

The Office of the National Coordinator for
Health Information Technology



Special Presentation

Increasing Value, Lowering Burden:

Exchanging Immunization Data Between Electronic Health Records (EHRs) and
Immunization Information Systems (IIS)

August 9, 2018

Putting the **I** in Health **IT**
www.HealthIT.gov

Question and Answer Session

How to submit or ask questions for the panel members?



▶ Submit or Ask Questions

- ▶ Submit your text question and comments using the Question Panel
- ▶ Please raise your hand to be unmuted for verbal questions.

Webinar Schedule for August 2018

*****Special Notice*****

Due to the upcoming PHI conference scheduled for August 19, 2018- August 23, 2018, we have rearranged our Monthly webinars series for August.

Kindly note that two webinars focused on the Centers for Medicare and Medicaid Services CY 2019 Proposed Rule took place on July 31st and August 7th, 2018. Kindly note that the recording are available for each presentation. To access the webinar recordings kindly send your request to meaningfuluse@cdc.gov for access the recording.

Also, kindly note will have one additional webinar this month which is scheduled for August 16, 2018. The webinar .



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Increasing Value, Lowering Burden:

Exchanging Immunization Data Between
Electronic Health Records (EHRs) and
Immunization Information Systems (IIS)

Thursday, August 9th, 2018

3pm ET

Speakers

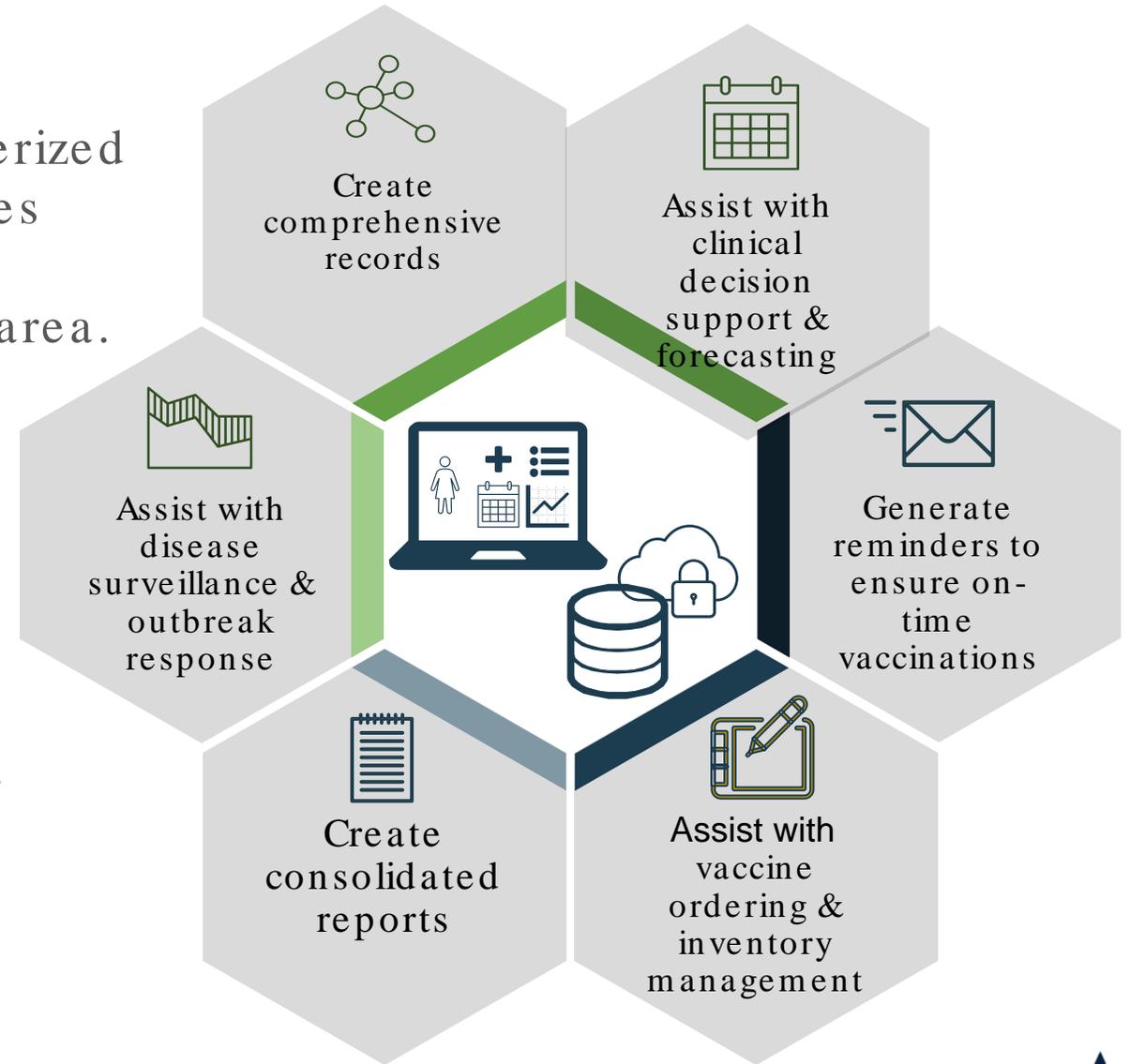
- Mary Beth Kurilo, Policy and Planning Director, AIRA
- Mary Woinarowicz, IIS Manager, North Dakota Immunization Information System
- Tina Scott, Section Manager, Michigan Care Improvement Registry



IIS...

are confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area.

-  Confidential
-  Population-based
-  Identify pockets of need
-  Exchange data with multiple providers
-  Assist schools & child care providers
-  Help improve vaccination rates & Reduce vaccine-preventable disease



Maturity

- No national IIS
- Each system operates independently
- Newest IIS is hoping to launch later this year
- Oldest have been in existence for 25+ years



Progress in Data Capture

- Healthy People 2020 Goals
 - Children >6: 95%
 - Adolescents 11 -17: 80%



The Value of EHR - IIS Interoperability

- Incentive programs have significantly increased reporting to and use of immunization data between provider Electronic Health Records (EHRs) and Immunization Information Systems (IIS) or registries.
- As a direct result of these incentive programs:
 - **IIS have more robust data** in systems that support immunization activities across the health care continuum.
 - **Providers have accurate immunization data** at the point of care



Value is Recognized Broadly

- CMS excerpt from recent Quality Payment Program and Medicaid Promoting Interoperability proposed rules (Federal Register, 7/27/2018), citing the value of Public Health reporting:

“For example, when immunization information is directly exchanged between EHRs and registries, patient information may be accessed by all of a patient’s health care providers for improved continuity of care and reduced health care provider burden, as well as supporting population health monitoring.”



Who Else Benefits?

- These data are now accessible for an infinite number of programs and organizations, including:
 - Medicaid
 - Accountable Care Organizations (ACOs)
 - Health plans conducting HEDIS measurement
 - Clinics and health systems providing clinical care and evaluating quality measures
 - Schools who need to ensure students are up -to -date
 - Public health organizations committed to preventing vaccine preventable diseases.

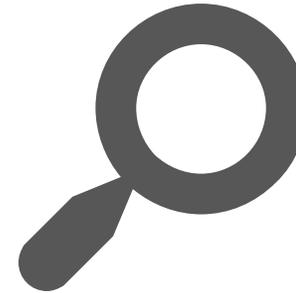


Where is the value to providers?

