Implementing ETOR for Newborn Screening in Georgia

Presentation to: APHL Annual Meeting
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Background

• 2011 – Laboratory Information System updated
  – Perkin Elmer Screening Center
  – HL7 used to send nightly files to NBS Program and Emory Dept of Human Genetics (Follow-up)

• 2013 – Federal funding available for electronic data exchange projects
  – Quote obtained from Perkin Elmer to create HL7 messages
    • Used Library of Medicine Standards
    • Included LOINC codes
Background

• 2013 – 2015 – Searched for Partners
  – A number of hospitals were contacted
  – Generally, labs and newborn screening coordinators were interested in project
  – Hospital administrations and/or IT departments were not that interested or had higher priorities
  – Funding was not sufficient to pay hospital costs

• 2015 – 2016 – Sporadic interest from hospitals, but no funding
Current Project

• July 2016 – Contacted by Ruvos
  – Had just completed a project interfacing the Florida newborn screening laboratory with a large hospital
  – Interested in working on a similar project in Georgia
  – Had funding available from APHL
  – Search for partner hospital renewed

• January 2017 – Piedmont Hospital lab manager expressed interest (primarily in reporting)
  – Large hospital system in Atlanta with >7 locations
Current Project

• March 2017 – GPHL and Ruvos met with Piedmont Hospital lab manager and nurses
  – Lab manager very enthusiastic, because newborn screening results were the only send-out labs not being received electronically
  – Nursing staff initially very skeptical, but interested, because completing the NBS form requires about 10 minutes per form

• June 2017 – Project plan finalized
Project Plan

- Project included multiple entities
  - Georgia Public Health Laboratory (GPHL) & IT
  - Piedmont Hospital Laboratory & IT
  - Perkin Elmer
    - Creating HL7 export file and order entry holding table
  - Ruvos
    - Writing bidirectional interface between GPHL and Piedmont
  - APHL
    - Established contracts with Perkin Elmer and Ruvos, allowed for use of AIMS through membership
  - CDC – Provided funding for project
Project Plan

• Electronic Laboratory Reporting (ELR)
  – First phase of project, because it is highest priority for Piedmont Hospital
  – To be completed by June 30, 2018

• Electronic Laboratory Ordering (ELO)
  – Second phase of project
  – To be completed by September 30, 2018
ELR

• HL7 export file will be created nightly
  – File will include all specimens reported that day
  – File will include:
    • Patient demographic data;
    • Assay identification and test results;
    • Result determinations (e.g., normal, abnormal, elevated);
    • Reference ranges (i.e., cutoff values);
    • Sample-level messages (e.g., unsatisfactory reason);
    • Disorder-level messages
      – Which marker is out of range, associated disorder, recommended actions
ELO

- HL7 import of patient demographic data and specimen data from hospital information system
  - Piedmont uses Epic HIS
- Data will be temporarily stored in holding table on lab server
  - Data will be associated with specimen, when specimen barcode is scanned at GPHL
- Specimen form will include label with patient name, DOB, and MRN
  - Data not available from HIS will be entered by hand
Georgia NBS Submission Form
Future Expansion

• File created by Perkin Elmer will contain data for all hospitals
  – Ruvos interface will extract only data for Piedmont Hospital
  – It will be relatively easy to implement ELR for other hospitals
    • PE/GPHL will only need to maintain and support one process for exporting data
    • Interface will need to be written for each subsequent hospital

• Holding table created by Perkin Elmer will be usable by other hospitals for ELO
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