

Newborn Screening Quality Improvement: A Review of Five States' Initiatives to Improve Blood Sample Transit Times

Introduction

Each year, millions of newborns are routinely screened for genetic and metabolic conditions as part of newborn screening (NBS) programs across the United States. These conditions are rare, but they can have serious, sometimes fatal, consequences. However, disability and death can be mitigated or avoided if these conditions are diagnosed and treated soon after birth, and NBS improves or saves the lives of more than 12,000 newborns in the United States annually.¹ NBS programs are administered at the state level, and most states screen for at least 29 of the 31 conditions recommended by HHS' Secretary's Advisory Committee on Heritable Disorders in Newborns and Children.

Historically, states have performed well on the Maternal and Child Health Bureau's Title V national performance measure on newborn screening, the "percent of screen positive newborns who received timely follow-up to definitive diagnosis and clinical management for condition(s) mandated by their state-sponsored NBS programs." However, a November 2013 [report](#) in the *Milwaukee Journal Sentinel (MJS)* found evidence of serious delays across the country in the submission of newborn blood samples to laboratories for testing. The report presented an analysis of data from 31 states showing that more than 160,000 blood samples arrived late at laboratories in 2012. Since that time, NBS programs in public health departments across the country have undertaken or enhanced quality improvement initiatives to improve timely newborn blood sample submission and testing.

To assist states in their NBS quality improvement efforts, the Association of State and Territorial Health Officials (ASTHO) has been collecting and disseminating information and stories that highlight successful NBS policies, collaborations, and practices at state and territorial health agencies and their partners. ASTHO has focused on identifying successes and challenges that states experienced with NBS quality improvement initiatives, determining how states were able to make changes within their systems, capturing the leadership levers that were needed for success, and identifying states' technical assistance needs.

In December 2013, ASTHO asked for state volunteers to participate in key informant interviews about their NBS blood sample transit time quality improvement initiatives, and state health officials from Arizona, Georgia, Kentucky, Texas, and Wisconsin agreed to be interviewed. The key informants from these five states included state health officials, state health department and state laboratory staff, and representatives from healthcare professional associations. In these interviews, ASTHO explored the states' quality improvement activities and their results, the roles that partners played in the process, challenges and barriers to implementing the initiatives, states' technical assistance needs, and next steps. This report presents the findings and key themes that emerged from these interviews.

Newborn Screening Quality Improvement Initiatives: Background

Prior to the November 2013 *MJS* article, all of the interviewed states had already begun some NBS quality assurance or quality improvements efforts, but the article allowed states to refocus on NBS processes, especially within the context of blood sample transit times. As a result, states either added new quality improvement activities or enhanced existing ones.

Arizona

The *MJS* article reported that 16.7 percent of Arizona's 2012 newborn blood samples took five or more days to reach the laboratory for testing. In response, Arizona Department of Health Services Director Will Humble immediately made improving transit times an agency priority. He announced a statewide goal, in collaboration with the public health licensing division, developed an interagency Transit Time Task Force, assigned executive sponsorship, and convened a public health team to develop a transit time quality improvement project.

Georgia

In Georgia, according to *MJS*, 4.7 percent of newborn blood samples took six or more days to reach the state laboratory in 2012. After the release of this data, the Georgia Department of Public Health, under the leadership of Commissioner Brenda Fitzgerald, sent the article to all birth hospitals in the state and reviewed the hospital-specific transit time data. Georgia had already established an NBS database in 2008. The *MJS* article sparked communication across the state and state health agency staff took immediate steps to understand the problems and address them.

Kentucky

Over the past decade, Kentucky has focused on overall quality and creating a culture of quality in the state laboratory where the NBS program is housed. Since early 2006, the laboratory has had in-person staff coverage for major holidays and 24/7 on-call coverage for hospitals. In 2013, the state enhanced its laboratory administration through a contract with the University of Kentucky. For several years, Kentucky has also had procedures in place to call sites that submitted blood samples more than seven days after collection. In addition, laboratory personnel review samples monthly and provide training or training materials to reporting sites with unsatisfactory samples. Following the news article, Kentucky Department of Public Health Commissioner Stephanie Mayfield prioritized laboratory changes designed to improve the time between blood spot collection and testing.

