Workflow and Usability Improve Immunization-Related Data Quality for Providers and Public Health

Session 55, March 6, 2018
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Conflict of Interest

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Has no real or apparent conflicts of interest to report.
Conflict of Interest

Floyd Eisenberg, MD, MPH, FACP

Has no real or apparent conflicts of interest to report.
Conflict of Interest

Timothy Bennett

Has no real or apparent conflicts of interest to report.
Agenda

• The Case for Improving Immunization Rates
• Improving the Rate of Immunization for Vaccine-Preventable Diseases
• HIMSS Immunization Integration Program Overview
• HIMSS Immunization Integration Program Perception of Value
• Current Status
Learning Objectives

• Describe how to evaluate and harmonize integration requirements for public health and clinical registry analysis with clinician and consumer needs for decision making and clinical care

• Explain how to address clinical and analytical requirements with clinical care workflow to enhance clinical software usability and effectiveness

• Describe how to approach workflow-based clinical software assessment and testing to achieve interoperability and how such a program might complement the ONC Certified EHR Technology requirements

• Discuss two immunization-related data requirements requiring more collaboration among clinicians and public health immunization registry organizations

• Describe potential incentives and challenges for clinical software vendors to participate in a voluntary immunization-related recognition program
THE CASE FOR IMPROVING IMMUNIZATION RATES FOR VACCINE-PREVENTABLE DISEASE
Benefits of Immunization

Improved immunization rates are linked to:¹,²,³

- Better health outcomes
- Lower health care costs
- Higher levels of productivity

The health and productivity costs of influenza alone are estimated to be as high as $87 billion per year⁴

Despite Benefits, Immunization Rates are not High...

- Percentage of adults who received flu vaccines ranges from 32% (ages 18-49) to 67% (age 65+) in 2016\(^1\)
- Percentage of children aged 19-25 months who received the 7-vaccine series was 72% in 2016\(^2\)

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1 Centers for Disease Control and Prevention, [https://www.cdc.gov/nchs/fastats/flu.htm](https://www.cdc.gov/nchs/fastats/flu.htm)
2 Centers for Disease Control and Prevention, [https://www.cdc.gov/nchs/fastats/immunize.htm](https://www.cdc.gov/nchs/fastats/immunize.htm)
The evidence shows that the following interventions improve immunization rates:

- Standing orders, reminders and feedback for providers (clinical decision support)
- Immunization information systems (IIS or registries)
- Reminders to individuals

EHRs – now adopted by about 90% of hospitals and physician offices – can play a key role in supporting these interventions.

IMPROVING THE RATE OF IMMUNIZATION FOR VACCINE-PREVENTABLE DISEASE
Workflow and Usability Improve Immunization-Related Data Quality for Providers and Public Health

- Interventions for vaccine-preventable diseases
- Central source for immunization information
- Support Providers:
  - Data Exchange
  - Clinical Decision Support at Point of Care
  - Ensure timely immunizations, consolidation of records, efficient workflows
  - VFC (Vaccine for Children)
  - VTrcKS (Vaccine Tracking System)
  - AFIX (Assessment, Feedback, Incentives, and eXchange)

**IIS Challenges**

- Data Quality
- On-Boarding – Each vendor is different
  - Each implementation is different
Workflow and Usability Improve
Immunization-Related Data Quality for
Providers and Public Health

- Interventions for vaccine-preventable diseases
- Point-of-Care application for provider-patient interactions to
document care provided (e.g., immunizations)
- Support Providers and Patients:
  - Data Exchange (communicate with IIS’, other providers)
  - Clinical Decision Support at Point of Care
  - Ensure timely immunizations, consolidation of records,
efficient workflows
  - Support documentation for VFC (Vaccine for Children)
    and inventory as needed

EHR Challenges
- Data Quality – Each implementation is different
- On-Boarding – Each immunization registry (IIS) is different
  No central source for regional variation information
Enhance Electronic Health Record (EHR) Capabilities to improve data quality, clinical efficiency and usability, and patient access, thereby enhancing immunization rates.

Improve the immunization transmission standard to enhance data sharing. Improve implementation guides iteratively with HL7 balloting.

