



AIRA
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SNAPSHOTS

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PRESIDENT'S REPORT

Dear Colleagues,

COVID-19 continues to play a major role in our daily lives both at home and increasingly at work. I, like many of you I'm sure, was reassigned to other work initially in the COVID response. As time went by and it became clearer that there would be a vaccine component to the response, I was able to start moving back to my regular duties to help with preparations. Initially it was almost overwhelming to wrap my head around all of the planning and preparing that needed to be done with such limited information. There was one thing I was certain of, though: I knew that, even with the uncertainty of exactly what our COVID response would look like and what it would mean for immunization and IIS programs, our community would come together to share what information we had and to help each other where we could. In the past few weeks, I have been on calls and webinars of all kinds with people sharing the information they had and plans they were making, and I continue to be amazed by the work that our community does daily.

In the articles below, you'll find just some examples of that same spirit of sharing and preparing. From advocating for the community to sharing experiences doing some of the work that needs to be done to be successful in our response, I hope you find these articles a helpful reminder that we are making progress in preparing—even if it doesn't feel like it every day—and we are in this together!

Regards,

Aaron Bieringer

AIRA Board President

MIIC Interoperability Lead and Implementation Coordinator

Minnesota Department of Health

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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 (IIS) across the country. We invite you to share news about your IIS. Email us at info@immregistries.org with information about a successful programmatic or technical innovation, major accomplishment, or milestone that your IIS has reached.



AIRA'S POLICY AND ADVOCACY EFFORTS DURING COVID-19

As you may be experiencing first-hand in your roles or reading about in the media, there has been no lack of confusion related to the role of public health, including IIS, in a much anticipated COVID-19 vaccination campaign.

While AIRA always works to stay abreast of national policy and advocacy issues impacting IIS and immunization, we have needed to adapt to a new, accelerated pace of national-level advocacy in recent months.

AIRA has focused efforts on continuing to advocate for the importance of IIS and existing infrastructure, including the need for funding to support IIS enhancements and increased capacity to handle expanded onboarding, training, data monitoring, and reporting needs. Additionally, we have worked to address policy barriers that inhibit data exchange and to ensure all administered doses of any novel COVID vaccine will be reported to the IIS.

“It is essential the Trump Administration use existing expertise, systems, and infrastructure as it also seeks to leverage the logistical expertise of the Department of Defense in these efforts.”

— Senators Murray and Reed letter,
August 6, 2020

IIS have a more than 25-year history as the backbone of the immunization infrastructure and already have connections in place with a large number of health systems, pharmacies, and other providers currently holding immunization data on at least 95 percent of children, 80 percent of adolescents, and 56 percent of adults. Nearly all IIS leverage CDC's VTrckS system to order, distribute, and account for vaccines. IIS have demonstrated their importance as a critical tool in responding to recent outbreaks, particularly H1N1, as proven by our experience in facilitating a large-scale pandemic response.

AIRA and partners have voiced concerns and offered support and expertise to national decision makers via phone calls, letters, memos, public comments, and presentations. A joint letter was sent on June 23 from AIM, AIRA, ASTHO, and NACCHO to General Gustave Perna and Dr. Moncef Slaoui of Operation Warp Speed (OWS). The letter called out the strong support and need for the Trump administration to leverage state and local public health and build upon existing immunization infrastructure to deliver COVID-19 vaccine. You can read the full letter [here](#). The letter to OWS [gained national attention](#).

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AIRA'S POLICY AND ADVOCACY EFFORTS DURING COVID-19

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IIS have demonstrated their importance as a critical tool in responding to recent outbreaks, particularly H1N1, as proven by our experience in facilitating a large-scale pandemic response.

On August 6, US Senators Patty Murray and Jack Reed wrote to Secretaries Alex Azar and Mark Esper echoing the support for Public Health's role in COVID-19 vaccine distribution and calling for CDC to take the lead, moving the Department of Defense (DOD) to a logistics and support role. The letter also highlighted CDC's decades-long experience with vaccine distribution and pandemic response and its community partnerships in the VFC and adult immunization programs. You can read the letter [here](#). Whether or not it was related, HHS and DOD announced shortly thereafter that McKesson Corporation will serve as a central distributor of pandemic vaccine using the existing distribution system under CDC guidance for COVID-19 response. [See press release](#).