Texas

In Texas, *MJS* reported that 14.6 percent of newborn blood samples reached the laboratory in five or more days in 2012. In response, Texas Department of State Health Services Commissioner David Lakey initiated a renewed focus on NBS, and implemented new quality improvement activities that built on previous NBS work. Beginning in early 2007, quarterly report cards that contained feedback on transit time and specimen quality had been mailed to all healthcare providers who submitted specimens for newborn screening. In 2008, the state had received a CDC NBS performance measurement grant to develop evidence-based performance measures for newborn screening. One of the developed performance measures included transit time (specimens received at the laboratory within 24, 48, or 72 hours of collection), which helped inform a new electronic report card format. The report cards were automatically generated and made electronically available to the specimen submitters via their secure

web-based newborn screening database in July 2013. Using Medicaid funding, Texas also implemented a pilot courier service project to improve newborn sample transit times in 2010.

Wisconsin

According to *MJS*, 2.9 of Wisconsin's newborn blood samples were received by the laboratory in five or more days in 2012. Once the *MJS* story was released, the Wisconsin State Laboratory of Hygiene partnered with the Wisconsin Hospital Association to improve NBS blood sample transit times. Several months before the newspaper article was published, state officials had already started looking into using the metrics provided by the Newborn Screening Technical Assistance and Evaluation Program (NewSTEPS) for monitoring quality assurance with the blood collection. NewSTEPS is a national newborn screening resource designed to provide data, technical assistance, and training to newborn screening programs across the country and assist states with quality improvement initiatives. The article was an impetus for additional focus on the NBS program and its transit times.

Quality Improvement Initiatives Implemented

The five states used multi-pronged strategies to improve their NBS blood sample transit times:

- **Process changes** were needed at hospitals and laboratories, as well as with the courier services that deliver the specimens to the laboratories.
- All of the states had strong public health **leaders** who prioritized improvements and designated staff and resources for them.
- In general, the states used existing **resources** and funds, but Texas also received some Medicaid funding to expand its courier services.
- **Collaboration** and **communication** with stakeholders, including hospitals and hospital associations, were instrumental in identifying problems and implementing changes.
- Collecting and **analyzing** transit time **data** were critical to understanding problems, determining quality improvement activities, and monitoring progress.
- **Reporting** the **data** to hospitals and other stakeholders, whether publically or confidentially, was a common quality improvement strategy for the states.
- Logistical changes like adding or **enhancing courier services** for specimen pick-up and delivery, **adding laboratory weekend hours**, and **providing technical assistance** to individual hospitals were common among these states.
- Georgia made **regulatory changes**, and Arizona's Newborn Screening team made practice and policy changes but made no changes to the Administrative Code (rules) or Arizona Revised Statutes (Arizona law).

Below are summaries of the NBS quality improvements activities that the five states undertook over the past year.

Arizona

In Arizona, Director Humble set the goal "Within six months, 95 percent of the NBS blood spots (initial) will be received by the state laboratory within three days of collection." To meet this goal, the health agency first convened an internal team to conduct an initial gap analysis. After reviewing these results,

the state communicated and collaborated with partners, enhanced courier NBS services and technical assistance to the hospitals, and made transit time data publicly available.

