Public Health – EHR Vendors Collaboration Initiative
Webinar

Leveraging Health IT to Support Public Health Labs
June 19, 2018
Public Health – EHR Vendors Collaboration Initiative

In Focus

Special Session # 7: Zika Virus Disease Update

Coming Up! Special Session # 7: Zika Virus Disease Update for Electronic Health Record (EHR) Vendors, Health Information Technology Developers, Public Health, and Clinical Healthcare Partners on Nov 2, 2016 1:00 PM - 2:00 PM EDT

Please pre-register for the webinar by clicking the link below:
https://attendee.gotowebinar.com/register/350490587385264131

Abstract

This webinar will be focused on the recommendations around Ask at Order Entry (AOE) for pregnancy status in Zika virus (ZIKV) laboratory test orders with the possibility of a broader discussion on the capture of pregnancy status in electronic health records, per the clinical workflow and an update on the algorithm for ZIKV risk assessment in pregnant women, based on the latest Centers for Disease Control and Prevention (CDC) guidelines.

Terms explained:
* Ask at Order Entry (AOE): Some tests, such as microbiology cultures and those that determine heavy metal ion concentration, require additional
Question and Answer Session
How to submit or ask questions in ReadyTalk for the panel members?

Submit or Ask Questions
Submit your text question and comments using the Question Panel

Please raise your hand to be unmuted for verbal questions.
Leveraging Health IT to Support Public Health Labs

Michael Baker, Policy Advisor, Department of Health and Human Services, Office of the Secretary, Office of Intergovernmental and External Affairs

June 19, 2018
Where we are
An example of current workflow

*Documented by Dr. Leanne Field at the University of Texas at Austin
Where We Want To Go
Enhancing Clinical/Epi/Lab Coordination through the Use of a Electronic Test Order and Result Web Portal

Medicaid Public Health CoP & Public Health EHR Vendors call
June 19, 2018
Synopsis

• Project background
• Critical success factors
• Developing the solution
• Outcomes and Next Steps
Vision
A healthier world through quality laboratory systems

Mission
Shape national and global health outcomes by promoting the value and contribution of public health laboratories and continuously improving the public health laboratory system and practice.
Public Health Programs

- Infectious Diseases
- Preparedness & Response
- Environmental Health
- NBS & Genetics
- Food Safety

Public Health Systems

- Institutional Research
- Quality Systems
- Global Health
- Informatics
Electronic Test Order and Result Work

- Web Portal RFP distributed
  - CDC TB program supported
  - National DST reference center
  - iConnect/Lab Web Portal (LWP) Selected

- Programmatic Efforts to assist ETOR
  - White paper / policy statement (CDC DLS)
  - Standards Development (LOI/LRI)

- LWP deployed on AIMS VPC
  - 5 Antibiotic Resistance Lab Network (ARLN) regional labs
  - CDPH National TB DST reference center

- HHS ONC ETOR process improvement
  - Expand use of LWP to support emerging infectious disease use case.
  - Expand to look at provider, lab and epi communication channels-
ETOR in the Clinical Domain
Care & Treatment: Passive Surveillance

- DETECT
- REPORT
- REPORT
- RESPOND
ETOR in Public Health: Active Surveillance Needed
Public Health Data Needs Constantly Evolve

For Zika virus testing eligibility:
www.publichealth.lacounty.gov/acd/Diseases/EpiForms/ZikaEligibility.pdf

For Zika virus testing and notification information:
www.publichealth.lacounty.gov/acd/ZikaTesting.htm
# Integrated Disease Surveillance

## Population Data
- **Patient Identifier**
- **Dates of Travel**
- **Exposure to Stagnant Water**
- **Country Visited**
- **Exposure to Mosquitos**

## Lab Data
- **Patient Identifier**
- **Sample ID (Lab)**
- **Date Collected**
- **Test Method Ordered**
- **Test Result**

## Clinical Data
- **Patient Identifier**
- **Sample ID (Lab)**
- **Date Collected**
- **Test Method Ordered**
- **Test Result**

## Observations
- **Name of Clinic**
- **Date of Treatment**
- **Preliminary Diagnosis**

## Integrated Disease Surveillance

### Mortality Rate per 100,000

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<th>Year</th>
<th>Rate</th>
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<td>2015</td>
<td>12.3</td>
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<tr>
<td>2016</td>
<td>11.2</td>
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<td>2017</td>
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### Cases and Age Distributions

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<td>150</td>
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<tr>
<td>20-30</td>
<td>200</td>
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<td>30-40</td>
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### Obs(t) per 100,000

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<th>Obs(t)</th>
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<td>2001</td>
<td>145</td>
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<td>2002</td>
<td>140</td>
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**Legend:**
- **Blue**: Incidence
- **Red**: Mortality
- **Yellow**: Exposure to Stagnant Water
- **Green**: Exposure to Mosquitos
- **Red**: Population Data
- **Blue**: Clinical Data
- **Yellow**: Observations
- **Green**: Lab Data
- **Red**: Population Data
- **Blue**: Clinical Data
- **Yellow**: Observations
- **Green**: Lab Data
Laboratory data

Modifying LIMS to support epidemiologically significant data difficult
Problem Statement: Zika and Other “non-standard” tests

- Clinical submitters lack an efficient way of ordering tests, retrieving status and receiving results for suspect Zika cases.

- Current methods to capture epidemiological significant questions when a specimen is submitted for Zika testing (known as Ask at Order Entry questions), are not efficient or cumbersome and “after the fact” to help with testing prioritization.

