



AIR 2021

NATIONAL MEETING

AUG. 3-5, 2021 | PORTLAND, OREGON

Measurement & Improvement Impact and Outcomes

Today's Session

01

Introduction

Jim Daniel, Amazon Web Services

02

Overview of IIS Measurement and Improvement

Kevin Snow, Envision Technology Partners, Co-Chair, MACAW

03

The Impact of M&I, DAR and Data Quality

Eric Larson, Senior Technical Lead, AIRA

04

Future Directions, Validation Recognition

Mary Beth Kurilo, Senior Director of Health Informatics, AIRA

05

Questions and Discussion

All



Measurement & Improvement Overview

Kevin Snow, MACAW Co-Chair



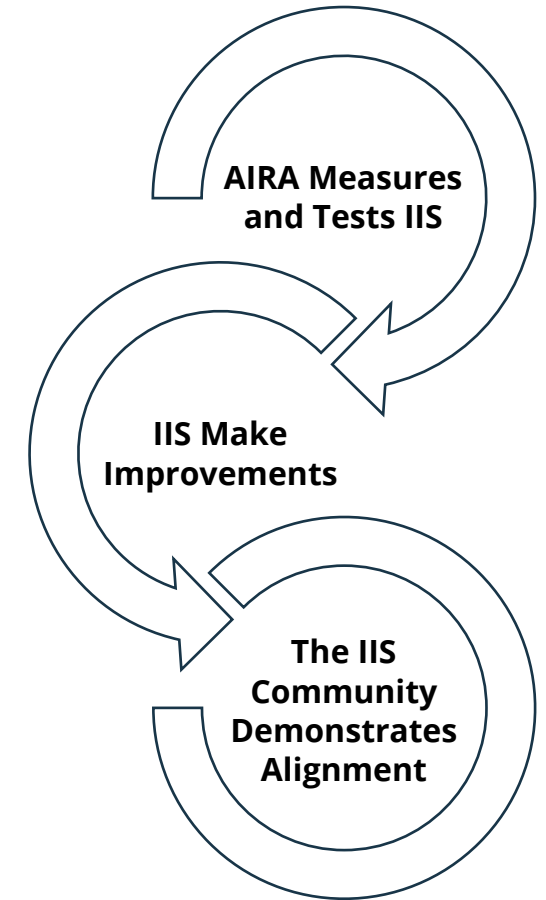
Measurement and Improvement Initiative – What is it?

The IIS Measurement and Improvement (M&I) Initiative began in 2015 in collaboration with CDC as an effort to:

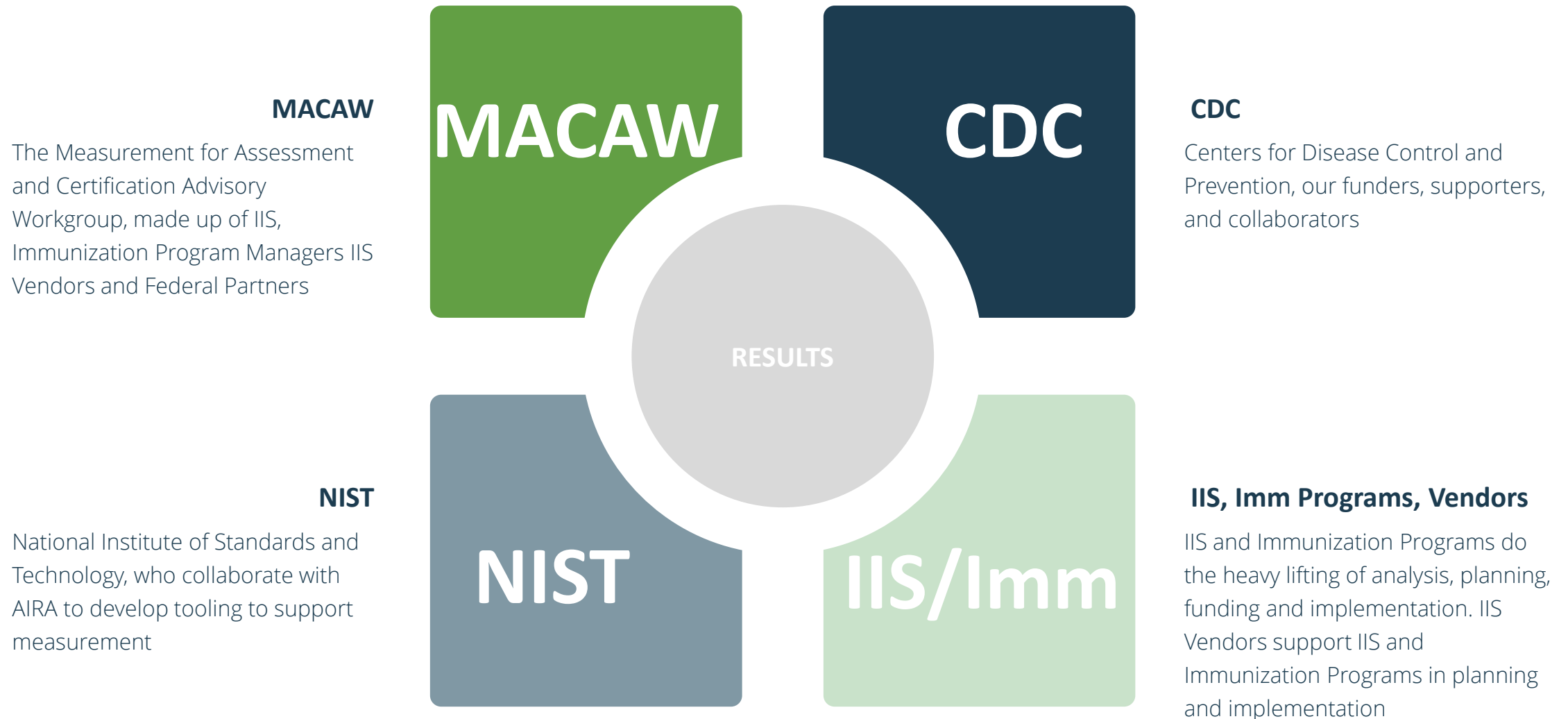
- Test IIS alignment with standards
- Provide IIS with info and assistance to improve

All testing is conducted by AIRA through:

- Connecting with pre-production systems
- Analyzing deidentified data



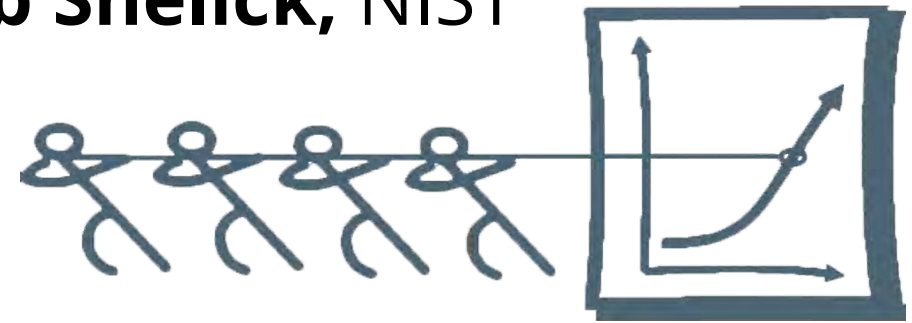
Who is Supporting This Process With AIRA?