- **Communications** with Arizona hospitals included: a letter sent to hospital CEOs, nursing directors, and laboratory directors requiring them to comply with the state newborn screening rules, a kick-off meeting with the hospitals, 2013 transit time data sent to the hospitals, and identifying hospital contacts for all communications.
- In addition to hospitals, three key **collaborators** in Arizona's transit time project were the state hospital association (60% of the hospitals in the state are members), the Arizona Perinatal Trust, and the March of Dimes. The hospital association offered to host three webinars on hospital NBS blood sample collection and submission. The taskforce adopted the Arizona Perinatal Trust's [levels of certification](#) to divide the birth hospitals into peer groups, which allowed a peer-to-peer hospital comparison. The Perinatal Trust was also instrumental in developing the state's online reporting system.
- **Reporting** transit time **data** has been a significant NBS activity in Arizona. Arizona launched a public website that reports individual hospital performance data (the percent of samples received within three days, and the average transit times) in March 2014. The Arizona Perinatal Trust helped the public health department develop a four-tier system for the reporting (based on size and level of care) so that hospitals are compared to their peers. In addition to the public reporting, Director Humble further enhanced data transparency through a blog and a recognition event for the hospitals that met the project goal.
- The state laboratory sends confidential **reports** to hospitals with samples received four or more days after their collection to help hospitals troubleshoot delayed results using detailed patient information.
- Arizona hired a new vendor to provide a six-day-per-week **courier service** for specimen pick-up to every hospital in the state and added Saturday and holiday **laboratory hours**.
- Public health department and state laboratory staff made visits to hospitals to analyze their blood spot sample collection and submission processes and provide **technical assistance** for improvement and identify best practices that could be shared at other hospitals.
- Finally, the state's **regulations** specific to the operating Arizona's health care institutions were aligned with the state NBS rules.

Arizona showed through its Transit Time website, blog, and recognition event that transparency is a key component of its NBS transit time project.

Georgia

Georgia focused on **communicating** and **collaborating** with the hospitals, **reporting data**, and promulgating a **NBS rule change** to improve its NBS transit times.

- **Communicating** the results of the *MJS* article to all of the birth hospitals in the state was the first step in identifying and addressing transit time problems in Georgia.
- Public health department staff next **reviewed data** on hospitals' transit times and made **technical assistance** visits to hospitals, targeting those with poorer transit times. State officials identified holding onto specimens and batching them as the primary issue in poor transit times.

Follow-up visits to three of the targeted hospitals about six months later showed that all three had improved their transit times.

- Using a system established in 2008, the health department continued to provide monthly monitoring **reports** to the hospitals through a database, which provided information about each hospital's performance that the hospitals could access directly. A nurse consultant in the NBS program reviews the monthly data and calls or visits hospitals as needed.
- Effective June 2014, Georgia enacted a **new NBS rule** that stipulated that blood spot specimens be sent to the laboratory within 24 hours of collection via a courier service that ensures next business day service.

Georgia enacted a rule stipulating that blood spot cards be sent to the lab within 24 hours of collection.

Georgia did not identify a need to make changes to its internal lab processes, as once received in the laboratory, the average turnaround time for processing the blood samples was 2.5 days. The state laboratory is open five days a week, and was seen to provide adequate coverage for processing the samples. Similarly, Georgia did not make changes to its courier service, as Atlanta area hospitals have their own couriers, and the state implemented a UPS courier for hospitals in the rest of the state in 2007.

Kentucky

Kentucky made significant **laboratory changes** to improve the time between blood collection and testing. The Laboratory continued to provide **reports** to the hospitals, continued to work closely with the Newborn Screening Committee, and began to explore new opportunities to improve the transit times.

- Kentucky added **Saturday laboratory coverage** and changed the laboratory staff classification to "essential employees" to ensure Saturday, continued holiday, and inclement weather coverage.
- The NBS program developed report cards that are mailed to submitters, both providers in healthcare facilities and nurse midwives who do home births, on a monthly basis. The report cards include average times from birth to blood sample collection and from sample collection to receipt at the laboratory. Providers and facilities receive their own average times as well as the overall average times across the state.
- In 2006 Kentucky implemented the Kentucky Child (KY-CHILD) system at its 52 birthing centers. This system collects newborn information and electronically transmits it to the state laboratory. It also creates the requisition form that is attached to the blood specimen and then sent to the state laboratory.
- In 2015 the state laboratory plans to partner with the Kentucky Health Information Exchange (KHIE) to present newborn screening test results in KHIE when KHIE-credentialed users initiate a query.
- Kentucky also plans to utilize a **courier service** between hospitals and the state lab.

Two of Kentucky's main NBS strategies were adding Saturday laboratory coverage and designating laboratory staff as "essential employees" to provide the coverage.

Texas

In Texas, the *MJS* article generated new ideas for renewed focus on the NBS program and its transit times. Texas' new activities involved **collaboration, communication, data reporting, and technical assistance**.

