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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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SnapShots

IMMUNIZATION REGISTRY NEWS from AMERICAN IMMUNIZATION REGISTRY ASSOCIATION (AIRA)

PRESIDENT'S REPORT

Welcome to the latest issue of *SnapShots*! We hope your summer went well and that you're preparing yourselves for the back-to-school rush. This is the time of year when providers are busy giving vaccines and schools are busy validating student vaccine records, which gives Immunization Information Systems a time to shine!

This issue of *SnapShots* contains some really exciting information on:

- Tennessee's migration to a new IIS platform and the use of surveys to measure system performance
- Minnesota's IIS graduate student program to help with public health efforts across the agency
- AIRA's HL7 Immunization User Group and how it's working to standardize processes between EHR implementers and IIS
- PHII's new online training resources for IIS and immunization program staff
- AIRA Centers of Excellence award winner Illinois, for an innovative approach to reducing duplicate records in its IIS
- An interview with Michigan on how they were able to successfully deploy SmartyStreets, AIRA's address cleansing service
- AFIX/IIS integration updates from CDC

As we continue to face challenges in maintaining and enhancing IIS functionality to meet the needs of our partners and stakeholders, we hope this issue will provide valuable information on some of the innovative work being done by those within our community to help support, utilize, and enhance IIS nationwide. So many great things are happening, and I want to remind you that AIRA's website can provide a lot of information and guidance on many IIS-related topics. As always, AIRA is here for you if you have questions or if you need assistance or guidance.

We appreciate all your continued support and participation in AIRA-related projects and activities. Your contributions and participation are what makes this organization a success, and we appreciate all that you do!

I'm grateful to be a part of AIRA and a part of the IIS community. I want to, again, thank the AIRA staff for all the fantastic work they do. Their hard work and dedication continue to provide exceptional support to our community, and I look forward to continuing our work together throughout the year.

Wishing you all a happy and healthy fall!

Michelle Hood
Administrator, Nebraska State Immunization Information System
AIRA President

■ SmartyStreets is more reliable and faster and has much better support than the service we had been using. On top of that, it's saving our program some money, which is always welcome.

How MCIR Deployed SmartyStreets: A Profile in Address Cleansing

■ How do you use SmartyStreets?

We use SmartyStreets to validate and cleanse all of the addresses coming into our system. Last winter, we completed an effort to incorporate address cleansing into our IIS using a different address cleanser. We have been using it to do batch cleansing of all of our existing records and then ongoing cleansing of all of our online activity. Later this summer, we will begin to work on HL7 real-time address cleansing. We are using SmartyStreets in place of the address cleanser we had been previously licensed to use. We recently completed changes to switch 100% to using SmartyStreets as our address cleansing resource.



Josh Hull, Michigan Care Improvement Registry

■ How long did it take to set it up?

Using the Java SDK from SmartyStreets was very easy and straightforward. The actual coding time for using SmartyStreets was a few hours, and the additional process around it for testing, researching codes, and other analysis to make sure it was doing as well as or better than the previous solution took around a week. Part of the reason this was so easy is that we had written an application to serve as a proxy application so that our internal applications talk only to the proxy application. MCIR calls our proxy server to request an address to be cleansed (from various points in the application), and then the proxy application calls SmartyStreets. We didn't have to change code in any of the other components of our MCIR, because we could just swap out the service in the internal proxy application. I highly recommend this architecture when possible!

■ What was the hardest part of the setup?

The hardest part of setting it up was figuring out how to interpret the codes that come back with the address. We had to determine what represented a matched address and which codes were acceptable to our process.

■ What was the easiest part of the setup?

The easiest part was writing the code to connect to SmartyStreets and get a response back! Plus, it was easy to justify this to our IIS program. SmartyStreets is more reliable and faster and has much better support than the service we had been using. On top of that, it's saving our program some money, which is always welcome.

■ What cost savings do you anticipate?

We anticipate immediate cost savings for switching to SmartyStreets. SmartyStreets saved the program a significant amount in licensing fees. The improved support and reliability that SmartyStreets offers will save us development time and improve our application's reliability. Address cleansing in general is going to enable our program to have better matching, as well as do some new things with the geocoding (lat/long) information we are collecting.

■ What would you tell an IIS that is thinking about participating in the address cleansing project?

