



Education Annual Report 2022

June 2024

Michigan Department of Health and Human Services
Newborn Screening Program





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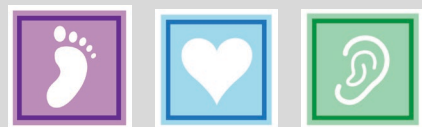
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Table of Contents

Program Overview.....	4
Provider Education.....	5
• Figure 1: Newborn Screening Program Hospital Visits Completed, 2022	
• Figure 2: Newborn Screening Hospital Conference Attendees, 2022	
Parent/ Public Education.....	9
Education Resources for Providers and Public.....	12
New Materials Developed.....	14
Educational Events and Presentations Timeline.....	15
Areas of Focus.....	16
References.....	17

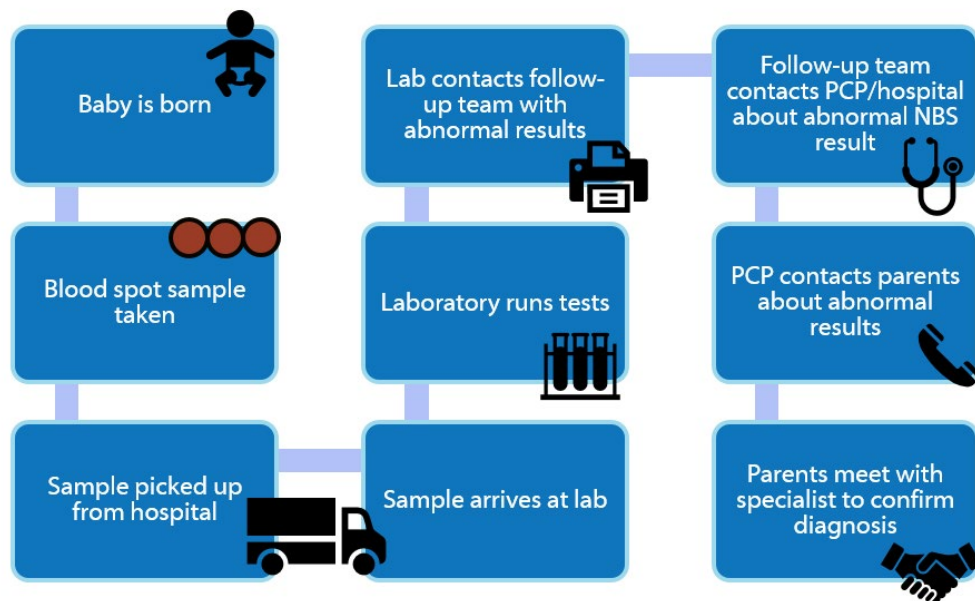


Program Overview

What is newborn screening (NBS) and why is education important?

Newborn screening is a public health program required by Michigan law (MCL 333.5431) to find babies with rare but serious disorders that require early treatment. Infants with these disorders benefit greatly from early treatment, as they appear healthy at birth but can become ill in a very short time. Of the 102,965 Michigan babies screened in 2021, 302 were diagnosed with one of the 58 disorders included on the NBS panel, a rate of about one in every 341 babies.

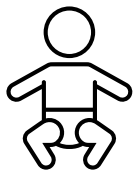
Studies have found that parents generally have limited awareness of NBS [1,2]. Education efforts are crucial to improve outcomes for babies and experiences for families. Parental awareness that the blood spot screen was collected could improve the notification process when a baby has an abnormal screen [3] and result in more prompt follow-up and compliance with necessary next steps. Providing information to expectant parents may increase satisfaction with the process [4] or lead to increased support for screening [3,5].



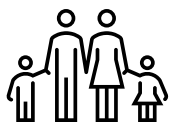
Target audiences for newborn screening education:



Providers, including nursing and other hospital staff collecting the NBS or reporting results to the NBS Program, midwives, home birthing attendants, obstetricians, pediatricians and other primary care providers (PCPs).



Parents with a child who screened positive for a disorder on the NBS panel or required NBS follow-up.



Parent and public, including pregnant/expecting parents, college and university students, and any other residents of the State of Michigan.



Key partners, including state and national partners, local health department staff, and advisory committees.



