Continuous Quality Improvement through Investigation of Late Newborn Screening Specimen Collections

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Background

New York State's (NYS) current newborn screening regulations require that initial specimens are collected between 24 and 36 hours after birth (specified under "Newborn Screening for Phenylketonuria and Other Diseases" Subpart 69-1.3 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations). Ensuring that specimens are collected in a timely manner aids in the early diagnosis and treatment of the more than 50 conditions that the NYS Newborn Screening Program (NBSP) screens for

To ensure that newborns receive the full benefits of a timely screen, it is critical that specimens are collected pursuant to the regulations of the NYS NBSP. The goal of the NYS NBSP is to make all presumptive positive results available to a newborn's responsible provider within 120 hours after birth. Therefore, all specimens that are collected at greater than 120 hours after birth are considered non-compliant and require a documented explanation from the submitting hospital if an explanation is not apparent in the newborn's case.

Specimens that are collected late due to staff oversight of proper regulations are considered true late collections. The purpose of this quality improvement initiative is to reduce instances of staff oversight, and therefore reduce the number of true late collections.

Methods

A late collection

query is run in Natus Neometrics software at the beginning of each month. This query compiles a list of all initial specimens collected at greater than 120 hours after

birth.

For cases where no Cases are reasonable investigated by explanation can NYS NBSP be found, the staff to Newborn determine if Screening there is a Coordinator at reasonable the hospital of explanation for birth is the late contacted to collection provide an

explanation.

Received explanations are entered into a tracking sheet and updated in the case management system. Data are cleaned and compiled to create a Tableau dashboard for

analysis.

Act Contact hospitals with instances of staff oversight. Infrome location of control processing of control pro

From January 2020 through May 2022, 870 total cases were identified by the query as late collections (an average of 30 cases/month).



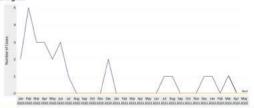
For 765 cases (87.9% of all cases identified), NBSP staff were able to use information available in the newborn's case to determine an explanation and did not have to contact the submitting hospital. Common explanations include:

- 1. Specimen was a repeat, not an initial (50.8% of all cases where contact was not required)
- 2. Baby not born at submitting hospital (40.9% of all cases where contact was not required)
- Data error for either date of birth or date of specimen collection (15.4% of all cases where contact was not required)

Results, continued

For 105 cases (12.1% of all cases identified), NBSP staff were not able to determine an explanation for the late collection using the newborn's case, and therefore contacted the submitting hospital for a documented explanation. Common responses include:

- Staff oversight (24.8% of all cases where contact was required)
- Data error for either date of birth or date of specimen collection (23.8% of all cases where contact was required)
- Baby not born at submitting hospital (17.1% of all cases where contact was required)
 Overall, 26 cases (3.0% of all cases identified) were collected late due to staff



In summary, 42 hospitals were contacted for an average of 2.5 cases/hospital over the 29-month period.

Conclusion

The number of cases requiring contact each month has decreased, indicating that hospitals are providing ongoing training to staff and ensuring that repeat specimens are marked accordingly.

Late collections due to staff oversight have decreased and remained low since the shift and have met the goal of zero (0) late collections due to staff oversight for several months.

Outreach to hospitals in instances of staff oversight requires hospitals to reeducate staff on proper specimen collection protocol and encourages them to review their systems to ensure that future late collections do not occur.

Acknowledgments

This project is supported by the Association of Public Health Laboratories (APHL) through funding from the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number UGBMC31893. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government.

