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IMMUNIZATION INFORMATION SYSTEMS: A SPECTRUM OF APPROACHES FOR CONSUMER ACCESS

NATIONAL IMMUNIZATION CONFERENCE

MAY 15, 2018
AGENDA

- **Cross-Jurisdiction Exchange** - *James Daniel, ONC*
- **Consumer Engagement for IIS** - *Shannon Stokley, CDC*
- **Caredox** - *Tony Boselli*
CONSUMER ENGAGEMENT FOR IIS PROJECT

- Collaborative project between:
  - The Office of the National Coordinator for Health Information Technology (ONC)
  - The Centers for Disease Control and Prevention (CDC)
  - The Office of the Chief Technology Officer (CTO)
  - Audacious Inquiry (Ai)
  - Scientific Technologies Corporation (STC).
PROJECT PURPOSE

- Provide **online access** to consumer’s **Immunization Records** which are stored within their State’s Immunization Information System (IIS)
- **MyIR Immunization Portal** (STC Product)
  - Web-based, IIS-agnostic, bi-directional application using current HL7 standards
  - Access and print official immunization records and forecasts.
  - Consumer can add dependents (i.e. children, foster children, etc.) to their account
REGISTRATION WORKFLOWS

1. **Provider:** Visit physicians office to get authenticated in-person

2. **Online Authentication:** Register and authenticate online
   - Text Message
   - Auto Dial
   - Mailed Access Code

3. **State-Assisted:** Release form submitted to the state immunization office. State officials authenticates and emails access code

4. **PHR/Patient Portal:** Consumers connected to their patient portals directly query their state IIS for records (in development).
ONLINE AUTHENTICATION WORKFLOW

1. Consumer selects Self Registration

2. Consumer enters registration data & multiple phone numbers

3. Registration data matching

4. SMS Text number match?
   - yes
   - no
   - Phone number match?
     - yes
     - no
     - Mailed Access Code
       - yes
       - no
       - State-assisted account registration & linkage
         - no
         - yes
         - One-time in-person visit to healthcare provider

5. Access Code texted to consumer

6. Access Code phoned to consumer

7. Consumer enters Access Code to MyIR & substitutes personal password

END

Anytime access to official immunization certificates And personal vaccination History and forecast
MYIR ACCOUNTS REGISTERED AND FULLY-ACTIVATED
(DECEMBER 2013 – APRIL 2018)

Consumer Registration & Activation

Online Authentication
Implemented May 2016
## PROJECT YEAR 4 – REGISTRATION/ACTIVATION

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Total Registered Accounts</th>
<th>Total Fully Activated Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/29/16 - 7/7/17</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Provider-Assisted Authentication</strong></td>
<td>901</td>
<td>201</td>
</tr>
<tr>
<td>Activation Success Rate</td>
<td>-</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Online Authentication</strong></td>
<td>24,427</td>
<td>8,238</td>
</tr>
<tr>
<td>Activation Success Rate</td>
<td>-</td>
<td>34%*</td>
</tr>
<tr>
<td><strong>WA State Assisted</strong></td>
<td>1,212</td>
<td>1,014</td>
</tr>
<tr>
<td>Activation Success Rate</td>
<td>-</td>
<td>84%</td>
</tr>
<tr>
<td><strong>Total (All Registration Methods)</strong></td>
<td>26,540</td>
<td>9,453</td>
</tr>
<tr>
<td>Overall Activation Success Rate</td>
<td>-</td>
<td>36%</td>
</tr>
</tbody>
</table>

*Evaluation of Project Year 5 metrics shows Online Authentication Success rate at 59% in one state.*
What action did you take after you learned that a vaccine was needed?

- Called my healthcare provider to make sure the vaccine was really needed (8%)
- Called my healthcare provider to report that the vaccine had already been received and that the record contained an error (6%)
- Scheduled a visit with my healthcare provider to receive the vaccine (22%)
- Waiting to discuss it with my healthcare provider at the next scheduled visit (24%)
- Have not taken any action yet (41%)

- Analysis of Weekly Metrics
- Google Analytics Analysis
- Consumer Surveys
- Key Informant Interviews
MARKETING

- Posters/Brochures
- Unpaid Advertising – Social Media
- Mailings
- Pilot Ad Campaigns
  - Seattle Metro
  - Baton Rouge Metro
  - Caregiver bloggers
NEW INITIATIVES IN THE WORKS

- PHR/IIS Connection
  - Exploring connecting consumers with their records through their PHR through various connection options such as:
    - State HIEs
    - Nationwide Networks
    - Docket
    - Caredox
  - Evaluation of marketing initiatives in preparation for project year 5.
Up To Date Vaccination Status Evaluation

- Analysis of data for MyIR Users vs. Non Users in Washington State
- Determine whether individuals that have access to their immunization records are more likely to be up to date on vaccinations or receive vaccinations on time.
  - Hypothesis: Consumers that have access to their immunization records are more likely to maintain proper vaccination status.
- Data Pull in April 2018
- Complete analysis with Final Report for Project Year 5 (September 2018)
Transforming Pediatric Health
Providing right care at the right time
Flu Shots and Immunizations Critical Component of Pediatric Preventive Health

Worst Flu Epidemic in a Decade

Over 30,000 hospitalizations and 160 child flu-related deaths during 2017-2018 season in addition to countless school closures.