- The Texas Department of State Health Services primarily **collaborated** with the Texas Hospital Association in order to improve transit times. Commissioner Lakey and the director of the Texas Hospital Association sent a joint letter to hospital CEOs about the NBS transit time problems, and the hospital association distributed information through their regular communications with hospitals.
- **Communications** with hospitals and other stakeholders was critically important. The health department utilized a newborn screening-specific listserv to distribute information and increase awareness about the NBS program to hospitals and other stakeholders. The listserv, which had approximately 7,700 participants, was also used to survey all hospitals to identify their specific transit time problems. The state health agency also did direct telephone and fax outreach with hospitals and holds regular stakeholder calls with the major state medical organizations and March of Dimes to provide program updates and receive feedback. These discussions have included both transit time issues and improvements.
- The health department has used data to provide follow-up and **technical assistance** to the poorest performing hospitals. The department identified 25 hospitals (out of approximately 400 in the state) for the assistance, and together these hospitals accounted for 40 percent of the specimens with problem transit times. The state continues to reach out monthly to the 10 facilities with the poorest transit times. Texas staff also identified and worked with a group of high performing hospitals to develop a model workflow for newborn blood sample collection and laboratory submission that could be shared across hospitals.
- The state health agency **changed their processes** so that continuous quality improvement is now embedded in its culture. Using Lean and Six Sigma quality improvement strategies, personnel at the Texas state laboratory have worked on projects involving **communications, specimen testing, reporting, and overall work area improvement**. Projects have involved **communications, specimen testing, and reporting and overall work area improvement** as part of the laboratory's overall continuous quality improvement culture.
- The state recognizes top-performing healthcare providers each month through its Spotlight Award. The awards are given when a provider meets the NBS quality measures, with emphasis placed on transit time and specimen quality. Following the expanded **courier services** that Texas implemented in 2010, the state has been looking into further expansion in non-metropolitan areas.

Texas has established a culture of continuous quality improvement in its state laboratory by using Lean and Six Sigma strategies.

Wisconsin

Wisconsin built on its self-assessment using the NEWSteps measures as a framework for quality improvement. The new strategies included **collaborating and communicating** with hospitals and providing them with **technical assistance, and data reporting**.

- The Wisconsin Hospital Association was a strong **collaborator** in the state's newborn screening activities through its communications and meetings with hospitals and reporting on the association's website. The Umbrella Committee was another collaborator that provided advice to the NBS program. The committee is made up of public health and laboratory staff, professional organizations (e.g., the American Academy of Pediatrics), providers, and consumers.
- The Wisconsin state laboratory and the Wisconsin Hospital Association provided **technical assistance** that included communications, answering questions, and site visits at two hospitals and at the state lab to improve understanding of the process. Staff at the state laboratory call the hospitals if they send in specimens more than four days post-collection, and in July the laboratory began sending daily faxes to hospitals about the number of blood spot cards received.
- The Wisconsin state laboratory began to issue monthly hospital **reports** of the transit times to identify contacts at the hospitals. Since January 2014, hospital-level quarterly data have been reported on the hospital association's Checkpoint website. The data reported are the number of cards received, and the number and percent of cards received within four days.

Wisconsin's NBS activities involved a strong partnership between the state newborn screening program and the state hospital association.

Key Partners and Stakeholders

Hospitals and Hospital Associations

The state hospital association and birthing hospitals were major partners in the NBS quality improvement initiatives in most of the states. The hospital associations collaborated with the public health department on communications to the hospitals and disseminated NBS information, including timeliness data, to its members. In Wisconsin, the hospital association also hosted some NBS webinars. Strong collaborations and good working relationships with the hospitals were required to identify the specific problems and develop solutions for addressing them.

Committees and Professional Organizations

States also worked with their NBS committees and professional organizations, which provided advice and guidance for the NBS quality improvement activities. For example, Arizona reached out to its Perinatal Trust, a more than 30-year-old group comprised of neonatologists, obstetricians, and hospitals dedicated to improving the health of Arizona's mothers and babies. The state chapters of the American Academy of Pediatrics, whose leaders trained its members on NBS, were also helpful partners, and NBS staff from the states participated in Association of Public Health Laboratories (APHL) committees and used APHL training materials.