References

Public Health Law § 10 [69.1] 2500a, 2500-f, 2019 https://regs.health.ny.gov/volume-1.a-title-10/content/subpart-69-1newborn-screening-phenylketonuriaand-other-diseases

The Impacts of Virtual Site Visits on Hospital Quality **Improvement**

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Department Wadsworth of Health

Introduction

In New York State (NYS), birth attendants collect a blood specimen from each newborn shortly after birth and ship those specimens to the Newborn Screening Program (NBSP) where they are tested for more than 50 disorders. The goal of the NBSP is to identify infants born with one or more of the disorders on the screening panel within the first week of life. allowing for early recognition and treatment before irreparable harm has occurred. To meet key timeliness goals, the NBSP relies on strong partnerships with birth facilities across the state to adhere to current newborn screening regulations and meet 5 key newborn screening metrics:

- Collect initial specimens within 36 hours of age
- 2. Allow for delivery of specimens to the testing laboratory within 48 hours of collection
- 3. Collect specimens that are suitable for testing
- 4. Collect specimens that are suitable for testing (Non-NICU only)
- 5. Submit demographic data that is accurate, legible, and complete

To promote continuous quality improvement (CQI) related to these metrics, the NYS NBSP conducted virtual site visits with birth hospitals. Site visits delivered an education session tailored to each hospital's strengths and barriers, included a comprehensive data overview, and allotted time for questions and general discussion. The impacts of the first year of virtual site visits are summarized in this poster.

Methods



Virtual site

visit

invitation

sent to

hospital

staff via

email









All site visit materials Site visit created and date and tailored to time hospital selected. specific attendee list strengths finalized and

Site visit completed and copies of all resources sent to hospital attendees weaknesses

Post-site visit monitorina completed 12 months after site visit occurs

Tools and Resources

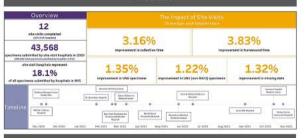
Several materials were created to standardize the site visit process and provide quality improvement support to hospitals, including:

- 1. A virtual site visit toolkit. This toolkit included checklists, surveys, and protocol guick-checks to plan and complete successful site visits.
- 2. A presentation on the newborn screening process. Each site visit began with a template presentation on specimen collection, shipping. documentation, NICU protocol, and follow-up. The presentations were tailored to address hospital specific strengths, concerns, and questions based on data and pre-site visit survey responses.
- 3. A hospital performance summary. Each site visit included a comprehensive data presentation that covered the most recent 18 months of data for each newborn screening metric, allowing for hospitals to easily identify areas requiring focused quality improvement efforts.
- 4. A hospital self-evaluation form, A concise document that helps hospital staff to refresh their newborn screening protocol and ensure that they are meeting current regulations.
- 5. Various educational resources. Additional resources to promote quality improvement such as user guides, fact sheets, and toolkits.

Hospital Performance Summary



Results



Holding the Gains

Post-Site Visit Hospital Performance Summary

12 months after each site visit, the NBSP created a post-site visit hospital performance summary that was disseminated to hospital staff. These summaries are designed similarly to the summaries shared during the site visit and allow hospitals to easily track their post-site visit progress. The post-site visit summaries identify what goals have been met, and what areas require additional quality improvement efforts. At this time, hospitals are also sent supplementary tools to promote continued improvement, such as breakdown data and new educational resources

Virtual Site Visit Refresher

A virtual site visit refresher was held for all hospitals who participated in year one of the virtual site visits. Representatives from each hospital joined a single meeting. where the NBSP shared site visit outcomes and reviewed improvement strategies to overcome common challenges faced by hospitals.

Continuation of Virtual Site Visits

Conducting virtual site visits with birth hospitals proved to be a very successful quality improvement initiative. Virtual site visits will continue to include more hospitals to promote additional improvements.