MACAW Members

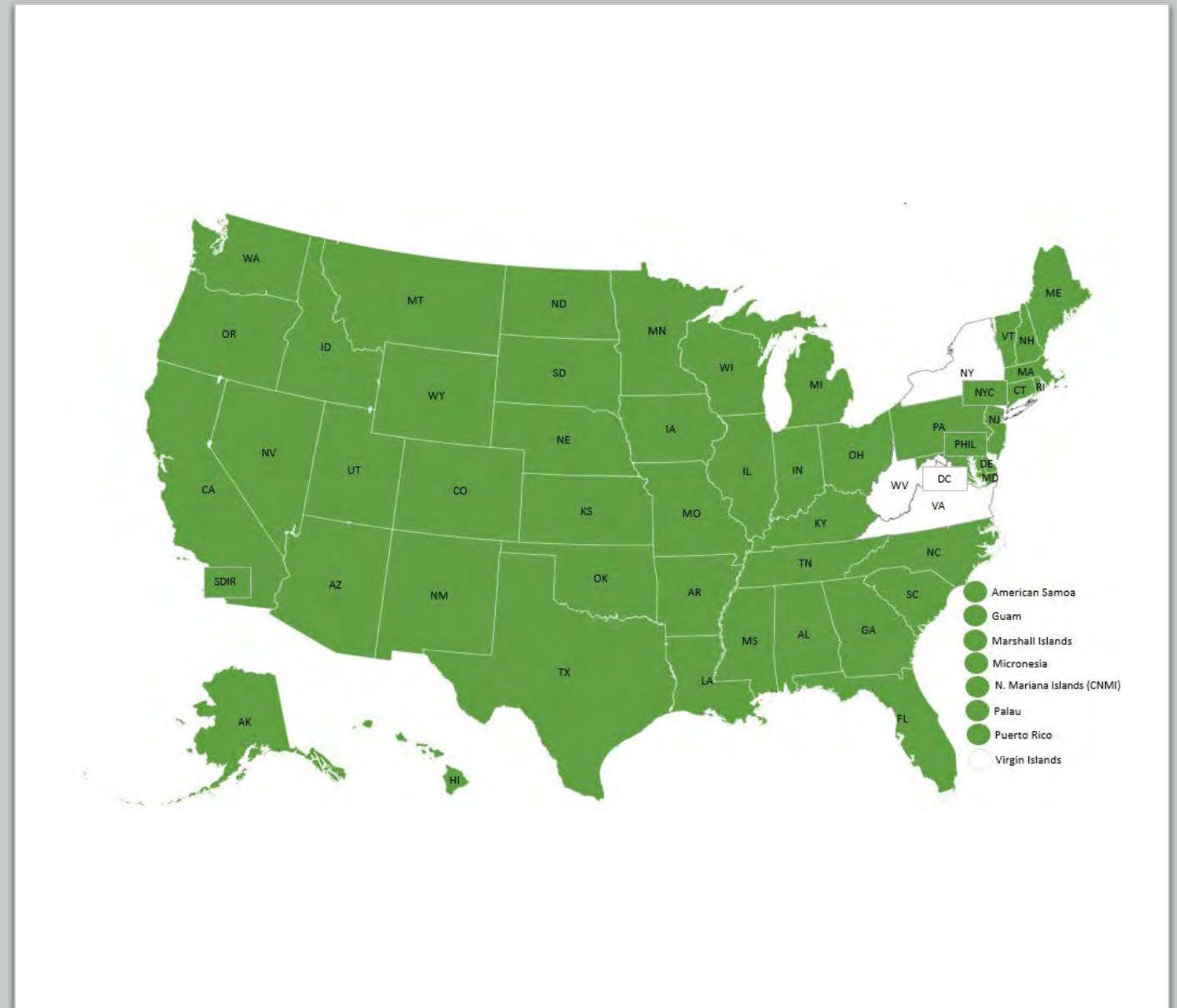
Kevin Snow, Envision (Co-Chair)
Valentin Shoshtarikj, AZ (Co-Chair)
Aaron Bieringer, MN
Shannon Coleman, STCHHealth
Jillian Doss-Walker, IHS
LaTreace Harris, CDC

Josh Hull, Kunz and Leigh
Dave McCormick, IN
Amy Metroka, NYC
John Robinson, PHIL
Eric Schuh, Gainwell
Rob Snelick, NIST