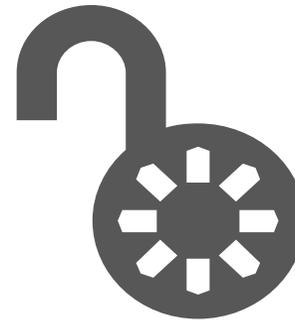
✓ Saves providers time



✓ Increases accuracy

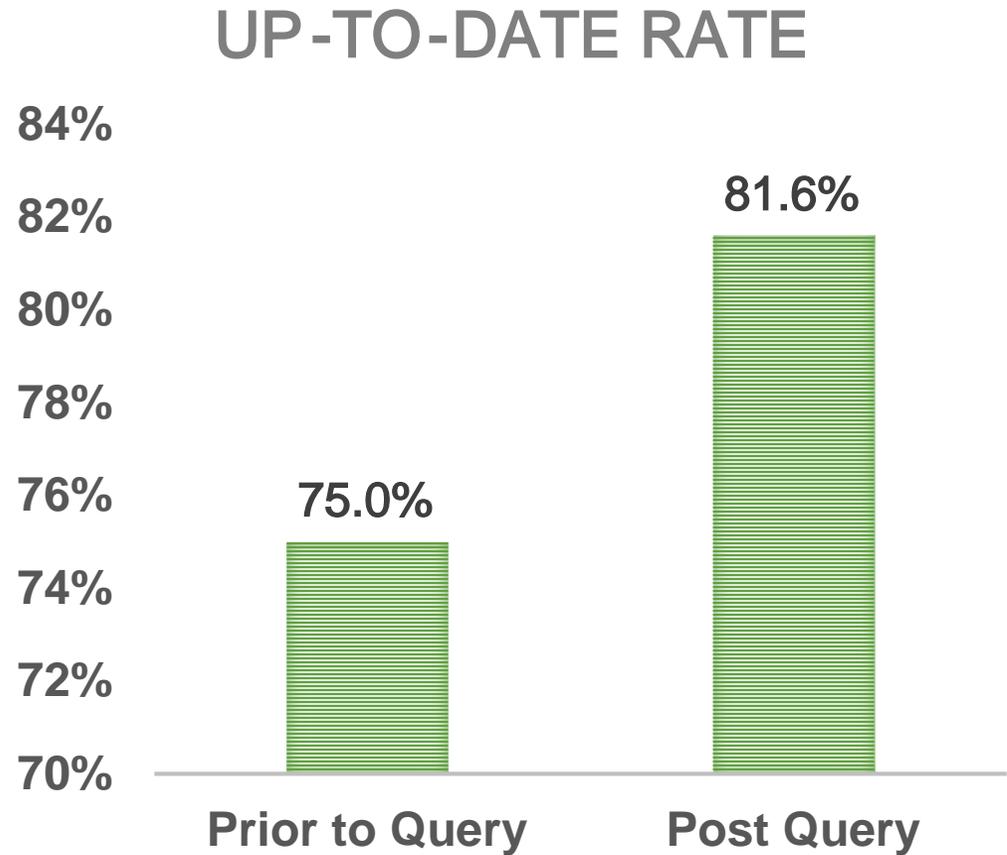


✓ Improves security



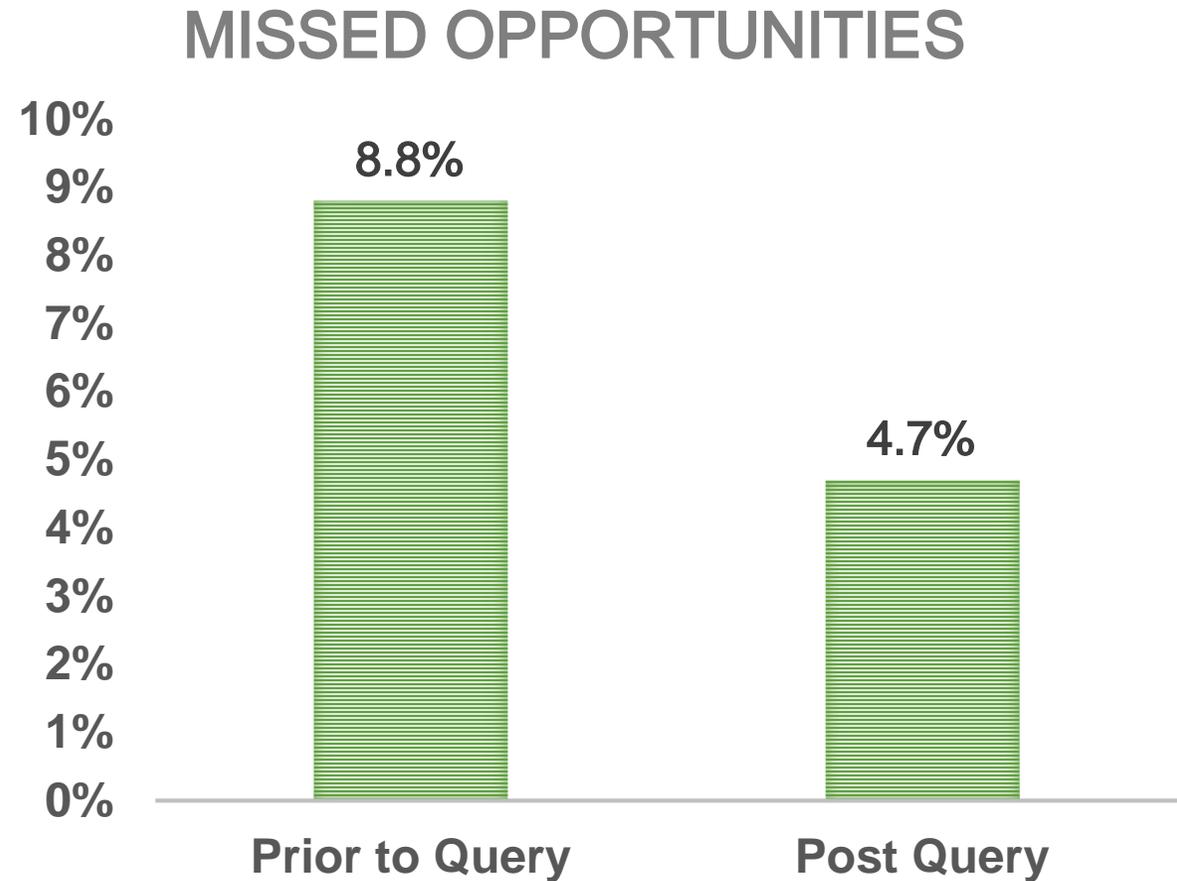
Value, cont.

- A 2016 study in Pediatrics demonstrated an increase in up-to-date status from 75% to 81.6% following implementation of EHR -IIS query.

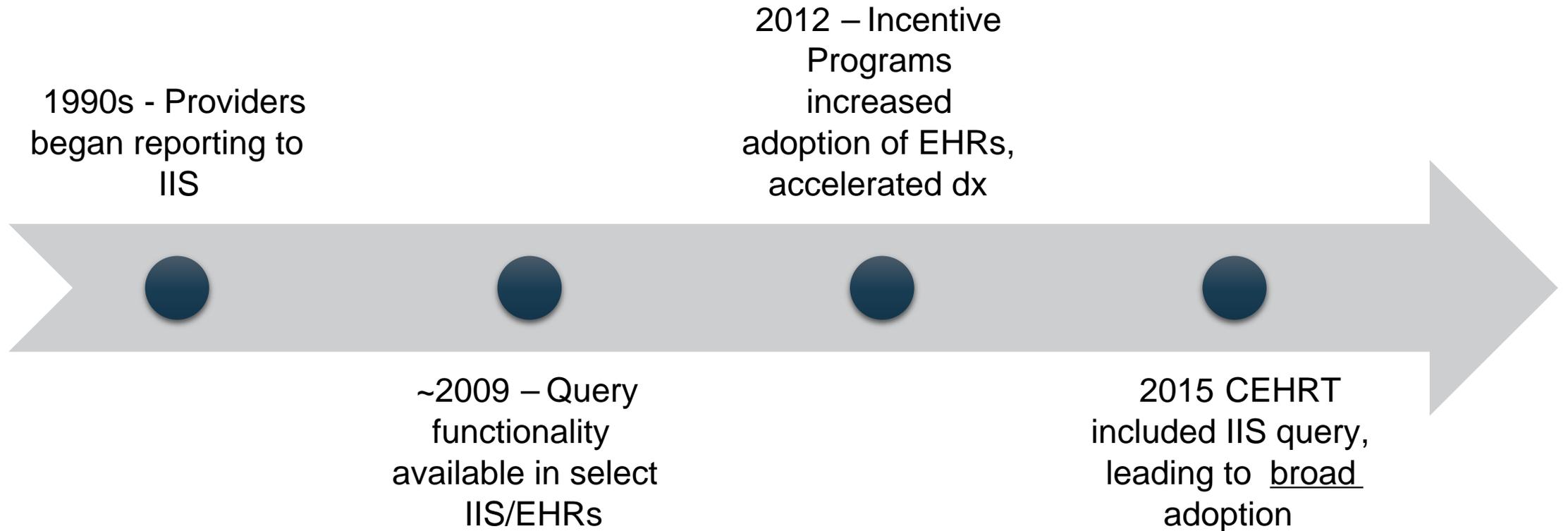


Value, cont.

- The same study showed a decrease in over-immunization from 8.8% to 4.7% following implementation of EHR -IIS query.

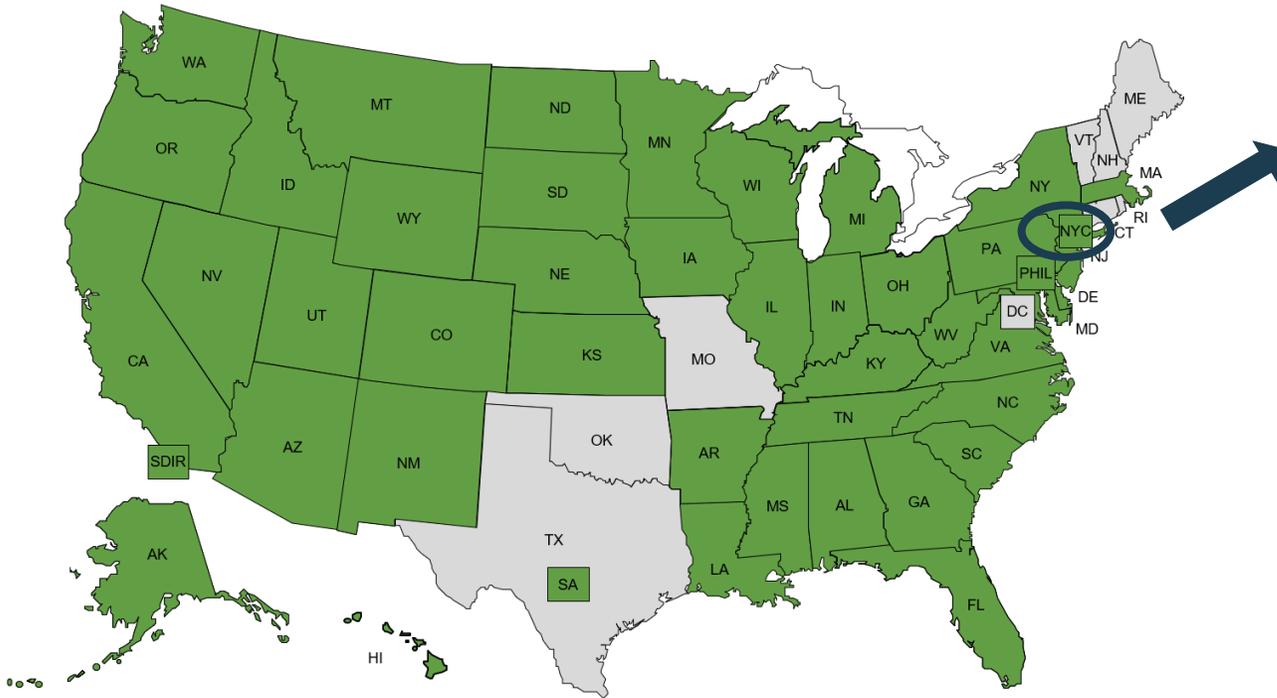


EHR-IIS Query Adoption



Where is EHR-IIS Query Happening?