SmartyStreets is a fantastic product, and it makes integrating the service very easy. Most of the effort on your side will likely be deciding business rules around what to do with the information that comes back. I would suggest an IIS should consider setting up a proxy address cleansing application so that you can make changes in one place to support all of your IIS processes related to addresses. One benefit (among many) is clear from our example: we were able to switch to SmartyStreets very easily! ■

– Submitted by Maureen Neary, AIRA, and Josh Hull, Michigan Care Improvement Registry

■ Data Quality for IIS and Interoperability for IIS are short, self-paced courses that provide an introduction to each topic, specific to IIS.

■ Since the first survey, there has been an upward trend in user satisfaction with TennIIS.

New IIS Staff? New Training Resources!

Earlier this year, PHII's Informatics Academy launched two new training resources specifically for IIS and immunization program staff.

[Data Quality for IIS](#) and [Interoperability for IIS](#) are short, self-paced courses that provide an introduction to each topic, specific to IIS. These two courses are the first offerings in a series of fundamental topics for IIS intended to be relevant to all staff in the program with significant responsibilities in supporting the operation and maintenance of the IIS.

The Informatics Academy plans to launch additional self-paced courses in the fundamentals series by the end of 2017. Courses currently in development include an Overview of IIS, HL7 Basics, and HL7 Application. Working closely with AIRA and CDC partners, as well as staff of multiple IIS, the team is defining a content development road map for the next 12 months. The Informatics Academy has targeted completion of 15 additional resources by the end of June 2018. You can share suggestions and ideas for new resources by sending an email to informatics.academy@phii.org.

PHII's work on this suite of IIS learning solutions is funded through a CDC Cooperative Agreement. The learning solutions are intended to help new and existing staff in the IIS workforce become proficient in the competencies required for success in the IIS programs they support. However, anyone who wants to learn more about these important IIS topics can register at no cost and gain access to the content.

[PHII's Informatics Academy](#) offers many other training resources, including these IIS-focused courses. *The Fundamentals of IIS* series can also be found in the AIRA Repository by visiting <http://repository.immregistries.org/resource/fundamentals-of-iis>. ■

– Submitted by Teresa Dussault, MBA, PMP, and Kyle Dix, Public Health Informatics Institute

Use of a Biannual Customer Service Survey to Improve Tennessee's IIS

In November 2014, Tennessee migrated from our legacy immunization registry, the Tennessee Web Immunization System (TWIS) to the Tennessee Immunization Information System (TennIIS). It became necessary to migrate from our legacy system, which was in production for 10 years, to a new platform in order to become compliant with the IIS functional standards 2013–2017. This change did not simply involve the migration of thousands of users and millions of patient records but also involved migrating the vaccine inventories of Vaccines for Children (VFC) Program facilities and changes to the organization and facility structure of the data held in the legacy system.



Due to an expiring contract for maintenance of TWIS, we went live with TennIIS in November 2014, despite a temporary loss of some functionality. It took several months to reestablish the bidirectional feeds between every bidirectional electronic trading partner and the IIS. During that time, double data entry was necessary to see patient vaccinations in our IIS. Migration also caused significant bugs in the function of our Immunization Certificate Validation Tool (ICVT), which is heavily used to evaluate patient records for child care and school entry requirement compliance and to produce official immunization certificates. We also temporarily suspended onboarding of electronic trading partners and vaccine ordering for VFC providers during the migration.

Six months after the rocky TennIIS migration, the TennIIS team developed and implemented a customer service survey. The survey was created through the Tennessee Department of Health (TDH) Survey Monkey account and distributed through the TDH listserv software to all TennIIS users and electronic data trading partners with email addresses. Survey Monkey is simple to use and allows respondents to remain anonymous.

The first survey consisted of 11 questions focused on the transition, best and least liked functionalities, preferred methods for training, and contacting customer service. We decided to continue implementing this survey on a biannual basis after the first survey yielded valuable insights. Through the past four surveys, we

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have expanded and standardized 27 questions. Our survey response rate, though less than 10% of registered users, has grown from 561 to 1,037 respondents. Respondents are primarily local health department users and other VFC Program users.