Internal Partners

Important partners within the public health agencies included laboratory staff, NBS program staff, other maternal and child health and Title V staff, and hospital licensing staff. State health officials provided leadership and overall guidance, and some states also developed partnerships with universities and academic centers. Finally, one state

Forming partnerships and engaging stakeholders was critical to the success of the NBS quality improvement transit projects.

that subcontracted with a courier service for specimen pick-up and delivery also named the service as an important partner because of its flexibility and commitment.

Challenges and Barriers

All five states experienced challenges and barriers when improving their NBS transit times. These challenges were related to resources, state laboratory procedures and coverage, courier service availability, difficulty understanding and the shifting nature of hospitals procedures, obtaining buy-in, and public reporting.

Resources

The states generally faced challenges identifying resources, in both staff and funding, to develop, implement, and monitor their quality improvement initiatives. States found that courier services, in particular, could be costly. For the most part, the states used existing staff and internal funds, but they also received support and access to outside resources such as the Wisconsin hospital association's website. Texas also secured Medicaid funding to support its courier service. The staff time commitments needed for the new NBS activities was also a challenge, but the public health leadership across the state prioritized these activities to ensure staff availability.

Laboratory Procedures

The biggest laboratory challenges that the states faced related to obtaining coverage and courier services for specimen delivery to the laboratory. Lack of weekend and holiday coverage was reported to negatively impact transit times. In response, Kentucky added Saturday and holiday coverage and made the laboratory staff "essential" state employees to ensure coverage. Arizona hired a new vendor to provide same day courier service, and implemented six-day hospital pick-up and laboratory delivery. On Saturdays, laboratory staff prepared the samples received for Monday testing. In Kentucky, where blood spot cards are sent through multiple mail carriers, a statewide courier system enhanced mail delivery consistency.

Hospital Processes

At the birth hospitals, the states encountered a number of challenges. Across the hospitals, there was significant variability in the processes used for collecting and submitting the blood cards. Additionally, many of the staff who were involved in steps of the process did not understand the whole process and did not know who within their facilities were responsible for the different steps. This lack of understanding contributed to breakdowns in the process. This was especially found to be true in some of the larger hospitals, and there was no one-size-fits-all approach to the NBS blood spot cards that could be implemented at all of the hospitals.

Staff turnover was also a challenge in some hospitals. Identifying NBS hospital contacts (and keeping them up-to-date) was critical. Across the states, hospital staff were generally willing to work on improvements once they understood the NBS program requirements and the need for improvement. However, Texas reported that it still did not obtain buy-in across all of its hospitals, particularly those in the harder to reach rural areas. There were also particular challenges in getting the blood samples to the state laboratories in a timely manner from the rural hospitals because of their distances from the laboratory.

Public Reporting

For Arizona and Wisconsin, which had publically reported the hospital NBS performance, there was initial nervousness about the public reporting. However, states also seemed to engage in hospital-to-hospital competition once the reporting was established, and this was thought to improve performance.

Results

All of the states reported progress in their different established target improvements. The states selected their targets based on their characteristics, such as geography, and what they perceived as reasonable and attainable.

Arizona

Arizona exceeded the target “Within six months (by July 1, 2014), 95 percent of the NBS blood spots will be received by the Arizona Public Health Laboratory within three days of collection.” In five months, 99 percent of the blood spot cards collected at birth hospitals were received by the state laboratory within one day of collection, with 70 percent of samples arriving as a same day delivery. To ensure that the transit times remain high, the state health agency monitors the data monthly and communicates with hospitals as needed. Additionally, it maintains a publically-available website of hospital transit times for transparency and accountability. Arizona reported no resistance from hospitals when it instituted the NBS changes: all hospitals are currently on board. In September 2014, Arizona received its first ever Quality Improvement Newborn Screening Award from the March of Dimes in recognition of its success.