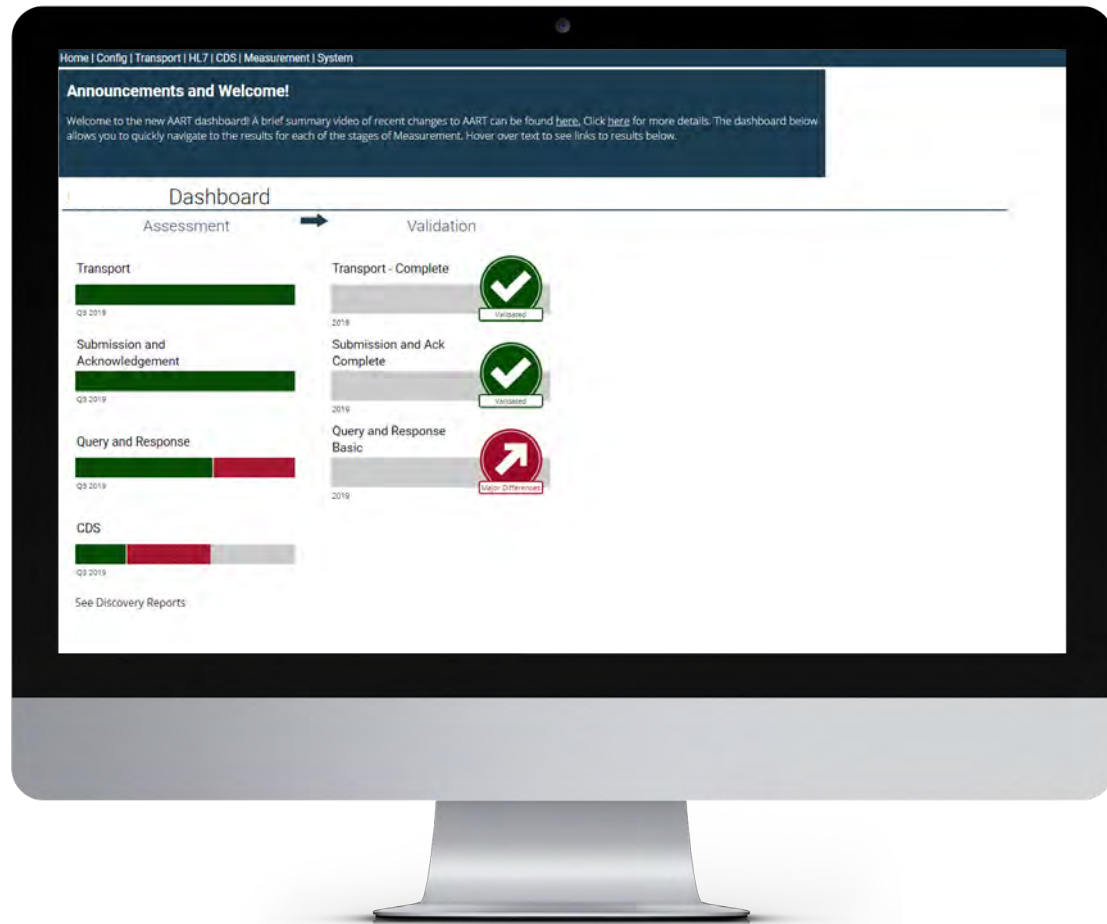


Thank You For Engaging With Us!

- Participation is strong and increasing
- Improvements in standardization across IIS are broadly recognized



The AART Dashboard – Gateway To Data



Click to drill down to:

- Measure results and information
- Test case outcomes – expected and actual
- Historical perspectives
- Results from your peers who have shared their data and information



Content Area

Transport

Submission/Acknowledgement

Query/Response

CDS

Data Quality Incoming/Ongoing

Data at Rest

Provider Participation

Patient Deduplication

Pre-Measurement

Testing & Discovery

Assessment

Validation



2021

2023



2022



M&I: The Impact

Eric Larson

The Impact of M&I at the Point of Care: The patient-provider experience

It's time for a patient's annual exam.



They arrive at the doctor's office and are shown to the exam room.



While they are waiting, the physician prepares for the visit.



The physician accesses the EHR and searches for the patient's record.

EHR-IIS Interface

This provider has an interface between their EHR and IIS

This allows the patient's doctor to query the IIS for more information

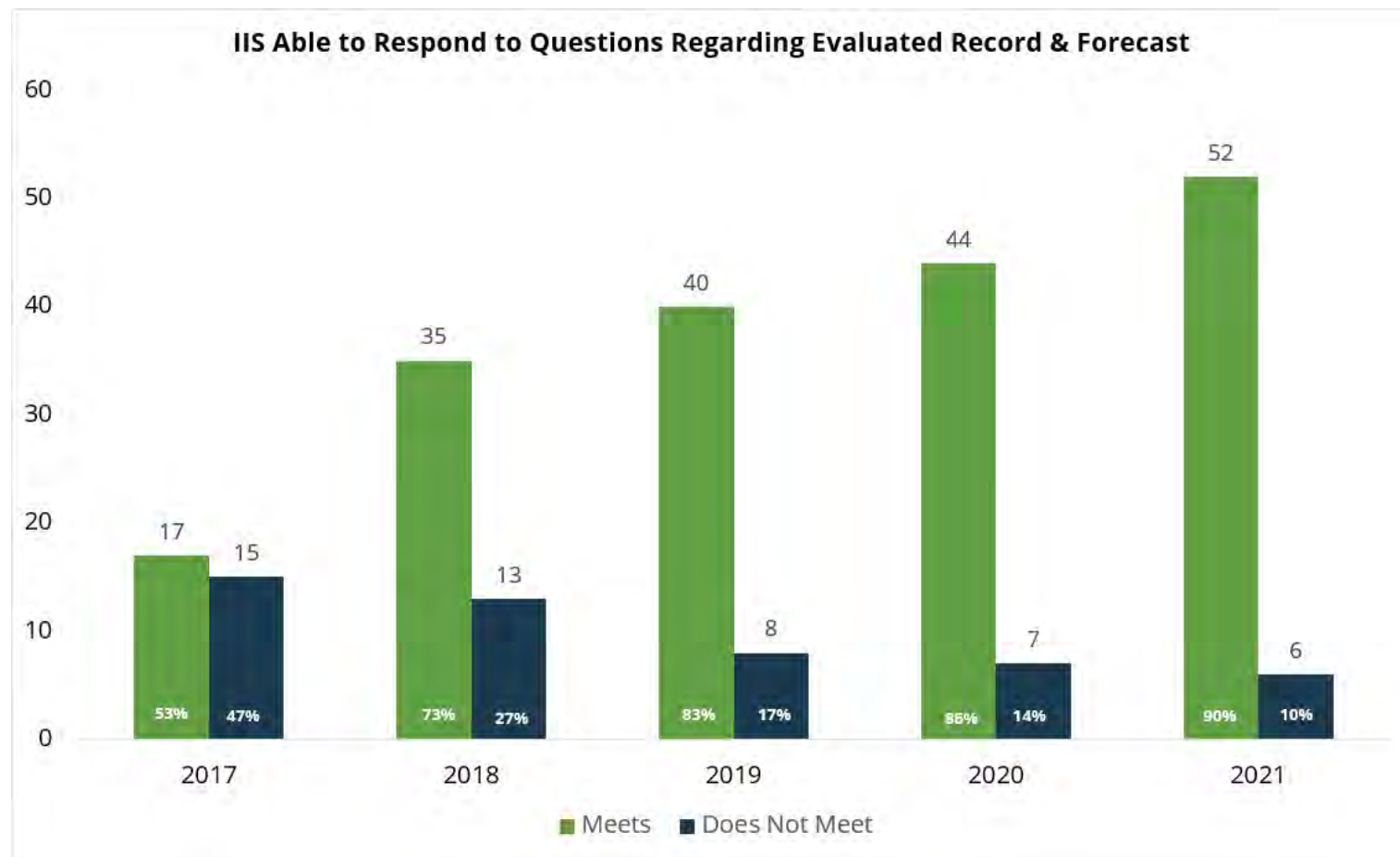


What
information
can be
messed
between an
EHR & IIS?