Low Flu Shot Effectiveness Still High Impact

20% flu shot effectiveness shown to reduce an estimated 20M doctor’s visits in a year.*

Chronic Population Especially Vulnerable

Flu shot reduces the risk of hospitalization among those with diabetes 79% and chronic lung diseases like asthma 52%.

*Source: 2018 PNAS study
Uncoordinated Pediatric Care Impacts Quality Outcomes

- **Family**
  - Parents are difficult to engage
  - Information is siloed and out of date, causing lack of coordination

- **School**
  - Community partners and schools are heavily fragmented

- **Healthcare Ecosystem**
  - Lack of accessibility for the providers

Patients are not properly educated around their healthcare
Create a supply chain to enable providers to come to where the children are—in the schools.

The one location where children can be served at scale!
OUR GOAL

Become the Enabling Platform
Connecting Families to Providers

CareDox Enables the key stakeholders of the Pediatric Care Continuum to connect with each other

- Families provide consent to schools while schools keep families informed of student health
- Educational content pushed from providers to families
- Information from all stakeholders feeds into CareDox
- Real-time disease state from schools to providers
- New therapies / care plans from providers to schools

Families
Schools
Nurse
Coach
Teacher
Counselor
Care Coordinators
Doctors
Hospitals
Health Info Exchange
RX/Pharma
Immunization Registry
Healthcare Ecosystem

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Preventative and chronic disease care to students in a school-based setting.

- Flu Shots / Vaccines
- Adolescent Wellness Visits and EPSDT screenings
- Care Management Services
- Engagement Services such as patient education & sponsorships
- Well Visits
- Care Management

Tech-Enabled Services Provide...
Bringing flu vaccines and adolescent immunizations directly to students in schools has proven to be an effective way:

- To increase vaccination rates for children
- Reduce absenteeism (increase ADA reimbursements)
- Protect families and others from illness and
- Saving lost time away from school and work

A recent independent Texas study shows CareDox and the Healthy Schools Flu program reduced absenteeism and saved schools approximately $500,000 across 3 peak weeks of the Flu season.

(E3 Alliance “Kick the Flu” Flu Immunization Campaign Study, www.e3alliance.org).
Technology Platform

Electronic Health Records Management

**Nurse Module**
CAPTURE AND ACCESS DATA
Electronic Medical Records system (EHR) to streamline student medical management and share student’s health records with parents & staff

**Parent Portal**
PARENT ENGAGEMENT
Simplified updates from parents coupled with real time notification from nurses about their child’s health

**Admin Module**
REPORTS
Real time reports to provide key insights for early warnings, absenteeism related to health issues and chronic disease management.

**Healthcare Services**
CARE COORDINATION
Providing immunizations, flu shots, wellness physicals & community health agency programs

BETTER OUTCOMES & EFFICIENCY
Platform Provides Real-Time Health Information

- Immunization Status
- Longitudinal Reporting
- Real time Condition specific disease state
- Early warning for outbreaks and epidemics
- Trend analysis
- Improved care coordination
- Event based communication
- Health insights
Immunization Data Workflow on Platform

Parents & guardians can view their child’s immunization status via the CareDox family view.
- 30,595,499 Immunization Records in EHR (13M from IIS)
- 438,905 Parental Records with IIS data
- 642,920 Health Records linked to IIS
- 447,504 Immunization Records written back to IIS
- 700,000 Administered Flu Vaccines projected for 2018

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- EHR in 30 States
- 1,800,000 Students/190+ Districts
- 3,300 Health Staff actively using EHR tool
- 6,200,000 health episodes (visit history) recorded
No Cost to Schools or Families:

School-Based Health Care Services  NO COST
- Preventative: Flu shots/vaccinations
- Preventative: Adolescent wellness visits
- Preventative: Education programs
- Care management services for chronic disease

Implementation Services  NO COST
- Trainings
- Implementation / Configurations
- Ongoing Maintenance (annually)

How are these services funded?
As a certified healthcare provider, we are able to offer preventative care and chronic disease management at no cost to schools or families through partnerships with Medicaid and insurance providers. This enables children to stay in school, remain healthy and reduce absenteeism.
The Public Health Immunization Pilot Project was launched to address the need to share immunization across jurisdictional boundaries.

Upon completion of the project, providers will be able to request a patient’s record from another immunization registry and retrieve that data across jurisdictional boundaries.

By creating a transport hub, participating pilot sites will be able to exchange immunization data across jurisdictional boundaries through the centralized hub via a SOAP Web Service utilizing adopted and approved standards for interoperability.
IIS Data Exchange Use Case Diagram

1. Provider
   - Entry Points
2. Provider
   - EHR system
3. Consumer
   - Patient Portal
4. Washington IIS
   - Central Data Hub

(Access to additional IIS…)

Locations:
- Maryland IIS
- Oregon IIS
- DC IIS
Pilot Requirements

• Implement HL 2.5.1 release 1.5
• Implement modified WSDL
• Implement triggers and ability to generate query to other state IIS
  – Automatic
  – Manual
• Install Digital Certificates
• State MOUs
• APHL/AIMS Agreement
Challenges

• MOUs
  – ASTHO/AIRA sponsored standard MOU for data sharing

• Digital Certificates
  – Review need for client based certificates
  – Mitigation strategies to minimize security risks
Jurisdictions

• Mississippi
• Louisiana
• West Virginia
• Maryland
• Michigan
• Oregon
• Washington
• Delaware
• Philadelphia
• Washington D.C.
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(learn how to fix the EHR to HER autocorrect)