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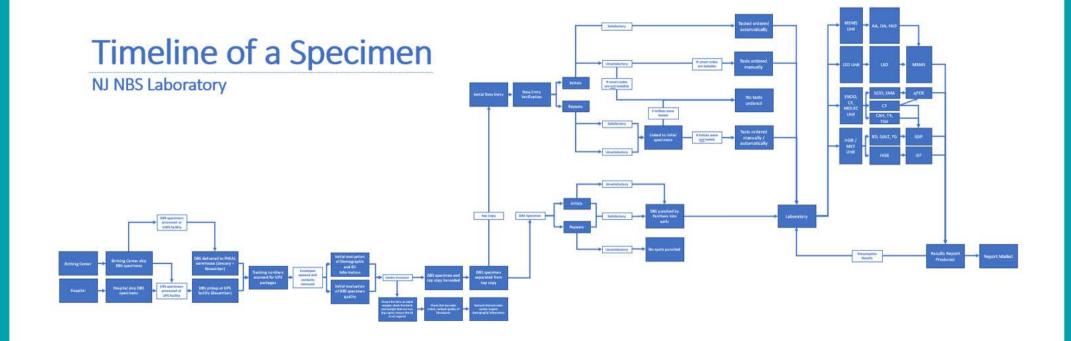
References

- Newborn Screening Program. (n.d.). New York State Department of Health, Wadsworth Center
- Public Health Law § 10 [69.1] 2500-a, 2500-f, 2019 https://regs.health.ny.gov/volume-1a-title 10/content/subpart-69-1-newborn-screeningphenylketonuria-and-other-diseases



PROJECT AIM STATEMEMNT: Reduce the time from specimen collection to arrival in the NJ NBS Laboratory to 2 days or less, with the specimens spending less than 24 hours in transit, for 95% of the specimens received during the pilot period in 3-5 hospitals from different geographic regions of the state through the utilization of a medical courier and through communication with hospitals about optimal timing.





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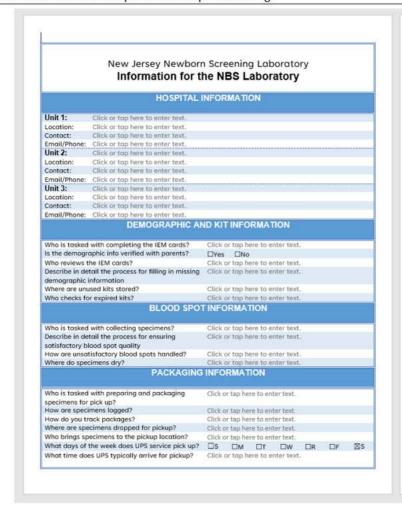


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Information for the Laboratory Template

Are you transitioning to a medical courier? Use this form to survey submitter hospitals for information that can be useful for the laboratory.



OTHER	OTHER INFORMATION							
What is your fax number?	Click or tap here							
Would you like to schedule an in-service?	□Yes	□No						
Are you interested in receiving in educational materials?	□Yes	⊠No						
Questions or concerns	Click or top here	Click or top here to enter text.						

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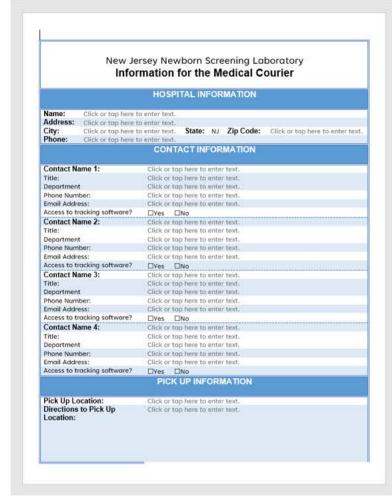


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Information for the Courier Template

Are you transitioning to a medical courier? Use this form to survey submitter hospitals for information that can be useful for the courier.



C.	OURIER DRIVER INFORMA	HON!
If the driver cannot idle, is	□Yes □No	
there free parking on site?	If yes, where can the driver idle?	Click or tap here to enter text
	If no, where can the driver park?	Click or tap here to enter text.
Are there COVID restrictions	□Yes □No	
on site?	If yes, please elaborate:	Click or tap here to enter text
Does the driver require	□Yes □No	
security clearance?	If yes, please elaborate:	Click or tap here to enter text



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Daily Tracker Template

The timeline of any specimen from birth to testing can be tracked. Use this template to combine courier and laboratory information. Each row follows the timeline for one specimen.