Provider Education

Snapshot of NBS provider education efforts in 2022

Hospital Visits

25



Online Trainings Hosted by the NBS Program

527

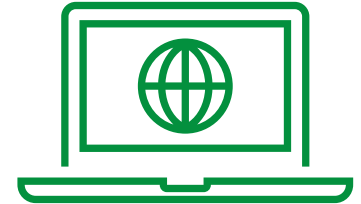
VIEWS

876

COMPLETIONS

504

CEUs AWARDED



Grant Activity

The NBS Program received funding for a project aimed at improving Critical Congenital Heart Disease (CCHD) screening rates among the Michigan homebirth community.

1

Establish a foundation for educating home birthing attendants on CCHD screening.

2

Increase reporting rates by promoting pulse oximeter loan program.

3

Promote the use of eReports™ online module for reporting CCHD screening results.

Newsletter



4 distributed to 250 individuals from birthing hospitals across Michigan.

Midwife Updates Webinar



25

Attended



Hospital Conferences

A total of 136 people, representing 53 birth hospitals and 18 Michigan homebirth attendants, attended.

Blood Spot Quarterly Report

Includes data on six metrics comparing the hospital metrics to statewide performance.



Each quarter, birthing hospitals receive a NBS blood spot and critical congenital heart disease (CCHD) Quality Assurance Report.

CCHD Quarterly Report

Includes data on three metrics comparing the hospital metrics to statewide performance.



The NBS team meets virtually with individual hospitals to discuss their newborn screening process through educational site visits.

Topics discussed:

- ✓ NBS updates and resources
- ✓ Hospital's metrics from the previous year
- ✓ Technical assistance for any areas of concern
- ✓ Pulse oximetry screening for critical congenital heart diseases (CCHD)
- ✓ Parent education
- ✓ Courier process



Typical hospital representation at the visits includes:

- ✓ NBS Coordinator
- ✓ Backup NBS coordinator
 - ✓ CCHD contact
- ✓ Hospital lab contact (if applicable)

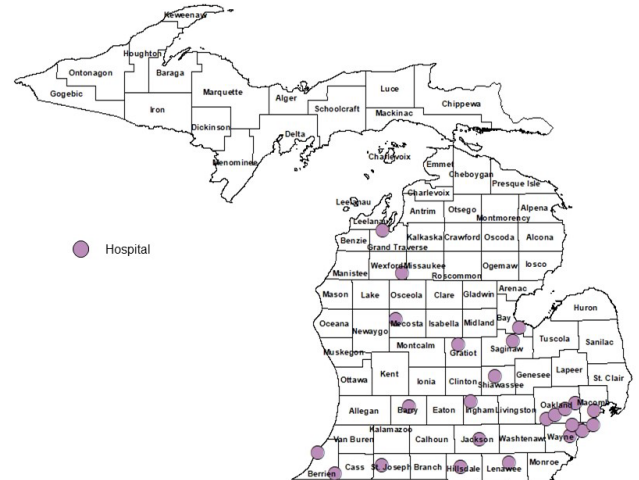


Figure 1. Newborn Screening Program Hospital Visits Completed, 2022

Hospital Visits

25



Hospital Conferences

The NBS Program hosted two virtual conferences in May of 2022 for hospital staff and homebirth attendants.



Hospital Conferences

A total of **136** people, representing **53** birth hospitals and **18** Michigan homebirth attendants, attended.

The conference covered a variety of topics including:

- ✓ A highlight of endocrine disorders
- ✓ Tips to avoid unsatisfactory specimen collection
- ✓ The importance of accuracy in newborn screening card completion
- ✓ A parent's experience with having two children diagnosed with congenital adrenal hyperplasia
- ✓ Critical Congenital Heart Disease (CCHD) screening
- ✓ NBS courier updates