- Providers can find answers to questions like this:
 - Do you know this patient?
 - What vaccines has this patient received in the past?
 - When were the vaccine given?
 - Were the vaccines valid?
 - What vaccines are due today?

90% of registries that were measured are able to successfully answer these types of questions

- This is an **INCREASE OF 35** from 2017
- These vaccination records include patients from **BIRTH THROUGH ADULTHOOD**



DISCLAIMER

- Are all these improvements a direct result of M&I?
 - **Probably not**
- Is it likely that M&I has helped to focus IIS Programs and Vendors, as well as Immunization Program staff, on much needed and high priority improvements, and has accelerated improvements?
 - **We think so!**



How much are IIS being asked for information?

- Registries work hard each **SECOND** to answer the **MILLIONS** of questions they receive from various sources each year. With the COVID-19 pandemic, registries are getting more daily questions than ever.
- In 2019, registries received a wide range of message request inquiring about immunization data; this was reported in a 2020 community survey.

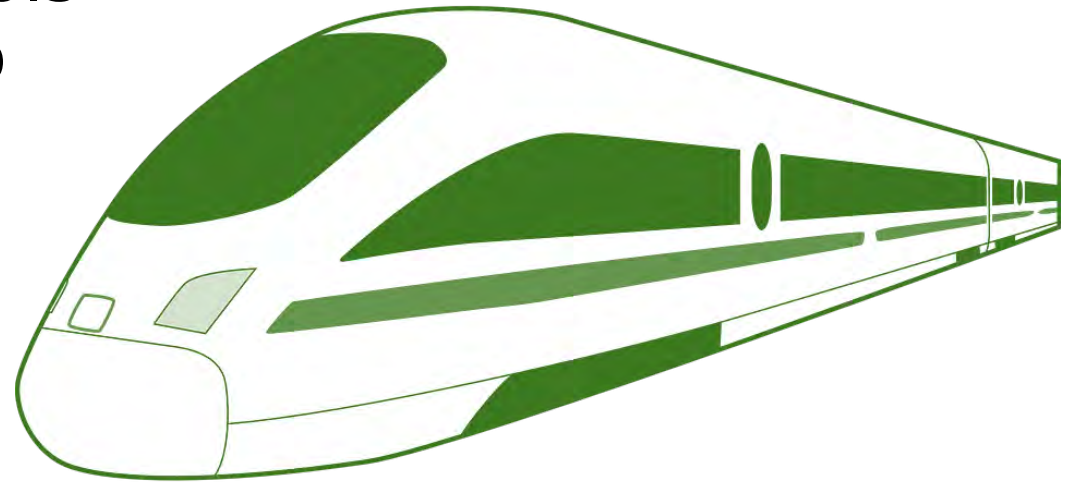


- One IIS reported approximately 49 MILLION messages for inquiries about immunization data in 2019.
- THAT IS APPROXIMATELY 4 MILLION QUESTIONS IN A MONTH
 - (Note: Pre-COVID)



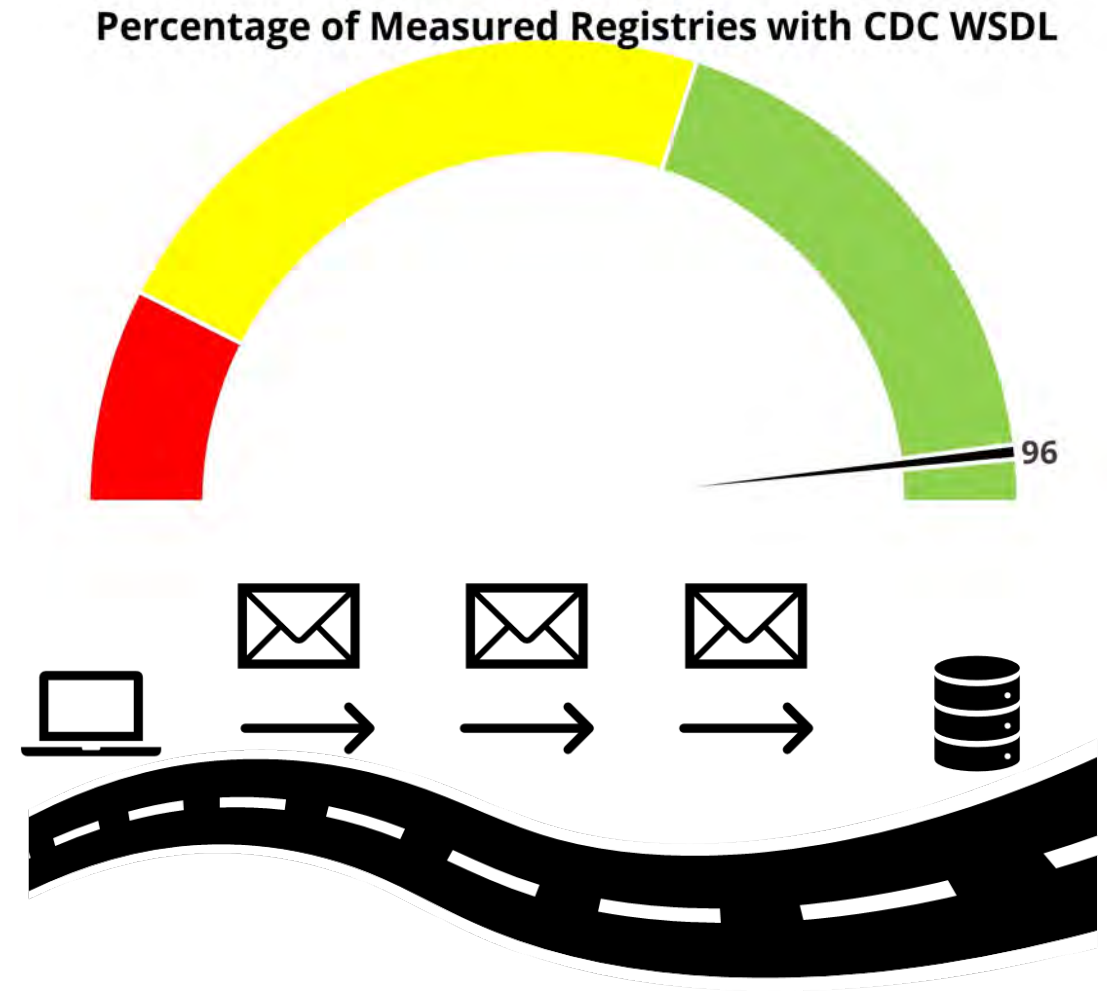
Transport

- Standardized transport protocols allow the office's EHR and IIS to both exchange data electronically and to use the exchanged data.
- The use of the agreed upon transport layer promotes interoperability.
- Our patient's physician is able to query the IIS using an HL7 message sent via SOAP.