- EHR-IIS query is available in the majority of IIS jurisdictions nationwide



In New York City alone (population 8.5 million):

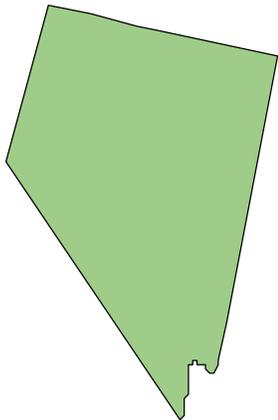
- 1,314 clinic sites querying
- Currently receiving 2.2 million queries per month
 - Clinics: 1.8 million/month (82%)
 - Schools: 400,000/month (18%)

IIS Annual Report Data, 2016; NYC CIR Data, April, 2018

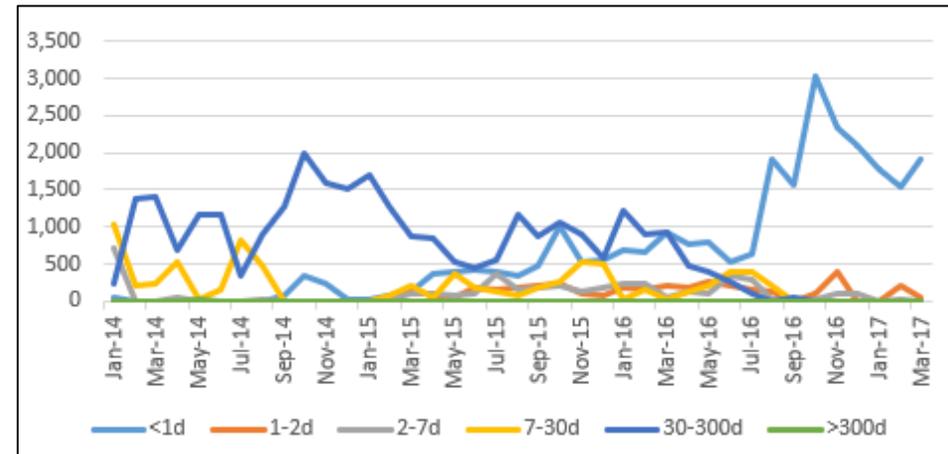


Additional Success Stories Shared by IIS

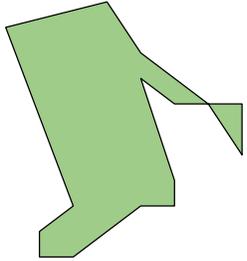
In Minnesota, public health staff used their IIS, MIIC, to respond to a measles outbreak, quickly assessing the immunity of exposures and case contacts. A cost analysis following the outbreak estimated using MIIC yielded time savings of 1147 hours and cost savings of \$38,000.



Nevada documented improved timeliness of reporting, fueled by interoperability supported by incentive programs.



Additional Success Stories Shared by IIS

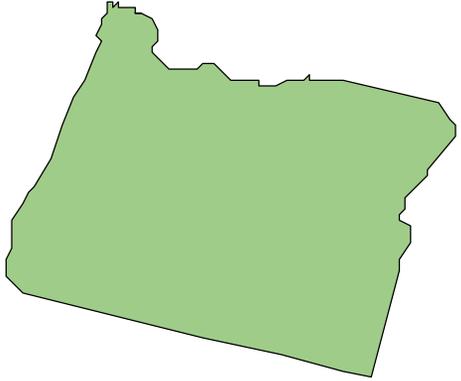


In Rhode Island, as data became more complete, the school nurses now use the IIS almost exclusively to monitor compliance with school immunization requirements – reducing the frequency of contacts with provider offices for the information.

In Wisconsin, increases in data completeness as a result of Meaningful Use make it possible to conduct studies that further the mission of protecting communities from vaccine preventable disease. The Wisconsin Division of Public Health recently published an article comparing waning immunity across Tdap brands.



Additional Success Stories Shared by IIS



During a meningococcal outbreak on a large university campus in Oregon in 2017, the complete and accurate data in the statewide IIS was critical in helping to identify vulnerable populations that needed to be immunized during a mass vaccination clinic.

New York City's Department of Health and Mental Hygiene, Bureau of Immunizations, published a paper about IIS data quality improvements due to HL7 reporting incentivized by Meaningful Use. The results of this study showed that data reported through the HL7 web service from EHRs were overall more complete and timely than data reported through other methods.



AIRA's Measurement and Improvement Initiative is helping ensure IIS meet standards

Stages

Content
Area

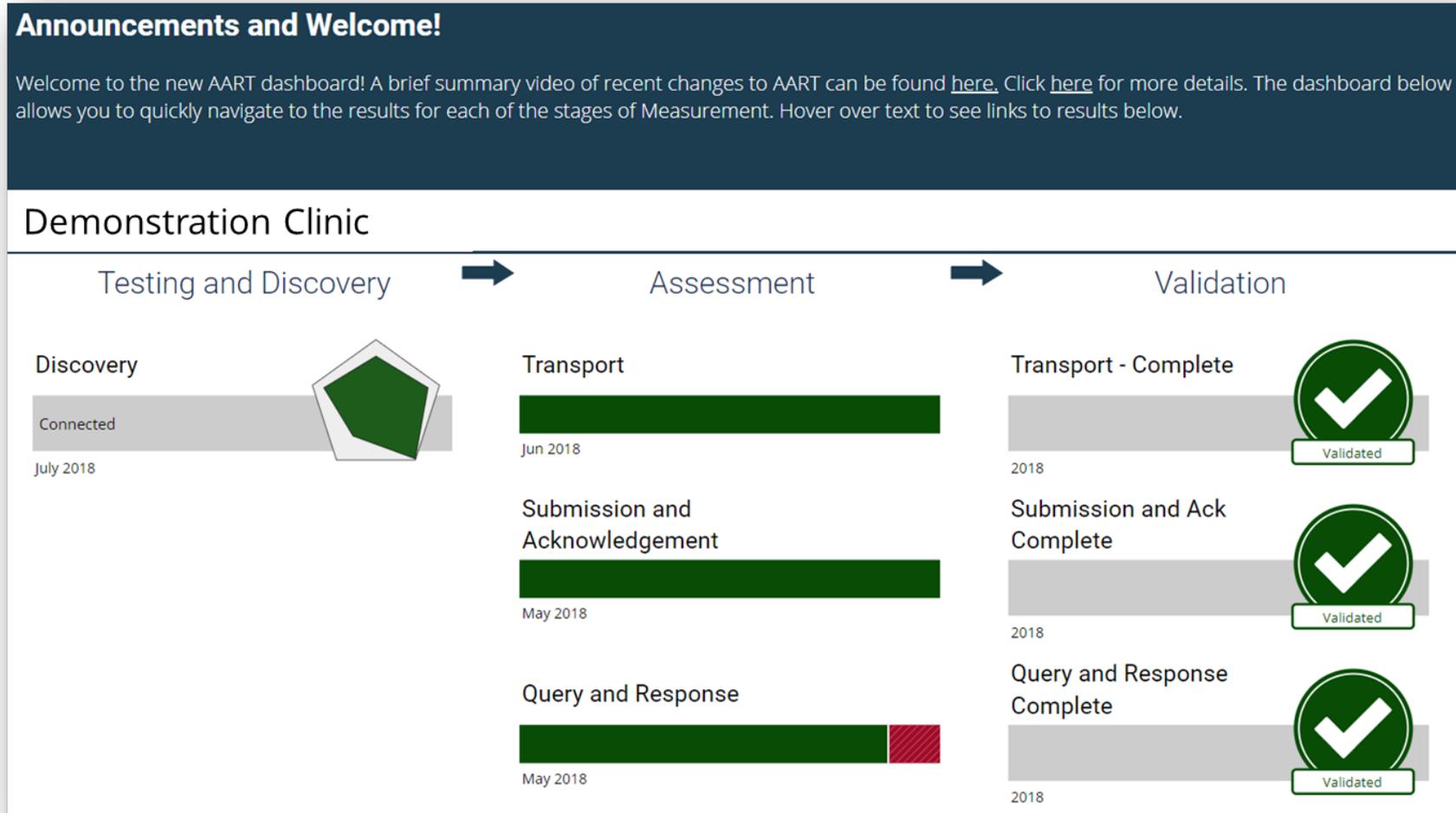
	Testing and Discovery Stage	Assessment Stage	Validation Stage
Transport	→		
Submission/ACK	→		
Query/Response	→		
CDS	→		
Data Quality (6)	→		
Functions			
Policy			
Security			



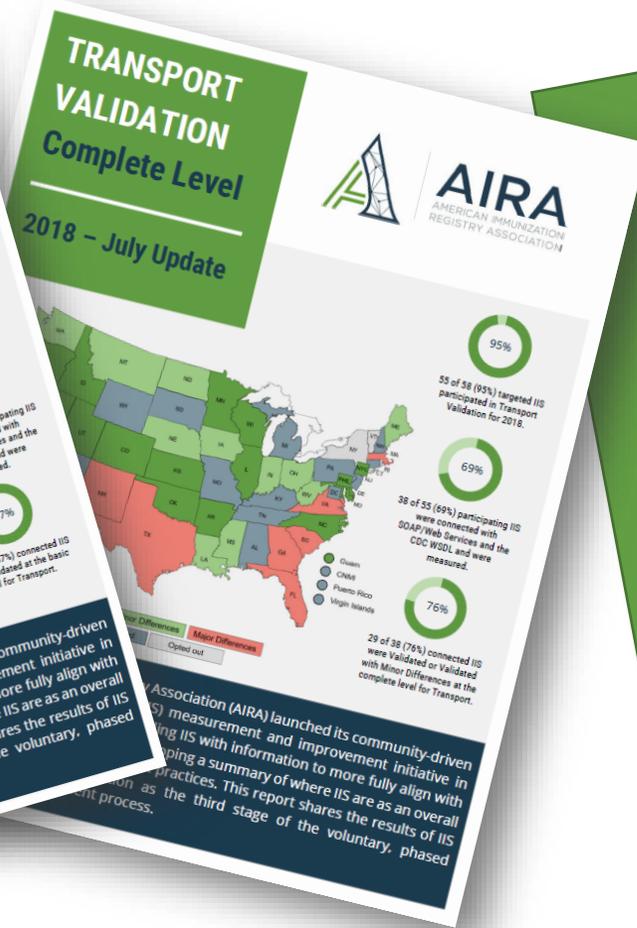
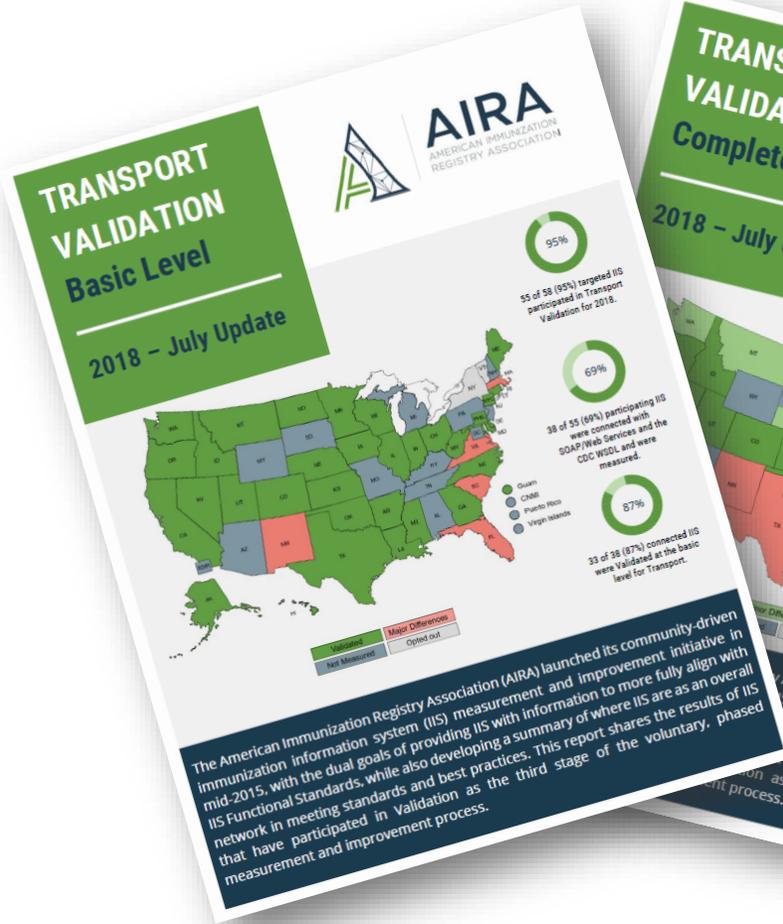
What happens at each stage?