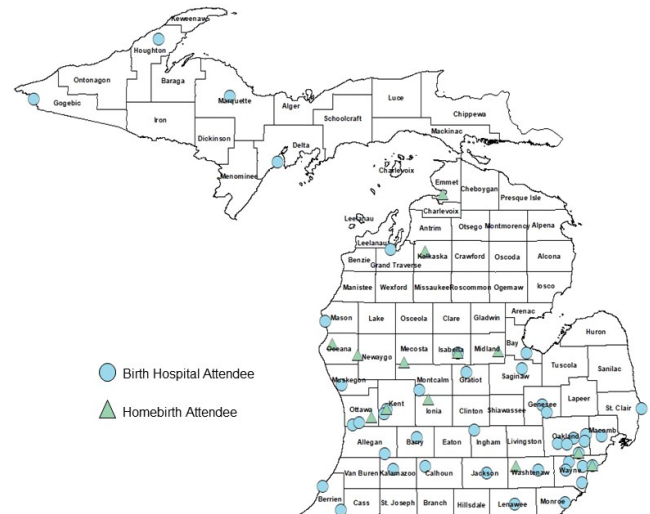


Figure 2. Newborn Screening Hospital Conference Attendees, 2022



Quarterly Newsletter



250 individuals from birthing hospitals across Michigan, including designated NBS coordinators and other staff upon request, received quarterly newsletters in 2022. Newsletters cover topics such as screening updates and technical assistance. PDF versions of the newsletters can be found online at Michigan.gov/NewbornScreening.

Blood Spot Quarterly Reports

Michigan birthing hospitals receive quarterly NBS Quality Assurance Reports comparing the individual hospital's performance on statewide performance level metrics. Statewide data on each metric for 2022 is listed below:

The six performance measurement goals are:		State Average Q1	State Average Q2	State Average Q3	State Average Q4
①	Less than 2% of screens collected are greater than 36 hours after birth.	0.5	0.5	0.5	0.4
②	Greater than 90% of screens arrive in the state laboratory by the appropriate day.	91.6	91.4	91.2	92.5
③	Less than 1% of screens are unsatisfactory specimens.	1.6	1.5	1.7	2.1
④	Greater than 95% of electronic birth certificates have the NBS number recorded.	96.0	96.1	96.4	96.2
⑤	Less than 1% of specimens have errors in the demographic data on the NBS card.	3.2	2.0	2.2	2.5
⑥	At least 90% of specimens have a returned BioTrust for Health consent form that is completed appropriately.	84.7	86.5	85.3	85.7

Critical Congenital Heart Disease (CCHD) Quarterly Reports

Michigan Birthing hospitals receive quarterly NBS Quality Assurance Notifications on CCHD screening performance metrics.. Statewide data on each metric for 2022 is listed below:

The three performance measurement goals are:		State Average Q1	State Average Q2	State Average Q3	State Average Q4
①	95% or greater of pulse oximetry screens performed on newborns are reported to the newborn screening program.	93.4	96.5	80.9	93.5
②	90% or greater of pulse oximetry screens reported to the state less than 10 days after the screen is taken.	74.3	63.4	69.5	72.6
③	90% or greater of newborns have a pulse oximetry screen completed between 20 and 28 hours after birth.	88.1	91.2	77.1	88.8




Online Training Modules

The Michigan NBS Program offers three trainings covering newborn blood spot screening and critical congenital heart disease screening. These trainings can be accessed at <https://courses.mihealth.org/PUBLIC/home.html>. Continuing education units (CEUs) are awarded upon completion of these courses.

Newborn Screening – Michigan:
Focuses on collection of blood spots.

- 331 views
- 523 completions
- 305 CEUs awarded

 **Critical Congenital Heart Disease**
Focuses pulse oximetry screening protocols in hospital settings.


- 196 views
- 351 completions
- 197 CEUs awarded

NEW: Critical Congenital Heart Disease for Home Birthing Attendants
Focuses pulse oximetry screening protocols in community settings.

- 0 views
- 2 completions
- 2 CEUs awarded

- Definitions for online training metrics:
- Views: users who viewed (but did not complete) a course in the given month; OR, users who previously completed a course but accessed it again in the given month
 - Completions: users who completed a course in the given month

Critical Congenital Heart Disease Continuous Quality Improvement Grant



Grant Activity

The NBS Program received funding for a project aimed at improving Critical Congenital Heart Disease (CCHD) screening rates among the Michigan homebirth community.

1

Establish a foundation for educating home birthing attendants on CCHD screening.

2


Increase reporting rates by promoting pulse oximeter loan program.

3

Promote the use of eReports™ online module for reporting CCHD screening results.



