VA's NewSTEPS 360 Electronic Data Exchange Project

The role of the Department of General Services
Information Systems Services

May 25, 2016

Current State
Data Exchange Architecture

Web-based Laboratory Information Management System - STARLIMS v10 by Abbott Informatics (No external access)

Data Integration Engine, Data Mapper and Message Broker are Rhapsody and Symphonia by Orion Health Systems

Oracle Database

Barcode Technology

Current State
Data Exchange Architecture

Heavily Integrated with Laboratory Instrumentation – Bi-directional interface between LIMS and PerkinElmer's Specimen Gate.

Business Continuity Plan - Onsite data center that allows lab to run as island when connectivity to data center is unavailable.

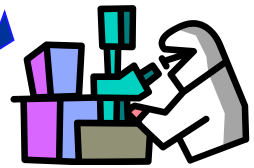
Standards Adoption – All orderable test, tests and methods performed, results, disorders and interpretations reported from the LIMS is coded using standardized terminologies such as LOINC, SNOMED-CT and UCUM.

Current Data Exchange Partners

- Centers for Disease Control and Prevention – Clinical
  - *Surveillance and Result Data*
- Virginia Department of Health – Clinical and Environmental
  - *Lab Orders and Results*
- Department of Environmental Quality – Environmental
  - *Lab Orders and Results*
- Department of Corrections – Clinical
  - *Lab Orders and Results*
- Virginia Department of Agriculture - Environmental
  - *Lab Orders and Results*

Current NBS Process Flow…..

DCLS

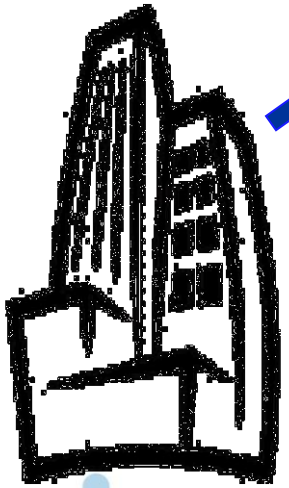


NBS Results

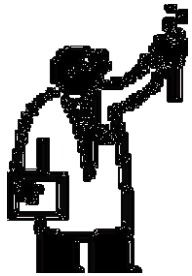
Hard-copy reports

LIMS, phone, fax

VDH NBS Follow-up Services



Hospital



Primary care and/or Submitter

- 100,000 births per year
- 57 hospitals currently submitting NBS samples

Current Timeline….

Newborn Screening Timeline	
1 day	Sample Collection (24 hours after birth)
2 - 3 days	Sample Transit to DCLS
1 - 3 days	Data Entry and Testing
1 - ?? days	Report Delivery to Hospital and Report Mailing to PCP

VIRGINIA NEWBORN SCREENING SERVICES

IT Strategic Goals

- Improve data quality by reducing manual data entry errors and omissions.
- Enhance the quality of newborn care, through the timely deliver of lab results to PCP's.
- Promote continuity of care from birth center, to primary care to follow-up specialist.
- Help to create a single and comprehensive infant/child health record that includes pre-natal and post-natal healthcare information.

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What makes NBS Messaging Unique?

- Uses coded terminologies specific to the NBS screening panel
- Accommodates the reporting of Mother and Child data within a single message.
- Includes metadata specific to the administration of Virginia's NBS program.
- Result messages can contain genetic information and treatment recommendations.

Messaging Considerations

- Virginia's NBS Program Guidance
- NLM - Standardized Codes and Terminology
- HL7 Messaging Standards
- Data Use Agreements
- Security and Privacy Policies

Reference Site:

https://newbornscreeningcodes.nlm.nih.gov/nb/sc/constructing

Virginia's NBS Program Guidance

- Follows nationally recommended guidelines associated with NBS.
- Specifies what newborn metadata / demographic data is collected.
- Determines what tests are included in VA's NBS screening panel.
- Provides guidance for infants who require further monitoring and treatment.

Standardized Codes and Terminologies

For NBS electronic data exchange, will adopt:

- **LOINC** (Logical Observation Identifiers Names and Codes) - is the standard terminology used for ordering clinical laboratory tests and reporting observations and methods performed.
- **SNOMED CT** (Systematized Nomenclature of Medicine -- Clinical Terms) is a standardized, multilingual vocabulary of clinical terminology that is used by physicians and other health care providers for the electronic exchange of clinical health information.
- **UCUM** (Unified Code for Units of Measure) used for reporting Units of Measure

HL7 Messaging Standards

DCLS will adopt:

- Lab Order Interface (LOI) Framework
  - ✓ Will use HL7 v2.5.1 OML^021 to send Lab Orders
  - ✓ Standardized vocabularies (LOINC and UCUM)

- Lab Result Interface (LRI) Framework
  - ✓ Will use HL7 v2.5.1 ORU^R01 to send Lab Results
  - ✓ Standardized vocabularies (LOINC, UCUM and SNOMED-CT)

Data Use Agreements

Things to consider:

- Current Operating Procedures
- Legal Requirements
- Consent and Authorization Forms
- Acceptable Use of Data
- Who has Access to Data
- Trust and Privacy of Data
- Availability of Data

Security

Things to consider when exchanging data electronically:

- Staff training and education – Handling of PID data
- Security safeguards - Protect, secure and backup data
- Security risks - Identify and mitigate
- User access/authentication – Need to know basis
- Business Continuity - Plan for when systems are unavailable

Benefits to Patients and Parents

- Eliminates the time and effort to manually enter data into the provider's EHR systems.
- Promotes portability of infant/child health records across the hospital and provider community.
- Provides rapid and actionable information to the primary care providers and public health specialists
- Improves coordination of newborn care between the primary physician and specialist.

Benefits to Providers

- Improves overall access to newborn information.
- Improves the timeliness of results delivery.
- Enhances data integrity and quality through standardization and system level validation (reduction in data entry and omission errors).
- Improves the ability to share Newborn data for follow-up care and long term care treatment.
- Reduces Provider's costs though the elimination of duplicate paper records and charts.

High level Project timeline

Year 1 – 2016

- Kick-off meeting
- Conduct fact-finding meeting with each hospital system
- Provide education/information, as needed
- Establish plan and begin development of order transmissions

Year 2 – 2017

- Test connectivity with pilot hospitals
- Establish order transmissions with all pilot hospitals
- Establish plan and begin development of result transmissions
- Build infrastructure for result messaging

High level Project timeline

Year 3 – 2018

- Complete implementation of order transmission with pilot hospitals
- Establish sustainability plan for implementation beyond pilot hospitals
- Begin on-boarding additional hospital facilities

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Any questions?

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