



AMERICAN
IMMUNIZATION
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Immunization Information Systems for a New Era

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CONTENTS

- ▶ President's Report. 1
- ▶ Using Immunization Information System Data to Increase Lead Screening Rates in Philadelphia 2
- ▶ Wisconsin's Incoming Message Watch Tool 3
- ▶ Lessons Learned from Washington: Upgrading Aging IIS Infrastructure 4
- ▶ AIRA 2018 National Meeting Call for Abstracts. 5
- ▶ AFIX-IIS Integration Project Updates. 5

Welcome to *SnapShots*, the American Immunization Registry Association's newsletter about the progress, best practices, and accomplishments of immunization information systems across the country. We invite you to share news about your registry. Email us at info@immregistries.org or call us at 202-552-0208 with information about a successful programmatic or technical innovation, major accomplishment, or milestone that your registry has reached. *SnapShots* is sent to subscribers three times a year and posted on AIRA's website: www.immregistries.org.

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Editor: Katie Reed, NY

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SnapShots

IMMUNIZATION REGISTRY NEWS *from* AMERICAN IMMUNIZATION REGISTRY ASSOCIATION (AIRA)

PRESIDENT'S REPORT

Dear Colleagues,

We are approaching a new year with many challenges and opportunities. As the new AIRA president, my challenge is to ensure that each state, territory, and city's Immunization Information System (IIS) is supported and represented. While AIRA is a unique organization with extremely talented staff, AIRA's members are the lifeblood of the organization and the experts regarding each jurisdiction's IIS needs. Each IIS is faced with daily operations, data quality assurance, and ever-expanding functionality. Your contributions are vital to the functioning of AIRA. Sharing your knowledge and experiences helps ensure that our organization continues to serve as a strong, unified voice for all IIS and an effective resource for managers and staff across jurisdictions.

This issue of *SnapShots* highlights the many ways that individual Immunization Information Systems contribute to advancing not only work within their jurisdiction but also work of the IIS community and the larger public health community. Philadelphia is utilizing its IIS to identify gaps in lead screening and increase lead screening rates. Wisconsin developed a tool to monitor and ultimately improve the data quality of inbound HL7 messages. And Washington shares lessons learned from dealing with an aging system infrastructure. AFIX-IIS integration has been completed in some states, while others continue their work. Each jurisdiction in the IIS community has knowledge that expands in value and helps us all achieve our common goals when shared.

For AIRA to support your program, it is crucial that you participate and have a voice in the work done on your behalf. So, how can you participate and contribute?

- Join and be active on an [AIRA committee](#)
- Review and comment on draft guidance and best practice documents
- Volunteer to participate as a subject matter expert or on a special work group
- Attend Town Hall meetings, Discovery Sessions, and Educational Webinars

Most importantly, take the time to share your knowledge and experiences. No job is done in isolation; we need contributions from the whole community for continued progress. The AIRA board is here to represent you. Let us know what you are thinking and how we can help.

Regards,

Kim Salisbury-Keith, MBA
KIDSNET Development Manager
Center for Health Data & Analysis, Rhode Island Department of Health
AIRA President

■ In Philadelphia, the IIS and lead program collaborated on a project to identify and understand gaps in lead screening and prevention.

Using Immunization Information System Data to Increase Lead Screening Rates in Philadelphia

Philadelphia's Immunization Information System (IIS) data are being leveraged for important public health initiatives. Many jurisdiction-based programs are in need of accurate and robust data to perform meaningful analysis. In Philadelphia, the IIS and lead program collaborated on a project to identify and understand gaps in lead screening and prevention.

Lead poisoning can cause lifelong learning and behavioral problems. This issue disproportionately affects some of Philadelphia's most vulnerable neighborhoods. One of the ways the Philadelphia Department of Public Health (PDPH) is taking action in addressing childhood lead poisoning is to increase screening rates. While it is estimated that approximately 75% of Philadelphia children are screened before the age of two, many children exposed to lead may never receive a diagnosis and therefore do not receive necessary intervention services. PDPH identifies children with lead exposure through lead surveillance data that are sent to PDPH via electronic laboratory records as required by Philadelphia Health Regulation. The regulation requires providers and laboratories to report results of all lead screening tests, regardless of whether the result is elevated.

PDPH is implementing novel ways to identify pediatric health care providers with low rates of lead screening in children and encourage these providers to increase their rates. To accomplish this, PDPH is combining two historically independent data sources, the IIS and lead screening surveillance data, to identify children who have not yet received a lead test.

