AIRA
AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

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SNAPSHOTS

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

PRESIDENT'S REPORT

Dear Colleagues,

What a time to work in public health! I have always felt a kind of satisfaction working for the Minnesota Department of Health. Knowing that the work I do helps keep Minnesotans healthy and safe was always a nice background thought that helped me get through busy or frustrating days. With the COVID-19 pandemic, that is no longer a nice background thought; it is very much in the forefront of my mind most days. Another thing that the pandemic has done is given me, and I'm sure many of you, the opportunity to meet a ton of great colleagues who I didn't normally interact with and to use the experience I have to help them do their work more effectively and efficiently. Mostly this is moving new and interesting data around and using it for several purposes. Getting the same data in dozens of slightly different formats, converting it, and loading it like this is exactly how I got my start in IIS, during H1N1, 10 years ago. And these new experiences have given me a newfound perspective on just how far the immunization community has come in those 10 years. Just as I learned a lot from H1N1, which I'm putting to use today, so did many of you. In this edition of SnapShots, you'll get to read about some of those lessons learned, and hopefully they can help you with the amazing work you are doing today. You'll also get to hear from New York City about how COVID-19 is impacting their operations, something we can all appreciate, and from HLN on some considerations for what forecasting could involve with a COVID vaccine.

I hope you all have some time to read through this issue of *SnapShots*, and I hope you all are proud of the work you do, whether that's with your IIS or reassigned somewhere else for the time being, and of our movement as an immunization community toward effective and efficient use of data. We should all be proud of keeping the citizens of our individual jurisdictions, and of America as a whole, as healthy and safe as we can!

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.

To subscribe, please visit www.immregistries.org. This information will remain confidential and will not be sold or passed on to other parties. *SnapShots* is produced quarterly by the AIRA Education Steering Committee. Editor: Katie Reed, N.Y.
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MESSAGE FROM AIRA'S EXECUTIVE DIRECTOR

On behalf of AIRA, I would like to take this opportunity to thank you for all the work you and your teams are carrying out in preparation for the rollout of a COVID-19 vaccination campaign.

We at AIRA know you are facing unprecedented times with many uncertainties and questions remaining related to the role of IIS in vaccine distribution and allocation and the data that demonstrates the impact COVID-19 has already begun to have on our nation's routine immunization programs. We continue to commit our support and are working to identify ways to best serve as a resource and advocate for the IIS community.

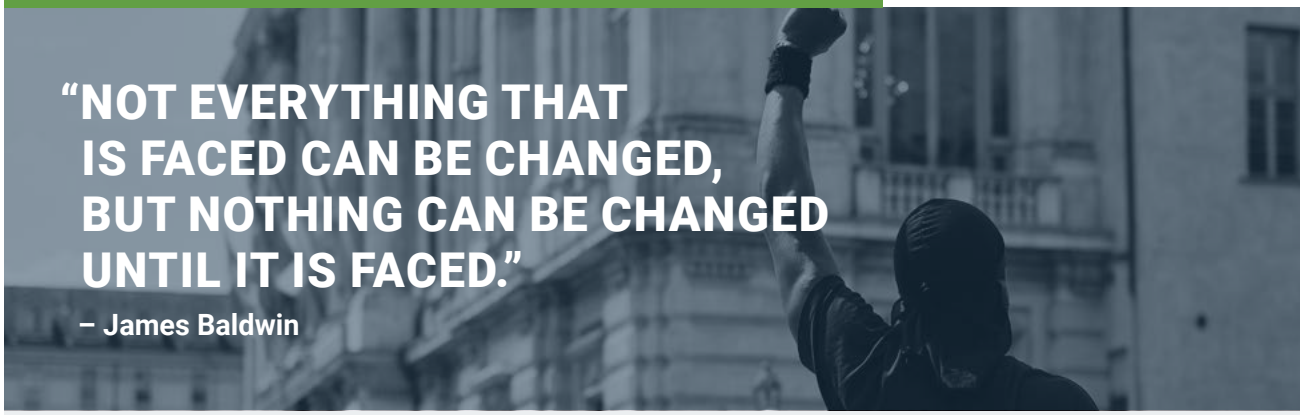
Immunization information systems (IIS) will be instrumental in the management and distribution of this novel vaccine. As highlighted in our new one-sheet resource, Tips for IIS: Preparing for a COVID-19 Vaccine, there are several areas IIS and immunization programs can focus on *now* to better prepare for the arrival of a novel vaccine. This resource points out specific strategies related to onboarding providers, aligning with standards, eliminating barriers to data exchange, and expanding consumer access. AIRA and our partners continue to advocate at a national level to utilize the existing IIS infrastructure to respond to and support COVID-19 mass vaccination efforts quickly and for funding and resources to enhance IIS capabilities and address policy barriers.