T	Hospital Code 6/2, Tracking Number Packag		Package Picked Up	Package Received in Lab 6/2/2022 15:04 Testing Started 6/3/2022 10:00		Timeline of a Specimen							
			6/2/2022 13:49			Hospital Hospital to Courier Courier Laboratory						orv	
			Package Dropped Off			Average age at collection (hr) 25.89		Average time to transit (hr) 19.26		Average transit time (hr) 0.58	Average time to receiving (hr) Average time to lab (
0			6/2/2022 14:24								0.67	18.93	
1	Hospital	Accession Number	Baby Last Name	Gender	Birth Date	Birth Time	Age at Collection (hr)	Date of Sample	Sample Time	Time to Transit (hr)	Age at arrival at warehouse (hr)	Age at arrival at receiving (hr)	Age at arrival at lab (h
. 1	000	00000000001	Baby A	FEMALE	5/31/2022	11:12	29	6/1/2022	17:00	20.82	50.40	51.07	70.00
example	000	00000000002	Baby B	MALE	5/31/2022		25	6/1/2022	11:37	26.20	51.78	52.45	71.38
8	000	00000000003	Baby C	MALE	6/1/2022	0:05	24	6/2/2022	0:15	13.57	38.15	38.82	57.75
ă	000	00000000004	Baby D	MALE	5/31/2022		25	6/1/2022	18:30	19.32	44.90	45.57	64.50
	000	00000000005	Baby E	MALE	5/31/2022	7:40	25	6/1/2022	9:38	28.18	53.77	54,43	73.37
н	000	0000000006	Baby F	FEMALE	and the same of the fourth of		24	6/1/2022	18:20	19.48	44.07	44.73	63.67
- 11	000	00000000007	Baby G	FEMALE		10:18	28	6/1/2022	14:19	23.50	52.08	52.75	71.68
-	000	0000000000	Baby H	MALE	5/31/2022		26	6/1/2022	10:23	27.43	54.02	54.68	73.62
- 11	000	00000000000	Baby I	MALE	5/31/2022		27	6/1/2022	21:30	16.32	43.90	44.57	63.50
н	000	0000000000	Baby J	MALE	5/26/2022	17.40	149	6/2/2022	5:05	8.73	158.32	158.98	177.92
- 11	000	0000000011	200000000		5/19/2022		317	6/2/2022	5:30	8.32	325.90	326.57	345.50
+			Baby K Pick up time			in tab	31/	6/2/2022	5:30	8.32	323.90	326.37	343.30
á			III Lab	Timeline of a Specimen									
	Hospital Code Tracking Number		Drop off Time	Testing Started		Hospital Average age at collection (hr)		Hospital to Courier Average time to transit (hr)		Courier Average transit time (hr)	Laboratory		
											Average time to receiving (hr) Average time to lab		
	Trac	king Number				#DIV/01		0.00		0.00	0.00	0.00	
1	Hospital	Accession Number	Baby Last Name	Gender	Birth Date	Birth Time	Age at Collection (hr)	Date of Sample	Sample Time	Time to Transit (hr)	Age at arrival at warehouse (hr)	Age at arrival at receiving (hr)	Age at arrival at lab (I
										0.00	0.00	0.00	0.00
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2										0.00	0.00	0.00	0.00
o de la										0.00	0.00	0.00	0.00
5									1	0.00	0.00	0.00	0.00
1										0.00	0.00	0.00	0.00
										0.00	0.00	0.00	0.00
										0.00	0.00	0.00	0.00
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North Dakota Quality Improvement Project Resources



PROJECT AIM STATEMEMNT: the North Dakota Newborn Screening Program will revise education materials to include all the components of newborn screening, highlighting the importance of long-term follow-up.

North Dakota Newborn Screening Long Term Follow-up Welcome Cards



Congratulations on your new baby!