The process included extracting patient records from the IIS for all Philadelphia children born in 2014. The patient records included name and date of birth, as well as demographic data and information about the clinic that administered the most recent vaccine. The 2014 birth cohort was used because these children are currently 2-3 years old and should have received at least one blood lead test in compliance with the city's screening guidelines and Medicaid requirements. The IIS patient record was matched with the blood lead test data using the child's name and date of birth. For each clinic, we calculated the percentage of patients who had a blood lead test recorded. Screening rates were also calculated by gender, race, ethnicity, and the last known health care facility identified in the IIS. Females and males had similar screening rates (**Table 1**). Screening rates were lowest among children who were white (70%) and patients whose last health care facility contact was a hospital (27%).

Table 1. Lead screening rates by demographic and clinic type among children born in 2014.

	Screened	Total	Screening Rate (%)*
Gender			
Female	8,210	11,090	74.0
Male	8,678	11,652	74.5
Race			
American Indian or Alaskan Native	13	18	72.2
Asian	1,160	1,535	75.6
Black or African American	8,170	10,384	78.7
Native Hawaiian or Other Pacific Islander	19	26	73.1
Other	2,289	3,094	74.0
White	4,803	6,858	70.0
Hispanic	3,334	4,389	76.0
Last Known Health Care Facility That Provided Vaccine			
Health Center	1,835	2,570	71.4
Hospital	135	498	27.1
Private Pediatric Office	14,335	18,180	78.9
Other	665	1,661	40.0

* Where data were complete

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Children frequently receive vaccinations within this age range, and the data are fairly accurate. However, this analysis does not take into account the possibility that there is a misclassification of children who have changed clinics since their last immunization. We are validating this methodology with a subset of providers by comparing the IIS-based screening rate with the screening rates based on the clinic's internal electronic health records. In the near future, we plan to send notification letters to clinics and providers to report their screening rates, demonstrate a comparison to the citywide average, and encourage adoption of PDPH's screening recommendations. ■

– Submitted by *Aras Islam, Mary Figgatt, Jenna Kelly, and Michael Eberhart, Philadelphia Department of Public Health*

■ The watch tool allows staff to track inbound HL7 2.5.1 messages that could impact the integrity of the data within the WIR.

Wisconsin's Incoming Message Watch Tool

While addition of new providers to the Wisconsin Immunization Registry (WIR) helps ensure completeness of statewide immunization data, errors created through incoming messages can impact the data quality within the system if not caught and corrected in a timely manner. As errors are created, they continue to multiply within the system causing an increase in manual merges for staff or worse—overwriting quality data with erroneous data. Another contributing factor to the data quality issues is unsupported/unmanaged interfaces created by interoperability.



In 2014, Wisconsin developed a tool, known as the “watch tool,” which allows state staff to track inbound HL7 2.5.1 messages that could impact the integrity of the data within the WIR. The tool gives state staff the ability to evaluate various components of the inbound messages for select values or patterns. Some of the main components watched by this tool are clients with unacceptable names, immunizations given at birth outside of those expected, patients created with locked records, and old CVX or CPT codes. Queries can be created by staff to watch for any message they believe to be creating inaccurate data within the WIR. Flexibility with this tool allows multiple components to be watched at once during any time frame specified by the state. Once the tool is started, it will continue to run until a staff member turns it off, allowing for messages to be monitored for days, weeks, or months. Once the tool is turned off, the messages that have been monitored will be stratified by provider for future educational outreach.

One example of the helpfulness of the watch tool is its ability to identify providers who send in names starting with Baby (e.g., BabyJones or BabySmith). The WIR currently rejects the first name of “Baby” but does not reject first names like those listed above. If clients are entered into the WIR without their given legal name, it makes it difficult for providers to locate the child within the system, and only upon subsequent vaccination can the record be corrected to the real name. For a 1.5-month period, the tool identified a provider who sent in 307 messages with a name starting with “Baby.” As a result, the WIR staff has been able to reach out to the provider to correct this practice, ensuring that the legal names are sent, thereby resulting in more accurate client records going forward. ■

– Submitted by *Danielle Sill, MSPH, Wisconsin Department of Health Services*

■ Demand on IIS has increased dramatically. This demand load demonstrates how critical sustainable funding and support is for the infrastructure and ongoing maintenance of IIS.

