Introduction

screening sample transit times can be life-saving for The Missouri State Public Health Laboratory disorders which need rapid detection and intervenserious health complications. Timely transport of newborn bloodspot screening (NBS) specimens is crucial to a successful state NBS program. Prompt transport of the NBS specimen serves to vality of the specimen, allows for rapid analytical testin and provides for immediate intervention for the baby when needed.

serious health complication or even morcality, the NBS process from specimen collection through diagnosis and occur within the short window of time between birth nportant, particularly for time-critical conditions.

Prompted by a public comment during the September 2013 meeting of the Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) that raised the issue of timely NBS process, the ACHDNC decided to review current policies and practices relating to timeliness of NBS in the United States.

This poster describes the steps Missouri State Public Health Laboratory (MSPHL) took to achieve paramount improvements in its newborn screening (NBS) system by adding an additional courier pick-up day, Laboratory Report Access Portal, and Saturdays and most holidays to the NBS regimen. Challenges included funding, staffing, and the necessary courier enhancements. Legislative seedfunding was spearheaded by a State Representative.



Principal Issues

Missouri's Principal Timeliness Issues

- No weekend or holiday courier pickup (the state contracted courier had the same days off as the State Laboratory).
- Smaller birthing hospitals were not provided courier (did not have enough births) so they were forced to utilize regular US Mail.
- State Laboratory did not work weekends.
- State Laboratory had several observed Monday holidays resulting in 3-day weekends.
- Some hospitals displayed logistical issues provoking delays internally
- Lack of traceability for hospitals to promptly verify their samples were received by the State Laboratory.
- Lack of funding to remedy the above issues.

Steps To Improvement

Initial Improvements at No Cost to MSPHL

- Laboratory and OB managers in those institutions.
- Increased timeliness education overall
- PCP's.
- MSPHL (not received) within 24 hours of collection".
- "Top 10 Reminders" Notice
- Midwives Association.
- Worked with hospitals who were not on the state midwives).
- timeliness risk to the baby.
- Helped them identify the closest county health them aware of the daily scheduled pickup time.
- them.

Transit time equals the time from sample collection to the start of testing by the State NBS Laboratory

Hospital formerly utilizing regular U.S. mail service (most samples took 5 to 9 days)

Same hospital now utilizing a local county health department's courier stop (most samples took 1 to 4 days)

Missouri's Volunteer Model for Successfully Converting to a 6-Day Workweek for the NBS Laboratory

The Missouri State Public Health Laboratory

Worked 1-on-1 with any hospitals displaying timeliness issues.

Began providing customized monthly timeliness reports to

During routine phone conversations with nurseries, laboratories and

NBS Regulations reminder on website... "samples must be sent to the

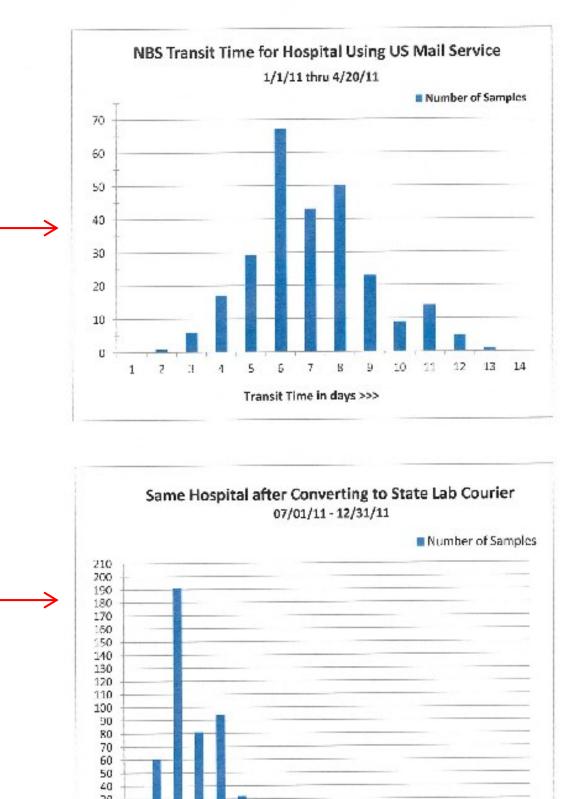
Provided a Timeliness Improvement presentation to the Missouri

courier system to self-transport their NBS samples to their nearest County Health Department (included

Contacted them individually to make them aware of the

department available (some were within a mile) and made

 Provided them a before and after transit time analysis to make available to their administrators and encourage



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Transit Time in Days >>>





Improvements Requiring Funding

Enhancement of the courier by adding holiday and Sunday pickups at the birthing hospitals was accomplished first. The courier needed to work 6 days per week also, working a day ahead of the NBS laboratory, thus picking up Sundays through Fridays at the birthing hospitals. In addition, 8 birthing centers that formerly were not getting courier service were now added to the pickup routes. These enhancements alone provided a 17% increase in samples received by the lab within 3 days of collection.