Over 95% of IIS are following the standard

- In 2021, **55** out of 57 IIS that are measured are using the established standard transport language.
- In 2016, there were **25** registries with this capability.



All this has
occurred, and
the provider
has not even
seen the
patient yet!



During the
initial
query to
the IIS

A patient vaccine history and
forecast is messaged back to
the EHR

The provider uses the
information to determine
which vaccines the patient
should receive during this visit.

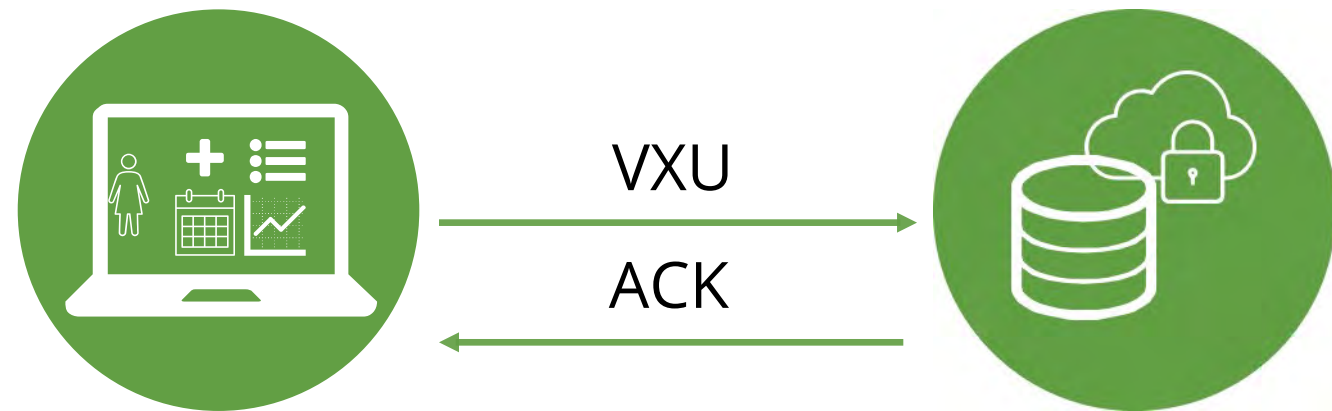


Then...

The patient is
vaccinated 

What Next?

- The immunizations are administered, recorded in the EHR, and automatically sent to the IIS.
- Since the message contained the conformant demographic and vaccination data, the message was accepted, and the IIS sent back an acknowledgement to the EHR.





97% of registries that were measured in 2021 can successfully receive and accept messages containing administered vaccine information

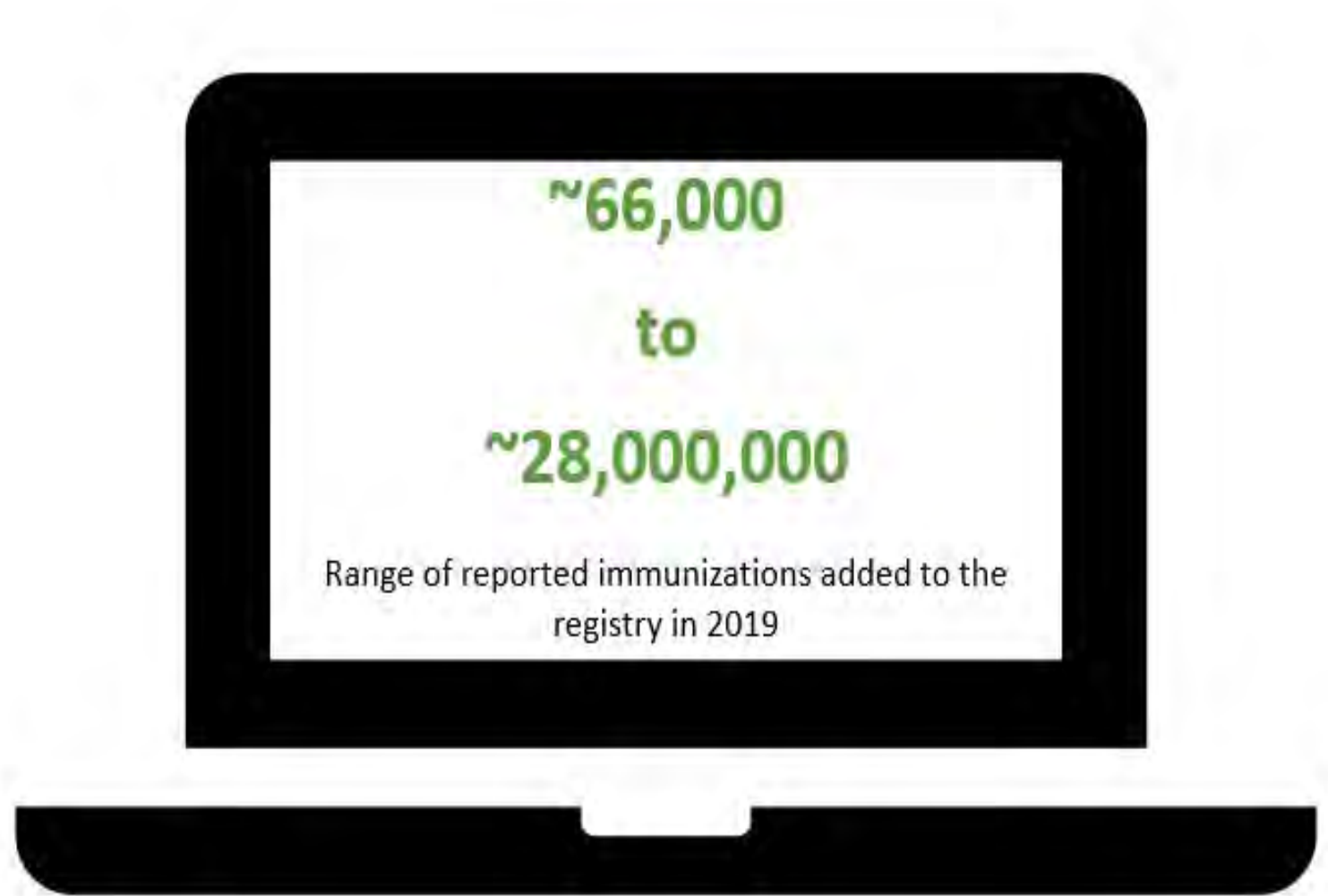
An **INCREASE OF 3%** from 2017



100% of registries that were measured in 2021 can successfully receive and accept messages containing historical vaccine information