Midwife Updates Webinar



25

Attended

Using grant funds, the NBS Program hosted two webinars for midwives in December of 2022. 25 midwives attended. The webinars covered a variety of topics such as:

- Blood spot collection resources and tips.
- A description of pulse oximeter loan program for CCHD screening.
- Information on CCHD reporting.
- An overview of NBS card documentation.
- Updates on the Michigan BioTrust for Health program.

This project was presented at the 2022 Association of Public Health Laboratories (APHL) NewSTEPS Continuous Quality Improvement (CQI) National Meeting in Washington, D.C. in August during the session titled “Advancing Equity in Newborn Screening through Continuous Quality Improvement (CQI)”.



Parent and Public Education

Snapshot of NBS education efforts for parents and the public in 2022

MDHHS Virtual Baby Fairs

456 people registered for the baby fair and received the Baby Fair Resource Packet.

Approximately **156** participants joined one of the two live presentations.



Social Media



Michigan Department
of Health and Human
Services



@MichiganHHS



@MichiganHHS

18 posts across **3** social media platforms.

Grant Activity

The NBS Program received a continuous quality improvement grant from federal partners to create, distribute and test a new educational document intended for use in the prenatal setting.



NBS educational resources are available to order for free online at Michigan.gov/nbsorders. They include four brochures and two infographics.

200,000+
Resources Ordered

3
School or
University
Presentations



1

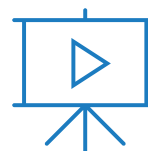
[The Newborn Screening Video](#)

2

[After Newborn Screening- What Happens to Leftover Blood Spots in Michigan](#)

3

[Michigan Newborn Screening: Are you ready for your baby's first test?](#)



870

YouTube
Video Views

NBS Websites

22,156
Total Page Views



The NBS websites have resources for parents including a list of disorders, fact sheets, contact information for follow-up coordinating centers, and frequently asked questions.



The NBS websites have resources and educational materials for providers with the *Resources for Hospitals and Health Professionals* section.



Parent and Public Education

Virtual Baby Fairs

In partnership with other areas of the Michigan Department of Health and Human Services (MDHHS), the NBS Program hosted six virtual baby fairs in 2022. These virtual baby fairs are an opportunity for MDHHS programs, including NBS, to share important resources and information to new and expecting parents across the entire state.

2022 MDHHS Virtual Baby Fairs



456 people registered for the baby fair and received the Baby Fair Resource Packet.



Approximately **156** participants joined one of the six live presentations.

Each registrant of the baby fair:

- ✓ Receives a packet of information and resources, called the “MDHHS Virtual Baby Fair Resource Packet,” to supplement the information provided at the live events.
- ✓ A Zoom link to a live baby fair presentation.
- ✓ A YouTube link shared via email with registrants following the live event. The recorded video can be viewed with closed captioning in their preferred language and can be used by persons unable to attend the live session.

Continuous Quality Improvement Grant for NBS Education

The Michigan NBS Program received funding from the APHL to conduct a quality improvement project focused on prenatal education. Grant activities included:

- ① Created, distributed and tested a new educational document called the “MI NBS Checklist.” The goal of this document was to increase parental understanding of the importance of NBS, parents' role throughout the NBS process, and choices regarding the use of blood remaining after NBS is complete.
- ② Partnered with three birth hospitals (Sparrow Hospital, McLaren Northern Michigan Hospital and Covenant Hospital) for document distribution.
- ③ A survey was sent to families who delivered at the participating hospitals, both before and after distribution of the educational document. The survey included questions about parental awareness and understanding of the NBS Program.

Results

- Statistical testing from the overall cohorts failed to yield any significant differences between the cohorts, indicating that the checklist may have not been effective at changing behaviors or NBS knowledge.
- Data was further stratified to compare each individual hospital’s pre/post intervention cohorts, which also failed to yield any statistically significant results.

