



## 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>.
  - 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?

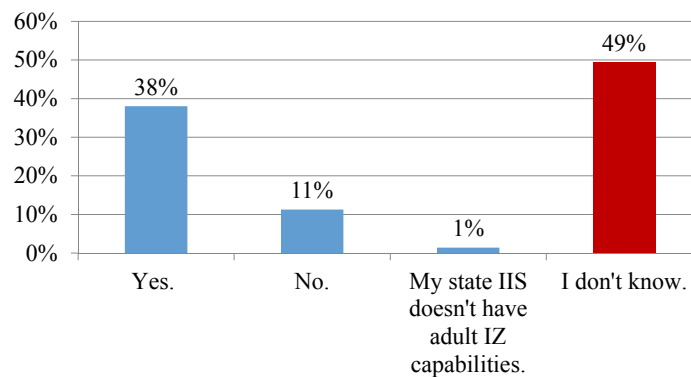
NVAC = National Vaccine Advisory Committee



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

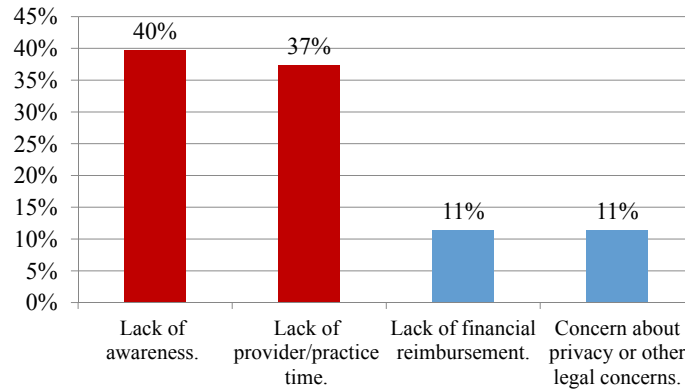
**Q: Can you access adult immunization information through your state’s IIS?**



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## 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?**



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## Project Overview



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## 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)
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- *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

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## 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\*\*\*.

\*CDC. Noninfluenza Vaccination Coverage Among Adults — United States, 2012. MMWR 2014; 63(5). \*\*Task Force for Community Preventive Services. Increasing Appropriate Vaccination: Immunization Information Systems (2010). \*\*\*Hurley, L. et al. U.S. physicians' perspective of adult vaccine delivery. Ann Intern Med. 2014;160:161-170.



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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?



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## Project Overview

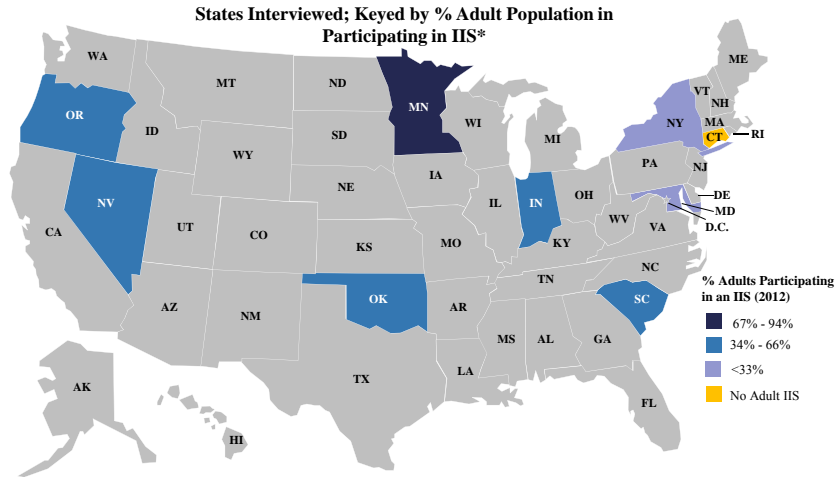
- Analyzed existing literature on adult/lifespan immunization and IIS, and conducted interviews with immunization managers and registry directors.
  - 9 states chosen as convenience sample for pilot.
  - Geographically diverse sample; states vary by % adult participation in IIS.
- Interviewers used a 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.

A&C = Access and Collaborations



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## Nine States Interviewed; Varied by Geography and % Adult Participation in IIS



Note: No city IIS were interviewed for this project, only states.

\*Participation defined as having one or more vaccinations administered to adults aged  $\geq 19$  years documented in an IIS  
 Source: CDC, Progress in Immunization Information Systems – United States, 2012. MMWR 2013; 62(49)



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## Findings



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## 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.

## 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

	State 1	State 2	State 3	State 4	State 5	State 6	Total States
Pharmacists	✓	✓	✓	✓*	✓**		5
Local Health Departments (LHDs)	✓	✓	✓			✓***	4
Any Licensed Physician	✓	✓					2
Community Immunizers (e.g. Visiting Nurses Assoc.)	✓	✓					2
Nurse Practitioners	✓	✓					2
Physician Assistants	✓	✓					2

IZ = Immunization

\* As of July 2015 (new law)

\*\* Plus all providers accepting federally funded vaccines (Medicaid/VFC)

\*\*\* Plus all Medicaid providers



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## 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.



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## 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.

VFC = Vaccines for Children Program



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## Major Challenges Faced by Providers and Other IIS Users

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

EHR = Electronic Health Records  
IZ = Immunization



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Meaningful Use



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## 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 American Recovery and Reinvestment Act (ARRA) of 2009.  
For more information, see: CDC Meaningful Use and Immunization Information Systems,  
available at <http://www.cdc.gov/vaccines/programs/iis/meaningful-use/index.html>.



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## 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.

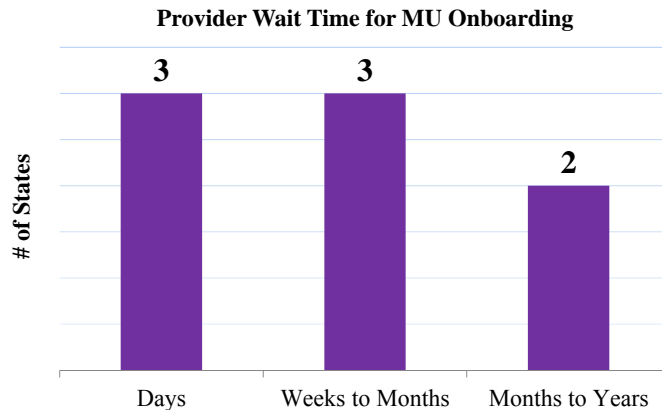
\*For more information, see: CDC Meaningful Use and Immunization Information Systems,  
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## State Meaningful Use Onboarding Time Varies

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



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## 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.

MU = Meaningful Use



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## 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

EHR = Electronic Health Records



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## 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.



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## Lessons Learned and Proposals for Future Research



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### 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.



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## 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.



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## 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



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## 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.



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## 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.



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## Selected References

- American Immunization Registry Association (AIRA). Participating in Immunization Information Systems: Turning barriers into opportunities: Survey and best practice report. December 2005.
- CDC. Meaningful Use and Immunization Information Systems, available at <http://www.cdc.gov/vaccines/programs/iis/meaningful-use/index.html>.
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## Thank you.

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