The Value of IIS for Adult Immunization

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American Immunization Registry Association (AIRA)

• Centralized core of activity for IIS development, standardization, and best practices
• Provides knowledge sharing/capacity building opportunities
• A membership organization for IIS staff & partners
Immunization Information Systems are...

confidential, population-based, computerized data bases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area

At the point of clinical care, an IIS can provide consolidated immunization histories for use by a vaccination provider

aggregate data for use in surveillance and program operations, and in guiding public health action with the goals of improving vaccination rates and reducing vaccine-preventable disease
Why isn't there a national IIS?

National solutions to facilitate exchange?

• 1993: Congress rejected national IIS provisions in the Comprehensive Child Health Immunization Act
• 1997: RWJ outlined reasons for local implementation including:
  • Lack of federal legislation
  • Insufficient funding at the national level
  • Sustainability of a national system
• 1999: NVAC report outlines policy directions and major steps needed to establish nationwide network of community/state population-based registries
• Functional standards were approved by NVAC – updated by CDC
Why isn’t there a national IIS?

Why use registries to increase adult immunization rates?

Fundamental IIS Functionality/Data use

**IIS create**
comprehensive immunization records

**IIS generate**
reminders to ensure on-time immunization

**IIS assist**
with clinical decision support and forecasting
with vaccine ordering and inventory management
Why isn’t there a national IIS?
Why use registries to increase adult immunization rates?
Aren’t all state IIS “just” childhood registries?

Laws authorize operation of IIS, (27) 53%
Laws authorize sharing of immunization information, (8),…
Laws allow sharing of health care information, (3) 6%
Rely on general public health statues or regulations, (13)…

Source: IIS: A Decade of Progress in Law and Policy;
IIS & Adult Immunizations:

For jurisdictions with mandates (31), for whom do shots get reported?

- only young children (upper age limits of 6 or 7 years old)
- immunizations for children/adolescents/young adults (upper age limits franging from 10 to 26 years)
- all immunizations for all age groups

Consent: Adult Immunizations:

- 51 jurisdictions
  - explicit consent required
  - can be shared without consent, with opt out
  - can be shared without consent, without opt out
  - implied consent to share, with right to opt out

Source: IIS: A Decade of Progress in Law and Policy. 
http://journals.lww.com/jphmp/Abstract/publishahead/Immunization_Information_Systems
IIS Participation

- **Children >6**: 90% participation of children >6 participating in an IIS in the United States • 2013
- **Adolescents 11-17**: 64% participation of adolescents 11-17 participating in an IIS in the United States • 2013
- **Adults**: 32% participation of adults greater than or equal to 19 years of age participating in an IIS in the United States • 2013

Percentage of adults aged ≥19 years participating in an immunization information system – United States, five cities, and D.C., 2013

National Participation: 32% (excluding territories)
Source: CY2013 ISAR

City: Chicago, IL; Houston, TX; New York City, NY; Philadelphia, PA; San Antonio, TX.
Using IIS to Improve Adult Immunization Rates: Iowa

Added adult benchmark
Iowa adult benchmark added to registry

Using IIS to Improve Adult Immunization Rates: Arizona

This project is developing an approach to significantly improve the uptake of the flu vaccine made available at on-site employer-based flu clinics.
All American Flu Fighters (A2F2) Project

Project Goals

• To reach an 80% employee coverage level, a significant improvement over the traditional 35%-45% range of participation.

• To determine the impact of providing additional employee immunizations if the on-site immunizer had access to the information in a state IIS.

Piloted in 2012-2013 Flu Season

• Pilot included five employers

• Employee uptake averaged over 72%.

