

TRAINING UPDATE

Lab Location: SGMC and WAH **Date Implemented:** 9.25.2017
Department: Processing **Due Date:** 10.3.2017

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:

Newborn Metabolic Screening

Description of change(s):

Beginning Monday, October 3, at 8am....

1. When receiving newborn screens, you will be required to answer 2 new fields
 - a. HLTH field = health of baby (from NBS card)
 - i. WE = well
 - ii. IL = ill
 - b. REQN field = barcode the barcode on the NBS card
2. We will no longer electronically track newborn screens being sent to the State, so you must write the date the NBS was sent on the upper, right-hand corner of the yellow/Xerox copy.
3. Results will automatically interface into Cerner beginning with NBS sent on October 4.

We will continue to pull overdue logs until all newborn screens are resultd. Once all newborn screens have been resultd, we will stop.

Paper reports, if received, will go to LIS (Marie or Dennis)

Reminder: If a newborn screen was collected by a PHLEBOTOMIST, we need to add the LCC (laboratory capillary collection) charge to the order. This does not apply to newborn screens collected by nursing staff.

Electronic Document Control System



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Title: Newborn Metabolic Screening

Owner: LESLIE BARRETT

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Next Review Date:

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Non-Technical SOP

Title	Newborn Metabolic Screening	
Prepared by	Lori Loffredo	Date: 11/16/2015
Owner	Stephanie Codina	Date: 9/22/2017

Laboratory Approval

Print Name and Title	Signature	Date
<i>Refer to the electronic signature page for approval and approval dates.</i>		
Local Issue Date:		Local Effective Date:

Review:

Print Name	Signature	Date

Form revised 3/31/00

TABLE OF CONTENTS

1. PURPOSE..... 2
 2. SCOPE..... 2
 3. RESPONSIBILITY..... 2
 4. DEFINITIONS..... 2
 5. PROCEDURE..... 2
 6. RELATED DOCUMENTS 6
 7. REFERENCES 6
 8. REVISION HISTORY..... 6
 9. ADDENDA AND APPENDICES..... 6

1. PURPOSE

Newborn Metabolic Screen testing is performed by the Maryland Department of Health and Mental Hygiene (MDHMH). The testing detects over 50 endocrine and hemoglobin disorders and cystic fibrosis. Some of the disorders are life-threatening and need immediate intervention.

This procedure outlines the laboratory process to ensure a *proper sample with adequate information* is submitted to MDHMH.

2. SCOPE

This procedure covers the process to receive, process, and transport the specimens to MDHMH.

3. RESPONSIBILITY

All specimen processing staff members must understand and adhere to this procedure when verifying completed forms, ensuring adequate sample, processing and shipping the samples.

4. DEFINITIONS

NA

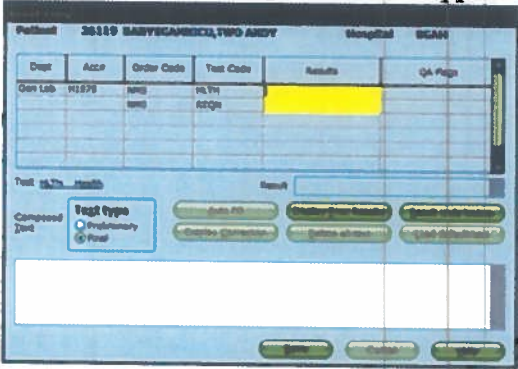
5. PROCEDURE

Step	Action
1	Newborn screens are normally collected by nursing staff and sent to the laboratory for processing. <i>Never touch the circles on the filter paper before or after blood collection.</i> Contamination of the filter paper with water, formula, or powder from gloves will affect the results.