Support and standardize immunization registries to improve timely immunizations, consolidation of information and enhance efficiency.
Transmission standard addresses format and some basic, required content

Data quality issues persist

On-boarding requires individual work with each site to address local workflow

Large IIS on-boarding backlogs

EHR vendors complain about inconsistencies among IIS’
Standards and EHR Certification Moving Forward

Each IIS must assure national Implementation Guide conformance and additional local requirements for each EHR site, and also create agreements to work with IIS’ in nearby jurisdictions.

- Each site with any given EHR is different
- Many vendor products

Conformance with transmission (interoperability) standards is not sufficient. The IIP program is complementary to IIS efforts to improve IIS interoperability (blue circles), addressing data quality and onboarding issues by focusing on the EHR (red circles):

- Usability
- Clinical workflow
- Documentation
- Clinical decision support
- Local jurisdictional variations (“optional” elements in the standard)
Immunization Integration Program **complements** ONC Certification 2015 Edition (Bidirectional) **to improve**

- **Data Quality** (through usability, workflow, local decision support)
- **Standardization** expanding required element testing to include most common jurisdictional additional data elements (“optional” in the standards).
HIMSS IMMUNIZATION INTEGRATION PROGRAM OVERVIEW
EHR Recognition Process Pilot

- **Phases 1 & 2: 2013-2015**
  - Immunization-Related Capabilities for Clinical Software
  - Immunization-Centric Guidance
  - Immunization-Related Software Tests

- **Phase 3: 2016**
  - Implementation of Phase 2 efforts working with the Health Information Management Systems Society (HIMSS) and International Computer Security Association (ICSA)

- **Phase 4: 2017**
  - Inaugural Year for EHR and Other Clinical Software Recognition in HIMSS Immunization Integration Program (IIP)
  - Transition to The Drummond Group for Software Testing
  - ONC Designation as Alternate Testing Program for Immunization Interoperability
  - 3 Vendors Achieve Recognition

FOCUS ON PHASE V – HIMSS IMMUNIZATION INTEGRATION PROGRAM (IIP) EXPANSION
• Refresh and Publish Immunization-Related Capabilities, Guidance, and Test Scripts

• Enhance awareness of the importance of integrating immunization-related capabilities into health IT

• Engage more software developers in using these tools to assess compliance of their health IT

• Implement an independent process for validating immunization-related capabilities within health IT

• Gain input from users on their implementation experiences
Aligning Software Capabilities with General Clinical Workflows

1. Register & Identify Patient(s)
   a) Individual
2. Manage External Query, Response & Reconciliation
   a) Query IIS for status/forecast
   b) Reconcile IIS & Local Data
3. Manage Information for Clinical Decision-Making
   - Demographic Data
   - Prior Vaccines (Eligibility)
   - Prior Vaccines Reconciled Data
   - Vaccine Interactions
   - Allergy/Adverse Reactions
   - Current & Prior Conditions
   - Suggested Vaccines
4. Manage Inventory
   - Order, Stock / Restock New Vaccine
     a) Private Stock
     b) VFC / other government programs
     (CDC VTracs, Private Sources)
5. Administer & Report Immunization
6. Provide Patient Access
   Address Timing for Each Step
7. Manage Adverse Events [VAERS]
   Coordinate inter-IIS query for inter-jurisdictional immunization data
8. Immunization Information System (Registry – IIS)
   a) Receive request for individual patient status
   b) Respond to query for individual patient status
   c) Push individual patient status / forecast
   d) Coordinate regional regulated inventory distribution and fulfillment (VFC / other)
• Testing covers workflows focused on real-life scenarios, which clinicians and other stakeholders developed using specific immunization-related capabilities tested and available for review.

  – **Workflow 1: Register and Identify a Patient**
  – **Workflow 2: Manage External Query, Response, and Reconciliation**
  – **Workflow 3: Manage Information For Clinical Decision Making**
  – **Workflow 4: Manage Inventory**
  – **Workflow 5: Administer and Report Immunization**
  – **Workflow 6: Manage Cohort of Patients**
  – **Workflow 7: Manage Adverse Event Reporting**
  – **Workflow 8: Provide Patient Access**

Access requires log-on to the HIMSS Innovation Center, Immunization Integration Program

http://www.himssinnovationcenter.org/immunization-integration-program
HIMSS IIP Technical Advisory Panel Members

Public Health Perspective:
• Eric Larson – Senior Technical Project Manager, American Immunization Registry Association (AIRA)
• Jenne McKibben, Director, Alert IIS, Oregon Immunization Program