Georgia

Georgia reports that it has reduced the number of days a specimen is in transit. According to the most recent data, from 2013, 2 percent of blood spot cards were received after six days and less than 1 percent (0.01%) of samples were received after seven days. The state average for transit of a blood spot card is 3.31 days. Georgia has also reported anecdotal data of reduced batching of samples from hospitals since it stipulated that specimens be sent to the laboratory within 24 hours via a courier service that ensures next day delivery.

Kentucky

Kentucky reports that ensuring laboratory coverage on Saturday has improved transit times for specimens that are now being received on the weekend. Further improvements are planned with addition of a courier and continued outreach to submitters.

Texas

Texas currently measures the percent of blood samples received within 72 hours of collection, with a stated goal of 100 percent on the report card for each provider and an overall goal of 95 percent of all samples received within this timeframe. The state established a pilot courier service in 2010, and as a result saw an increase from 40 percent to 70 percent of specimens received within 72 hours of collection. A further courier enhancement in 2014 (adding Sunday pickups for hospitals) increased the percent of blood samples received in 72 hours to 90-92 percent. The courier service has been the major

driver of these improvements, according to the state health agency, and it has also reported very positive feedback from providers.

Wisconsin

Because so much of the state is rural, Wisconsin decided to set its transit time target to receipt of samples with four days. By early 2014, Wisconsin had improved its four day hospital-to-laboratory transit times from 87 percent to 99 percent.

Keys to Success and Lessons Learned

All interviewed states identified a number of lessons learned from the NBS improvement experience that could apply to many states, but also recommended that each state understand its own unique characteristics, such as size and geography. States reported that state public health leadership, partnerships, systems thinking, quality improvement, communications, data reporting, culture of quality, and education and technical assistance were all important in reaching their NBS targets.

Leadership

Public health leadership was critical in establishing and maintaining attention on the quality improvement efforts and identifying resources to support the efforts and engage partners in all five states.

Partnerships

Communicating and engaging with hospitals was essential: hospitals need to be part of the solution, and should be engaged early in quality improvement efforts. One-on-one meetings with some hospitals were reported to be especially effective, but calls and written communications also were important. Partnerships with the states' hospital associations were also invaluable in connecting with the hospitals and making changes. Generally, maintaining stakeholder relationships, such as the state hospital associations, is important to ensure their assistance, when needed.

Systems Thinking

A key to success that Arizona and Wisconsin particularly noted was having an understanding of the entire NBS system across the hospitals and laboratory. Problems within the system cannot be addressed if the entire system and its components are not understood. This involves understanding the workflow and steps across the hospitals, as significant variability was found across the hospitals in the five states interviewed. Wisconsin developed a process map of the workflow for its NBS program.

Cultivating a Culture of Quality

Continuous quality improvement, especially in an environment with a culture of quality, can help to ensure ongoing improvement. The Kentucky newborn screening laboratory is accredited by the College of American Pathologists, which defines and reinforces a culture of quality in the newborn screening laboratory and across the entire clinical laboratory in most of the states interviewed.

Quality improvement does not just happen: it requires attention, resources, and time.

Communication Tools

In its quality improvement transit time initiative, Arizona pointedly focused not on blame but on working together with hospitals to make improvements. Texas found that its listserv and report cards were seen as effective communication vehicles for engaging healthcare providers. Similarly, within the state laboratories and public health departments, communicating with staff involved in newborn screening was important, not only to ensure buy-in and support but also to make the most informed improvements in the newborn screening programs.

Data Reporting

Regularly tracking and reporting transit times promotes accountability and transparency. Public reporting via websites was found to be especially effective in making improvements in Arizona and Wisconsin. When this is not possible, reporting to hospitals through postal mail, email, or newsletters may also be effective. Reporting is dependent on developing and maintaining a database that to ensure you are measuring the goals of the quality improvement initiatives.

Education and Technical Assistance

The interviewed states also cited the importance of education and technical assistance materials to distribute to hospitals and staff to review hospital data and provide hospitals with education, technical assistance, and other reporting providers. Georgia provided the hospitals with educational materials, including guidelines and toolkits, which were found to be very helpful. Expanding the courier service and adding laboratory coverage to Saturdays and weekends also proved to be important to states in reaching their transit time goals.