A2F2 2013-2014 Flu Season

Partners

• The Arizona Department of Health

• Arizona Partnership for Immunization

• Vista International, Arizona Chapter – represents CEOs

The Project

• 20 companies signed up

• Providing on-site immunizer access to the state IIS to determine the number of employees with a record in the IIS and use decision support to assess other immunizations due or past due

• Preliminary results are showing that 86% of the individuals with an existing record are due for at least one other adult immunization
Using IIS to Improve Adult Immunization Rates: Minnesota

Minnesota focus on IIS/adult immunization initiatives:

- Quarterly Assessment:
  - Adult immunizations included in quarterly assessment provided to local public health & regional coordinators to identify areas with low adult immunization rates/enable targeted outreach
- Adult Assessment Report
  - Building this report into IIS user interface
- IIS Client Follow-Up tool
  - Will allow a provider to directly follow-up with their patients who are due or overdue for immunizations
- Healthcare worker vaccination program – all reporting for program is done through the IIS
- Pharmacy Initiatives
  - Developed a video for pharmacists showing that the IIS is an easy tool to use in assessing a patients' immunization needs and recommending appropriate vaccines for patients. The video can be seen on MDH YouTube channel
Using IIS to Improve Adult Immunization Rates: Washington

Washington State pilot provided on-line real-time IIS access to pharmacists
Pilot Objectives

- Determine whether giving pharmacists access to the registry helps provide:
  - More informed care
  - Increase vaccinations given
  - Improve overall quality of care
- Determine how using the registry will fit into pharmacy work flows

Study Overview

A pilot observational study
  - 5 pharmacy stores participated
  - December 2013 – February 2014
  - Pharmacist queries registry when patient presents for vaccination, and observe what happens

Pre-Study Survey
  - Showed that time is the #1 barrier to providing immunizations
Observations - Vaccinations

<table>
<thead>
<tr>
<th>Immunizations People Came In For:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Flu</td>
<td>65%</td>
</tr>
<tr>
<td>Tdap</td>
<td>11%</td>
</tr>
<tr>
<td>Hep A, B or combo</td>
<td>7%</td>
</tr>
<tr>
<td>MMR, Pneumo, Yellow Fever, Dtap or TD</td>
<td>3%</td>
</tr>
<tr>
<td>Meningococcal, Rabies, JE, Typhoid,</td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td>1%</td>
</tr>
</tbody>
</table>

Manual Look up - Time Spent Searching the Registry for a Patient

- 60.4% < 1 Min
- 17.5% < 2 Min

~10% of those asked after “Forecast” opted for additional vaccinations

78% Patients searched were found

3% were up to date

Increased Satisfaction

How does access to increased patient information through the IIS change your job satisfaction as a patient care provider?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slightly satisfying</td>
<td>20.0%</td>
</tr>
<tr>
<td>Moderately to Very satisfying</td>
<td>80.0%</td>
</tr>
</tbody>
</table>

How likely are you to recommend using the IIS to a colleague or pharmacy student you are precepting?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderately likely</td>
<td>20.0%</td>
</tr>
<tr>
<td>Very likely</td>
<td>80.0%</td>
</tr>
</tbody>
</table>
Conclusions

• Average of 10+ years experience, but only 37.5% had ever used the registry before
• Patients were receptive to immunization advice from pharmacists
• Pharmacists expressed need for more complete registry records and the desire to participate by reporting their vaccinations to the registry
• Pharmacists don’t innately know what to do with the forecast
  • Training should incorporate entering vaccinations given AND how to approach their patients and advise them

Looking Forward

Pharmacies present one of the best opportunities for increasing registry participation and improving adult immunization rates.