Members and leaders of the [Adult Vaccine Access Coalition](#) (AVAC) have been instrumental in championing IIS and infrastructure, as well as broader vaccine access and delivery issues at the federal level. They have worked with federal lawmakers on multiple bills, memos, and letters to draft legislation that highlights IIS and immunization infrastructure for both pandemic and routine vaccination. AIRA has participated in several AVAC town halls, virtual Capitol Hill briefings, and strategy meetings to contribute expertise and support these efforts. We recently signed on to US Representative Lauren Underwood's introduced [Community Immunity During COVID-19 Act](#) and US Senator Robert Casey's proposed Pandemic Vaccine Tracking Improvement Act with a focus on IIS modernization.

AIRA participates in Advisory Committee on Immunization Practices (ACIP) meetings, where critical decisions, such as those related to prioritization, allocation, and safety monitoring of COVID-19 vaccine(s), are evaluated. AIRA has provided feedback for the ACIP COVID-19 Workgroup's guiding principles and next steps and serves as a resource as needed in this work.

While the CDC Vaccine Administration Management System (VAMS) may change some of the way vaccine will be tracked during early-phase mass vaccination, AIRA has worked to raise the voice of IIS through convening the AIRA COVID-19 Workgroup to provide important feedback to the CDC throughout the development of this tool. We participate in frequent CDC and partner calls on a wide range of issues critical for vaccine planning and response, including providing technical support to ensure VAMS data make it to IIS.

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AIRA'S POLICY AND ADVOCACY EFFORTS DURING COVID-19 *Continued from page 3*

In June, AIRA created a new one-sheet, [IIS Policies to Support Pandemic and Routine Vaccination](#), for national immunization advocacy stakeholders who work with federal decision makers to promote IIS policies needed to facilitate pandemic response and routine vaccination. This resource highlights the value of IIS and areas to focus on for strengthening policies related to data exchange, vaccine reporting, and consent. It should help the community to achieve more uniform, consistent policies. There is a need to ensure policies support the ability to capture and exchange complete and accurate immunization data in a timely manner to support data-driven decision-making. As a follow-up to this one-sheet, AIRA is finalizing a Policy Action Guide to provide further support and detail for states in implementing some of these strengthened policies.

All these efforts have placed registries in the [spotlight](#) and heightened AIRA's visibility at the national level as the leading organization to provide IIS expertise as decisions are being made. We always welcome your feedback on additional ways AIRA can be advocating for you and the public health community at a national level.

Partner-related resources:

- [Association of Immunization Managers COVID-19 Resource Library](#)
- [Association of State and Territorial Health Officials COVID-19 Page](#)
- [AVAC Updates](#)
- [Immunization Action Coalition COVID-19 Resource Repository](#)
- [National Association of City and County Health Officials' COVID-19 Efforts](#)
- Vaccinate Your Family's supplement specifically for COVID-19 in its [State of the ImmUnion report](#), which highlights actions Congress needs to take now to prepare for the arrival of a vaccine, including a section highlighting IIS

- Submitted by Rebecca Coyle, MEd, and Liz Abbott, MPH, AIRA



NORTH DAKOTA'S EXPERIENCE WITH THE IZ GATEWAY

In January 2019, the North Dakota Immunization Information System (NDIIS) was invited to participate in a pilot project with the IZ Gateway.

The goal of the project was to have the IZ Gateway establish a single connection to the NDIIS and pass through HL7 immunization messages from provider groups, like pharmacies with facilities in multiple states that would otherwise need to connect to multiple IIS individually. This specific pilot project, if successful, would connect the NDIIS with a single connection to a group of independent pharmacies that would otherwise have resulted in 19 individual connections that the NDIIS team would have had to manage and work on one at a time. The NDIIS team did not have to sign any agreements directly with the IZ Gateway; we only had to ask the pharmacies to sign the North Dakota interoperability memorandum of understanding (MOU). The IZ Gateway team was able to leverage the existing HL7 connection between the NDIIS and AIRA's Aggregate Analysis Reporting Tool (AART) for initial testing and validation of the pharmacy messages. This greatly reduced the amount of NDIIS staff time required at the start of the project. The IZ Gateway team also coordinated all of the meetings between the NDIIS and the pharmacy group, helped coordinate signing of the MOUs, and helped push the connection work forward, all with little time and staff resources required from the NDIIS.