The most important initial survey results reflected user frustration with the loss of functionality during migration and dissatisfaction with HelpDesk response times. Using this feedback, we successfully leveraged more TDH IT resources to resolve the bidirectional interface issues more quickly. We shared the feedback with the HelpDesk vendor, leading to better HelpDesk performance tracking and improved response times. Since the first survey, there has been an upward trend in user satisfaction with TennIIS. We also share survey results with our vendor, our health department clinical stakeholders, and all other users through publication and presentations.

Even with low overall participation, the survey has proven to be a simple and cost-effective tool to monitor TennIIS performance from our users' perspective. Their responses have shaped the TennIIS team priorities and informed the success of our efforts to improve the system. ■

– Submitted by Assiatou Bah, Tennessee Department of Health

■
The overarching goal of this group was to bring practical standards to both IIS and EHR implementers so that together we solved problems and improved interoperability.

IIS and EHRs Join the HL7 Immunization User Group to Improve Interoperability

In 2014, AIRA and HL7 worked together to pilot a new user group focused on creating a forum to share lessons learned utilizing the HL7 Implementation Guide for immunization messaging, provide education on the guide, and provide feedback to the HL7 Public Health work group and the AIRA Standards and Interoperability Steering Committee (SISC) on improvements that need to be considered for immunization messaging standards. The overarching goal of this group was to bring practical standards to both immunization information system and electronic health record implementers so that together we solved problems and improved interoperability.

Three years later, the HL7 Immunization User Group is making good progress in integrating the EHR implementers and IIS into the standards process. In the last two meetings, the HL7 User Group identified and invited implementers from 18 different EHRs to join the group. Fifteen implementers have joined the meeting, and six gave presentations on their progress toward meeting the latest standards. The presentations were a great success and very helpful. The User Group hopes to recruit all 18 EHRs as permanent members of the group:

- Allscripts
- Amazing Charts
- Athena
- Cerner
- CompuGroup Medical
- EclinicalWorks
- Epic
- Greenway
- Harris Computer
- HealthFusion
- McKesson
- MediInformatix
- Meditech
- nAbleMD
- NextGen
- Office Practicum
- Patagonia Health
- PCC

Do you see an EHR missing from this list that should be invited to these meetings? Please contact one of the Immunization User Group co-chairs to ensure that the EHR receives an invitation:

- Kim Salisbury-Keith (Kim.SalisburyKeith@health.ri.gov)
- Nathan Bunker (nbunker@immregistries.org)
- Kevin Snow (ksnow@envisiontechnology.com)

All AIRA members can join the Immunization User Group for free. Please contact Brittany Gyer (bgyer@immregistries.org) to request membership and monthly call-in information.

The next HL7 Immunization User Group meeting is scheduled for September 21 at 2 p.m. ET (11 a.m. PT) and will continue a discussion of manufacturers, labelers, and NDCs in HL7 2.5.1 messages. This high-interest topic will include updates from both IIS and EHRs on their technical strategies in this area going into next year. Be sure to join the group September 21! ■

– Submitted by Nathan Bunker, AIRA

■ Student workers are critical to the success of MIIC and immunization activities in Minnesota.

Minnesota's Experience Using Graduate Students Within the IIS

The Minnesota Department of Health (MDH) employs current graduate students to help with public health efforts across the agency. Minnesota's IIS, the Minnesota Immunization Information Connection (MIIC), employs several of these students to assist with key programs and projects.

Graduate students in the MIIC Operations Unit use MIIC to help with ongoing work, including the MIIC Immunization Record Request Program, historical immunization data entry, and MIIC data privacy requests (opt-outs). Each student also takes on special projects with a MIIC staff member designated as their subject matter expert. These pairings are made to help students pursue their interests, strengthen skills, and gain new skills while working with MIIC. Some examples of these special projects include:

- Using various MIIC features to help support MDH immunization programming
- Writing test plans and conducting user acceptance testing for MIIC enhancements
- Participating in outreach and recruitment activities to increase MIIC use
- Conducting statistical analyses using MIIC data

For student workers, working with MIIC is a unique opportunity to gain experience with a public health information system and to see how the system is used to drive programmatic efforts. All students experience the crucial role an IIS can play in providing people with their immunization information through their work fulfilling immunization record requests. Students also benefit from the support and expertise of MIIC staff who help them pursue activities that fit with their skills and interests.