With the courier enhancements, Sat/holiday testing could commence. The goal for staffing was to keep this as a voluntary process where the current NBS staff would not be forced to rotate coverage by giving up their Saturdays and holidays. An employment status called "secondary assignment" was employed. Current MSPHL Scientists, both from within the NBS lab and from other MSPHL lab units, could work some Saturdays and holidays for extra money. This team of about 18 employees Scientists and Office Support employees) was called the Weekend Warriors and is led by a fulltime Laboratory Manager position.

The Saturday and Holiday testing began in October, 2015 and the MSPHL immediately realized an additional increase in samples tested within 3 days of collection, bringing the total time vement to about 29%. Time-critical screening results detected on Saturdays and Holidays are immediately phoned to the geneticists on call at our contracted referral centers.



Patrick Hopkins, Keith Bock, Dennis Schmitz, Darla Eiken, Tracy Klug

Improvements Requiring Funding

SALE SUPPERING

- Implemented Holiday courier pickup January 1, 2014 (\$6,000 per year).
- NBS Laboratory received legislative funding to enhance the courier system and implement Saturday and Holiday testing (supported by a KC, MO legislator).
- Implemented Sunday courier pickups starting July 5, 2015 (\$36,000 per year).
- Added 8 additional birthing hospitals to the current 46 routine hospital sites starting July 5, 2015 (\$44,000 per year).
- Implemented Saturday and Holiday testing beginning October 3, 2015 (\$200,000 per year).

Missouri's Saturday/Holiday Work Model

- 100% voluntary staffing process
- A skeleton crew of 7 scientists work each Saturday/Holiday (excludes Thanksgiving, Christmas and New Years Day) and all screening tests are performed.
- Hired one FTE: A manager level to run the Saturday/Holiday expansion and supervise the adjunct staff.
- Two newest NBS lab employees are hired agreeing they will work Tuesday through Saturday until attrition allows them to move to M - F.
- Four other adjunct employees work each Sat/Holiday making straight-time pay (classified as secondary assignment staff).
- Some are from our current NBS staff

is added to their regular paycheck.

 Some are staff from other units in the State Laboratory that have been trained on one NBS laboratory method or platform Saturday/Holiday staff sign up for the days that they would like to work. The pay for this

Traceability To Verify Samples Received

What are the benefits of the portal?

- A secure website for hospitals to verify daily that the State NBS laboratory has received their samples.
- Sample receipt verification is a new CAP requirement for them for all of their send-out samples.
- They can notify the State Lab if they determine that samples have not been received and investigations on both sides can commence quickly.
- Hospitals can print and/or save their own NBS lab reports from this site and not have to wait for them to come through the mail.
- Reduces the number of calls into the State Lab requesting NBS lab reports.
- Both submitting hospital and State Lab can become paperless.



We now provide a secure website where submitters can track their NBS samples along with printing and/or saving their laboratory reports in real time.

Education

A notice was sent out each day for one month with NBS lab reports **NBS courier expansion**



Missouri State Public Health Laboratory (MSPHL) is pleased to announce the addition of a Sunday

courier pickup by our contracted MSPHL courier provider beginning in July 2015 for all birthing hospitals that are currently receiving our state courier service. This will be in addition to the current Monday through Friday pickup that these hospitals have been receiving. By implementing this additional pickup day, the newborn screening (NBS) samples collected over the weekend will arrive one day earlier to the MSPHL allowing significantly faster turn-around times for testing.

n addition to this enhancement, the MSPHL is adding another eight hospitals to the list of 46 hospital nickup sites. These hospitals have already been contacted regarding this expansion. If you are a hospital hat is not on the MSPHL courier pickup list, we request that you continue to self-transport your NBS

ples to your nearest County Health Department or other courier pickup site, Monday through Friday, a

they will gladly receive your samples and ensure rapid transit via our state courier pickup with them. This is much faster than sending the samples through regular mail, which can sometimes take several days and could compromise sample quality.

