

Implementing an electronic birth notification system

(In select Indiana Hospitals)

Victoria Buchanan, Director
Genomics and Newborn Screening



Indiana State
Department of Health

Overview

- Background info on NBS in IN
- Background info on INSTEP/MSRs
- Background info on electronic birth notification
- Data
- Barriers/Challenges
- Lessons learned
- Future goals



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Background: NBS in IN

- 3 mandatory newborn screens in IN:
 - Heelstick (45 conditions included on panel)
 - Universal Newborn Hearing Screen (UNHS)
 - Pulse oximetry screening for critical congenital heart disease (CCHD)



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Background: INSTEP

- Indiana Newborn Screening Tracking and Education Program
- Web-based application:
 - Built in-house
 - View NBS results
 - Report exceptions and monthly summary of births and screens
 - Edit child information
 - Other uses



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Background: MSR Reporting

- Exception reporting by MSR users at hospitals/birthing centers
 - Transferred in/out
 - NICU
 - Initial screen next month
 - Deceased
 - Religious refusal (requires a signed waiver)
 - Discharged home without a screen
- Currently have to enter demographic info

MSR Reporting

- Name
- DOB
- TOB
- Birth order
- Sex
- Mother's info
- Exception type

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Heelstick MSR Exception Entry - April 2015

Use this form to report exceptions to the heelstick newborn screening process.

Add Child Details
Enter the child and mother demographic information to identify this exception.

Child Information

MRN:

Requisition Number:

Last Name: ! First Name: child's first name is unknown

Middle Name: Suffix:

Date of Birth: ! Time of Birth: !

Sex: ! Birth Order: !

Mother Information

MRN:

Last Name: ! First Name: !

Maiden Name: Date of Birth: !

Address: IN !

Phone: !

Associated Providers

Name	Address	City	State	Zip	Phone #	Ext	PCP?
No providers have been associated with this child yet.							

IU Lab Providers

Name	Address	City	State	Zip	Phone #	SAMPLE DATE
No IU Lab provider for this PID.						

Enter Exception Details

Transfer Detail: !

Exception Type: !

Notes:

Save and go to MSR Summary entry

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MSR Reporting

- Monthly summary including # of:
 - Live births
 - Home births that received screens
 - Walk-ins that received screens
 - Exceptions
 - Total screens

Heelstick MSR Summary

Submit a summary of birth data when all heelstick exceptions have been entered for the month.

Please select an MSR to view or enter summary data.

Organization name: !

Year:

ID	Year	Month	Contact	Created	Closed		
1948	2015	January	Bryan, Blake	2/4/2015 3:23:15 PM		Select	Print
1989	2015	March	Bryan, Blake	4/6/2015 11:57:06 AM		Select	Print
2008	2015	April	Buchanan, Victoria	4/24/2015 2:37:27 PM		Select	Print

[Print MSR Submission Report](#)

MSR Summary Data

Please enter the summary data for the MSR. Enter the total number of live births, home births, and walk-ins that received newborn screening at your facility during the month. Exceptions reported and number of screens will be calculated automatically based on entered data.

MSR Status:

Number of live births:

Number of home births that received screening:

Number of walk-ins that received screening:

Number of exceptions reported:

Number of screens:

[Save](#)

[Save and Close](#)

Background: MSR Reporting

- Dashboard allows ISDH NBS Follow-Up Coordinator to follow up with open cases (exceptions) to ensure babies are screened



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Background: Electronic Birth Notification

- ISDH contracts with OZ Systems
- When a baby is born, hospital creates an EMR
- Creation of an EMR sends notification to OZ through NANI (Newborn Admission Notification Information); OZ pulls demographic info from the EMR into a database
- ISDH pulls data from OZ database as needed (ie, daily)



Electronic Birth Notification

- Gives a more accurate denominator (# of births at the hospital)
- Received daily rather than monthly (more timely)
- Demographic info rather than just a #. If a screen is missed without entering an exception, it's possible to see *who* is missed. (Safeguard to help ensure newborns are screened)



Recruiting Hospitals

- Significant start-up costs for hospital
- Incentives (APHL funds last year) to help offset costs
 - \$2500 per hospital
 - Additional \$1000 for hospital system adding additional hospitals (ie, up to \$3500 for a hospital system)
- (OZ) and special projects director at ISDH contacted each hospital through multiple emails/calls to assess eligibility and interest; notified of grant opportunity and encouraged to apply
- Implementation w/in 6 week timeframe
- Calls between hospital IT staff and OZ to discuss technical requirements
- When work completed (ie set-up complete and OZ receives the messages created by EMR), hospital is awarded the incentive

Data: Milestones (for last yr)

- ISDH contacted all birthing facilities in the state and sent a short, 1 page grant application (11/10/14)
- Agreement to participate signed by 3 hospital systems and 4 hospitals (2/28/15)
- NANI implemented at 2 recruited hospitals (4/22/15)
- Total of 10 hospitals submitting NANI data (4/22/15)

Updated (as of 1/29/2016)

- Hospitals that have implemented NANI: 17
- Hospitals currently in process of implementing NANI: 1
- Eligible hospitals that have not implemented NANI: 73

Data: Quality

(11/30/14 milestone)

- Comparing NANI to filter paper card data fields:
 - Last name: 71%
 - First name: 40%
 - MRN: 97%
 - DOB: 100%
 - TOB: 81%
 - Mother last name: 97%
 - Address: 57%
 - City: 64%
- Match rate (successful linkage of NANI to INSTEP):
 - 98% for 6 of the 7 facilities
 - 43% for remaining facility



Barriers/Challenges for Hospitals

- Significant costs to hospital to build interface
 - Lack staff time
 - Lack resources
 - Incentives do not completely offset costs (can cost ~\$10,000 worth of staff time to set up)
- Competing priorities for hospital IT staff
- Hospitals do not see immediate benefit (long-term benefits vs short term costs)

Other Barriers

- Eligibility: must have EMR
 - Would not work for homebirths/ midwifery center births where EMR not created
- Can't be completely automatic for exception reporting; would still require some hospital staff time (although this would be reduced)



Lessons Learned

- It takes time, persuasion, and multiple attempts to 1) get in touch with hospital IT staff, and 2) convince hospitals to agree and build the interface. Plan accordingly!
- Once it is up and running, not a lot of problems.
- Probably worth it; still need to get additional hospitals on board



Future Goals

- Increase number of hospitals using NANI
- Streamline MSR/exception reporting: Reduce burden on MSR users submitting data to us
- Improve data quality
- Improve timeliness of NBS
- Help ensure all newborns are screened
- Have NBS lab receive notifications too so they can be prepared if unusually high number of babies are born on a particular day



My Contact Info:

Victoria Buchanan, MS, MPH

Director of Genomics and NBS

(317) 233-1231

VBuchanan@isdh.in.gov

www.StateHealth.in.gov



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