

Wisconsin Collaborations Improve Newborn Screening Process

The Wisconsin Division of Public Health (WI DPH) and the Wisconsin State Laboratory of Hygiene (WSLH) collaborated with multiple stakeholders to reduce transit times for newborn screened samples, worked with hospitals on proper specimen collection, and made progress toward ensuring that all births in the state were accounted for in the newborn screening program.

Wisconsin's newborn screening (NBS) program is guided by a strong advisory committee structure. There is an umbrella committee that reviews subcommittee reports and makes recommendations to the Wisconsin Department of Health Services (WI DHS), while its subcommittees provide technical oversight on screening performance. The subcommittees cover education and each category of screened condition: endocrine, metabolic, hemoglobinopathy, cystic fibrosis, immunodeficiency, and hearing. Additionally, the subcommittee chairs sit on the umbrella committee, which also includes representatives from WI DPH (housed within WI DHS), WSLH, the state's chapter of the American Academy of Pediatrics, the Wisconsin Hospital Association, the March of Dimes, a local health department, and others. In 2014, a Secretary's Advisory Committee was established with the primary role of making screening condition addition and deletion recommendations to the Wisconsin Secretary of Health.

In November 2013, the *Milwaukee Journal Sentinel* published a [report](#) that found evidence of delays in NBS processes nationwide. Having the broadly representative group of partners already engaged in NBS activities through the various committees allowed Wisconsin to respond quickly to the report. When the report was released, WI DPH and WSLH enhanced their quality improvement (QI) processes to reduce delays to further improve Wisconsin's NBS program.

Steps Taken:

- In summer 2013, Wisconsin's NBS program began a self-assessment using quality indicators from the Association of Public Health Laboratories' (APHL) Newborn Screening and Technical Assistance and Evaluation Program (NewSTEPS).
- Immediately after the *Milwaukee Journal Sentinel* NBS report was released, WI DHS partnered with the state lab to further improve its system. The article was an impetus for additional focus on the NBS program.
- Beginning in January 2014, WSLH began issuing monthly NBS submitter quality reports to identified contacts at the hospitals. The reports include performance on the timing of specimen collection, information missing from blood cards, information on unsatisfactory specimens, and transit times.
- Wisconsin Hospital Association staff worked with the state lab to send every hospital a list of strategies to improve their transit times, including information on different courier services.

- Wisconsin NBS program's strong advisory committee structure has been instrumental in ensuring high quality, on-time specimen testing.
- Transit times of newborn screening specimens have decreased and more samples are reaching the lab within recommended time frame.

State lab staff also called hospitals when they received specimens more than four days after collection. Hospital Association staff provided technical assistance to hospitals as needed.

- Based on the NewSTEPS quality indicators, the NBS program decided it needed a systematic QI approach.
- Thanks to the collaborative working relationships within the state, broad work on NBS QI continued beyond the metric of transit time. Building on the existing momentum of working on quality improvement in NBS, WI DPH contracted with a project manager in spring 2014 to:
 - Coordinate a quality workgroup.
 - Facilitate a discussion with the umbrella committee on the committee charge and opportunities for further QI.
 - Organize a Lean¹ QI project on a topic based on the outcomes from the first two steps.
- The quality workgroup, facilitated by the project manager and consisting of staff from the WI DPH and WSLH, created high-level process maps that illustrate the NBS process, including the people and agencies involved at every step. The maps also show which data is available to measure performance at each step.
- Soon after the creation of the maps, the umbrella committee called a special meeting to allow all members to provide input on the most critical weak spots in the current NBS system. Using a voting process, the committee identified two priority areas: Reducing unsatisfactory specimen submissions and reconciling every birth to the NBS process.
- Wisconsin consistently has about 2 percent unsatisfactory specimens being sent to WSLH.
- The project manager spearheaded a Lean project with the state lab to identify issues that led to unsatisfactory specimens. Two meetings were held with staff from hospitals to:
 - Discuss the specific reasons for unsatisfactory specimens.
 - Develop proposed solutions, including better training and education for those collecting and reviewing the specimens' quality before the submission.
- WI DPH and WSLH also met to discuss how to account for all NBS eligible births in the state, including newborns whose parents declined NBS. These conversations led to the conclusion that the blood card is a reliable mechanism for collecting information on NBS status, but could be modified to enhance its effectiveness.
- Consequently, WSLH modified the blood card so that submitters can indicate if parents have declined newborn screening. This allows for a new expectation that a blood card will be sent in for all infants, regardless of whether or not the parent agreed to have their child screened. The lab enters the blood card information into a tracking database that is linked daily to information from birth records. This system will allow for quality assurance measures regarding birth to screening reconciliation.

Results:

- Since WI DPH and WSLH began the QI process, they have seen a dramatic reduction in specimen transit times. Currently, 99 percent of specimens arrive within four days. Before the QI process, 93 percent of specimens arrived within four days. Additionally, 97 percent of specimens now arrive within three days, up from 82 percent before.

¹ Lean is a five-step process for guiding quality improvement. More information about the Lean principles can be accessed at <http://www.lean.org/WhatsLean/Principles.cfm>.

- The Wisconsin Hospital Association began [publicly reporting](#) transit times. Each hospital is listed along with the percentage of specimens that arrive at the state lab within four days.
- As a result of the Lean project to reduce unsatisfactory specimens, APHL has awarded funding to WSLH to develop an interactive [webinar training module](#) for specimen collectors to increase the quality of specimens collected. WSLH also developed a [poster](#) illustrating unsatisfactory specimens and correct NBS specimen [collection process](#), and will soon be distributed to all submitters. The goal is for these to become public so that other states will be able to view and share.

Lessons Learned:

- Access to data is critical. It is important to ensure that the people responsible for each component of the process have the performance data that reflects their part. Without data, the different aspects of the system do not know what improvement is needed.
- A collaborative approach allowed for an optimal solution. QI is a process. Collaboration may require more time and additional coordination, but the process outcomes are more deliverable and sustainable. WSLH and the hospital association partnerships are very valuable.
- It is essential for all partners to appreciate the complexity of the NBS process. The process maps were important tools that allowed all stakeholders to visualize the intricacies of the NBS process. Partners provided insight on various points in the system.
- It can be complicated to work across agencies. The committee structure allowed all partners to have ownership in the process and for everyone to work as a system rather than individual entities.
- A systematic approach for quality assurance and QI allows for partnerships. It is not intended to blame people or organizations.

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