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Document:SGAH.S927[1] Status:INWORKS,Effective:10/25/2017, Check Version Before Use

Step	Action
2	<p>Visually inspect the blood collection on the card to ensure the specimen is satisfactory. Request a redraw if issues are noted. Unsatisfactory specimens will yield unreliable results and will have to be repeated. Testing delays can result in infant death for newborns that have some of the disorders being tested. Refer to appendix C.</p> <ul style="list-style-type: none"> A. Ensure the card was allowed to dry at least 4 hours before laboratory receipt. B. Ensure all circles are adequately filled and blood has saturated through the card. Blood should be visible on both sides. C. Ensure blood from different circles does not overlap.
3	<p>Verify that the card has been completed and all requested information is present. Contact the nursing unit for any information that is omitted. Testing will be incomplete and delayed if vital information is missing. Refer to appendix B.</p> <p>Required information includes:</p> <ul style="list-style-type: none"> 1. Age of the newborn infant, birth date and collection time 2. Identification of the newborn infant 3. Date and Time of specimen collection 4. Newborn infant's weight 5. Date and Time of newborn infant's first feeding (used to determine if infant had at least 24 hours of feeding) 6. Physician (the provider that will be following the baby after discharge) 7. Verify Newborn Screening form is not expired 8. Submitter code
4	<p>Receive the newborn screen specimen in Sunquest per procedure. The Sunquest test codes for newborn screens are as follows:</p> <ul style="list-style-type: none"> A. NMS = Newborn metabolic screen B. NMSR = Repeat newborn metabolic screen. This is only used when the State Lab requests a repeat test. C. Add on an "LCC" laboratory capillary collection charge if the newborn screen was collected by a laboratory staff member. <p>Once you click "Save," the following screen will appear.</p> 

Form revised 3/31/00

Document: SGAH.S927[1] Status: INWORKS, Effective: 10/25/2017, Check Version Before Use


Step	Action
4 Cont	<p>A. In the "HLTH" field, record the health of the baby using one of the following:</p> <ul style="list-style-type: none"> a. WE = well b. IL = ill <p>This information can be found on the "Health" area of the card.</p> <div style="text-align: center;"> </div> <p>B. In the "REQN" field, scan or enter the barcode number from the newborn screening card. Note: The State refers to this as the "device ID."</p> <p>The barcode is found on the bottom of the newborn screen card.</p> <div style="text-align: center;"> </div> <p>C. Click the "Save" button.</p> <p>D. Place the LIS barcode label on the back of the newborn screen form.</p>

Shipping newborn screens to MDHMH

Step	Action
1	Newborn screens will be processed for shipment to MDHMH daily, Monday through Saturday, between 8:00 and 10:00 am.
2	<p>Obtain a copy of each newborn screen card to be sent in the current shipment.</p> <ul style="list-style-type: none"> A. Preferred method: keep the yellow copy of the card. B. Alternate method: photocopy the form for our records. <p>Document the date of shipment on <i>each</i> form and initial. Retain the forms in the processing area for 1 month.</p>
3	<p>Package the newborn screens for shipment.</p> <ul style="list-style-type: none"> A. Obtain a large (10 x 13") manila envelope. B. Adhere "to" and "from" address labels to the envelope. The newborn screens will be shipped to: Maryland DHMH Lab 1770 Ashland Ave. Baltimore, MD 21205

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Step	Action
3 Cont	 <p>C. Gather together the specimen cards that will be shipped and rubberband them together. D. Place the cards in the addressed envelope and seal.</p>
4	<p>Document the shipment on the courier log. The courier must time and initial the log when the newborn screens are picked up.</p> <p>A. A courier will automatically pick up the specimens at SGMC and WAH between 10:00 and 11:00 am and deliver them to the Dennis Avenue facility before 1:00 pm. B. The Dennis Avenue facility will transport the newborn screens to the State Laboratory for testing. C. Newborn screens are not shipped on Sundays, because the MDHMH testing lab is closed.</p>