Healthcare Provider Organization and/or Medical Group
• Donna Mazyck, RN – Executive Director, National Association of School Nurses
• Stuart Weinberg, MD – Associate Professor, Department of Biomedical Informatics, Vanderbilt University Medical Center

EHR Vendor:
• Kristin Glaza – Strategist, Cerner
• Richard Loomis, MD – VP, CMO, Practice Fusion

Clinicians [including pediatricians, family physicians, internists, nurses, pharmacists]
• Susan Kressly, MD – Kressly Pediatrics
• Feliciano Yu, MD – St. Louis Children’s Hospital
• Jennifer Russo, RN – Barnabas Health
• Shaun Grannis, MD, Interim Director, Center for Biomedical Informatics, Regenstrief Institute, Inc.

Retail Clinics
• Brandy Altstadter – Scientific Technologies Corporation

Consumers
• Donald Hackett – Precision Vaccines (consumer vaccine registry)
Standards and EHR Recognition

Data Quality Benefits:

- Addresses usability & clinical workflow efficiencies
- Improves likelihood of accurate, complete data entry consistent with many jurisdictional requirements
- Increases attention to workflow-specific usability principles
- Increases collaboration and understanding of clinician and public health perspectives
- Encourages measured improvement over time based on feedback and transparency
Provider Benefits:

- Provides usability guidance for vendors
- Addresses clinician end-to-end workflow, increasing efficiency to provide immunizations and related information to patients and caregivers
- Reduces burden associated with reporting on immunization-related performance measures
- Improves vaccine tracking to help manage costs and inventory
- Reduces burden associated with transmitting data to local immunization registries
- Demonstrates product focus on achieving outcomes for clinicians/providers and patients addressing both preventive and population health
Standards and EHR Recognition

Standards Issues Addressed due to Collaboration:

- Determining eligibility for guarantee programs
- Valuing the “Responsible Party” field in patient demographics
- Coordination of immunization inventory data
- Managing patient potential adverse reactions to immunization
Recognition Testing Process

• Testing Process
  – Application
  – Preparation
  – Testing
  – Validation
  – Test Report issued by Test Lab
  – HIMSS IIP notified
  – Vendor recognition added to HIMSS website

• Retests
  – Deficiencies communicated
  – Retest scheduled when deficiencies corrected

• Appeals
  – Internal review by Drummond Group
  – Escalation to HIMSS IIP and Technical Advisory Panel
Survey Question. Having immunization-related capabilities within EHRs or other clinical software will provide value. (n=532)
## Clinician Perceptions of Value

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>I don’t know</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable you to deliver better care to your patients</td>
<td>66%</td>
<td>31%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Reduce burden associated with reporting to immunization registries</td>
<td>68%</td>
<td>24%</td>
<td>5%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
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<tr>
<td>Reduce burden associated with the Vaccines for Children Program</td>
<td>59%</td>
<td>24%</td>
<td>8%</td>
<td>0%</td>
<td>1%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Reduce burden associated with reporting on immunization-related performance measures</td>
<td>65%</td>
<td>27%</td>
<td>5%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
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<tr>
<td>Enhance my ability to meet Meaningful Use requirements under the CMS EHR Incentive Programs or MACRA</td>
<td>61%</td>
<td>28%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Reduce burden associated with providing immunization-related information to my patients or their caregivers</td>
<td>54%</td>
<td>29%</td>
<td>14%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
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</table>

Survey Question. Please share your perspectives as a clinician or other immunization provider: Immunization-related software capabilities will: (n=131)
<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>I don’t know</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable your customers who are clinicians and other immunization providers to deliver better care to their patients</td>
<td>75%</td>
<td>21%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Reduce the burden associated with developing and implementing software changes associated with reporting to immunization registries (as required under the CMS EHR Incentives Programs or MACRA and related Standards and Certification Criteria)</td>
<td>63%</td>
<td>23%</td>
<td>9%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Survey Question. Please share your perspectives as an EHR or other clinical software developer: Immunization-related software capabilities will: (n=121)
• Three Vendor Products Recognized

• Formal Announcement:
  – Wednesday, March 7
  – Interoperability Showcase
  – 2:30 – 3:30 PM PST
Questions?

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Remember to complete online session evaluation