Next Steps and Technical Assistance Needs

Arizona

Because Arizona has met the goal of its transit time quality improvement project, its focus will be on sustaining and continuing to report hospital transit time data on its website. Arizona is also adding an additional level of quality assurance by incorporating additional data review to validate the accuracy of the performance reports posted to the webpage. The validation process will specifically focus on specimens with a transit time of five days or more. For those specimens, each blood spot will be physically reviewed and compared to information on the spreadsheet to document any discrepancies or problems such as keying issues or wrong specimen type assignments. Arizona also will make its hospital survey and educational materials, such as PowerPoint presentations, graphs, charts, and posters available to other states. Staff from the NBS program may also be available to make presentations to other states.

In addition to these efforts, Arizona will focus on a number of other NBS activities, including critical congenital heart defect screening and evaluating the cost-effectiveness of purchasing or renting tandem mass spectrometer equipment. Other activities include continuing to look at cut-off values for positive results, assessing the quality of the samples from the hospital (although historically this has been done), beginning to look at the turnaround times of sample testing and getting the results to families, and adding new rules for Severe Combined Immunodeficiency and Krabbe disease.

Georgia

Many of Georgia's next steps will focus on data and reporting. Georgia will continue to update and maintain its newborn screening database, which the hospitals access to review their newborn screening data. Georgia also will continue to review the monthly hospital data and contact hospitals to provide as-needed technical assistance. For new reporting, Georgia is looking to develop quarterly hospital reports on timeliness, which they expect to mail to hospitals, and the state may consider public reporting in the future. Finally, Georgia is considering adopting the measures available through NewSTEPS.

Kentucky

Kentucky will continue enhancing its NBS report cards and the interface with KY-CHILD and identifying the reporting sites with the highest transit times. The state also plans to expand courier service across the state. Kentucky is in the pilot phase of delivering newborn screen results via the Health Information Exchange, which would give connected submitters immediate access to the NBS tests results. Kentucky is also expanding the test menu and adding new equipment.

Texas

Texas is continuing its outreach and education efforts and is looking into expanding its courier service and increasing its efficiency. The state found the courier service changes it had made to be the most effective way to improve its newborn blood sample transit times. Additionally, Texas is looking at further quality improvement and is part of the APHL Collaborative Improvement and Innovation Network (CoIIN).

Wisconsin

Wisconsin will continue its newborn screening reports, including those publically available on the Wisconsin Hospital Association website; continue to identify and outreach to outlier hospitals, and began using its new blood spot screening cards in February 2015. The state will evaluate whether the 72 hour transit time goal (the March of Dimes-ASTHO award requirements) will work for Wisconsin, given its rural areas. Wisconsin is looking into adopting the APHL NewSTEPS metrics that will allow for comparisons with states across the country. Additionally, Wisconsin recently received APHL funding to develop a specimen collection training module that can be shared with other states. The module will have quality improvement and evaluation components.

Conclusion

The states interviewed indicated that ASTHO can play an important role in communicating clear, consistent messages about the importance of NBS at all levels of the screening system, and distributing information about states' experiences, resources, and best practices. Additionally, states requested technical assistance in creating marketing campaigns for hospitals and the public. Lastly, states reinforced that the March of Dimes-ASTHO award acknowledging improvements in state's NBS system was a good tool to promote NBS quality improvement efforts.

State Resources

- Arizona's newborn screening [Transit Time Project](#).
- The [Arizona Perinatal Trust](#), which has created certification levels to divide the birth hospitals into peer groups, allowing them to stratify data to perform peer-to-peer hospital comparisons.

Report



- Texas newborn screening workflow [document](#).
- Wisconsin's [Newborn Screening Turnaround Time Report](#).
- Wisconsin hosts a [How to Collect a Blood Specimen](#) web toolkit including a 60-minute newborn screening training webinar, sample specimen collection processes and other materials for nurses, midwives, phlebotomists and all healthcare workers who participate in the newborn screening process.

¹ Centers for Disease Control and Prevention. CDC grand rounds. Newborn screening and improved outcomes. Morbidity and Mortality Weekly Report. 2012; 61(21) 390-393.