Using Immunization Information Systems to Increase Adult Immunization Rates: A Pilot Project

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Infectious Diseases Society of America (IDSA)

• IDSA represents over 10,000 physicians and scientists specializing in infectious disease patient care, research, and prevention.

• Reducing preventable illnesses, hospitalizations and deaths through immunization of adults and persons of all ages is a long standing priority for our members and our organization.
  – IDSA’s 2007 “Actions to Strengthen Adult and Adolescent Immunization Coverage in the United States” outlines principles for increasing adult immunization: [http://cid.oxfordjournals.org/content/44/12/e104.full](http://cid.oxfordjournals.org/content/44/12/e104.full).
  – IDSA is an organizing sponsor of the National Adult & Influenza Immunization Summit (NAIIS)
IDSA Supports Implementation of the NVAC Adult Immunization Standards

- The NVAC standards state:
  “Providers in states that include adult immunization records in their state immunization information systems (IIS) should understand how to access the IIS as a source to check for vaccines that a patient has already received or should be receiving.”
- But, what are the factors that determine a provider’s ability to meet this standard?

Half of 2013 Summit Audience Reported Not Knowing Whether Patients Could Access IIS

Q: Can you access adult immunization information through your state’s IIS?

- Yes: 38%
- No: 11%
- My state IIS doesn't have adult IZ capabilities: 1%
- I don't know: 49%
Plurality of 2013 Summit Audience Reported
Lack of Awareness as Biggest Barrier to IIS Use

Q: What is the biggest barrier to entering adult immunization information on your state’s IIS?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of awareness</td>
<td>40%</td>
</tr>
<tr>
<td>Lack of provider/practice time</td>
<td>37%</td>
</tr>
<tr>
<td>Lack of financial reimbursement</td>
<td>11%</td>
</tr>
<tr>
<td>Concern about privacy or other legal concerns</td>
<td>11%</td>
</tr>
</tbody>
</table>

Project Overview
Thank You Project Team!

- **Anu Bhatt**, Association of Immunization Managers (AIM)
- **John Billington**, Infectious Diseases Society of America (IDSA)
- **Carolyn Bridges**, U.S. Centers for Disease Control and Prevention (CDC)
- **Alison Chi**, American Immunization Registry Association (AIRA)
- **Rebecca Gehring**, National Association of City & County Health Officials (NACCHO)
- **Helen Fields**, AIM
- **Trini Mathew**, IDSA & University of Connecticut Health Center
- **Mitch Rothholz**, American Pharmacists Association (APhA)
- **L.J. Tan**, Immunization Action Coalition (IAC)
- **LaDora Woods**, CDC

Thanks to all NAIIS Access & Collaborations (A&C) working group members for review and input along the way.

Problem Statement

- High adult morbidity and mortality due to vaccine-preventable diseases.
- Adult immunization rates well below the Healthy People 2020 targets.
  - Coverage for adult vaccines can range from 14% - 70% compared with >90% for children*
- IIS use has been shown to help increase immunization rates in children **
- Only 8% of general internists and 36% of family medicine practitioners reported recording adult immunization information in a state or regional IIS***.

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Project Goals

This pilot project was designed to answer the following questions:

1. Of those states with an existing adult/lifespan IIS, why are these registries not optimally utilized and what are the barriers to complete utilization of existing adult/lifespan IIS?
2. What practice and/or policy changes will help promote the optimal use of registries for increasing participation in lifespan registries?
3. What new research is needed to better answer these questions?

Project Overview

• Analyzed existing literature on adult/lifespan immunization and IIS, and conducted interviews with immunization managers and registry directors.
  – 9 states chosen as convenience sample for pilot.
  – Geographically diverse sample; states vary by % adult participation in IIS.
• Interviewers used a structured interview guide designed by the project team with input from the NAIIS A&C working group and affiliated organizations.
• Interviews were conducted in February and March 2014.
• No outside funding was used for this project.
Nine States Interviewed; Varied by Geography and % Adult Participation in IIS

% Adults Participating in an IIS (2012)
- 67% - 94%
- 34% - 66%
- <33%
- No Adult IIS

*Participation defined as having one or more vaccinations administered to adults aged ≥ 19 years documented in an IIS


Findings
Seven States Authorize Lifespan IIS; Only 2 Have Mandates for All Providers

Authority

7 of the 9 states interviewed have laws explicitly authorizing use of IIS across the lifespan, including adults.