The Aggregate Analysis Reporting Tool (AART) Dashboard



Validation Reports

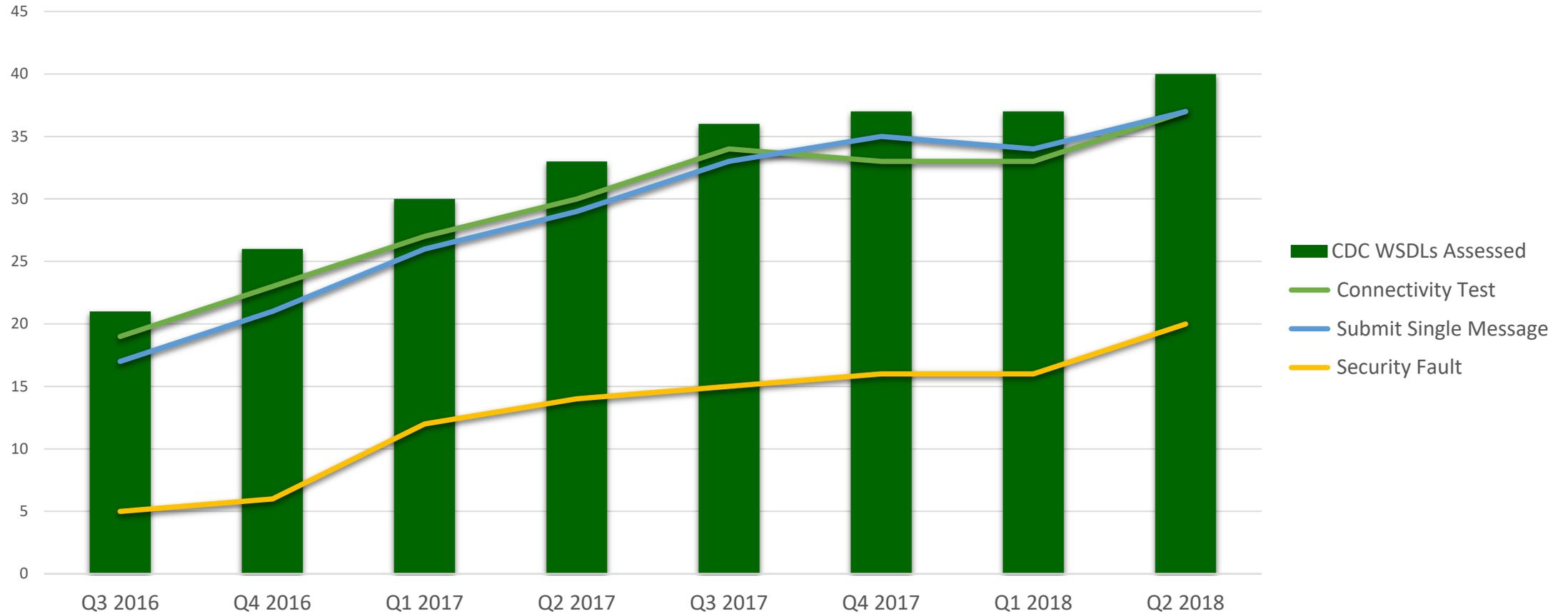


SUBMISSION AND ACKNOWLEDGEMENT VALIDATION
COMING SOON!

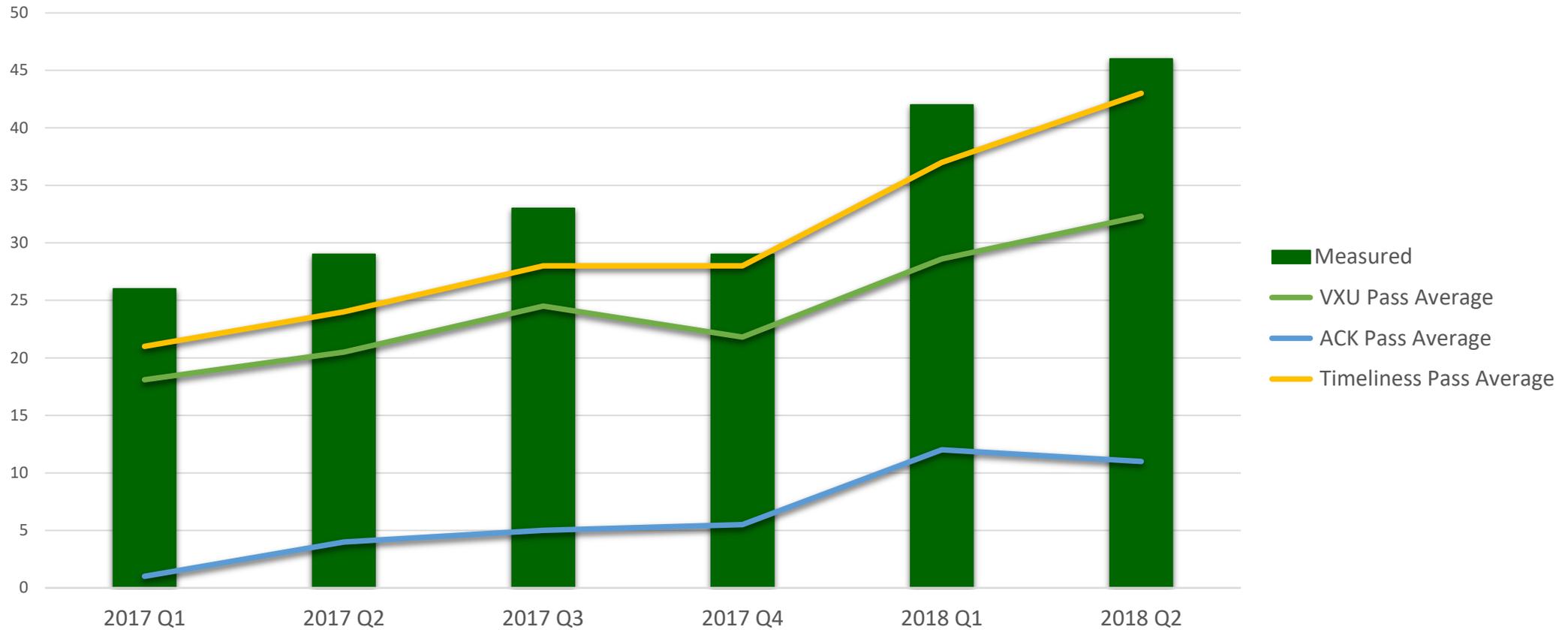
QUERY AND RESPONSE VALIDATION
COMING SOON!



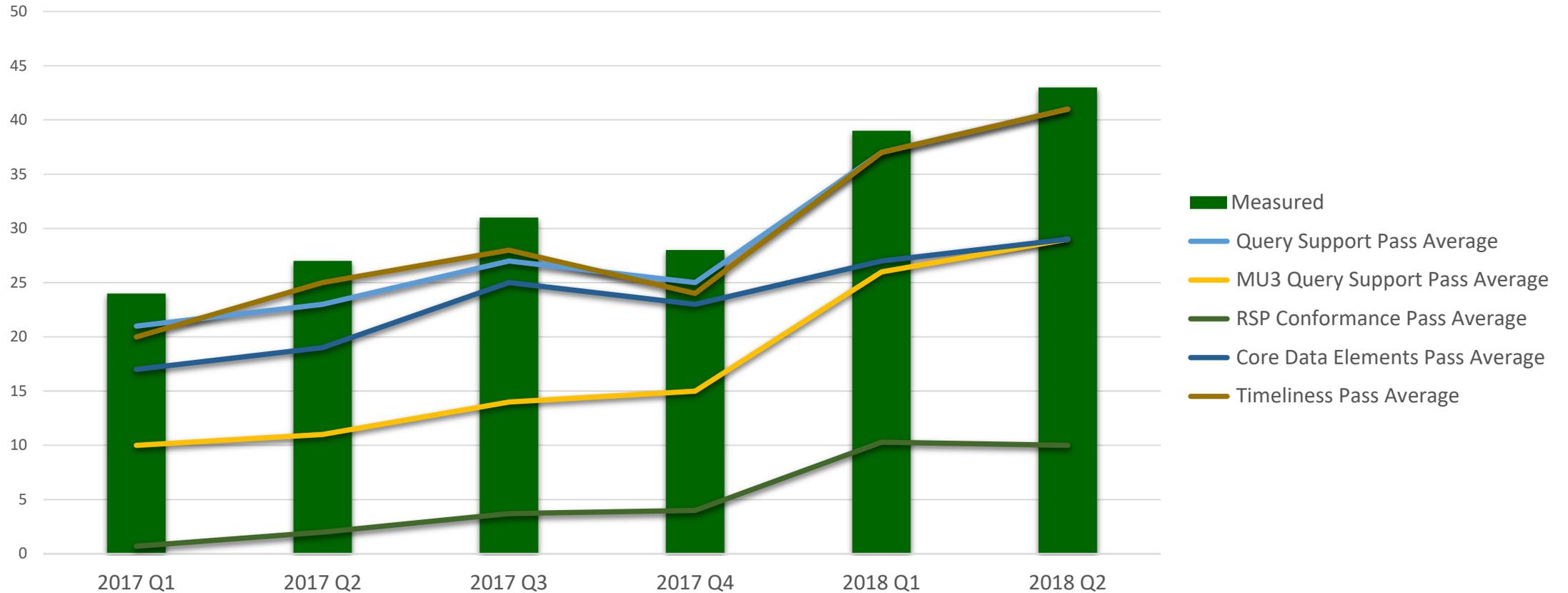
Results: Transport



Results: Submission and Acknowledgement



Results: Query and Response





What Does This Mean for Providers?