Results

Step	Action												
1	Newborn screen results are interfaced to Cerner for automatic resulting. MDHMH will contact the physician with abnormal results to help expedite treatment.												
2	Refer any hardcopy results received to the LIS department for follow up.												
3	<p>If an issue arises, results can be obtained from the State website:</p> <p>http://starlims2.dhmf.maryland.gov/starlims10.newborn</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Location</th> <th style="background-color: #cccccc;">Submitter Code</th> <th style="background-color: #cccccc;">Password</th> </tr> </thead> <tbody> <tr> <td>SGMC Nursery</td> <td>2010017</td> <td>2010017-NBS</td> </tr> <tr> <td>SGMC NICU</td> <td>2020017</td> <td>2020017-NBS</td> </tr> <tr> <td>WAH</td> <td>2010153</td> <td>2010153-NBS</td> </tr> </tbody> </table> <p>MDHMH can be reached at: Phone No: 443-681-3900 Fax No: 443-681-4505</p>	Location	Submitter Code	Password	SGMC Nursery	2010017	2010017-NBS	SGMC NICU	2020017	2020017-NBS	WAH	2010153	2010153-NBS
Location	Submitter Code	Password											
SGMC Nursery	2010017	2010017-NBS											
SGMC NICU	2020017	2020017-NBS											
WAH	2010153	2010153-NBS											
4	Bills should be referred to the hospital Accounts Payable department for payment using ledger 78670 (purchased services) and account 4031 (laboratory).												

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Obtaining Additional Cards

Step	Action
1	Additional forms can be ordered in packs of 100 by faxing a request to 443-681-4505.
2	Cards are imprinted with a facility code and CANNOT be shared between sites.

6. RELATED DOCUMENTS

Courier Log for Sending Specimens to MDHMH (AG.F345)

7. REFERENCES

Newborn Bloodspot Screening Specimen Collection for Birth Facilities, State of Maryland Department of Health and Mental Hygiene, Maryland Newborn Screening Laboratory, <http://dhmh.maryland.gov/laboratories/>.

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
0	9.22.2017	Updated owner Header: Added WAH Sections 1, 2 & 3: Simplified content Section 4: Deleted acronyms Section 5: Updated procedure for new interface. Added new requirements for receiving. Deleted instructions for tracking and resulting. Reformatted SOP for clarity. Section 6: Removed SOPs Section 9: Added appendices	SCodina	NCacciabeve

9. ADDENDA AND APPENDICES

Appendix A: Timing of Newborn Screens

Appendix B: Completing the Newborn Screen Card

Appendix C: Newborn Screen Specimen Collection

Form revised 3/21/00

Appendix A

Timing of Newborn Screens

The timing for newborn screening is crucial. The sooner a disorder is identified, the sooner treatment can begin. Delays in newborn screening can result in infant death.

Guidelines for collection are as follows:

- A. Well Baby
 - a. The initial newborn screen is collected when the baby is 24-72 hours old *and* has been feeding for at least 24 hours.
 - b. If a baby is discharged prior to the age of 24 hours *or* before the baby has had 24 hours of feeding, the hospital (nursing staff) will arrange to have a repeat newborn screen collected as soon as possible.
 - c. A second newborn screen is completed after the baby reaches the age of 7 days. The second newborn screen is usually performed in the pediatrician's office.
- B. Babies admitted to the Neonatal Intensive Care Unit (NICU) or the Special Care Nursery (SCN)
 - a. Initial newborn screen is collected promptly after admission to the NICU or SCN. The initial specimen should be collected before the baby receives blood transfusion or antibiotics.
 - b. Additional newborn screens will be collected at the following intervals.
 - i. 2-3 days of age
 - ii. 10 days of age
 - iii. 1 month of age *or* discharge (whichever is sooner)

Appendix B

Completing the Newborn Screen Card

Two different cards are used for newborn screening.

- A. DHMH77 is used to submit specimens for babies less than 7 days old.
- B. DHMH79 is used to submit specimens for babies greater than 7 days old.

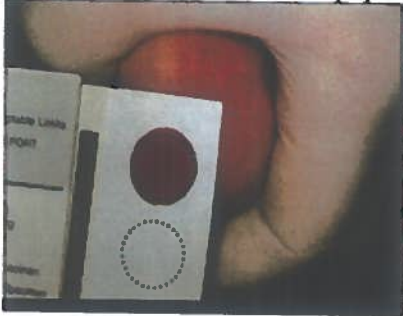
The newborn screening card must be filled out completely and accurately.