Through a blood test (called newborn screening) that was done at birth, your baby was found to have a condition that needs special treatment. We understand that you may not be aware of the many community supports that are available to help you and your baby. These supports can include (but are not limited to): Family Voices of ND, Right Track/ Early Intervention, WIC, and/or Medicaid.

We are here to help connect you with resources that can help your child and your family. In the next few weeks, a nurse will call from a Department of Health phone number and talk with you about this information and answer any questions you have.

If you have any questions before the nurse calls you or if you need interpreter services, please contact us at 1-800-755-2714 or 701-328-2436 or visit https://nbs.health.nd.gov.



We look forward to working with you to help your child grow up to be healthy.

Sincerely,

North Dakota Newborn Screening Staff



Contact Information

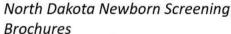
Amy Burke, RN
Newborn Screening Nurse Consultant
Long-Term Follow-Up Coordinator
Phone: 701-328-2784
Email: arburke@nd.gov



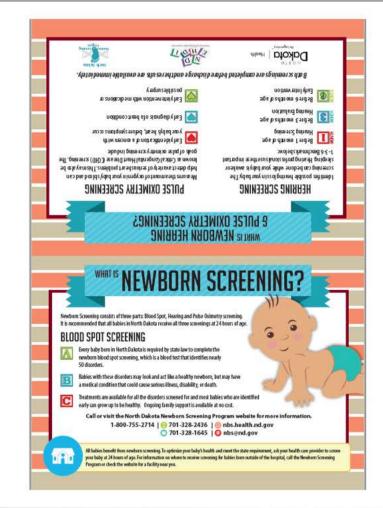
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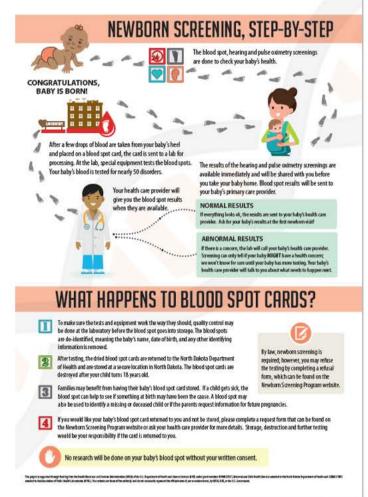


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Contact Information

Amy Burke, RN
Newborn Screening Nurse Consultant
Long-Term Follow-Up Coordinator
Phone: 701-328-2784
Email: arburke@nd.gov



Iowa Quality Improvement Project Resources

PROJECT AIM STATEMEMNT: We will work with two obstetrics/gynecology clinics to improve the clinic prenatal providers' capacity to provide access to NBS education for their clients as measured by surveys of their clients' newborn screening knowledge and attitudes.



Accordion-folded informational brochure (we laminate it) providers can review with the client or client may review on their own. English & Spanish





Contact Information

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Email: Kimberly.piper@idph.iowa.gov



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For more information about

the Iowa Newborn Screening

Program Call 1-866-890-5965



What to expect from Iowa Newborn Screening mobile.idph.iowa.gov/inse/ Save to your home page

"Business card" with QR code and web site for the Iowa newborn Screening Wiki website





Blood Spot Screening

- . Testing is done when baby is 1 to 2 days old
- Tests for over 40 disorders that are not detectible by a regular exam
- . Uses five drops of blood from baby's heel
- . Baby's health care provider will get the results



Hearing Screening

- . Done at 2 days old
- Tests for hearing loss that may not be detectible by a regular examination
- Done using either patches on the baby's head, or by small plugs placed in the baby's ears
- · Results are available right away



Critical Congenital Heart Disease Screening

- . Testing is done when baby is about 2 days old
- . Tests for possibility of a heart defect
- · Uses a sensor on baby's skin
- · Results are available right away

For more information scan the code or visit the link



http://mobile.idph.iowa.gov/inse/

A program of the lowa Department of Public Health

Infographic poster that clinics may post in the clinic waiting area and exam rooms



Contact Information

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