The IZ Gateway team was able to leverage the existing HL7 connection between the NDIIS and AIRA's Aggregate Analysis Reporting Tool (AART) for initial testing and validation of the pharmacy messages.

The IZ Gateway has the tools and resources to be able to facilitate data exchange from large multi-state provider groups to multiple IIS while asking very little from the provider, its electronic health record, and the IIS to get the connection up and running. Now that the NDIIS connection to the IZ Gateway is operational, we are looking forward to leveraging this connection to onboard additional provider groups to our IIS.

- Submitted by Mary Woinarowicz, MA, North Dakota Department of Health



HOW ADDRESS CLEANSING CAN IMPROVE PATIENT MATCHING: ILLINOIS' USE OF SMARTYSTREETS TO REDUCE DUPLICATIVE PATIENT RECORDS

Want to improve data integrity within your IIS through the consolidation of patient records? Look no further than [SmartyStreets](#).

SmartyStreets, a leader in location data intelligence, provides address standardization, validation, and geocoding services. When an IIS submits addresses to SmartyStreets, SmartyStreets standardizes the addresses to ensure conformance with the United States Postal Service (USPS) specifications. SmartyStreets also compares the submitted addresses with the USPS database to confirm that the address is valid and deliverable.

SmartyStreets has been available to AIRA members at no cost since 2017 with support from the Centers for Disease Control and Prevention (CDC). By implementing SmartyStreets, IIS may be able to achieve alignment with functional standards focused on data quality by capturing more complete and accurate demographic information. Standardization reduces the variability in addresses through matching algorithms, resulting in improvement of patient-level deduplication.

**Curious about how to leverage SmartyStreets to improve patient matching?
Here is Illinois' journey.**

Life Before SmartyStreets

I-CARE is an awardee-developed system, created in 2007. We made system enhancements in 2009 and 2019. I-CARE is supported and maintained internally.

Prior to 2016, we did not utilize an address cleansing tool. In 2016, we started utilizing a web service provided by the Illinois Department of Transportation (IDOT); the service was GIS Geocoder. We received the service at no charge from the state and used it until August 2019.

While the service allowed for some improvements in data quality, there were limitations. GIS Geocoder stored data for addresses in Illinois only. International addresses and addresses outside of the state of Illinois were not available. We could have benefitted from having access to information from our border states (Wisconsin, Michigan, Iowa, Indiana, and Missouri). Another limitation of GIS Geocoder was its inability to find all valid Illinois addresses. There were times when GIS Geocoder was unable to provide information on an address that we found via USPS.

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GIS Geocoder also experienced frequent downtime, with lost connections happening a few times a month. The outages ranged from a few minutes up to an hour. We experienced delayed responses (1 second vs. 10 seconds) which prevented the address cleansing from working effectively.

SmartyStreets – The Game Changer!

In August 2019, we implemented SmartyStreets based on recommendations from AIRA. Some deciding factors for switching from GIS Geocoder to SmartyStreets included SmartyStreets' ability to provide data for addresses within all of the US as well as its reliability (no downtime since August 2019) and super-quick response times.

Once I-CARE was connected to SmartyStreets, we cleansed our entire database, which included records for 13 million patients. Since the job ran after hours, it took several weeks for the initial cleanse to be completed. Upon completion of the initial cleanse, we discovered that SmartyStreets cleansed 7% more addresses than GIS Geocoder.

We also created "Dedup on the Fly," a script to cleanse all addresses within HL7 imports prior to the messages being saved in our database. "Dedup on the Fly" prevents bad addresses from ever being recorded in our database. This is a major advantage, since we receive an average of 44,000 vaccines daily via our HL7 providers. Another place where SmartyStreets is beneficial occurs during data entry into our system. When our IIS staff enters information into our I-CARE interface, SmartyStreets provides feedback on the addresses entered.

Patient Matching/Deduplication

Since implementing SmartyStreets, we have seen major improvements in data quality through patient deduplication. We have two deduplication processes: automated and manual.

Automated deduplication happens through a matching algorithm. Within our application, there are 50 different fields that are weighed; each field is assigned a value. When I-CARE compares two potential patients, the values are added together. If the combined value meets the defined threshold, the patient records are automatically merged. For values that fall below the threshold, additional review is required, and those patient records go through our manual deduplication process. Through the implementation of SmartyStreets, we tripled the number of patient matches made and merged through automated deduplication.