As highlighted in this edition of *SnapShots*, AIRA hosted two educational webinars in April, including the Discovery Session, H1N1 Lessons Learned and How They Are Informing the Response to COVID-19 and Using IIS to Support an Outbreak Response.

We will continue to support your efforts to prepare for a COVID-19 vaccine and to monitor and respond to trends that are evolving in routine immunization coverage. Please reach out with ways AIRA can be of help. You may find additional resources on our website and in AIRA's resource repository. In the meantime, stay safe!

Kind Regards,
Rebecca Coyle, MSEd
Executive Director, AIRA

Our Role in Fighting Racism and Supporting Health Equity



Our mission at AIRA is to promote and support the use of immunization information to ensure healthy communities. A central part of that mission is the importance of community and, not just the IIS community, but the communities we work and live in each day. Our communities are in pain after the recent deaths of George Floyd, Breonna Taylor, and Ahmaud Arbery. There is frustration and anger about the systemic racism that inevitably results in numerous deaths and that has a severe impact on our communities in myriad ways including health, housing, education, and jobs.

As a public health association representing individuals and organizations invested in the full population's health, it is vital that we support our communities in fighting the public health issues of inequity and systemic racism. Many of our partners in the public health community have excellent information on their websites about these issues.

- Racism is an ongoing public health crisis that needs our attention now and Racism and Health, American Public Health Association
- Racially Driven Violence Against Black Americans Is a Public Health Issue, National Association of County Health Officials
- Nation's Public Health Leaders Stand United Against Racism, Association of State and Territorial Health Officials

We want to explore how we can use IIS to fight racism and support health equity. IIS are becoming increasingly well equipped to support identification of communities that would benefit from additional public health efforts. Identifying differences in immunization coverage can help target resources to address health disparities and improve health equity. For more information about the process for using small area analysis to identify health disparities, please read Identifying Immunization Pockets of Need. Section 4 of the guide offers several methods of collaborating with communities to improve immunization coverage and provides references to more detailed resources.

We are also interested in exploring additional steps AIRA can take. How can AIRA be a better advocate and create a healthier environment for our members? How can we use IIS to improve health equity in our communities and our country? Please share your thoughts with us at info@immregistries.org.

IIS ROLE IN PANDEMIC PREPAREDNESS AND RESPONSE

After a novel coronavirus caught the world off guard and was spreading at an alarming pace, the World Health Organization described COVID-19 as a pandemic on March 11, 2020.

At that point, there were 118,000 cases reported across 114 countries.[1] As May 25, there were more than 4.9 million global confirmed cases and more than 325,000 deaths.[2] This is the first time in history a coronavirus has caused a pandemic.

A pandemic is defined as the worldwide spread of a new disease.[3] While health officials and countries across the world had already been combatting the virus for more than two months, the WHO cautiously weighed its decision to utilize the term pandemic in efforts to avoid causing fear and panic. The declaration of "pandemic" may not have necessarily changed the response actions under way, but it may have elevated the realization that COVID-19 is here to stay for the foreseeable future. The last time a disease was declared a pandemic was in 2009 during H1N1 influenza, for which many of our members and partners played an active role in the public health response. While plenty of challenges existed, the ability of public health immunization and emergency preparedness programs to collaborate and expand capacity to vaccinate more than 80 million people within a five-month period highlights the experience the U.S. immunization system gained to prepare for future mass vaccination and emergency response efforts.[4] Whether you want to remember those times or not, H1N1 provided some lessons to help prepare for today. In case you missed it, AIRA's April Discovery Session, H1N1 Lessons Learned and How They Are Informing the Response to COVID-19, is summarized below and available via AIRA's resource repository.