- Accurate and complete immunization data, at the point of care, queried and available through their EHR
 - Consolidated record
 - Forecast of immunizations due





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North Dakota

Mary Woinarowicz, MA
NDIIS Manager

NDIIS Background

- The North Dakota Immunization Information System (NDIIS) is a confidential, population based, computerized information system that attempts to collect vaccination data for all North Dakotans.
 - Lifespan system that includes infants, children, adolescents and adults
- Established in 1988
- The NDIIS is a grantee-developed (i.e. homegrown) IIS.
 - The North Dakota Department of Health (NDDoH) contracted with Noridian Mutual Insurance Company (NMIC), formally Blue Cross/Blue Shield of North Dakota (BCBSND), in 1996 to develop the current web-based system.
 - The NDIIS is still currently hosted and supported by NMIC.
- ND Century Code requires North Dakota providers enter all childhood (18 years of age and younger) immunizations into the NDIIS within 4 weeks of administration.
- 99.5% of immunization data is entered into the NDIIS within 30 days of administration.
 - 89.4% is entered within one day.



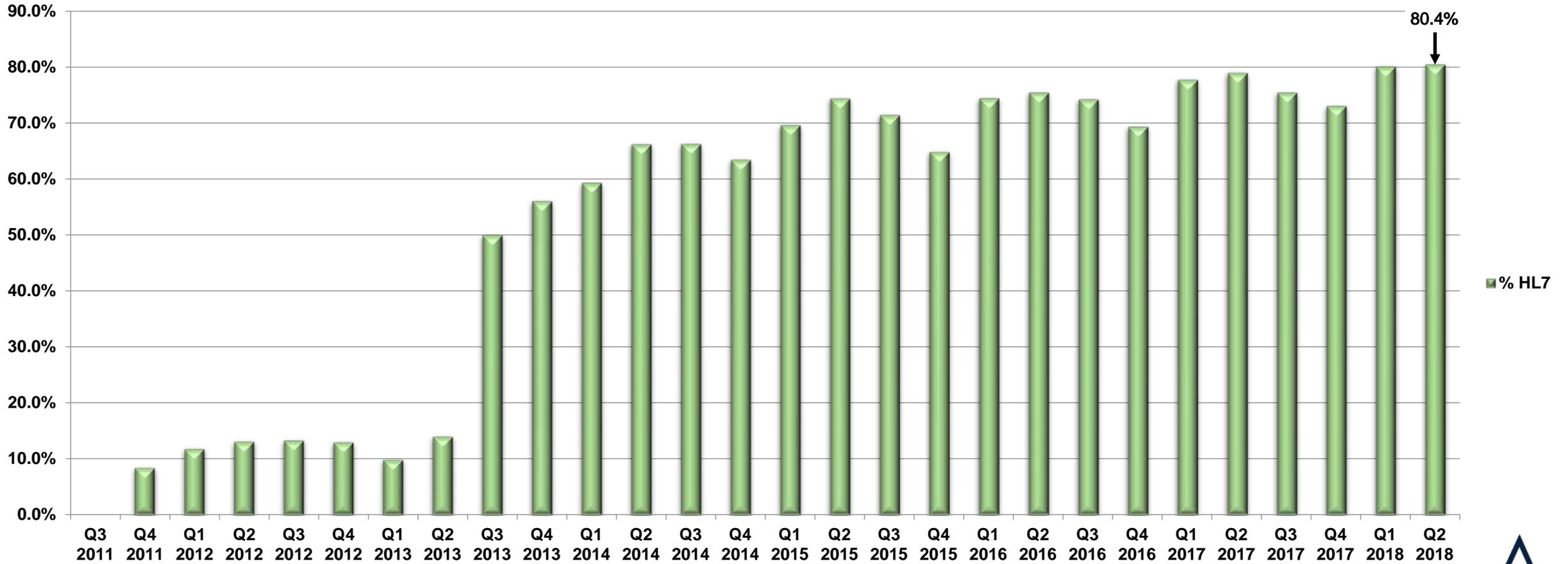
Interoperability Overview

- As of August 2018, the NDIIS is interoperable with 345 individual provider locations, the North Dakota Health Information Network (NDHIN) and the ND Department of Health disease surveillance system (MAVEN).
 - 267 providers are connected to the NDIIS via the NDHIN
 - 59 providers are submitting real-time, VXU only
 - 32 providers are submitting flat files
 - 254 are real-time, fully bi-directional
- The NDIIS supports SOAP web services transport for all direct connections.
- The NDIIS currently supports HL7 versions 2.3.1, 2.5.1 release 1.4 and 2.5.1 release 1.5.
 - North Dakota is sunsetting support for 2.3.1 and we are actively working with our providers to upgrade their interfaces to 2.5.1 release 1.5.



Interoperability Overview

% of doses added to NDIIIS electronically



Bi-directional Exchange

- EHR not supporting query (QBP)/response (RSP) is a challenge for providers and IIS.
 - End users still needed to go into the NDIIS to look-up historical immunizations.
 - End users are having to enter all NDIIS historical doses in to their EHR system.
 - Takes additional time for the end user.
 - Creates duplicate doses in NDIIS.
 - EHR uses their own CDSi (forecaster) instead of NDIIS forecasting information being returned after EHR query.
 - EHR system forecaster may be out of sync with NDIIS forecaster due to new, updated and/or changing recommendations.



Bi-directional Exchange

- Implementing QBP/RSP messaging saves time and money
 - End users no longer have to leave their EHR system to find their patient's immunization history.
 - Displaying and consuming the IIS immunization history reduces more data entry for the healthcare provider.
 - Using the same CDSi from the IIS that all other providers in the state use ensures the same immunization schedule is being followed.
 - Ensures continuity of immunization requirements being updated in the CDSi.
 - Implementing both QBP and VXU messages at the same time shortens the on-boarding and testing period which saves EHR, provider and IIS resources.



NDIIS/HIE Partnership

- North Dakota has one, statewide health information exchange (HIE).
- Both projects had a shared interest in the other's success.
 - NDIIS interest in the NDHIN:
 - NDIIS team wanted to be able to rely on the NDHIN and their resources for project sustainability.
 - Cost savings for the NDIIS team not having to pay for licenses for VPN connections.
 - NDHIN interest in NDIIS:
 - NDHIN wanted to use the NDIIS connection to recruit providers.
 - Providers wanting to exchange immunization information to meet Meaningful Use could do this easily through their connection to the NDHIN.
 - ❖ The needs of the NDIIS project were written into the RFP for HIE vendors.
- There was representation from each project on the other's team to make sure the interests of each were communicated and addressed at every stage.



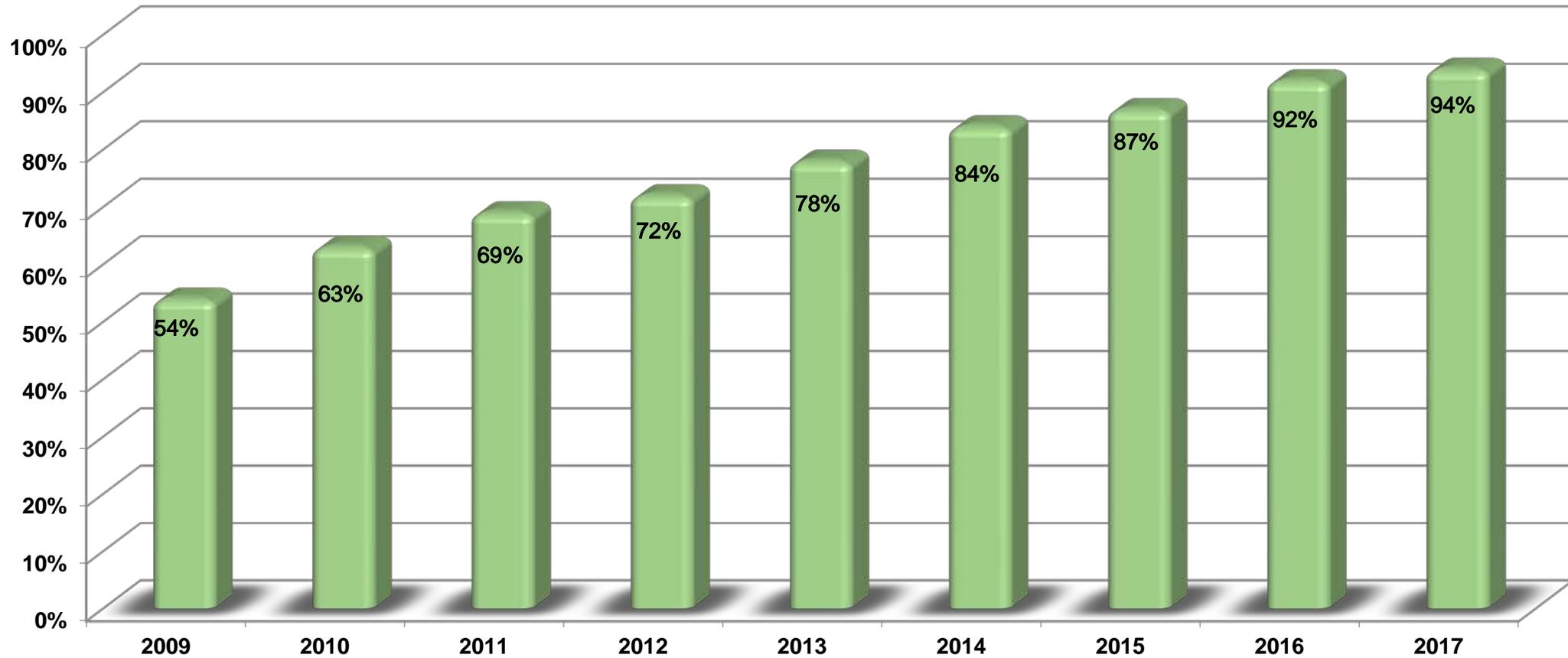
NDIIS/HIE Partnership

- NDHIN acts as a pass-through for immunization messages.
- NDHIN has query capabilities built in for HIE direct users.
 - Users who log directly in to the NDHIN user interface can query the NDIIS for patient immunization information without having to log in to the NDIIS separately.
- Each team knows and fully understands the on-boarding process of the other project.
- Providers connecting to the NDHIN are not referred to the NDIIS team until their HIE participation agreement is signed and their test connection is up and running.
- The NDHIN supports both VPN and SOAP connections and offers a single point of connection.
- ❖ An established connection to the NDHIN makes it easier for providers and their EHR vendors to exchange other health data (i.e. electronic lab reporting, syndromic surveillance, ADT, etc.) without additional connectivity work or maintenance.