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I-CARE executes a job each night that identifies patients with the same date of birth and matching address for manual deduplication. This process has helped us reconcile older records that were once marked as “do not merge.” Through the nightly job, 80% of duplicate records have been identified. To ensure that all patient records are reviewed, we created address filters that are used to catch outliers. Outliers occur when patient records have matching addresses but not enough information for automatic merging; the outliers then go through the manual deduplication process. Manual deduplication has decreased by 10% as automated deduplication has increased.

Our staff reviews the patient records identified for manual deduplication daily. Within the I-CARE interface, the staff is able to quickly identify the fields that match. As the staff identify more matching fields, they are quickly able to determine whether or not to merge two patient records. Prior to using SmartyStreets, we had 100,000+ duplicate pairs for manual deduplication. As of June 2020, there were approximately 3,000 duplicate pairs for manual deduplication.

Any data stored within our database, including changes to existing records, always go through the deduplication process. The deduplication job runs every 10 minutes, 24 hours a day, 7 days a week. Address cleansing has resulted in a reduction in the total number of unique addresses in the address table in our system as a result of bad addresses being identified by SmartyStreets and thus removed from the database.

SmartyStreets has improved data quality within our database through increased patient matching. SmartyStreets has also reduced the amount of work that is needed to identify duplicate patient records.

Want to know how to get started using SmartyStreets?

More information about and [SmartyStreets](#) can be found on [AIRA's website](#).

AIRA is now offering an orientation to help your IIS get started with SmartyStreets. Some topics covered during the session include thinking about how SmartyStreets fits into your infrastructure, learning about options available for connecting to SmartyStreets, and understanding how to reintegrate cleansed and geocoded data back into your system. Whether you're new to SmartyStreets or your IIS has already signed a Partner Agreement, we're here to assist. Contact [Tessa Lucas](#) for more information.

- Submitted by Robin Holding, Illinois I-CARE, and Tessa Lucas, AIRA



IIS LEARNING-COMMUNITY WORK RESULTS IN NEW PROJECT MANAGEMENT TOOLS FOR IIS

Platform migrations and other large-scale projects are some of the most challenging undertakings that an IIS can be tasked with. They require active project management, change management, and working through the software development lifecycle.

Recognizing the difficulties with these ambitious technical transitions, CDC funded the Public Health Informatics Institute (PHII) to provide technical assistance to programs undergoing system migrations. PHII established a dedicated learning community composed of 16 immunization programs and 40+ staff representatives. With the support and input of this IIS learning community, PHII worked to develop guidance and interactive tools to support these programs through their system migrations and transitions.

The resulting [IIS Migration Toolkit](#) is now available to the IIS community! The toolkit is a set of guidance and tools from PHII and CDC on transitioning to a new IIS technology platform or module or another large-scale projects. The toolkit guides you through the process of determining whether a system migration or module adoption is the right move for you and then through the five phases of a migration project. Toolkit users are walked through each phase in order and provided with a checklist of comprehensive exit criteria in each phase to ensure they're ready to move forward to the next. The tools are also presented by work domain categories (including staffing, testing, and training) for ease of use.

Because of the applicability of many of these resources to day-to-day IIS operations, these tools are also available on the [IIS Operations Tools page](#). This set of tools empowers IIS staff to navigate the various processes involved in managing and maintaining a well functioning IIS. Staff can quickly access tools to support the management of projects, stakeholder communication and change management, staffing and assignment of resources, training, and more.

Users of these resources will benefit from the experience of, expertise of, and lessons learned by the IIS Migrations/Transitions Learning Community. Project management, change management, and system development lifecycle best practices are brought to bear in guidance and adaptable tools for program implementation.

PHII is grateful for the hard work and thoughtful contributions of the IIS Migration/Transitions Learning Community, which included representatives from the following IIS programs: California, Connecticut, Washington, D.C., Hawaii, Illinois, Missouri, Montana, Nebraska, New Hampshire, New Jersey, Oklahoma, Pennsylvania, Puerto Rico, San Antonio, South Carolina, and Virginia.

- Submitted by Piper Hale, MPH, Public Health Informatics Institute



COVID VACCINE, EXPANDED FLU SEASON, AND CATCH-UP OF ROUTINE IMMUNIZATIONS: HOW DATA ANALYTICS CAN HELP IIS PREPARE FOR THE CHALLENGES AHEAD

In late July 2020, AIRA hosted a [Discovery Session webinar](#) for the IIS community focused on using IIS data and tools for analysis.