- One state derives authority from general public health statute.
- One state does not authorize use of IIS for adults.

Mandate

2 of the 9 states have laws mandating that adult immunization be entered into the IIS by all providers.

- Four states have limited mandates for certain providers.

Consent

6 of the 9 states provide for implicit consent with opt-out.

- One state is mandatory with no right to opt-out.
- One state requires explicit consent, written or verbal.
- One state does not have an adult IIS.

VFC = Vaccines for Children Program

All States Permit Provider Access to IIS

- All states interviewed permit providers to view patient IIS records and all but one state permit entry adult immunization records, including:
  - Community immunizers such as visiting nurses association (all except one state)
  - Pharmacists
  - Local health departments
  - Any licensed physician
  - Nurse practitioners
  - Physician assistants
Six States Permit Patient Access to Records, But Only Two Have an Electronic Patient Portal

6 States Permit Patient Access

- 2 states permit access through separate patient portal
- 4 states provide hard copies only, through provider or IIS help desk*

* One state is currently developing a patient portal

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States Were Most Likely to Require Pharmacists and LHDs to Enter Adult IZ Data Into IIS

<table>
<thead>
<tr>
<th>State</th>
<th>Pharmacists</th>
<th>Local Health Departments (LHDs)</th>
<th>Any Licensed Physician</th>
<th>Community Immunizers (e.g. Visiting Nurses Assoc.)</th>
<th>Nurse Practitioners</th>
<th>Physician Assistants</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 1</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>State 2</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>State 3</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>State 4</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>State 5</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>State 6</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Total States</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

IZ = Immunization

* As of July 2015 (new law)
** Plus all providers accepting federally funded vaccines (Medicaid/VFC)
*** Plus all Medicaid providers
Dedicated Funding and Staff for Adult Immunizations and IIS Is Limited

**Dedicated IIS Staff for Adult Immunization**
- Only one state reported having an assigned adult immunization coordinator on the IIS team.
- One state estimated that 10% of IIS staff time is spent on adult immunizations.

**Dedicated IIS Funding for Adult Immunization**
- Only one state reported having dedicated financial resources to support adult immunization in the IIS, and still it was only a “small portion” of a larger health department contract.

States Do Not Uniformly Collect Data on Provider Types Using IIS

- States determine provider type on IIS in various ways:
  - Obtaining lists of licensed providers and comparing to existing IIS provider database;
  - Guessing as to which specialty is likely to administer adult or pediatric immunizations;
  - Accessing provider type through Vaccines VFC profiles;
  - Querying through electronic health records; and
  - Collecting provider type data but not consolidating or regularly retrieving.
## Major Challenges Faced by Providers and Other IIS Users

<table>
<thead>
<tr>
<th>Challenge</th>
<th># States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of provider staff time and resources</td>
<td>5</td>
</tr>
<tr>
<td>Costs associated with use and modification of EHR systems</td>
<td>4</td>
</tr>
<tr>
<td>Manual entry (w/o EHR); paperwork back-up</td>
<td>3</td>
</tr>
<tr>
<td>Interfacing problems between provider EHR and IIS; lack of funding to create and maintain interface</td>
<td>3</td>
</tr>
<tr>
<td>Identifying adult providers</td>
<td>2</td>
</tr>
<tr>
<td>Lack of mandate for adult IIS use</td>
<td>2</td>
</tr>
<tr>
<td>Public/provider association of immunization with children, not adults</td>
<td>2</td>
</tr>
<tr>
<td>Adult IZ system more fragmented than pediatric</td>
<td>1</td>
</tr>
<tr>
<td>Duplicate client entries (e.g., name change)</td>
<td>1</td>
</tr>
</tbody>
</table>

EHR = Electronic Health Records  
IZ = Immunization  

### Meaningful Use
The Meaningful Use Program Provides Incentives for IIS Use (1 of 2)

• Meaningful use (MU) is a federal initiative.
  – Created by federal law in 2009*.
  – Offers incentive payments to participating healthcare providers who demonstrate meaningful use of electronic health record (EHR) systems among providers.
• Criteria for MU have been finalized for Stage 1 and Stage 2, are under development for Stage 3.