> **"Pandemic is not a word to use lightly or carelessly. It is a word that, if misused, can cause unreasonable fear, or unjustified acceptance that the fight is over, leading to unnecessary suffering and death."**
>
> **- Tedros Adhanom,**
> WHO Director-General
> March 11, 2020

Many resources are available from H1N1 that demonstrate the critical role of IIS in pandemic response. Literature and past conference presentations highlight topics, including vaccine

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[1] https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

[2] https://coronavirus.jhu.edu/map.html

[3] https://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/

[4] https://cdn.ymaws.com/www.immunizationmanagers.org/resource/resmgr/files/collaboration_principles.pdf

IIS ROLE IN PANDEMIC PREPAREDNESS AND RESPONSE *Continued from page 4*

allocation and distribution strategies; reporting on doses distributed, doses administered, and overall coverage; provider onboarding; and strategies for communicating with providers and the public. Several studies describe additional IIS data uses, such as to assess H1N1 vaccine effectiveness, vaccine uptake, and vaccine safety.

The Association of Immunization Managers (AIM) revived its H1N1 Resource Archives with a number of resources relevant to today, highlighting the importance of and specific strategies for communication and collaboration between immunization and emergency preparedness programs. A number of the guiding Preparedness Collaboration Principles center on enhancing IIS capabilities and resources to be able to respond quickly in an emergency situation. Lessons and findings from a series of surveys AIM and partners carried out have been published and have summarized the importance of IIS in the management of public health emergencies involving a vaccine, as well as the importance of sustaining functionalities once the emergency has ended. Immunization program managers shared that IIS were of most value in supporting H1N1 influenza vaccination clinics, facilitating reminder/recall for patients needing a second dose, tracking vaccination coverage, and having the ability to facilitate the registration of nontraditional vaccine providers as well as to push communications out to providers.[5] Respondents additionally shared numerous changes to their pandemic preparedness plans based on their H1N1 experience, including improving communication and collaboration, improving vaccine allocation strategies, and planning for specific scenarios to tailor the response to various possible events.[6]

> **"In an emergency, what works best is scaling up existing robust systems, not trying to create a new system. … Use the systems you have."**
>
> **- Tom Frieden,**
> Former CDC Director

The landscape of preparedness and systems has changed considerably since H1N1, and IIS and health information technology, including electronic health records, have only been strengthened with improved capabilities and improved participation. In addition to lessons specific to H1N1, broader experience in outbreak response should prove beneficial for IIS in a COVID-19 vaccination campaign. AIRA's fall 2019 "Survey to Assess IIS Capabilities and Limitations in Outbreak Response and Identifying Pockets of Need" identified several resources jurisdictions have leveraged as being helpful with outbreak response. The most helpful resource reported was key partnerships,

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[5] https://cdn.ymaws.com/www.immunizationmanagers.org/resource/collection/A7833B44-2410-47F1-8C69-058074D3AD8A/Perspectives_of_Immunization_Program_Managers.pdf

[6] https://cdn.ymaws.com/www.immunizationmanagers.org/resource/collection/A7833B44-2410-47F1-8C69-058074D3AD8A/Challenges_and_Changes.pdf

IIS ROLE IN PANDEMIC PREPAREDNESS AND RESPONSE *Continued from page 5*

including internal immunization, preparedness, epidemiology, and surveillance partners within the health department, as well as external partners such as local public health departments, nontraditional immunization providers, universities, churches, correctional facilities, and specific communities affected by the outbreak. Useful IIS capabilities that were highlighted include IIS functionality allowing onsite data capture after vaccine administration, reminder/recall, ability to run coverage reports by county, mass vaccination modules for rapid data entry during large clinics, inventory ordering, management and tracking, use of the IIS to identify immunity status and unvaccinated or under-vaccinated case contacts, and access to IIS data for immunization program staff as well as for disease surveillance staff. For specific examples, see AIRA's April Using IIS to Support an Outbreak Response webinar.