Adult Data Entry

Percent of adults 19 years of age and older with at least one adult administered dose of vaccine in the NDIIS



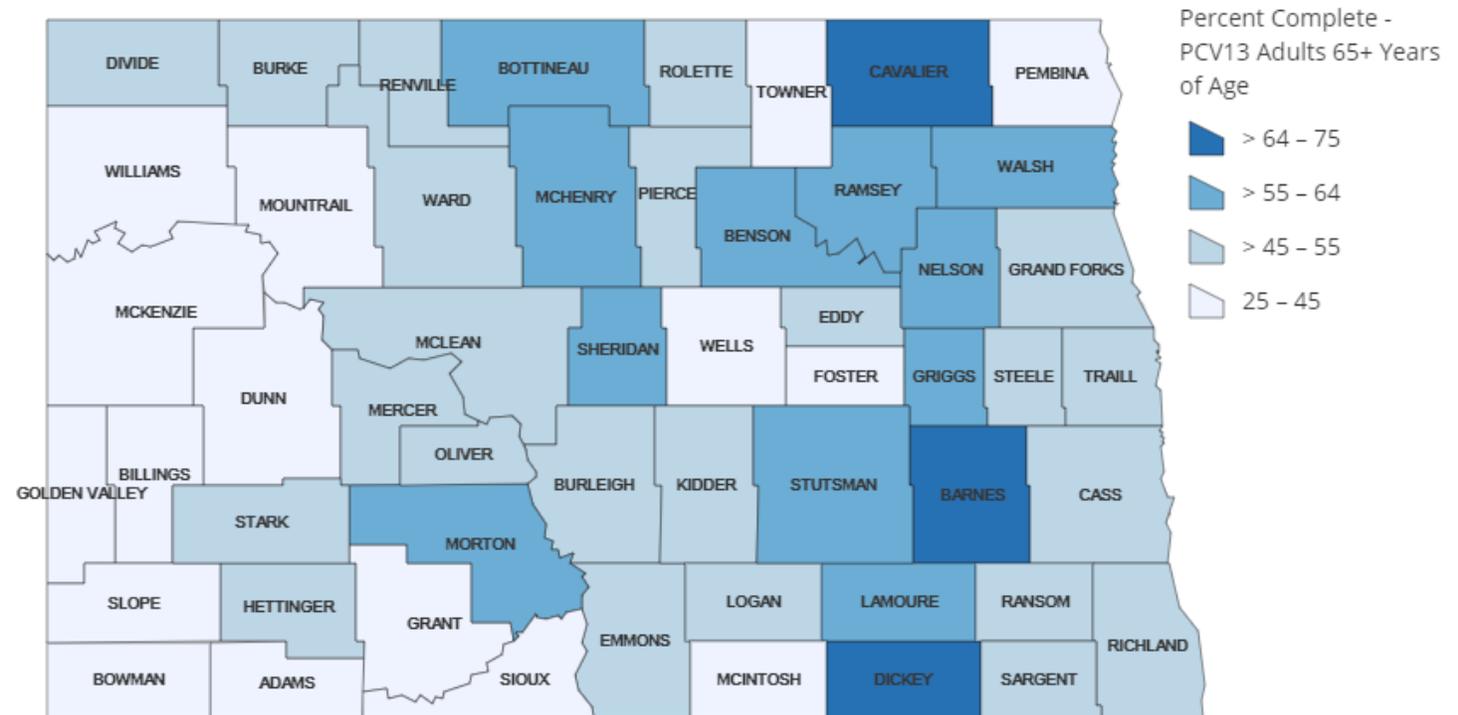
Adult Data Entry

- Prior to interoperability, ND providers would prioritize data entry in the NDIIS for pediatric immunizations.
 - There is no mandate for reporting adult immunizations in North Dakota.
- Adult data was primarily entered by local public health and primary healthcare providers and only happened during slower times of the year.
 - Adult data was rarely entered by pharmacies and was almost never entered during flu season because of the large increase in pediatric doses that needed to be entered.
- Providers who become interoperable with the NDIIS don't need to do dual data entry and can easily send all immunizations entered.
- Public health reporting incentives that target adult immunizers, like pharmacies and local public health, motivate those providers to connect to their IIS.



Adult Data Entry

- Benefits of robust adult data in IIS:
 - Run real-time adult immunization coverage using IIS data
 - Conduct centralized adult immunization reminder-recall
 - Conduct adult AFIX assessments for North Dakota providers
 - North Dakota providers were not receiving reimbursement from insurance companies for adult immunizations because the adult had already received the vaccine but the provider had no record.
 - Adults can find record of immunizations received.





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HIE's impact on Michigan's IIS Michigan Care Improvement Registry (MCIR)

Tina Scott, Section Manager
Michigan Care Improvement Registry

Michigan - In the Beginning....

2006

- 200 Stakeholders - Medicaid and Public Health - At the Table
- Output: *Conduit of Care: Guide to Statewide health information exchange*
- **PUBLIC HEALTH REPORTING** ID'd as **KEY DRIVER** to HIE Adoption

Cricket's ... until 2009/2010 ... FUNDING

- ARRA – February 17, 2009
- State Medicaid HIT Plan (SMHP) - 2010
- Medicaid's Health Information Technology Advance Planning Document (HIT APD) - 2010



Michigan Public Health Use Cases

Public Health Reporting

- **MCIR – VXU - Receive Immunizations via HIE – 2012**
 - **Corporate Pharmacy Immunization submissions to MCIR – 2013**
- **MDSS**– Receive Electronic Reportable Labs – 2012
 - Content edits to message for the inclusion of Blood Lead - 2016
- **MSSS**– Receive Syndromic messages – 2013
- **Cancer Registry** - Receive Cancer Case Report Information -2014
 - Cancer Pathology Reportable Labs 2016
- **Birth Defects Registry** – Birth Defects Case Report
 - Approve by HL7 in 2014, implementation 2018-2019
- **Newborn Screening Messaging Package**
 - Critical Congenital Heart Defect -2015
 - Hearing – 2017
 - Lab Orders / Lab Results - Bloodspot - 2018

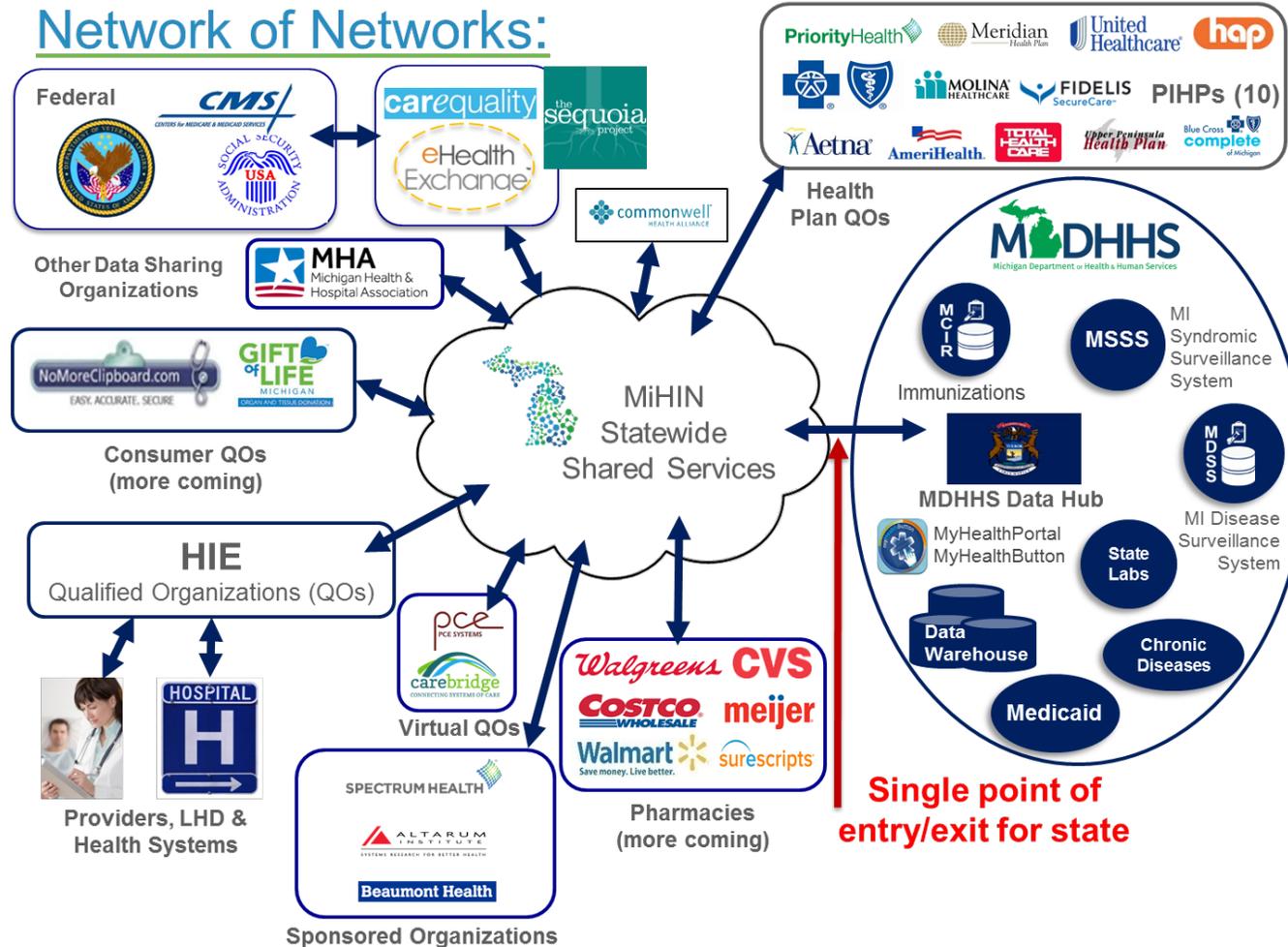


Query

- **MCIR Query Forecast / Query History – Providers in 2015, Consumers in 2018**
- Blood Lead Query for test results - 2019

