timely specimen delivery and reduce late or missing specimens. If a pack is lost or late, it is imperative to know which babies' specimens were in the courier pack.

### Benefits

- Reviewing each card before submission will make it less likely that necessary data are omitted and more likely that the screening results are accurate.
- If hospitals use electronic capture of demographic information (such as the NANI label), information needed for specimen collection can improve legibility and completeness of information. Knowing about a baby's clinical status is important as it impacts some test results.
- Adding an electronic order form with alerts reminding staff to complete required elements of the order will result in complete orders and reduce the likelihood that a specimen gets lost or information is entered incorrectly at the state. This can help demonstrate adherence to state law requiring collection between 24 and 48 hours after birth.
- Keeping patient lists for each courier pack can help to ensure that if a courier pack is lost or late, the hospital can promptly re-screen affected newborns.



## Critical Congenital Heart Disease

CCHD is one of the newest of the mandated screenings before discharge, added by the Texas Legislature in 2013. It is estimated that approximately 7,000 babies born in the United States every year have critical congenital heart disease. CCHD screening saves lives, and states are showing an increase in previously unrecognized heart disease and corresponding reduction in infant death.

Under CCHD screening requirements, Texas hospitals are required to report only confirmed cases of CCHD to TDSHS. Hospitals are encouraged to institute an effective facility or system workflow.

\*Electronic label is offered but not a TDSHS requirement; hospitals may choose to use NANI-generated labels.

### Activities Supporting Best Practices

- **Ensure that screening occurs at the right time.** Screening should be done when baby is at least 24 hours of age and prior to discharge.
- **Use the TDSHS-approved CCHD screening protocol.** The screening protocol converts the direct quantitative readings of the pulse oximeter used for screening into a positive or negative screening result. A tool kit for CCHD screening in Texas developed by the Texas Pulse Oximetry Project can be found at <https://dshs.texas.gov/newborn/cchdtoolkit>.
- **Double check manual application of the TDSHS CCHD screening algorithm.** If applying the TDSHS screening algorithm manually, a supervisor should check all screening results to be sure staff apply it correctly.
- **Automate application of TDSHS algorithm.** Electronically capture results from the pulse oximeter and apply the algorithm for an interpretive suggestion.
- **Integrate pulse oximeter results with screening in the EHR.**

### Benefits

- Performing the CCHD screening at the appropriate time improves screening accuracy.
- Using the TDSHS algorithm and applying it correctly, whether manually or electronically, helps to ensure that newborns receive accurate screening results.
- Messaging the screening results to the EHR helps to avoid the errors or omissions that can come from manual reentry.



## Common Best Practices

In addition to these screening-specific best practices, there also are best practices common to all newborn screening types.

### Activities Leading to Best Practices

- **Assign a newborn screening coordinator.** Have one person responsible for administering and overseeing the screening program.
- **Implement a screening protocol across your hospital or hospital system.** Whether paper-based or electronic, a screening protocol assures consistency of care.
- **Keep track of name changes and risk indicators to enable better follow-up.**

### Benefits

- Having one person responsible for administering and overseeing the screening program creates greater accountability.
- A robust screening system:
  - provides an accurate denominator of babies needing care, alerts staff when to screen and what steps to take for workflow optimization and eliminates redundant data entry for busy nursing staff.
  - helps meet quality indicators to know which eligible newborns received all screenings before discharge
  - permits timely discharge. Electronic worklists reduce the risk of overlooking best screening practices that impact care.
- Submit more accurate data to public health agencies with confidence.

*References available upon request.*