STABLE since 2017

IIS receive
MILLIONS of
messages with
vaccination
event
information
annually



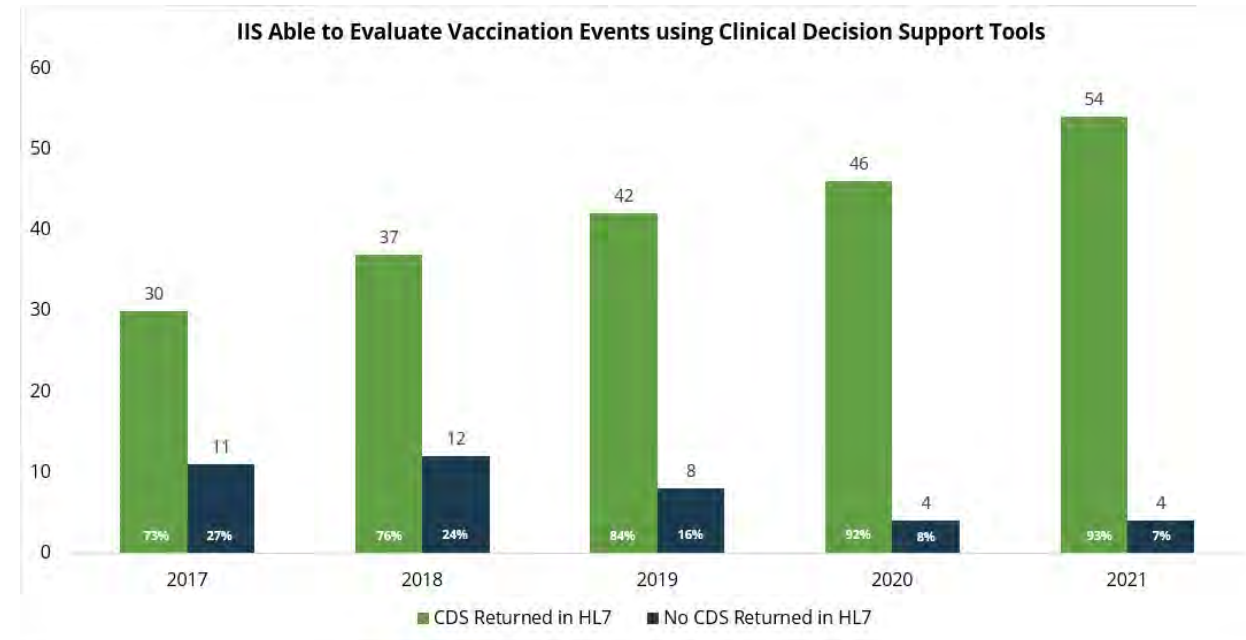
How does today's vaccination impact the future?

This event impacts the providers' ability to determine which shots are needed in the future!

The IIS is a consolidated source of immunizations, so now the IIS can update the immunization forecast for the next provider query.

Can all IIS evaluate immunization data through an interface?

- An **ASTOUNDING 54** IIS that were measured have clinical decision support (CDS) tool functionality. Registries with CDS functionality **INCREASED BY 20%** since 2017.



Take Home Messages



Great Participation



Significant, measurable progress over time



The IIS community continues to align with Standards



State and local policies impacts IIS operations, IIS are more alike than they are different



How Participating in Data at Rest (DAR) Helps IIS Data Quality

Eric Larson, AIRA

DAR Overview

Data at Rest is the measurement of data residing in the IIS database regardless of how it arrived there. This content area puts into practice data quality indicators found in the May 2018 IIS Data Quality Practices document.

AIRA will be measuring:

- 24 Completeness Indicators
- 18 Validity Indicators
- 2 Timeliness Indicators





Data Quality Story

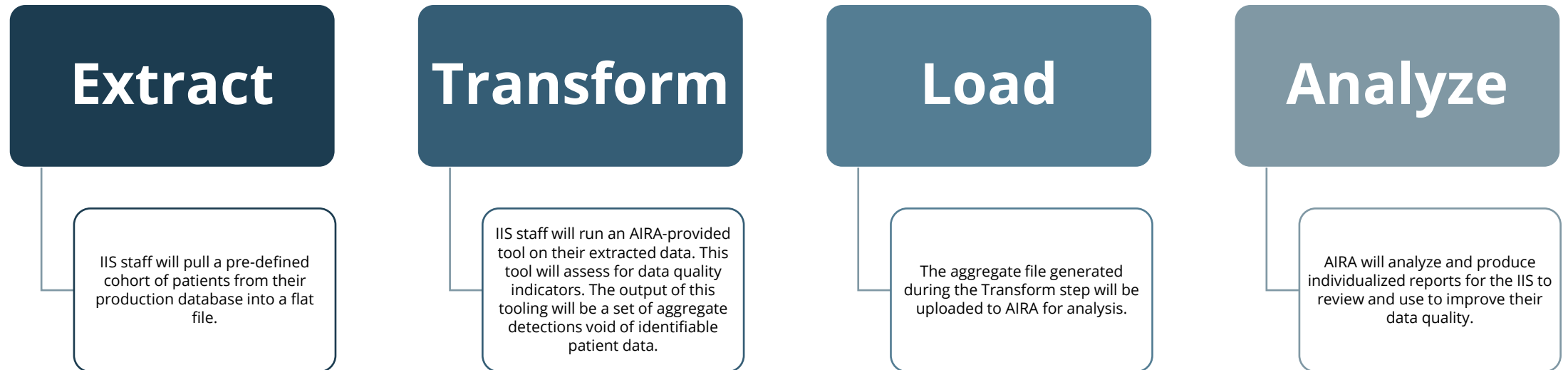
How to increase race and ethnicity capture within the IIS?





An IIS elects to
participation in
the M&I Data at
Rest Content Area

Steps Taken by IIS Staff & AIRA to Obtain Results



Results are in!

IIS-Wide Report



The IIS-Wide report looks at the entire cohort of data across the selected data quality indicators.