Conclusion

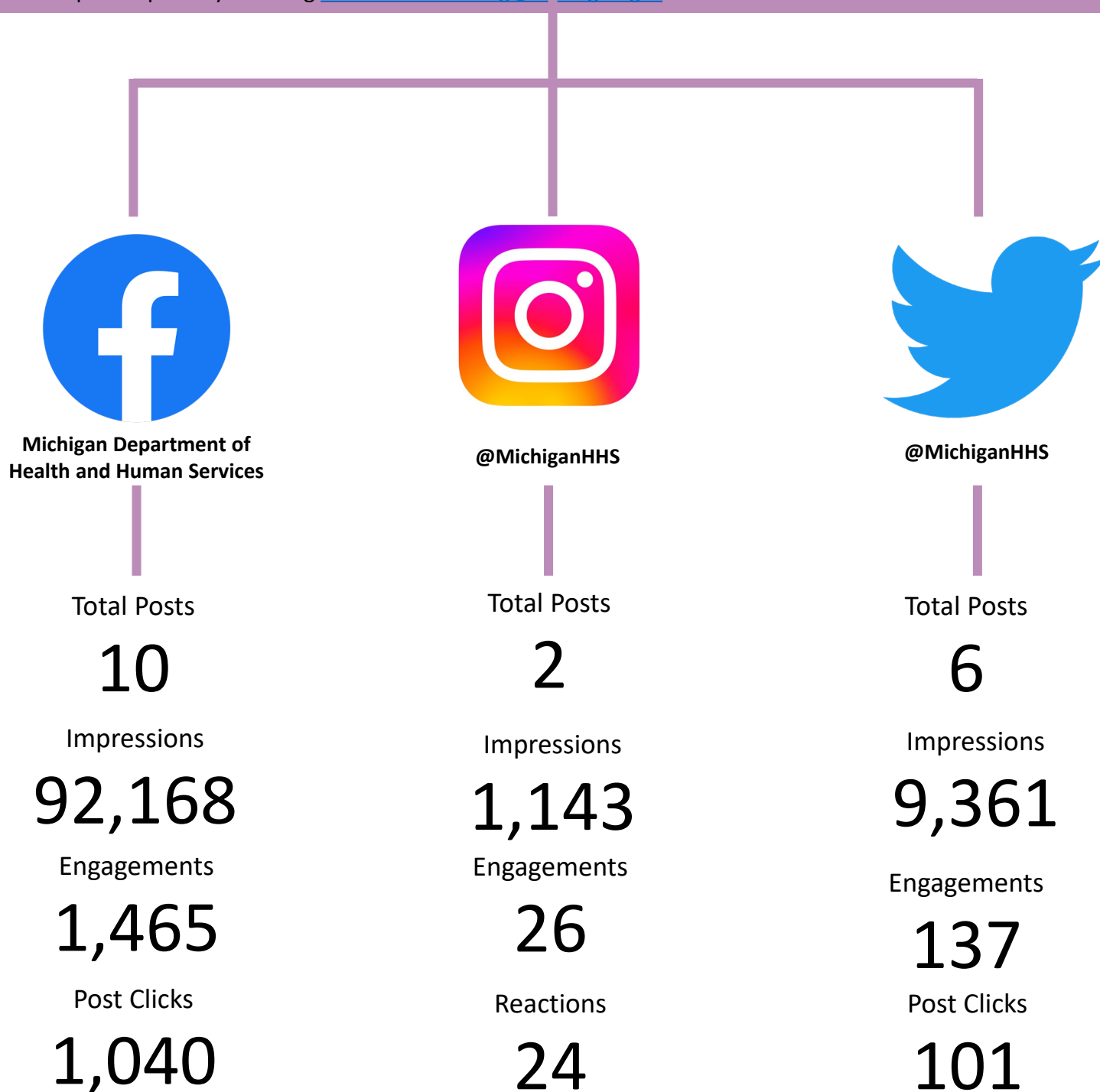
Though the educational document did not achieve statistical differences in parental awareness, the project established the feasibility of collecting data from parents shortly after their NBS experience and enabled collection of baseline data from nearly 500 Michigan parents regarding parental awareness of the NBS Program.



Parent and Public Education

Social Media

The NBS Program shares content through the MDHHS social media pages. Social media posts are drafted by the NBS Program staff and sent to the MDHHS Communications team for posting. A more detailed list of social media content can be provided upon request by emailing NewbornScreening@Michigan.gov.



Impressions are the number of times a post or ad appears on a screen. **Engagement** refers to the interactions and activity on content posted and includes likes, comments, reactions, etc. **Post clicks** are another type of engagement and is measured by the number of times people click on your post. **Reactions** are any responses to a post that do not involve typed response.