Many journalists have recently taken the opportunity to try to identify parallels and differences between COVID-19 and pandemics of the past. Social distancing and quarantine are not concepts new to public health and have served as tools to control disease for centuries. Today, we are gifted with more data and advancements in vaccine technologies as has been demonstrated through the unprecedented effort to accelerate the development of a COVID-19 vaccine, with the expectation that some amount of vaccine should be available this fall.

As much as programs may have prepared, most likely for an influenza pandemic, questions and uncertainties remain across the IIS community related to what a COVID-19 response using IIS will look like. AIRA's recent mass vaccination survey of the IIS community indicated over half of respondents had concerns related to capturing data from nontraditional providers; training; data quality; identifying high-risk, priority populations; ramping up onboarding activities; and expanding access to new users or clinics. While IIS will remain an invaluable tool to assist in your response efforts, programs have learned from experience that the situation changes daily and they will need to allow for flexibility. AIRA, the CDC, and many partners will continue to develop and update guidance resources to support states with pandemic preparedness and response plans.

Stay abreast of AIRA COVID-19 updates and AIRA and partner resources on our website.

In a recent interview on NPR Short Wave, Dr. Howard Markel, director of the Center for the History of Medicine at the University of Michigan, ended his remarks about the 1918 Spanish Flu with a reminder that "life not only came back to normal, it roared into the 20th century. I have faith in the ingenuity of the human mind and the ability to rebuild even from situations that seem quite disastrous and final. History tells us that happens." With more tools in the toolbox today than we had in 1918, hopefully this optimism can keep the public health community motivated that there is light at the end of the tunnel.

- Submitted by Liz Abbott, MPH, *AIRA*

HOW THE COVID-19 PANDEMIC IS AFFECTING IIS

The COVID-19 pandemic is presenting major challenges for immunization programs and immunization information systems (IIS) in New York City (NYC) and elsewhere. Below is a summary of these challenges in the order of most concerning, including steps NYC is taking now to respond.

- **Administration of routine vaccinations have markedly declined, potentially increasing vulnerability to vaccine-preventable disease outbreaks. NYC is reaching out to providers now to promote catch-up vaccination and reporting of all vaccine doses administered to the IIS.**
  As we have seen from the steep decline in reporting to our IIS from mid-March 2020 through early May, routine vaccinations have declined for several reasons, including closed practices, telemedicine, unavailability of staff, and reluctance by parents. Declining immunization levels leave us vulnerable to a resurgence in vaccinepreventable diseases, including measles. In NYC, we only recently brought a large measles outbreak under control. In NYC, reporting of vaccine doses administered started to pick up in the second week of May, suggesting a return of primary care visits and immunization services. We sent three communications, on March 20, April 27, and May 29, to all pediatric providers via blast email on prioritizing children less than 2 years of age for vaccinations and promoting the American Academy of Pediatrics (AAP) and CDC guidance on restarting routine medical practice. We are holding a virtual meeting of our Childhood Coalition for Immunization Initiatives in June to reinforce this message and strategize with our providers on how best to support catch-up vaccination efforts and timely, complete reporting of immunizations to our IIS.

- **Vaccine orders from Vaccines for Children (VFC) program providers decreased. We have informed VFC providers that they may order more vaccine than routinely recommended to account for catch-up.**
  VFC orders in NYC fell starting in mid-March. The number of orders started to increase in the second week of May. We posted a message on our IIS's online vaccine ordering screens to encourage providers to order the amount of vaccines needed for catch-up vaccinations, even if the amount exceeds our routine recommendations.