Lessons Learned from Washington: Upgrading Aging IIS Infrastructure

Washington state is working with Scientific Technologies Corporation (STC) and our state IT agency to tackle some major challenges with updating aging system infrastructure. At the same time, we are also working toward a major upgrade of our IIS software to incorporate new and updated functionality.



We have been working closely with our vendor and multi-state consortium to develop modernized IIS modules for various applications, including AFIX/IIS integration, modernized Vaccine Order Management System, modernized Perinatal Hepatitis B module, Single Sign On functionality, and new interoperability data quality tools. All of these modules depend on updated infrastructure to operate.

We've participated in multiple consortium groups to ensure the functionality meets the needs of the participating states. With this, we've been very excited to implement these new modules into our production environment. Unfortunately, we've run into many challenges to applying these modules due to some unforeseen barriers, including unexpected server space needs, software requirements, limited software support, and coordination of work between multiple parties, including our IIS vendor, centralized state IT agency, and our own IIS team.

We've been working to purchase and build several new servers for about a year. Washington state's IIS is hosted within our state data center and historically required four servers to operate. These new modules require an additional 12 servers to support the new and updated functionality. In addition, we anticipate the new servers and updated operating software will help address increasing system instability issues as users demand more and more from the IIS each day.

Implementing these new modules and modernizing our IIS has required purchasing new servers, updating operating software, and purchasing new software. Although some of this was anticipated at the start of the project, it was not known just how much would need to occur to upgrade our aging infrastructure in order to handle this new, modern functionality and to stabilize our already fragile environment. In addition, much of this work has been outside Washington state staff control, because much of the work is handled between our IIS vendor and our centralized government IT agency. This has made the project much more challenging to complete than originally anticipated.

Lessons Learned:

1. Working through IT needs and issues takes a lot of time, especially when IT might not work for the same agency or program.
2. Software licenses can be an unexpected cost increase.
3. Hardware upgrades should occur on a regular basis rather than just when required for new IIS functionality.
4. Test the environment after each change (e.g., server upgrade, software upgrade, IIS module upgrades).
5. When vendors make changes, make sure you are aware of the potential cost increase and understand the impact on the infrastructure.

We look forward to having an upgraded infrastructure to ensure we have a stable environment to implement the new functionality needed to meet immunization program and grant requirements. With the increasing demands and the changing expectations of the IIS, keeping our system operating is ever more challenging. So much of our immunization program work is integrated into the IIS and dependent on the IIS operating well. Demand on IIS has increased dramatically, including more and more systems receiving data from non-traditional providers like pharmacies, the increased complexity of the vaccine schedule, the evolution of meaningful use, and the ever-increasing need for data to support assessment and outbreak management. This demand load demonstrates how critical sustainable funding and support is for the infrastructure and ongoing maintenance of IIS. In order to rely on these systems for this critical work and continue to integrate immunization program requirements and new functionality into IIS and maintain these systems into the future, more stable funding and support is key. ■

– Submitted by Dannette Dronenburg, MPH, Washington State Department of Health

AIRA 2018 National Meeting Call for Abstracts

AIRA's 2018 National Meeting will be held in Salt Lake City, Utah, on August 14-16, 2018. AIRA invites you to submit abstracts for consideration by **Sunday, December 31, 11:59 p.m. ET**. For additional details, please view the 2018 [Call for Abstracts flyer](#). You can review the [Abstract Submission Preview PDF](#) prior to submitting your abstract, but all abstracts must be [submitted online](#).

Please also consider submitting nominations for the Centers of Excellence Award and the Volunteer Service Award by **Sunday, January 14, 2018**. Winners are announced during the AIRA National Meeting. As an added bonus, the top finalists for the Centers of Excellence Award receive an all-expenses paid trip to the AIRA National Meeting in Salt Lake City. To learn more and to submit a nomination, visit the [National Meeting website](#). ■



The AFIX-IIS Integration Project Updates

Compiled by CDC with limited editing

■ PPHF Awardee Projects

AFIX-IIS integration awardees have made a lot of progress over the last 24 months; however, some needed more time to thoroughly test and implement SMaRT AFIX and other AFIX-IIS integration solutions. CDC advised those PPHF-funded awardees to submit a request to extend the budget period on the Notice of Funding Opportunity (NoFO). The Office of Financial Resources (OFR) approved the budget period extension until September 30, 2018.