Educational Resources Available for Providers and Public

YouTube Videos

The NBS Program worked with MDHHS's Communications Department to create three educational NBS videos.

Newborn Screening: How Does It Work?

This brief video provides an animated overview of the newborn screening process in Michigan. It is ideal for use with new and expecting parents.

<https://youtu.be/c1w2Vow9UUo>



655
Views



196
Views

After Newborn Screening- What Happens to Leftover Blood Spots in Michigan

This video gives an animated overview of what happens to blood spots after screening and the options that families have. It is approximately one and half minutes long and summarizes how blood spots left over after NBS may be used. It is ideal for use during the prenatal period.

<https://youtu.be/UMcvVskMaiY>

Michigan Newborn Screening: Are you ready for your baby's first test?

This two-and-a-half-minute video works through steps families can take to have an active role in their baby's newborn screening journey. It is ideal for new and expecting parents.

<https://youtu.be/Vq9iw6le3j4>



19
Views



Educational Resources Available for Providers and Public

Websites

The NBS Program has two websites:

- Michigan.gov/newbornscreening
- Michigan.gov/CCHD

More detailed information on website analytics can be provided upon request at NewbornScreening@Michigan.gov.

Page Views

22,153 views



Represents each individual time a page is loaded by a user. Repeated views of a single page are counted.

Unique Views

16,746 unique visitors



The number of sessions during which the specified page was viewed at least once.

Sessions

10,352 sessions



Total number of sessions within the date range. A session is the period of time a user is actively engaged with the website.

New Users

6,008 first-time users



The number of first-time users during a selected date range.

Education on website for the public:

The NBS website has a wealth of resources including a list of disorders, fact sheets, contact information for follow-up coordinating centers, and frequently asked questions. Most disorders have a fact sheet for families with an explanation of what a positive screen means and a summary of the disorder. The website also includes a timeline of when disorders were added to the panel.

Education on website for providers:

The NBS website includes many resources and educational materials for providers with the *Resources for Hospitals and Health Professionals* section, including:

- Michigan NBS Guide for Hospitals
- Michigan NBS Guide for Homebirths
- Link to the NBS Educational Online Tutorial
- Previous editions of the NBS Newsletter
- Avoiding Unsatisfactory Specimens Tip Sheets
- A Simple Blood Spot Check tool
- Completing the NBS Card infographic
- NBS Bloodspot Collection Guidance document
- Putting Babies First video

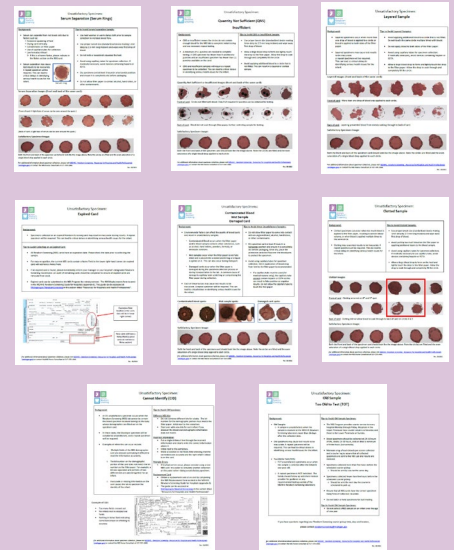


New Materials Developed

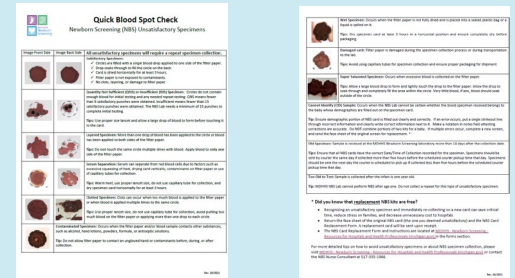
Avoiding Unsatisfactory Specimens Tip Sheets: Tip sheets have been created for the most nine most common categories of unsatisfactory specimens including:

- Cannot Identify
- Clotted
- Contaminated/Wet/Damaged
- Expired Card
- Layered
- Old Sample/Too Old to Test
- Quantity Not Sufficient/Insufficient
- Serum Separation
- Super Saturated

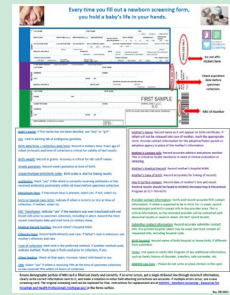
These guidance documents provide in-depth information about each type of unsatisfactory specimen, pictures, and recommendations for avoiding them.