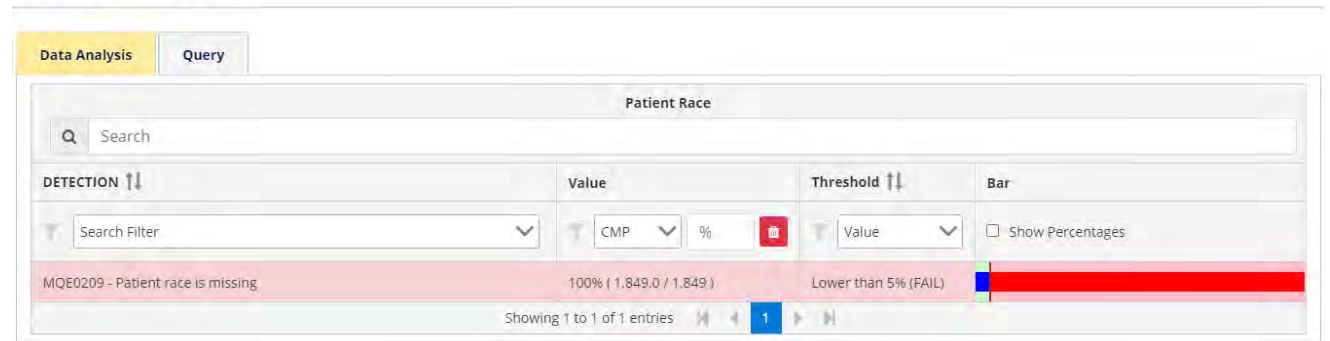


This report gives a good view of the overall picture of the completeness, validity, and timeliness of the IIS data

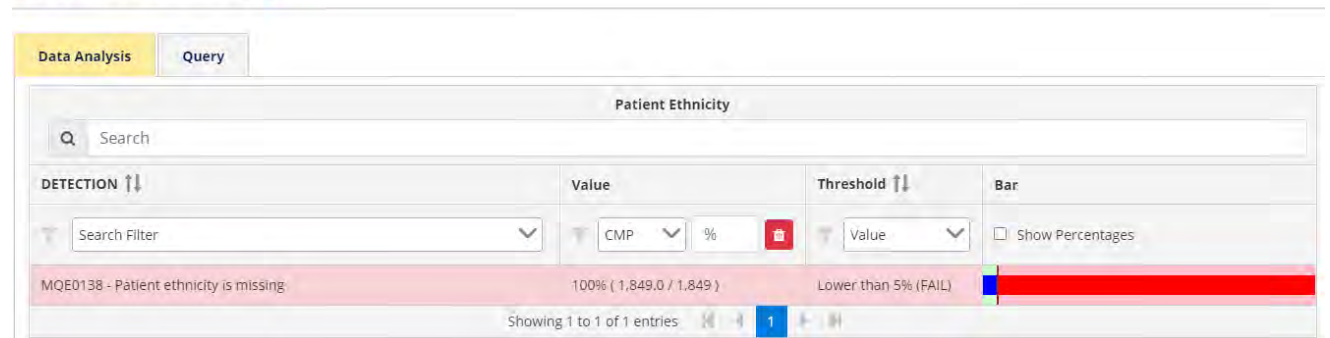
While digging into the data, IIS staff realize...

We have really low IIS Wide capture of race and ethnicity data!

2.1.16. Patient Race ⚠



2.1.17. Patient Ethnicity ⚠





IIS can drill down into their data



Sort results by a threshold or percentages



Find the handful of providers who may be contributing to the low capture rate



Target outreach and education efforts to increase data quality

Participation
in DAR can
help!

Provider Breakdown (loaded for 3.0-3.0.0000.0000)

Pass Report Filter

2.1.4. Lot Number ▲

REPORTING GROUP [1]	DETECTION [1]	Value	Threshold [1]	Bar
Search Filter	Search Filter	CLMP	Value	Sh
2560781082434100000306502080	MQE0330 - vaccination lot number is miss...	100% (584.0 / 584)	Lower than 1% (FAIL)	
66a9f0808e30e425c0c832e0870e	MQE0330 - vaccination lot number is miss...	100% (6.001 / 6.001)	Lower than 1% (FAIL)	
02340633748058677088717820086	MQE0330 - vaccination lot number is miss...	100% (27.0 / 27)	Lower than 1% (FAIL)	
3ae5108b14a600106232079024c3647c	MQE0330 - vaccination lot number is miss...	100% (1.278 / 1.278)	Lower than 1% (FAIL)	
9660971d40310001a0b23478998f	MQE0330 - vaccination lot number is miss...	100% (36.0 / 36)	Lower than 1% (FAIL)	
187f103304c799879637012463817c	MQE0330 - vaccination lot number is miss...	100% (25.0 / 25)	Lower than 1% (FAIL)	
948001582518a8705060a55570800a	MQE0330 - vaccination lot number is miss...	100% (6.427 / 6.427)	Lower than 1% (FAIL)	
29e0f0a2078e4204b0d097e05054	MQE0330 - vaccination lot number is miss...	100% (30.0 / 30)	Lower than 1% (FAIL)	
707018303996427401404c0a0050c2	MQE0330 - vaccination lot number is miss...	100% (1.0 / 1)	Lower than 1% (FAIL)	
63099773a073a0b0a0a20e01708	MQE0330 - vaccination lot number is miss...	100% (1.188 / 1.188)	Lower than 1% (FAIL)	

This report can be used to filter data by provider groups.

Provider Breakdown

DAR Testing and Discovery Next Steps

Summer 2021



- Technical improvements
- Education and communication

Fall 2021



- Enroll jurisdictions
- Measure data and generate reports

What else could the future hold with DAR participation?