- Epidemiologists do not have an efficient way to assist in the testing process to authorize, sort and prioritize testing based on submitter provided information and national case definitions.
HHS Challenge:

Build on current informatics tools to support clinical and public needs in the face of Zika and other emerging diseases
National Tuberculosis Drug Susceptibility Testing Reference Lab

Provide ETOR tools that support TB-DST shared services
Antibiotic Resistance Lab Network

Electronically report CRE colonization results to a network of cross-jurisdictional clinical and public health partners within 48 hours of specimen receipt.
Critical Success Factors

• Use existing resources and share best practices

• Design flexible, extensible ETOR system

• LIMS EMR agnostic

• Accommodate multiple workflow submission modes:
  • Paper, Web-based, EMR Submission, LIMS Synchronization

• Ensure solution standardization, while maintaining flexible approach
Identified Barriers

• Tough to meet all user expectations out of the gate

• Use of cloud computing tools

• Extensive support needed for long-term maintenance of different HL7 message specifications, transport configurations

• Ongoing maintenance requires time, personnel, and technical support expertise
Proof of Concept Approach

Phase 1: Discover
- Stakeholders
- User and System Requirements

Phase 2: Prioritize/Customize
- Gap Analysis
- Technical roadmap
- Development of Enhancements

Phase 3: Deploy
- Implementation
- User Acceptance Testing
- Go Live
Discovery Phase Deliverables

- Document and validate existing and potential workflows
- Document functional requirements
- Perform Gap Analysis between LWP and Requirements
- Define user scenarios and prioritize enhancements
Technical Approach

Selected competitively

LIMS agnostic

Centrally hosted
A secure, cloud based environment that accelerates the implementation of health messaging by providing shared services to aid in the transport, validation, translation, transformation and routing of electronic data.
AIMS in Action

- 25 Million Messages Lifetime Transported
- 20 Million Messages/week via Interface Engine Processing
- 26 Million Number of Daily Security Log Files
- ~100 Number of Servers
- 160 Tracing Partners
- 13 States Cross Jurisdictional Exchange
- 2.5TB of WGS Data Processed and Counting

**Quest**
- 1 Million Number of Quest ELR Messages Per Month

**Use Cases**
- 28,149 PHLIP Messages Per Month
- 63,070 Electronic Lab Results Per Month
- 222,874 Syndromic Surveillance
Project Results
Enhancement 1: EPI prioritization functionality & admin tool expansion

Option 1: Records expand to display Patient Information and EPI questions
Enhancement 2: StarLIMS to LWP sync-up
Enhancement 3:  
*EMR to LWP Order Interface*
Enhancement 4: Patient Centric Functions

- Ability to track patients over time, across systems
- Ability to manage patient demographics, insurance, diagnosis, medications
- Ability to define custom patient metrics
- Ability to view trends and track patient results over time
New Patients page - Demographics
New Patients page – orders specific to patient
Proof of Concept System Screens
### Specimens Grid

<table>
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<tr>
<th>Specimen Id</th>
<th>Patient Name</th>
<th>Patient DOB</th>
<th>Collected</th>
<th>Submitted</th>
<th>Received</th>
<th>Facility Name</th>
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**Quick Search**
Timeline displays key events in specimen life cycle

Commentary panel enables secure message exchange between clinics and laboratory

Andrew Sinyaver 05/01/2018 11:43 am
answered all the AOE questions. let me know if anything else is needed

Test User 05/01/2018 11:44 am
roger that
## Test Ordering

### 1. Physician Information

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<th>Facility Name</th>
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<td>DOE, JANE MD</td>
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### 2. Patient Information

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<th>First Name</th>
<th>Middle Initial</th>
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<tr>
<td>Cruz</td>
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<td>J</td>
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<table>
<thead>
<tr>
<th>Birth Date</th>
<th>Gender</th>
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<th>Address (2nd line)</th>
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<td>Male</td>
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### Billing Method

- [ ] Insured
- [ ] Self-Pay
- [ ] Uninsured
AOE Questions based on program/test

Answer few questions.

Is patient pregnant? *
- [ ] Yes
- [x] No

Date of Exposure?
06/06/2018

Symptoms (select all that apply):
- [x] Cough
- [ ] Fever
- [x] Chills

CANCEL  SUBMIT
### EPI Review screen

<table>
<thead>
<tr>
<th>Specimen Id</th>
<th>Patient Name</th>
<th>Patient DOB</th>
<th>Collected</th>
<th>Submitted</th>
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**Send to Physician**

If you would like to share this patient report with another physician, please enter his or her email address below. Please note that you are responsible for verifying that the receiver has appropriate rights to see this patient's PHI. This email is not encrypted.

**Subject:**
patient report

**Emails:**
3rd_party_physician@abchospital.com

**Message:**
please take a look at the attached report

(options)
Frequently Asked Questions

How do I submit a test order?

Go to Dashboard and click on "Click to Order" tile to open electronic Test Requisition Form.

How do I track my test order?

How to view published lab report?

How to view submitted order?
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What's Next?

Continued system evolution & deployment
Implementation of Enhanced Epi Functionality:
Use Case: ARLN: CRE Colonization
Objective: Interrupt AMR Transmission

Detect
Report
48 Hours
Engage and Collaborate

• Complex initiative - needed to expand membership beyond PHLs
• Technical, business and operational components
• Meeting the needs of the project sponsors and PH stakeholders
• APHL technical efforts come into play
  – AIMS/member services
  – Cloud Computing options
Identify operational/institutional topics for BC taskforce to consider
Look at an all-hazards approach-

How can we better leverage the community to:

- Define and evolve common solutions to support both clinical and public health ETOR

- Identify the ETOR business case/operational drivers
Thank You!

Questions?