The Meaningful Use Program Provides Incentives for IIS Use (2 of 2)

• Providers can receive incentive payments for transmitting data between their EHR systems and their state’s IIS.

  Stage 1
  • Test, and if successful, establish a connection from the EHR to the IIS (HL7 2.3.1 or 2.5.1) in the provider’s jurisdiction.

  Stage 2
  • Single standard, HL7 2.5.1 and requirement for “ongoing submission” of production immunization data (as opposed to test data) to an IIS.

State Meaningful Use Onboarding Time Varies

- Reported onboarding queues ranged from zero to 400+ providers depending on the state.

### Provider Wait Time for MU Onboarding

<table>
<thead>
<tr>
<th># of States</th>
<th>Days</th>
<th>Weeks to Months</th>
<th>Months to Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Reported MU Bottlenecks Varied by State

- **MU Bottlenecks Cited**
  - **Provider Issues**: Transition from MU Stage 1 to 2 more difficult; some providers decided not to pursue Stage 2.
  - **Staffing & Funding**: Most states relied on department-wide MU team and external IT departments, only one state had a dedicated full-time staffer for MU.
  - **EHR Vendor Delays**: Providers also experience delays with vendors, which may have their own queues.
  - **Extenuating Circumstances**: One state was undergoing an IT reorganization.
Four States Prioritized Providers in Queue

- In the four states that reported prioritizing onboarding queues, factors cited for prioritization varied:
  - Organization/provider type – typically pediatric providers
    - 3 states code queue by practice type, one state can identify volume of immunizations administered (favors pediatrics, larger providers)
  - Length of wait time
  - Readiness to dedicate IT/vendor resources to see the project through
  - EHR system used
  - Record of previous reporting to IIS
  - Public perceptions associating immunizations with children

Promising Practices for MU Implementation

- **Educating Stakeholders.** One state is holding informational webinars to share initial information with providers more efficiently to decrease MU waiting times.

- **Dedicating Staff.** One state has a dedicated employee to work on the MU initiative with providers and EHR vendors; has been the key to state’s success in implementing MU and lack of waiting time for help from the health department.

- **Planning Ahead.** At least one state IIS is anticipating that bidirectional data exchange will likely be major component of MU Stage 3 and has planned for this – the IIS already has tech capabilities to offer bi-directional exchange.
Lessons Learned and Proposals for Future Research

Lessons Learned (1 of 2)

• **States Varied Widely.** Wide variation in use and capabilities for registries for adults among just 9 states

• **State Resources and Staff Limited.** All states interviewed cited limited IIS resources and staff as a major impediment to promoting use of IIS for adult immunizations.

• **States Have Plans for Improvement.** Most (6) states interviewed indicated specific plans to increase efforts to boost IIS use for adult immunizations.
  - In most cases, these plans were aspirational and dependent on sufficient funding.
Lessons Learned (2 of 2)

- **State Mandates Drive IIS Use.** Reporting mandates are a strong incentive for use – 2 states reported new laws that would phase in use of IIS across the lifespan.

- **Other Rules Can Increase IIS Use.** One state’s Medicaid rules drive IIS reporting among Medicaid providers and has made a big difference in reporting rates.

- **Meaningful Use Holds Promise.** The MU program may increase IIS use for adult immunizations, but still too early to see full impact.

Limitations of this Project

- Convenience sample of only 9 states
  - 9 volunteers on team; no outside funding pursued
- Interviews relied on self-reporting
- Only interviewed 1-3 representatives from each state
Proposals for Additional Evaluation (1 of 2)

• 50-state survey (plus D.C., territories, and high-pop. cities with IIS), possibly with follow-up interviews using similar structure to interview guide used for this project.
• Survey providers, with more specific questions about IIS use for adults.
• Focus on EHR/MU implementation and barriers, as this is biggest knowledge gap we identified.
  – Follow-up with providers who completed MU Stage 1 but not pursuing Stage 2; assess factors influencing decisions not to proceed.

Proposals for Additional Evaluation (2 of 2)

• Interview major IIS vendors for their perspective.
• Interview EHR vendors for perspective on bottlenecks to EHR connectivity with IIS.
• Evaluate use of patient access portals, including demand and patterns of patient use.
Selected References


Thank you.

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