- **Seasonal influenza vaccination has taken on increased importance. NYC will order additional vaccine and gear up for expanded outreach to raise seasonal influenza vaccine coverage.**
  Because seasonal influenza viruses maybe circulating simultaneously with COVID- 19, we need to protect more people against seasonal influenza to avoid overwhelming our health care system this fall.

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HOW THE COVID-19 PANDEMIC IS AFFECTING IIS *Continued from page 7*

- **We are preparing *now* for a COVID-19 vaccination campaign to start as early as fall 2020 for limited vaccine distribution and end of 2020/early 2021 for broader-scale distribution.** Lessons learned from the 2009–2010 H1N1 campaign tell us we will see a major surge in providers registering with our IIS to order COVID-19 vaccines. In NYC, 3,000 providers (primarily those serving adults) were newly registered during the H1N1 response, in addition to the nearly 2,000 providers (mostly pediatric) already registered and reporting to our IIS. All newly registered providers will need accounts for online vaccine ordering, order status tracking, and electronically signing the COVID-19 Vaccine Provider Agreement.

  In addition, newly registered providers will need to report vaccine doses administered to the IIS. Our hope is most of these providers will have electronic health records (EHRs) and can be onboarded for HL7 reporting, but some may need to report through an online User Interface (UI).

  To manage these tasks, NYC is starting work on parallel tracks for (1) provider outreach and (2) IIS enhancements, as needed. For provider outreach, we are reaching out now to all providers that are likely to want COVID-19 vaccine to get them registered and set up for vaccine ordering and reporting to the IIS. In NYC, we are contacting adult providers that participated in the H1N1 campaign and have since been inactive. We also obtained the list of long-term care providers from our health department's emergency preparedness team for outreach. For IIS enhancements, we are augmenting several functions of our IIS to be more fully automated and streamlined to save IIS staff and providers valuable time. Specifically, we are rebuilding our IIS online provider registration system and improving our Online Registry (NYC's UI) for provider account set-up (for vaccine ordering and IIS reporting), creating COVID-19 vaccine ordering screens for providers to submit initial orders and have their vaccine supply replenished automatically, and enriching quick-add patient features for capturing patient demographics and immunizations in a point of dispensing (POD) vaccination clinic and for use by providers who do not have EHRs for IIS reporting.

  Finally, we are planning for our forecaster to be programmed to align with Advisory Committee for Immunization Practices (ACIP) rules for COVID-19 vaccine. COVID-19 vaccination is likely to be a two-dose series separated by 4 weeks. If different COVID- 19 vaccine products are available, it may be necessary to complete the series with the same product. In addition, there may be recommendations for simultaneous vaccination of COVID-19 vaccine with seasonal influenza vaccine.

- Submitted by Amy Metroka, DrPH, MSW,
New York City Department of Health and Mental Hygiene

DISCOVERY SESSION IN REVIEW:
H1N1 LESSONS LEARNED AND HOW THEY ARE INFORMING THE COVID-19 RESPONSE

In late April 2020, AIRA hosted a Discovery Session Webinar for the IIS community focused on lessons learned from H1N1 and how these lessons are helping the IIS community begin to prepare for COVID-19 vaccine.

The session's presenters included:

- **Rebecca Coyle** – Executive Director for AIRA
- **Amy Metroka** – Director of the Citywide Immunization Registry (CIR) of the New York City (NYC) Department of Health and Mental Hygiene
- **Dr. Cindy Weinbaum** – Deputy Director of the Immunization Services Division in the National Center for Immunization and Respiratory Disease (NCIRD) at CDC and the lead of the Vaccine Task Force for CDC's COVID-19 response
- **Lynn Gibbs Scharf** – Chief of the IIS Support Branch within the Immunization Services Division at NCIRD and key supporting staff monitoring activities of the Vaccine Task Force

AIRA

Rebecca Coyle opened the call with a review of AIRA's activities in response to COVID-19. She provided several examples of where AIRA is exploring how the organization can best support member jurisdictions, including:

- Policy and national partner coordination and alignment, with the Adult Vaccine Access Coalition (AVAC), the Office of the National Coordinator (ONC), the Association of Immunization Managers (AIM), CDC, and others
- Highlighting importance of IIS infrastructure and the role IIS can play in COVID-19 response
- Assisting CDC and the community in assessing capabilities, needs, and following CDC guidance to ensure readiness, including through AIRA's current project focused on Adult Capture
- Exploring areas where AIRA can serve as a centralized forum to unify IIS efforts and develop a shared set of priorities to ensure readiness (e.g., Standards and Interoperability Committee workgroups focused on specific issues like priority groups and/or serology)
- Providing resources as well as education and training to the broader community

Rebecca also emphasized those high-priority areas for IIS programs that can help increase their readiness for a novel vaccine as soon as October 2020.

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DISCOVERY SESSION IN REVIEW:
H1N1 LESSONS LEARNED AND HOW THEY ARE INFORMING THE COVID-19 RESPONSE *Continued from page 9*

And finally, Rebecca provided an overview of key H1N1 resources and lessons learned that can help the IIS community prepare for a COVID-19 response. The themes she mentioned included:

- Vaccine allocation and distribution strategies
- Pre-registration, online provider registration
- Identifying and targeting priority groups
- Communication strategies (with both providers and public)
- Monitoring and reporting doses administered
- Implementing and adapting preparedness plans
- Monitoring routine immunization rates

Presentations, papers, and tools for H1N1 and COVID are available on the AIRA repository.

New York City Citywide Immunization Registry

Following Rebecca's presentation, Amy Metroka shared lessons that emerged from New York City's response to H1N1 and shared how those have influenced their COVID-19 planning.

Amy cited a number of challenges that the NYC CIR faced during H1N1, including:

- Mandatory reporting to CIR only included <19
- Onboarding a large number of new adult providers to:
  - Register with CIR
  - Order vaccine
  - Report H1N1 doses to CIR
- Prioritize allocation of limited vaccine supply
- Capture H1N1 doses administered at points of dispensing (PODs)

Amy's presentation explored each of these challenges and the solutions NYC found in responding to the outbreak.

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DISCOVERY SESSION IN REVIEW:
H1N1 LESSONS LEARNED AND HOW THEY ARE INFORMING THE COVID-19 RESPONSE *Continued from page 10*

CDC

The session's final speakers represented the CDC. Dr. Cindy Weinbaum shared current case and mortality data for COVID-19, including data on who is particularly at risk for the disease. She shared the large number of vaccines that are currently in clinical trials and discussed the range of approaches vaccine manufacturers are exploring in an effort to increase the likelihood of having a viable vaccine available within a shorter time frame. Given the need to move quickly to bring a vaccine to market, Dr. Weinbaum said that CDC is looking closely at vaccine safety and is actively planning for implementation and vaccine delivery networks. She also mentioned that the Advisory Committee on Immunization Practices (ACIP) has already established a COVID-19 workgroup.

Dr. Cindy Weinbaum then handed the floor over to IISSB branch chief Lynn Gibbs Scharf, who discussed some of the activities under way across this branch. She stressed that IISSB was working with the CDC COVID-19 task force to define capabilities and data needed for a COVID-19 vaccine rollout and noted that CDC would support awardees with technical assistance for their COVID-19 responses.

Lynn stressed that there were several things an IIS could do now to better prepare for a novel vaccine:

- Infrastructure
  - Ensure IIS are using the latest versions of their products
  - Explore moving to cloud hosting and ensuring adequate data storage.
  - Connect with the Immunization Gateway.
  - Address findings and plan enhancements based on the AIRA Measurement and Improvement effort.
- Provider enrollment and onboarding
  - Eliminate backlogs and provider queues.
  - Enroll providers that might vaccinate front-line health care providers, first responders, and critical workforce, including pharmacies.
- Ordering
  - Ensure robust processes for ordering, including provider training, quality assurance of data, and error correction.
- Policy
  - Assess/address reporting policies to ensure COVID-19 data can be reported and exchanged seamlessly.
  - Fine-tune patient matching and deduplication algorithms where possible.
  - Ensure functionality for electronic reminder/recall is tested and ready.

