Implementation Case Study: State Public Health Newborn Screening Programs

Project Name
Improving Newborn Screening with the IHE Quality, Research and Public Health (QRPH) NANI Profile

Locations
Alaska, Delaware, Iowa, Maryland, Minnesota, North Dakota, Texas, Virginia and Washington D.C.

Contact
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Project Description
State public health newborn screening programs need accurate and timely demographic information and a denominator of hospital system births to assure that mandated and legislated screening care occurs. Hospital staff routinely have had to enter the same newborn information into multiple newborn information systems for public health and at the hospital as interoperability and standards-based reporting between electronic health records and public health remain elusive.

The IHE Newborn Admission Notification Information (NANI) Profile provides the path for hospitals to send critical newborn information electronically to state newborn screening information systems for newborn hearing, heart and blood spot screening. This saves staff time, saves the hospital money, and improves patient safety, while reducing risk. Newborn admission information typically requires time of birth, birth order and other elements not consistently needed in routine admission information. The NANI Profile assures the data needed are available so screening can occur on time, and hospital nurseries can undertake effective quality measurement.

NANI also serves as a way to monitor whether a baby was discharged without screening for one or more mandated nursery tests. The states of Maryland and Minnesota have implemented NANI in 100 percent of birthing hospitals. In Texas, more than 35 percent of more than 200 hospitals have NANI implemented. Iowa Newborn Screening and OZ are working with the Iowa Health Information Exchange to implement NANI in all birthing hospitals. Some states do not require electronic demographics, but hospitals are implementing this solution on their own in Alaska, North Dakota and Virginia among others. Overall more than 48% of births in these states are being reported to public health using NANI.

Saves staff time

Saves money for hospital

Improves patient safety

The enhanced NANI profile, as implemented by OZ Systems. includes admission, update and discharge information in A01 (admit/visit notification), A03 (discharge/end visit), A08 (update patient information),and A31 (update person information) messages. This assures that state programs have accurate data to track families if follow-up care is needed.

Project Scope/Scale

Occasionally, a seemingly simple technology appears in the public healthcare arena that solves not only one or two problems but many, and all at once. Those of us in public health know a big challenge facing us is getting timely, accurate, and complete health information economically. Today, HL7 messages are playing a starring role in meeting this challenge as part of our OZ Systems' projects using an IHE Technical Profile in Texas, Iowa, Maryland, Minnesota, North Dakota, Washington DC, Alaska, Delaware, Virginia.
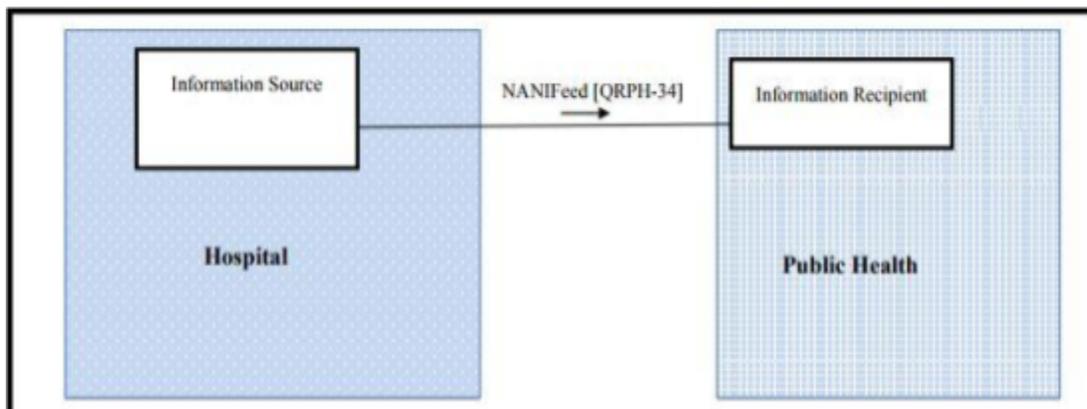
NANI Deployment - Hospital to Public Health Agency

Goals, Benefits and Achievements

The operational goal is to simplify information exchange between hospitals and public health entities, such as newborn screening programs. With the implementation of NANI, newborn screening programs ensure that they receive a demographic record of every baby born in a hospital setting. It reduces the time spent doing data entry into the public health information system for newborn hearing screening programs to provide the public health program with the denominator of births.

Reduces staff error

Hospitals need to report patient demographics to specific public health newborn screening databases. They also send point of care screening results. Public health records need to accurately report newborn blood spot screening results back to hospitals and providers. When hospital and state staff manually enter or transcribe demographics, hospitals and public health may not have the same information.

More accurate

The goal of implementing NANI is to assist state newborn screening programs as they gather timely newborn admission information to establish an accurate denominator of hospital births for public health and to improve patient safety in hospitals. NANI utilizes admission, discharge and update messages from the EHR to populate the public health database in real time, ultimately improving the data collection and improving the screening workflow.

Faster access
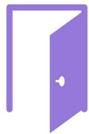
Updates in real time

"NANI operates in real time and it automatically updates information. The baby's given name gets automatically updated even though the baby is not named at birth. Plus, other data that was not available at birth is added later," says Tracy Kunkel, secretary at UnityPoint Health-St. Luke's in Sioux City, Iowa. "There is less room for human error; the records are completed much sooner; the doctors, the state, and I are all much happier with the results."

The NANI profile updates the patient records to ensure name changes and discharge dates are recorded, improving follow-up care. Follow-up is also improved by having accurate and up to date contact information for the newborn, which is provided in the update and discharge messages. Notification of deceased patients is also provided through NANI, which prevents unnecessary follow-up.

"The value of the NANI profile to hospitals is saved time and the reduction of screening staff errors. By using NANI, you are reducing risk for the hospital and enhancing patient care," says Terese Finitzo, PhD, CEO OZ Systems.

Timeline

IHE NANI implementations for the State of Minnesota's 90 hospitals were complete in three years and included other public health reporting tools for direct device reporting from hospitals screening devices into public health. Texas has implemented the NANI profile in more than a third of its hospitals voluntarily. The biggest challenge to an implementation is the IT staff's myriad responsibilities, limiting their availability.

Ways the Project Leverages IHE Products and Processes

The initial implementation guide was based on the IHE QRPH Technical Profile for NANI. We always rely on it for guidance or when we have different types of implementations. Now there are more tools, such as the Hearing Plan of Care, that we have been reviewing for future implementations.

Ways the Project Leverages IHE Test Tools and Testing Processes

OZ Systems worked with multiple Electronic Health Record vendors at several Connectathons to conduct testing and assure compliance with standards. We also brought into State Early Hearing and Detection and Intervention (EHDI) programs - Texas and Maryland in the early Connectathons as partners.

IHE Profiles Implemented
Newborn Admission Notification Information (NANI)

Implementation Challenges

1. Hospital IT calendars and priorities are primary challenges to success and can increase cost and time to implementation. This delays improvements in workflows and in program performance and in care for the newborns.
2. We introduced variations to NANI; specifically enhanced messages to include A08, A31 in addition to A01 and A03 in order to be assured that state programs had the best likelihood of accurate family/next of kin information as well as correct Medical Home connections.

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