Pharmacies
• State IIS should proactively empower as many pharmacists and pharmacies in their states to:
  ▪ Create bidirectional exchanges
  ▪ Incorporate decision support for value add
  ▪ Provide Immunization education
• Measure the impact
Using IIS to Improve Adult Immunization Rates: Wisconsin & Michigan

A study to demonstrate the value of collaboration between IIS and retail pharmacies

Study Goals

• Demonstrate IIS capability to assess retail pharmacy vaccination data
• Demonstrate the value of collaboration between IIS and retail pharmacies
• Demonstrate the value of retail pharmacy participation in an IIS
• Identify next steps
Influenza Vaccination Doses Reported to the IIS by Pharmacies by Season

Pharmacy Administered & Reported to IIS, Adults 18+

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WIR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td>7,208</td>
<td>24,637</td>
<td>25,922</td>
<td>20,293</td>
</tr>
<tr>
<td>PPSV23/PCV13</td>
<td>5,611</td>
<td>4,347</td>
<td>4,655</td>
<td>6,513</td>
</tr>
<tr>
<td>Td/Tdap</td>
<td>474</td>
<td>6,362</td>
<td>5,909</td>
<td>7,078</td>
</tr>
<tr>
<td><strong>MCIR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td>20,993</td>
<td>60,947</td>
<td>57,025</td>
<td>50,084</td>
</tr>
<tr>
<td>PPSV23/PCV13</td>
<td>8,463</td>
<td>11,712</td>
<td>13,292</td>
<td>15,252</td>
</tr>
<tr>
<td>Td/Tdap</td>
<td>6,643</td>
<td>9,968</td>
<td>14,308</td>
<td>17,441</td>
</tr>
</tbody>
</table>
Study Findings

• IIS are valuable in measuring the progress in pharmacies administering & reporting adult vaccinations
• Pharmacies play an important role in immunizing adults
• Increasing rate of reporting by pharmacies
• Coordination of data analysis is crucial to comparing data from several sources

Using IIS to Improve Adult Immunization Rates: Walmart & Immunizations

A study to demonstrate the value of collaboration between IIS and retail pharmacies
Walmart & Immunizations

2015 Flu Season
• Full implementation of pharmacy immunizations in all states and all ages (based on state legislation)
• Registry reporting in all states

Stay Compliant
• Required in the following jurisdictions: Oregon, Iowa, North Carolina, Michigan (June 1, 2015)

Improve Patient Engagement
• Serves as a tool in counseling patients on immunization recommendations
• Complete record for patients to manage their records for school entry, employment, etc.

Coordinate Care
• Fully participate in information sharing between health care providers
• Improves communication between the provider/pharmacist and the patient
Are patients found?

- Approximately 70% of the patients are found in the registry
- Only 1-2% return multiple matches and require additional review

Walmart Takeaways

- IIS provides a lot of value to providers and impacts patients on an individual level
- Continue to invest in high quality data
  - Completeness + Accuracy = Improved Patient and Provider Confidence
- Remove barriers to participation
  - More providers submitting data improves experience for everyone
Providers & IIS: Challenges

• Additional resources needed to support IIS technical and operational activities for the adult population
• Adult provider identification, outreach, and onboarding
• Operational changes in IIS needed for adult immunization tracking (priority groups, occupation, non-traditional providers etc.) during public health emergencies

Providers & IIS: Benefits

• Decision support
  • Determine if patients are due or past due for an immunization
• Reminder/Recall
  • Use IIS to generate reminders, increase # of patients identified as due for immunizations
• Real-time bi-directional exchange with IIS
  • Immediate decision support = increased # of patients identified as due for immunizations while patient is in front of provider
  • Accessibility of information within provider workflow
  • Avoid double data entry
• Inventory management
  • Reduce the work of meeting accountability and reporting requirements
What can AIRA do for you?

• Visit our website www.immregistries.org to find useful materials and information
• Email us or call us with questions
• Join AIRA as a member and participate in our activities

AIRA Website Resources

www.immregistries.org
Special Thanks

Iowa
• Kim Tichy

Minnesota
• Miriam Muscoplat

Washington
• Billy Chow, Bartell Drugs
• Brandy Alstadter, STC

Michigan & Wisconsin
• Rob Savage, Independent Consultant
• Cristi Bramer, MI
• Ashley Petit, WI

Walmart
• Kristen Hutchinson
• Brandy Alstadter, STC

Questions?