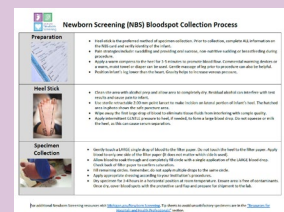
A Simple Blood Spot Check: This tool was created to help blood spot collectors recognize unsatisfactory specimens prior to submission to the NBS Lab. This easy-to-use reference tool includes pictures of specimens to help staff identify poor quality spots and gives quick tips improve collection. It also includes directions for requesting a replacement NBS card.



Completing the NBS Card Infographic: This is a one-page tool created to assist in correctly completing the demographic section of the NBS card. It provides information about what should be written in each field of the card. The goal of this resource is to improve the rate of demographic errors on the cards and decrease staff time in following up on inaccurate data. A hospital version and homebirth version are available.



NBS Bloodspot Collection Guidance: This is a one-page summary of the bloodspot collection process. It includes three main sections: preparation, heel stick, and specimen collection. Guidance on proper collection technique, specimen drying time, tips to improve blood flow, and comfort strategies are included.



Pulse Oximeter Loan Program Resource Packet

This packet includes information that is helpful for home birthing attendants receiving a loaned pulse oximeter from the NBS Program. It includes a summary of the loan program, program contact information, equipment overview, instructions on how to conduct the screen, the screening algorithm, what to do if they have an infant fail the screen, and how to report the results to the NBS Program. This resource is sent with any new pulse oximeter loaned out to a home birthing attendant.



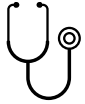


Educational Events Attended and Presentations

Detailed information about educational events and presentations attended by the Program can be provided upon request at NewbornScreening@Michigan.gov

JANUARY

FEBRUARY



Metabolic Genetics Residents Presentations

Calvin University Undergraduate Public Health Seminar
Presentation: Newborn Screening and BioTrust Overview

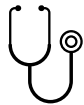


MARCH

Sparrow Pediatric Ground Rounds: Overview of Newborn Screening and BioTrust Considerations for Pediatricians



APRIL



2022 Newborn Screening Hospital Conferences

MAY

MDHHS Call for Local Health Departments

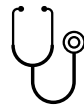


JUNE



MDHHS Summer Baby Fair

2022 Maternal Infant Health Summit



JULY

AUGUST



2022 Association of Public Health Laboratories
NewSTEPs Continuous Quality Improvement
National Meeting

Destiny of Love, Inc Community Health Fair



SEPTEMBER

Closing the CCHD Data Gap: Evolution and Implementation of a Minimal Data Set



OCTOBER



2022 Association of Public Health Laboratories Newborn Screening Symposium

NOVEMBER

Grand Valley State University Public Health Program



DECEMBER



Newborn Screening Updates for Midwives Webinar

MDHHS Winter Baby Fair



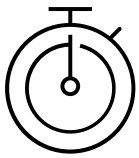
Wayne Pediatric Lecture Series





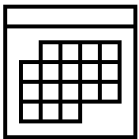
Areas of Focus

The Newborn Screening Program's internal education workgroup has identified both short-term and long-term goals to guide future program activities and areas of focus.



In the short term, the program aims to increase awareness and education about newborn screening among parents and healthcare providers. This includes participating in educational events for both groups, as well as using social media and online training modules to disseminate information. Specific areas of focus include:

- Updating the CCHD online training course for hospitals.
- Piloting the use of an updated NBS and BioTrust pocket script with staff in Michigan birthing hospitals.
- Update the NBS websites and promote the resources available on the pages.



In the long term, the NBS Program aims to increase educational opportunities for families to learn about newborn screening prior to delivery. Creating and fostering partnerships to deliver education to families who plan to deliver outside of a hospital will be a priority. Continued focus will be placed on strengthening relationships with clinical partners, including obstetricians and pediatricians, who have opportunities to provide education to families during the prenatal and postnatal periods.

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