- A. Birth Date and Collection Date
 - a. Used to determine age of infant at the time of collection.
 - b. Date of collection also determines age of blood at the time of analysis.
- B. First Feeding Date and Time
 - a. Used to determine if infant has had at least 24 hours of feeding.
 - b. ****This information is very important for proper laboratory analysis of the results. The Galactose and Amino Acid Profile will be reported as IMF (insufficient milk feeding) if 1st feeding date and time are not given.****
- C. Provider Information

It is important to note the provider that will be following the baby after discharge so MDHMH can contact them if there is an abnormality and so the provider can receive a copy of the results of the newborn screen.
- D. Weight
 - a. The test for cystic fibrosis is valid only if a baby is over 1500 grams.
 - b. The cut-off values for congenital adrenal hyperplasia are based on the infant's weight.
 - c. Results will be reported as "Incomplete" if weight is missing.
- E. Type of feeding
 - a. Note all forms of nutrition given prior to the collection of the specimen.
 - b. Note if baby is breast feeding only, taking lactose or lactose-free formula or breast feeding and taking formula.
 - c. If baby is NPO, indicate whether or not baby is on TPN. The date and time TPN is started should be entered on the collection form in the space for 1st feeding date and time.

Appendix C

Newborn Screen Specimen Collection

Step	Action
1	Specimen collection is performed after the newborn screen form is completed. Prior to beginning specimen collection, review the collection card to ensure the form is complete and accurate.
2	<i>Never touch the circles on the filter paper before or after blood collection.</i> Contamination of the filter paper with water, formula, or powder from gloves will affect the results.
3	<p>Direct application of blood onto the filter paper is recommended.</p>  <p>A. Lightly touch the filter paper to a large blood drop. The filter paper will draw the blood into itself via capillary action. B. Allow the blood to completely fill the circle with a single application. The blood should visibly soak through the paper so you can see it on both sides. C. Fill the remaining circles using the same process. D. Do not allow blood to overlap circles.</p>
4	After collection, inspect the card to ensure blood has saturated through the card and there is no overlapping of blood between the circles. The test should be repeated if problems are noted.
5	Allow the specimen to dry on a clean, flat, non-absorbent surface for a minimum of 4 hours away from heat and light. Do not stack wet cards.
6	Once the cards are completely dry, they can be transported to the laboratory for processing.
7	The laboratory will process specimens daily; except for Sunday (MDHMH does not perform testing on Sunday). All specimens received prior to 0800 will be transported to MDHMH on the same day.

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Schleicher & Schuell

Simple Spot Check

Valid Specimen



Allow a sufficient quantity of blood to seep through to completely fill the pre-printed circle on the filter paper. Fill all required circles with blood. Do not layer successive drops of blood or apply blood more than once in the same collection circle. Avoid touching or smearing spots.

Invalid Specimens:



1. Specimen quantity insufficient for testing



2. Specimen appears scratched or abraded.



3. Specimen not dry before mailing.



4. Specimen appears oversaturated.



5. Specimen appears diluted, discolored or contaminated.



6. Specimen exhibits serum ring.



7. Specimen appears clotted or layered.



8. No blood.

Possible Causes:

- Removing filter paper before blood has completely filled circle or before blood has soaked through to second side.
- Applying blood to filter paper with a capillary tube.
- Touching filter paper before or after blood specimen collection with gloved or ungloved hands, hand lotion, etc.
- Allowing filter paper to come in contact with gloved or ungloved hands or substances such as hand lotion or powder, either before or after blood specimen collection.
- Applying blood with a capillary tube or other device.
- Mailing specimen before drying for a minimum of four hours.
- Applying excess blood to filter paper, usually with a device.
- Applying blood to both sides of filter paper.
- Squeezing or "milking" of area surrounding the puncture site.
- Allowing filter paper to come in contact with gloved or ungloved hands or substances such as alcohol, formula, antiseptic solutions, water, hand lotion or powder, etc., either before or after blood specimen collection.
- Exposing blood spot to direct heat.
- Not wiping alcohol from puncture site before making skin puncture.
- Allowing filter paper to come in contact with alcohol, hand lotion, etc.
- Squeezing area surrounding puncture site excessively.
- Drying specimen improperly.
- Applying blood to filter paper with a capillary tube.
- Touching the same circle on filter paper to blood drop several times.
- Filling circle on both sides of filter paper.
- Failure to obtain blood specimen.

Information provided by The
 New York State Department of Health

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