Many IIS are preparing for the fall and are faced with the release of the new COVID vaccine, the likelihood of more demand than usual for flu vaccine, and a decline in routine vaccinations. Wisconsin and Minnesota staff discussed IIS data and tools they are using to help prepare.

The session's presenters included:

- **Danielle Sill** – WIR Epidemiologist, Wisconsin Department of Health Services
- **Mayuri Kulkarni** – Research Analyst, Wisconsin Department of Health Service
- **Sydney Kuramoto** – MIIC Informatician and Minnesota Department of Health

Wisconsin

Danielle discussed the products used in Wisconsin for data extraction, analyses, and visualizations. Wisconsin connects to the back-end tables of the IIS via an ODBC connection through one of three platforms: SAS, TOAD, or Business Objects. The decision to use SAS or TOAD (a product similar to SQL server) is based on epidemiologist/analyst comfortability and training with the products. Business Objects is a user-interface program that allows staff to create SQL queries to pull data and schedule them to run during off-hours so the performance of the IIS is not impacted. Business Objects has improved the efficiency of pulling large data sets that previously would have taken all day to run and allowed staff to retrieve data in the morning and then analyze throughout the day.

Developing reports for all local health departments can be cumbersome; however, Wisconsin utilizes macros and the proc reports function in SAS to produce reports for all local health departments using one code. Instead of rerunning the same code for 80+ local health departments, Wisconsin runs a proc report function, and SAS creates an individual report for each local health department at once. Additionally, staff use proc reports to add in color schemes to demonstrate positive or negative increases and embed the department of health services logo all within the one SAS code.

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Every year from October to May, Wisconsin produces a weekly respiratory report, distributed to stakeholders through a GovDelivery email. This report is a collaboration between the communicable diseases epidemiology section and the immunization program, as it includes information on disease, laboratory testing, hospitalizations, and immunization coverage. Since multiple staff pull data for this report, Wisconsin uses Microsoft Publisher, which allows staff to work independently in Excel documents that are then automatically updated within the Publisher file. To utilize this feature in Publisher, you have to use the “paste special” option and then “paste link” for graphs, tables, or other data visualizations that are updated in different file locations.

Mayuri demonstrated how Wisconsin utilizes these tools to monitor the impact of COVID-19 on routinely recommended vaccinations, displaying graphs comparing the total administered immunizations and similar analyses stratified by age group. Mayuri displayed graphs focused on immunizations administered to individuals at birth–3 years old, 4–18 years old, and those 19 and older. The data compare the current year’s immunizations to the average from the past five years to incorporate fluctuations from year to year that could have occurred due to an increase in vaccine-preventable disease or specific media attention.

Graphical data visualizations help individuals comprehend complex data without being too overwhelming. Wisconsin is changing the way it is displaying data and is using more visualization techniques that display the key messages in an easy-to-understand format for the general public. Currently, Wisconsin is transitioning all visualizations to Tableau so the public can efficiently access the aggregated data.

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Minnesota

Sydney Kuramoto discussed how Minnesota uses a combination of data analytic tools to analyze and use IIS data to inform and drive their programmatic efforts. Currently, Minnesota is using Tableau internally to monitor routine vaccination uptake and SAS to create weekly MMR data to share on the web. Minnesota is actively planning to create seasonal influenza and COVID-19 dashboards and reports that can be used to monitor vaccination administration and make data-driven decisions. Another important part of Minnesota's preparations is the creation of a COVID-19 data management plan that will help us prepare to manage, store, describe, analyze, and share COVID-19 vaccine data.

Minnesota is actively planning to create seasonal influenza and COVID-19 dashboards and reports that can be used to monitor vaccination administration and make data-driven decisions.

Using IIS data during the coming months will be a critical part of the public health response during this global pandemic as the country anticipates a novel COVID vaccine, as demand for flu vaccine is expected to increase, and as routine immunization rates decrease. All presenters spoke to the vital role IIS data plays now and in the future.

The slides and a recording of the webinar can be found in the [AIRA repository](#).

*- Submitted by Danielle Sill, MSPH, and Mayuri Kulkarni, Wisconsin Department of Health Services,
and Sydney Kuramoto, MPH, Minnesota Department of Health*