– Submitted by Bobbie Strickland and Hanan Awwad, CDC/NCIRD/ISD

■ SMaRT AFIX Solution

SMaRT AFIX is developing an additional user level. Release is scheduled for January 2018. The new feature will be available to all awardees, regardless of platform.

Upcoming collaborative consortium calls will provide awardees who have begun testing SMaRT AFIX a forum to exchange ideas and provide feedback about their testing experience. STC is creating awardee-specific implementation plans to identify rollout timelines and progress milestones.

The release of the new user level marks the completion of SMaRT AFIX development. SMaRT AFIX users will receive patches as needed to address prioritized issues identified through testing and implementation and routine updates to CDSi forecasting.

New participants are invited to join this project. Interested parties should contact Michelle Korrell at michelle_korrell@stchome.com. More information is also available at www.smartafix.com.

– Submitted by STC

■ Envision Solution

Envision completed development of the reports outlined in the AFIX-IIS integration Phase 1 and Phase 2 guidance. Reports include AFIX Assessment report, AFIX Online Tool upload, Master Rate Comparison Report, Not UTD / Missing Immunizations Report, Single Antigen Assessment, Missed Opportunities Patient Listing, Invalid Dose Patient Listing and Patient Roster. Final Phase 2 reports were completed in September. Envision customers will continue to receive these features through their software version deployments.

The Envision project team continues to host biweekly user group meetings to gather feedback based on client testing. Five Envision customers received PPHF 2015 funding for implementing the AFIX assessment functions into their IIS.

– Submitted by Envision

[Continued on the next page >](#)

■ DXC Solution

DXC has developed the AFIX Product, a stand-alone IIS-agnostic product. The AFIX Product is deployed locally and requires minimal system requirements to run the tool. Because each state has differing hardware environments, network security rules, and privacy policies, the AFIX Product extracts only the necessary data from the IIS for the assessment process. The AFIX Product is currently deployed in a number of states, with additional features scheduled for release in the next quarter. Long term, DXC can offer a web service to states with policies that allow web service. The product is available for installation. For more information, contact Katie Reed at catherine.reed@dxc.com.

– Submitted by DXC

■ Background on the AFIX-IIS Integration Project

In 2013, CDC announced that support for the Comprehensive Clinic Assessment Software Application (CoCASA) would be discontinued, and it encouraged awardees to use their IIS to support AFIX assessments. The development and implementation of uniform standards for generating AFIX assessment outputs from IIS is critical to a successful transition. In the absence of standardization, AFIX assessment outcomes will differ across immunization programs, thereby compromising the integrity of results reported from jurisdiction to jurisdiction and limiting CDC's ability to evaluate the effectiveness of the AFIX program.

Guidance documents for incorporating AFIX assessment functionality in IIS were developed in two phases. The first phase resulted in the development and release of the document "AFIX-IIS Integration: Operational and Technical Guidance for Implementing IIS-Based Coverage Assessment – Phase I." The second phase resulted in additional operational and technical guidance for AFIX assessment and feedback reporting components. To support AFIX assessments, the IIS needs to implement standardized AFIX assessment outputs, a user interface that allows authorized users to generate the outputs, and a standardized export capability to support uploads of results to the CDC AFIX Online Tool.

Funding for implementing AFIX assessment functions in the IIS occurs through two primary streams. In 2015, 25 awardees received "PPHF 2015 - Immunization - Utilization of Immunization Information Systems (IIS) for Assessment, Feedback, Incentives, and eXchange (AFIX) Assessments" funds for a two-year period. In parallel, Scientific Technologies Corporation was awarded a competitive contract to build an AFIX assessment module for up to 19 awardees.

— Submitted by Bobbie Strickland and Hanan Awwad, CDC/NCIRD/ISD

■ Additional Information

Resources for the AFIX-IIS integration project can be found on the ISD Awardee SharePoint Portal. For access to the ISD Awardee SharePoint Portal, please email AFIXIIS@cdc.gov with your name, email address, phone number, title, and organization. Registration instructions will follow by email.

We are interested in hearing about your progress implementing AFIX into IIS. If you would like to be featured in a future *SnapShots* update, please email a short description (one to three paragraphs) to AFIXIIS@cdc.gov.

All other questions relating to AFIX-IIS integration or the SharePoint portal should be directed to AFIXIIS@cdc.gov. ■