As a reminder, please get your NBS samples to your designated MSPHL courier pickup site in your facility as soon as the samples are air-dried (3 to 4 hours) so that they will be ready for pickup by the daily courier. A list of state courier pickup locations and average pickup times is available on the MSPHL website at: <u>http://www.health.mo.gov/lab/pdf/courierlocationsbycounty.pdf</u>

<u>Prompt NBS sample transit time can be life-saving for newborn babies</u>. The MSPHL now screens for several disorders which need rapid detection and intervention to prevent disabilities or even death to the

In addition to our courier enhancements, in the very near future the Newborn Screening Unit at the MSPHL will be adding Saturdays and most State/Federal observed holidays to our routine work schedule. Obtaining and training the staff for this enhancement is currently underway. This will in turn

Finally, if your hospital is not currently taking advantage of our NBS Laboratory Report Access Portal to obtain real-time access to your NBS laboratory reports, please contact us for information in obtaining this

for your facility. This portal will also help you to be compliant with the new CAP requirement to continually ensure that the MSPHL has successfully received your NBS samples.

Healthy Missourians for life. The Missouri Department of Health and Senior Services will be the leader in promoting, protecting and partnering for health.

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER: Services provided on a nondiscriminatory basis.

If you have questions or comments, please contact: Patrick Hopkins, Chief of Newborn Screening

greatly improve the timeliness of screening for Missouri's newborns.

Laboratory, 573-751-2662, or by email at Patrick Hopkins@health mo.go

nnouncemen

Another reminder about getting the sample to the pickup site immediately after drying -

Another reminder about the importance of all this

State NBS Lab will be convertin to a 6-day work week very soon

Reminder to get connected to our NBS lab report access portal to provide verification of sample receipt

Education

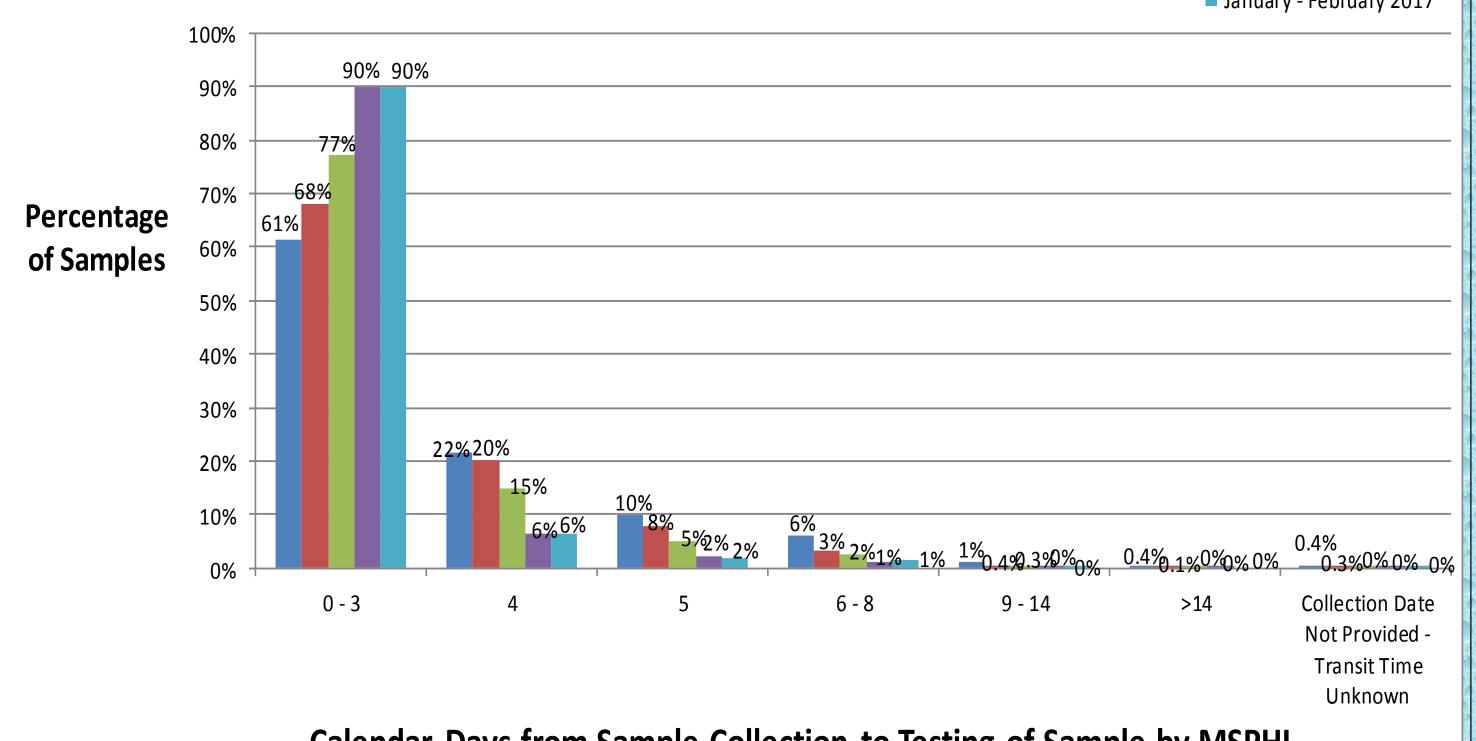
- Sent out with all NBS lab reports for one full month
- Sent out with all NBS collection card orders on a permanent basis
- Posted on NBS lab website
- Posted on NBS lab report access portal.