For the MIIC Operations Unit, having student workers allows staff to efficiently and effectively complete work and move on to new projects. Many students have also contributed innovative ideas and helped with pilot projects that have gone on to become official MDH programs. Without student workers, the MIIC Operations Unit would not be able to offer several of its key services. Student workers are critical to the success of MIIC and immunization activities in Minnesota. ■

– Submitted by Sydney Kuramoto, MPH, Minnesota Department of Health



■ I-CARE's data quality initiatives have been highly successful in decreasing the number of duplicate patients.

Illinois Receives Top Award at AIRA National Meeting

Illinois Comprehensive Automated Immunization Registry Exchange (I-CARE) received the AIRA Centers of Excellence award for an innovative approach to reducing duplicate records in our IIS. This was achieved through data quality filters and process improvements within the IIS and standardized address data from the Illinois Department of Transportation (for free). This latter initiative alone standardized 7% more addresses than the old method. Once addresses were cleansed, we added filters to our current deduplication matching routine. This allowed staff to compare all potential duplicates with matching or non-matching fields. Using this new approach, I-CARE was able to manually process 75,000 potential duplicates in four weeks. This had previously taken three to four months. I-CARE's data quality initiatives have been highly successful in decreasing the number of duplicate patients. ■

– Submitted by Teri Nicholson, Illinois Department of Health



■ Awardee project staff and CDC staff discussed work plan implementation progress, possible changes to the timeline, and other issues, including awardee concerns, budget questions, and staffing changes.

The AFIX-IIS Integration Project Updates

■ PPHF Awardee Projects

CDC has completed the final round of 2017 Prevention and Public Health Fund (PPHF) calls with individual awardees. Awardee project staff and CDC staff (POB project officers and IIS and AFIX project leads) discussed work plan implementation progress, possible changes to the timeline, and other issues, including awardee concerns, budget questions, and staffing changes. CDC's project team is following up on each call by sending meeting minutes and a list of action steps.

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

■ SMaRT AFIX Solution

Functionality to integrate with CDC's AFIX Online Tool and logic to support the new two-dose HPV recommendation from the Advisory Committee on Immunization Practices was released in early April. The May release, version 1.17.5, includes the user management component for independent states, helping SMaRT AFIX achieve the goal of being an IIS-agnostic application and complete the majority of Phase 1 requirements.

The availability of User Acceptance Testing (UAT) environments will allow STC-hosted IWeb users to gain experience with SMaRT AFIX and begin implementing it into their assessment activities more quickly. The STC DevOps team has been working to identify and communicate processes to streamline and support implementation in self-hosted states. On-site training and implementation planning meetings will continue throughout 2017 as states implement SMaRT AFIX.

SMaRT AFIX users can look forward to the release of patches to address the few known remaining requirements, such as the incorporation of IWeb's Patient Active Inactive Status (PAIS) changes, as well as updates to the overview page and report improvements. Any additional development work will be limited to the prioritized issues identified through testing and implementation.

There is an opportunity for additional participants 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 *Scientific Technologies Corporation (STC)*

■ Envision Solution

Envision has completed the development of the AFIX Report, AFIX Online Tool upload, and Master Rate Comparison Report. Envision customers have begun to receive these features through their latest software version deployments. The development of the Not UTD/Missing Immunizations Report is complete and included in the latest version of the application. The team is now focusing on the remaining reports to be completed in the next version of the application. The remaining reports include the Single Antigen Assessment, Invalid Dose Patient Listing, Missed Opportunities Patient Listing, and Patient Roster. The Envision project team continues to host biweekly meetings with a group of users to gather feedback. Five of the Envision customers received PPHF 2015 funding for implementing the AFIX assessment functions into their IIS.

– Submitted by *Envision Technology Partners*

■ DXC Solution

DXC has developed The AFIX Product, a single, stand-alone, IIS-agnostic product, deployed locally, with minimal system requirements necessary to run the tool. Each state may have differing hardware environments, network security rules, and privacy policies, so The AFIX Product extracts only the necessary data from the IIS for the assessment process. Long term, DXC can offer a web service to states with policies that allow web service. The product became available for installation in July 2017. For more information, contact Katie Reed at catherine.reed@dxc.com.

– Submitted by *DXC Technology*

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■ 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 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. ■

— *Updates compiled by CDC*