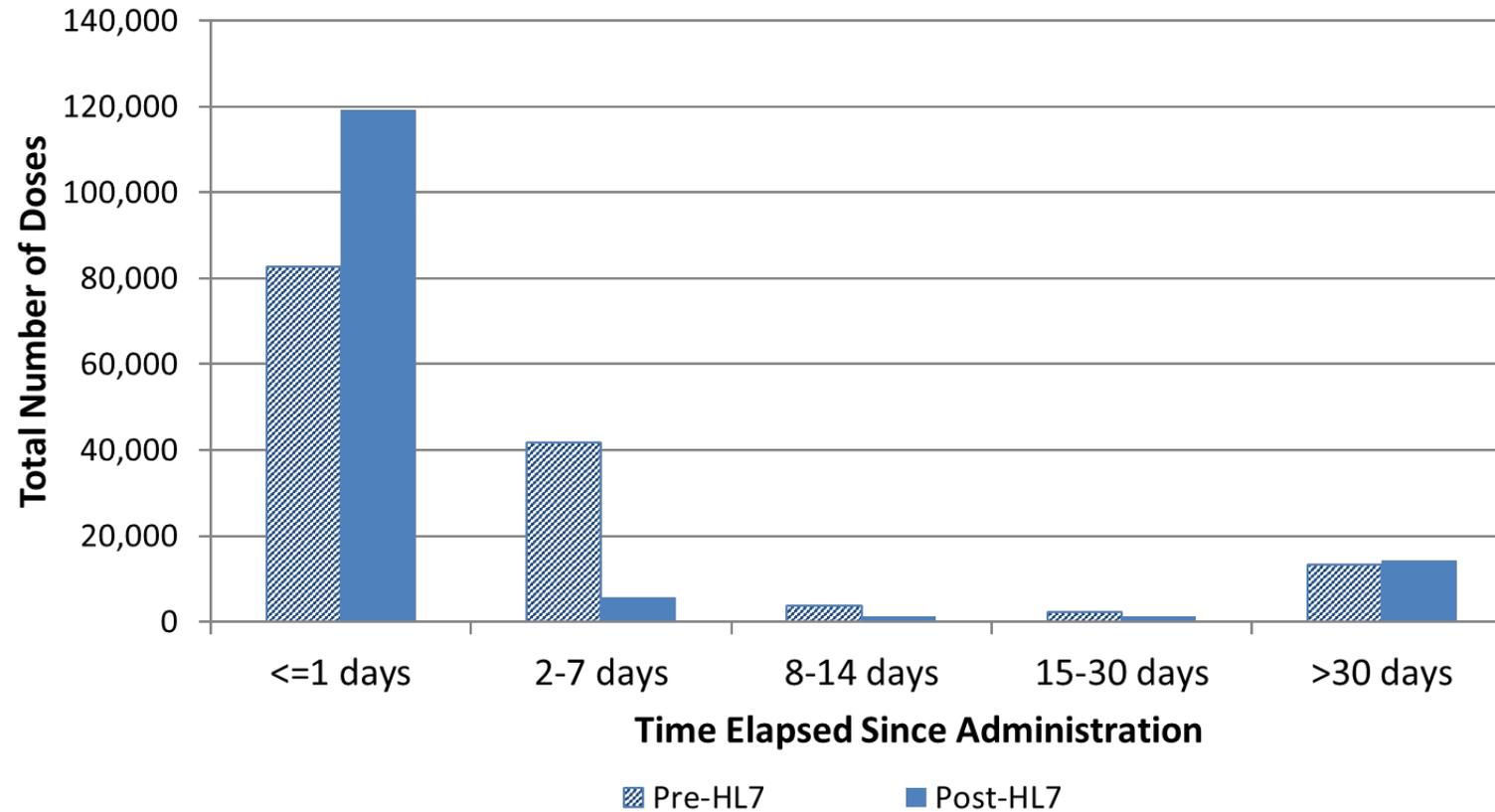


Michigan Health Information Exchange (HIE)