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DISCOVERY SESSION IN REVIEW:
H1N1 LESSONS LEARNED AND HOW THEY ARE INFORMING THE COVID-19 RESPONSE *Continued from page 11*

Since their inception, IIS have played an important role in public health. However, now, during this global pandemic, IIS will become even more critical by tracking the distribution of an anticipated vaccine that we hope will save countless lives. All presenters spoke to the crucial role IIS and immunization programs will play in the broad response to COVID-19. For more information, please explore the AIRA COVID-19 Vaccine Readiness One-Sheet. Thank you for all you are doing to advance IIS during these extraordinarily challenging times.

Discovery sessions are webinars designed specifically for new IIS managers and staff, but they contain content that is largely applicable for all IIS and immunization program staff as well as broader partners and stakeholders. The sessions are meant to be interactive as well as educational. The slides and fully recorded webinar for this session can be found in the AIRA repository.

- Submitted by Mary Beth Kurilo, MPH, MSW, *AIRA*

COVID-19 AND IMMUNIZATION FORECASTING

Like many things in the age of COVID-19, the vaccine development landscape is unlike anything we have seen in our lifetimes.

There are over 100 SARS-CoV-2 vaccines currently in development, many of which are utilizing new technologies not used in any currently licensed vaccine. The potential impact on immunization schedules and immunization forecasting is significant. For the IIS community, H1N1 is the pandemic that we remember; but the H1N1 vaccine was developed and licensed relatively quickly using well known flu vaccine technology, and the vaccine became available after the pandemic had peaked in the northern hemisphere.

In contrast, although there has been much progress in vaccine technology since H1N1, there is no proven vaccine platform for SARS-CoV-2. Different vaccine technologies may prove to be more effective for different populations or risk groups, and vaccines in different stages of the pipeline may become available while outbreaks are peaking in various parts of the world. Instead of a simple immunization schedule like CDC's H1N1 schedule—a single dose, or two doses 4 weeks apart for children, across four CVX codes—it is possible that COVID-19 could involve several vaccines and immune globulin trials each with their own CVX codes. The variety seen in those trials (such as different dosage, spacing, or adjuvants) could be reflected in the different immunization schedules and their corresponding CVX codes. Furthermore, the prospect of widespread serological testing could also impact decision making.

The diversity, timing, and availability of COVID-19 vaccines may pose challenges to systems that provide immunization clinical decision support to electronic health records and IIS. These systems will need to be able to add new vaccines, schedules, risk groups, and immunities, thereby producing reliable, understandable decisions. In addition, they will need to adapt quickly as results emerge from competing trials.

The team that maintains the Immunization Calculation Engine (ICE)—a free, open-source immunization forecaster—is looking forward to working collaboratively with the IIS, immunization, and clinical decision support communities to rapidly implement COVID-19 rules as schedules are developed and to freely publish them online for its users to download and for anyone to incorporate into other systems. ICE supports Virtual Medical Record (vMR) input, which may be converted from Fast Healthcare Interoperability Resources (FHIR) or Consolidated-Clinical

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COVID-19 AND IMMUNIZATION FORECASTING *Continued from page 13*

Document Architecture (C-CDA). ICE is currently incorporated (or being incorporated) into IIS deployed in Michigan, New York City, Rhode Island, and Vermont as well as several nationally deployed electronic health record and patient health record systems. ICE and other forecasters will continue to contribute to IIS efforts in preventing children from falling behind on routine immunizations due to COVID-19 and social distancing, based on the recommendations of the Advisory Committee on Immunization Practices (ACIP) and informed by CDC's CDSi. COVID-19 vaccine schedules will be added to the schedule as they are released.

More information on ICE is available at https://cdsframework.atlassian.net/wiki/spaces/ICE/overview.

- Submitted by Noam H. Arzt, PhD, *HLN Consulting*