Reminder # 8 -

- 24 to 48 hours of age, or before a RBC transfusion. It is no longer based on feeding
- wo NBS brochures entitled, "Protecting Your Newborn" and "Your Baby's First He
- boxes. Incomplete or absent sample collection date and time will not be amendable a esting has been completed and a repeat screen will be necessary. nter the date and time of only the most recent RBC transfusion when applicable.
- date and time of any antibiotics that were given is **not** needed. Don't confuse meconium ileus with meconium aspirate on the health status section
- heck this box only if meconium ileus is present as it is often a sign of Cystic Fibros lease obtain two phone numbers to contact the mother, and **make sure the corr**
- discharged). It is essential that this information is accurate in case the family needs to nmediately contacted due to high risk screening results Find the stick is the preferred method of sample collection. New testing methods
- are being added encounter interference with both anticoagulants, EDTA and Heparin please avoid the use of these for newborn screening sample collection. Get the sample to the state courier pickup site or mail-out site as soon as it has thorout ried (3 to 4 hours). Prompt sample transit time can be life-saving for the bab
- All ill and premature newborns require a repeat screen between 7 and 14 days of a premature newborns less than 34 weeks gestational age or less than 2000 grams at bir are recommended to have a third screen at 28 days of age.
- Please check out the updated NBS website at health.mo.gov/lab/newborn. It has useful and important information and provides updates in the "What's New" tab.

have questions, please contact the State Newborn Screening Laboratory Manager by phone at 573-754

Conclusion 6-day workweek has worked tremendously well for the last 23 months 🗞 with MSPHL's newborn testing running in full capacity on Saturdays and holi- 🥈 🗧 days with the exception of second tier CF and Krabbe screening. Several val- 🏅 uable benefits have come out of the work expansion: NBS timeliness has improved 29% providing a much improved turn-around -time for the detection of many time-critical NBS disorders. collaborative workforce has been established between the regular NBS aff and the Saturday/holiday team that is working and communicating well. The work expansion has assisted in breaking down silos between laborafory units as the Weekend Warriors come from several different units The work expansion has provided an additional source of income for SPHL employees if they wish to participate. end Warrior team has developed an environment of comradery. The Saturday and holiday testing has diminished the huge surge days (some as high as 900 samples) that resulted from weekends and 3-day ekends, resulting in a more even workflow for all NBS staff. effort has been a tremendous success and has made a remarkable in provement in Missouri's NBS program. All of 2013 Missouri Department of Health and Senior Services P.O. Box 570, Jenerson City, MO 65102-0570 Phone: 573-751-6400 FAX: 573-751-6010 RELAY MISSOURI for Hearing and Speech Impaired 1-800-735-2966 VOICE 1-800-735-2466 Gall Vasterling Jeremiah W. (Jay) Nixon All of 2014 NBS Sample Transit Time Improvements All of 2015 All of 2016 mportant Newborn Screening Announcements January - February 201 **Regarding Timeliness for Screening**



Calendar Days from Sample Collection to Testing of Sample by MSPHL