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Questions?

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202-552-0195
How does data get into an IIS?

- **Vital Statistics**
  - Birth and Death records

- **Data Exchange**
  - Records from providers system

- **User Interface**
  - Rapidly becoming an ancient method

Provider sends query to IIS

IIS Updates information & returns updated forecast to provider

IIS sends patient history and forecast to provider

Provider administers Vaccines & submits new information to IIS

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U.S. Reporting to an IIS in 2013

<table>
<thead>
<tr>
<th>Data Source</th>
<th>VFC Sites</th>
<th>Non-VFC Sites</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of public provider sites enrolled in IIS as of Dec 31, 2013</td>
<td>90861</td>
<td>10263</td>
<td>101124</td>
</tr>
<tr>
<td>Number of enrolled public provider sites reporting data to IIS at least once from Jul 1 – Dec 31, 2013</td>
<td>19349</td>
<td>7329</td>
<td>26678</td>
</tr>
<tr>
<td>Number of private provider sites enrolled in IIS as of Dec 31, 2013</td>
<td>29990</td>
<td>2099</td>
<td>32089</td>
</tr>
<tr>
<td>Number of enrolled private provider sites reporting data to IIS at least once from Jul 1 – Dec 31, 2013</td>
<td>96970</td>
<td>66980</td>
<td>163950</td>
</tr>
</tbody>
</table>
### Reporting & Access Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Advantages</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paper</strong></td>
<td>• Supports data collection from non-computerized practices</td>
<td>• Timeliness</td>
</tr>
<tr>
<td></td>
<td>• Non-computerized practices</td>
<td>• Requires data entry staff</td>
</tr>
<tr>
<td><strong>Direct Data Entry/Lookup</strong></td>
<td>• Updates IIS in real-time</td>
<td>• Timeliness</td>
</tr>
<tr>
<td></td>
<td>• Clinical support tools accessible to users</td>
<td>• Data quality</td>
</tr>
<tr>
<td></td>
<td>• No additional software required at provider site</td>
<td>• Data completeness</td>
</tr>
<tr>
<td></td>
<td>• Real-time access to patient records</td>
<td></td>
</tr>
<tr>
<td><strong>Flat File</strong></td>
<td>• Electronic format</td>
<td>• Requires unique, non-standard formatting</td>
</tr>
<tr>
<td></td>
<td>• More complete data</td>
<td>• Data quality</td>
</tr>
<tr>
<td><strong>HL7-Reporting &amp; Querying</strong></td>
<td>• Standardized format</td>
<td>• Time- and resource-consuming to implement</td>
</tr>
<tr>
<td></td>
<td>• More complete data</td>
<td>• Unidirectional interfaces don’t give access to</td>
</tr>
<tr>
<td></td>
<td>• Mostly automated</td>
<td>forecasting, reports, reminder recall</td>
</tr>
<tr>
<td></td>
<td>• Bidirectional interfaces can give real-time seamless access to</td>
<td>• EHR challenges</td>
</tr>
<tr>
<td></td>
<td>• Records, forecasting, etc.</td>
<td></td>
</tr>
</tbody>
</table>

*: Awesome slides

### IIS Data Use – A few examples

- **Vaccine Ordering & accountability**
- **Program Functions**
- **Coverage assessments**
- **Access to immunization records**
- **Quality measures**

- **Consumer Access**
- **School & Childcare**
- **Support pandemic preparedness and response planning**

*: Awesome slides
Interstate Data Exchange

• Why is this an issue?
  • Patient migration
  • Providers operate offices that border state lines
  • Disease outbreak management

• What does it mean for you?
  • Improve accuracy of the immunization record for those who move between states
  • Reduce missed vaccination opportunities or prevent over-vaccination among those who move between states
  • Assist public health in monitoring trends, generating accurate reports, notifying vaccine recipients in the event of a vaccine recall, and targeting areas of need