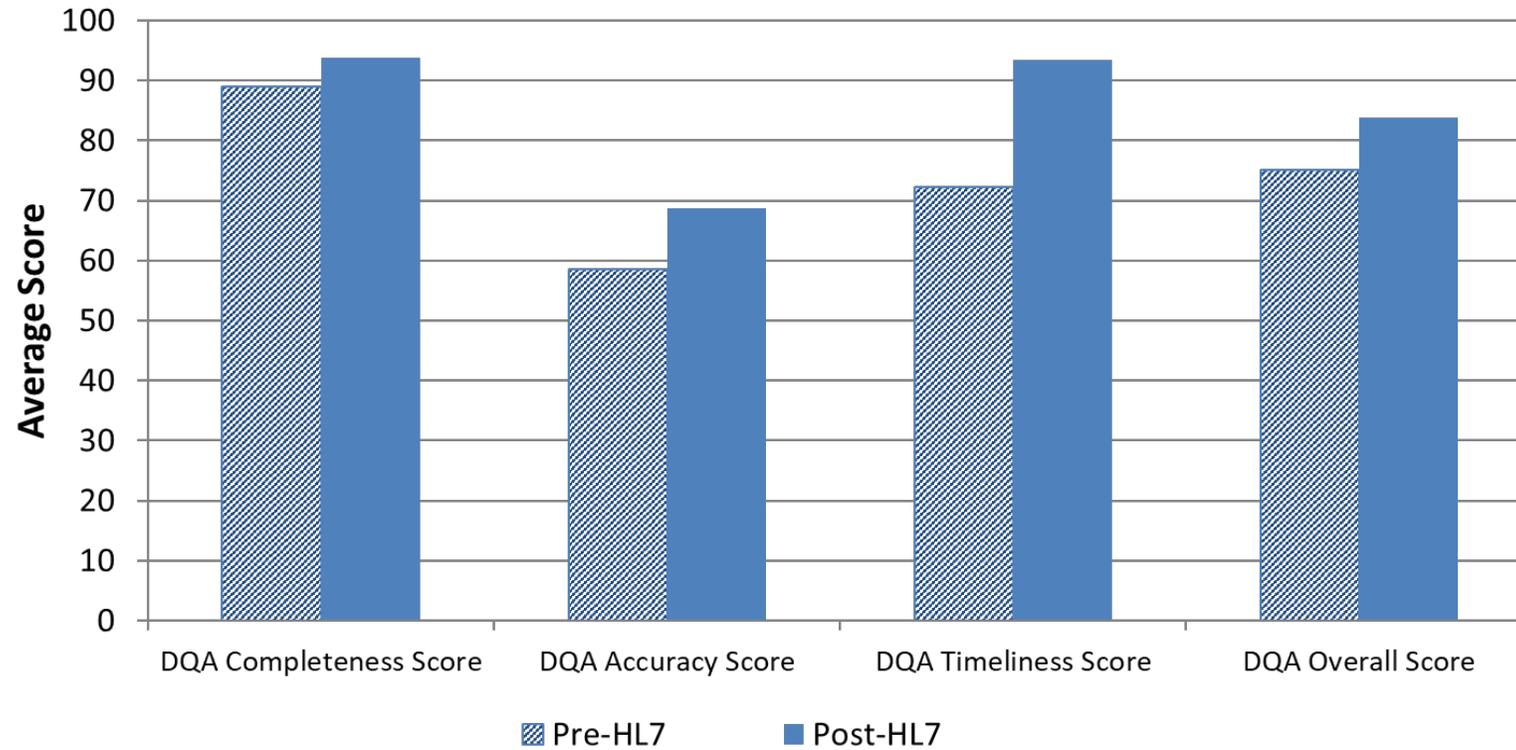
MCIR– Data Quality review 2014

**Total Number of Doses by Time Elapsed
Target List Sites
(n = 200)**



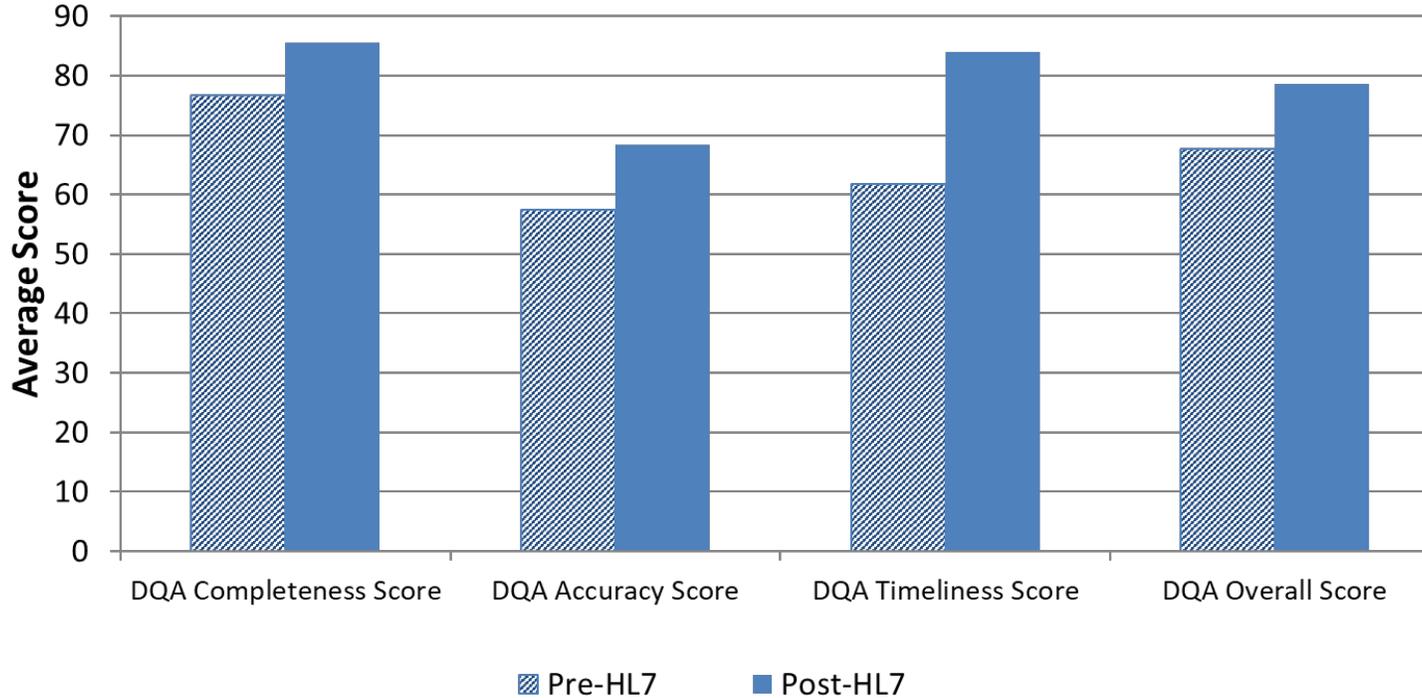
MCIR– Data Quality review 2014

**Average DQA Scores for Patients <= 18
Target List Sites
(n = 200)**

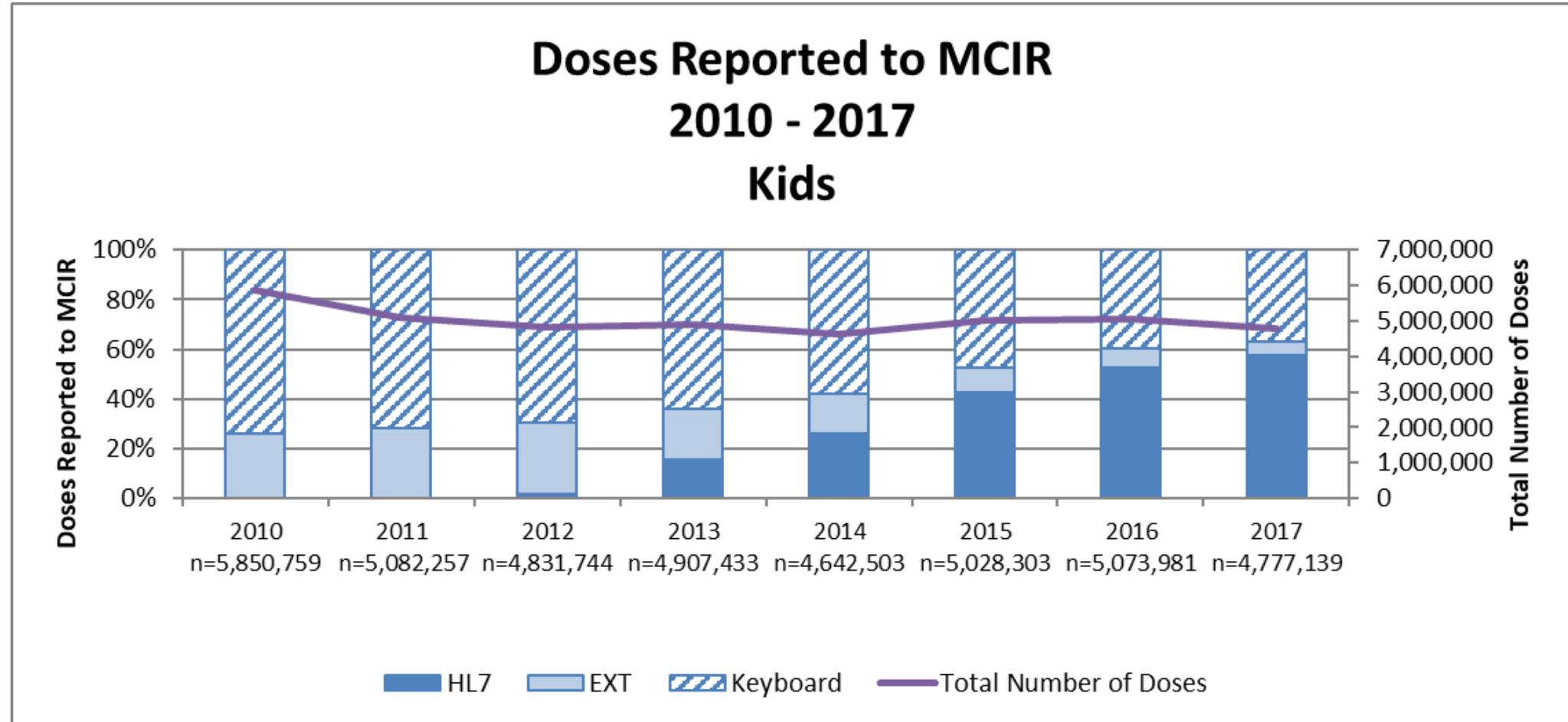


MCIR– Data Quality review2014

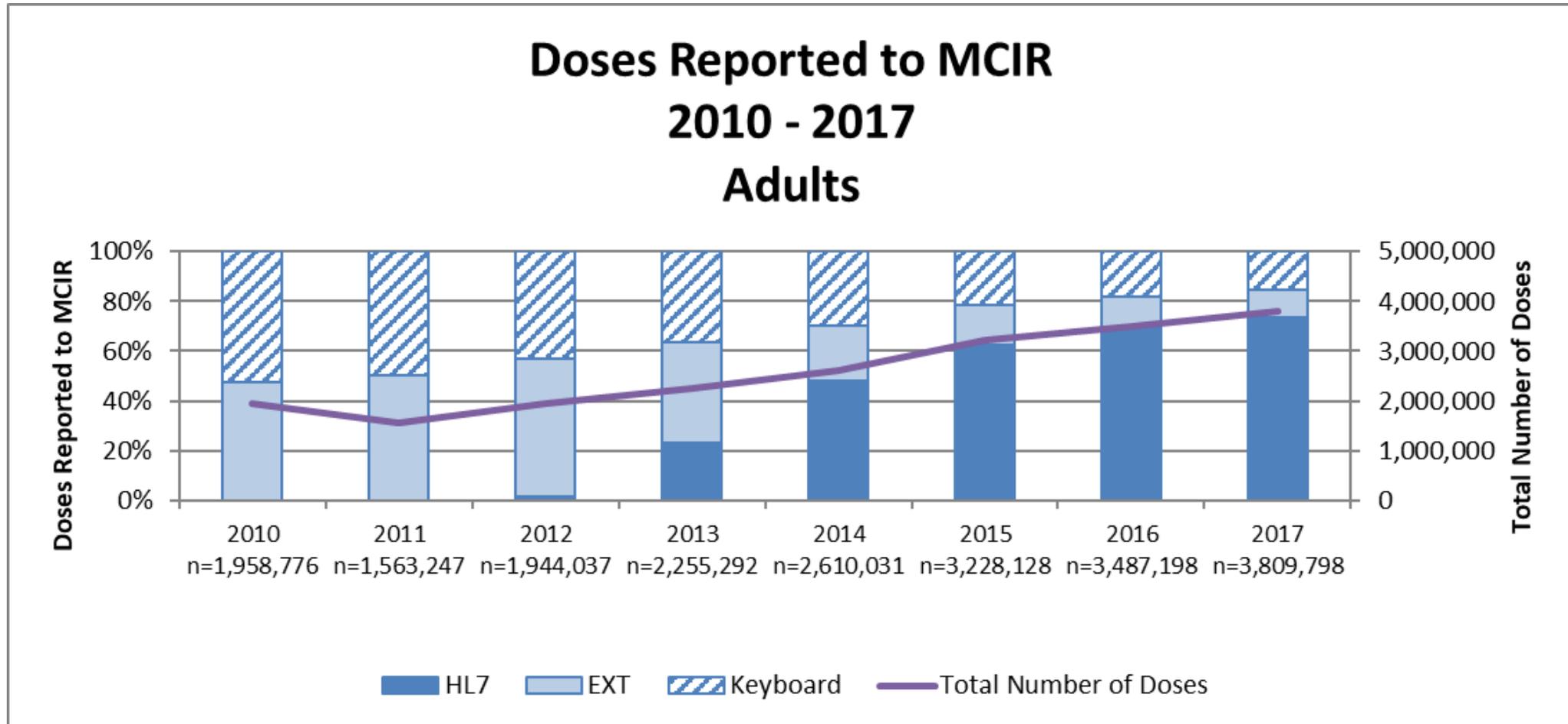
**Average DQA Scores for Patients > 18
Target List Sites
(n = 200)**



MCIR– HL7 transition 2010 to 2017



MCIR– HL7 impact on Adult data



MCIR– Query Forecast/History

Live in 2015 for Providers

- 2015 - 29 provider sites
- 2016 - 439 provider sites
- 2017 – 935 total sites
- **2018 current # - 1,900 sites and growing**

First Quarter CY18 average = 1.4 million queries per month

New in 2018 – Consumer Access via Query

- Medicaid Beneficiaries via myHealthButton/myHealthPortal – March 2018
- **August 2018 – Pilot** - Parents query for child’s record via secure School Portal



MCIR– What's next?

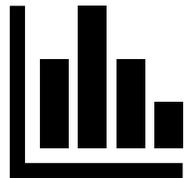
- **Add more Michigan Tribal HL7 reporting of IMMS**
- **Consumer Access via Query - MORE**
 - Partnerships with other health care organizations for patient portals to query MCIR
- **State-to-State (Registry to Registry) transmission and/or query of Immunization records**
 - North Dakota – temporary worker migrations (oil fields)
 - Wisconsin or other border states
- Discussions with Federal **Refugee Services** on receipt of Refugee vaccine information
- **PUSH – HEDIS Measures** – work with Medicaid Health Plans so they automatically receive new IMMS information for their patient lists



In Conclusion



Incentive programs have directly improved the quality and quantity of data contained within IIS



This has strengthened IIS as important analytic tools that support a wealth of population health needs



Providers can access these data seamlessly through EHR query at the point of care, supporting clinical decisions and ensuring appropriate immunization



Acknowledgements

- Thank you to:
 - The IIS Community for sharing their successes and challenges
 - The AIRA Measurement for Assessment and Certification Advisory Workgroup (MACAW) Members for their work in measurement and improvement
 - All EHRs and IIS, and to our provider community, for doing the hard work to implement interoperability



Questions, Discussion? Thank you!

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