Provider Participation

Patient Deduplication

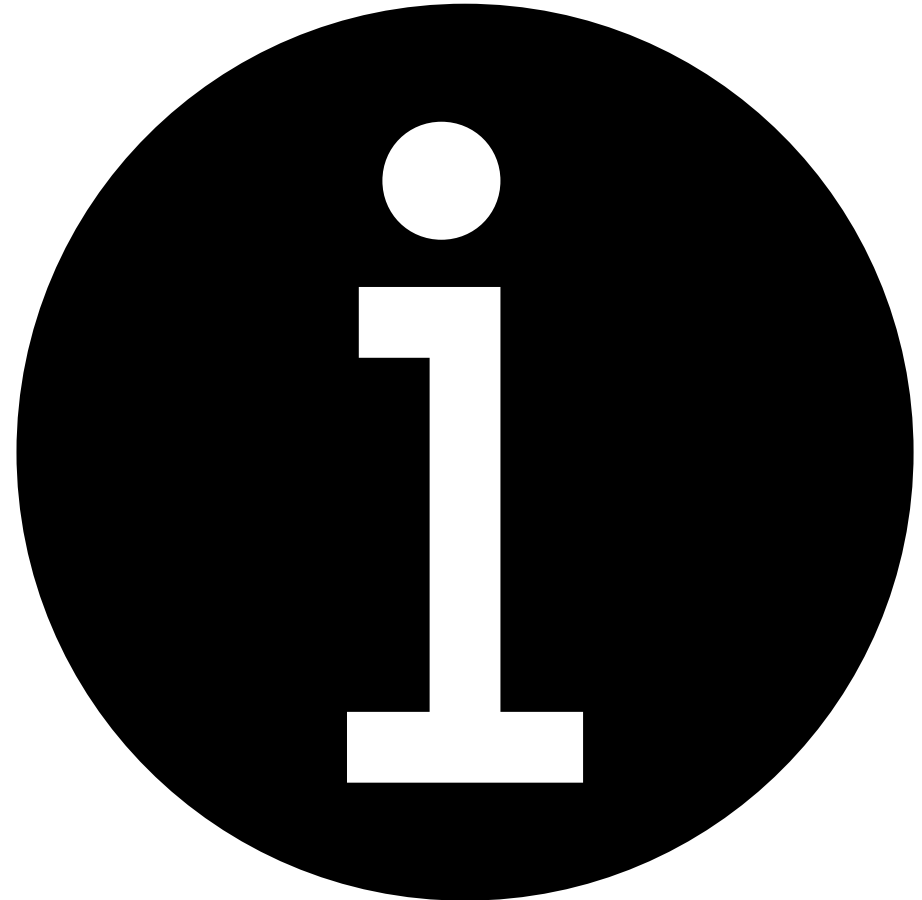
Vaccine Deduplication

Standardized Coverage Rates

Want more info on DAR?

Email Assi to get started.

adiallo@immregistries.org





M&I Future Content Areas

Mary Beth Kurilo

Upcoming Areas for Validation

Current Areas Being Validated

- Transport
- Submission/ACK
- Query/Response
- CDS

Provider Participation

What proportion of targeted providers are submitting to an IIS, and are these providers submitting complete data?

2023?

Patient Deduplication

How do we objectively measure and compare patient deduplication?

2023?

Data Quality: Incoming/Ongoing

Can the IIS detect quality issues on a per-message basis?

2022

2023?

Data Quality: Data at Rest

What is the quality of data within the IIS's database, on the whole and by provider?

The Rest of the Picture

Upcoming content areas...

- Patient and Vaccine Saturation
- Vaccine Deduplication
- Functions (Inventory, Reminder/Recall, etc.)
- Onboarding
- Code Sets
- Policy
- Security

Plus: Expanding developer access and product validation



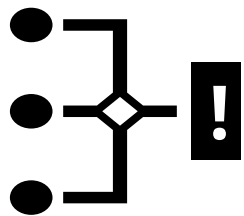
Three Expectations for M&I Moving Forward



Move forward quickly to encompass all essential IIS content areas/functions



Introduce new methods to ensure M&I represents the true picture of the full community



Include a Summary Validation component that rolls up content areas to provide an overarching measure of success for IIS systems

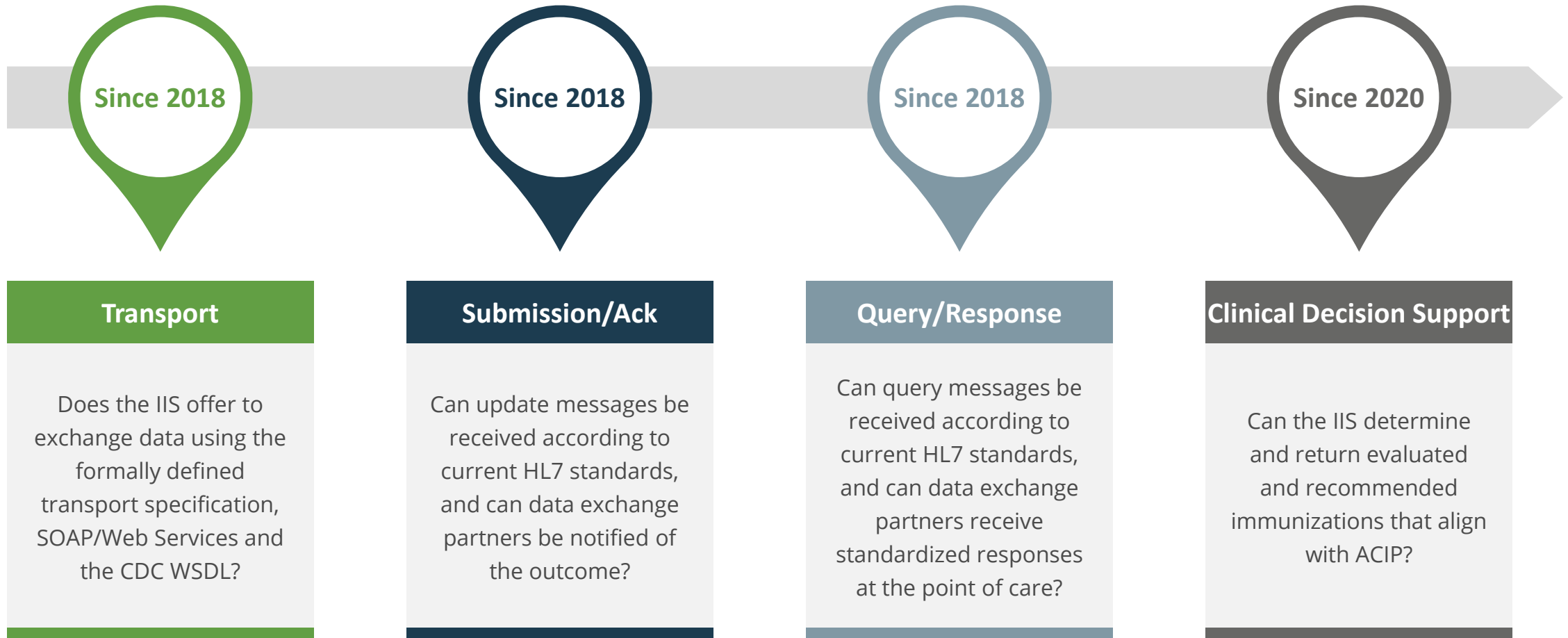
More to come from MACAW...



Validation Recognition

Mary Beth Kurilo

Content Areas for Validation in 2021



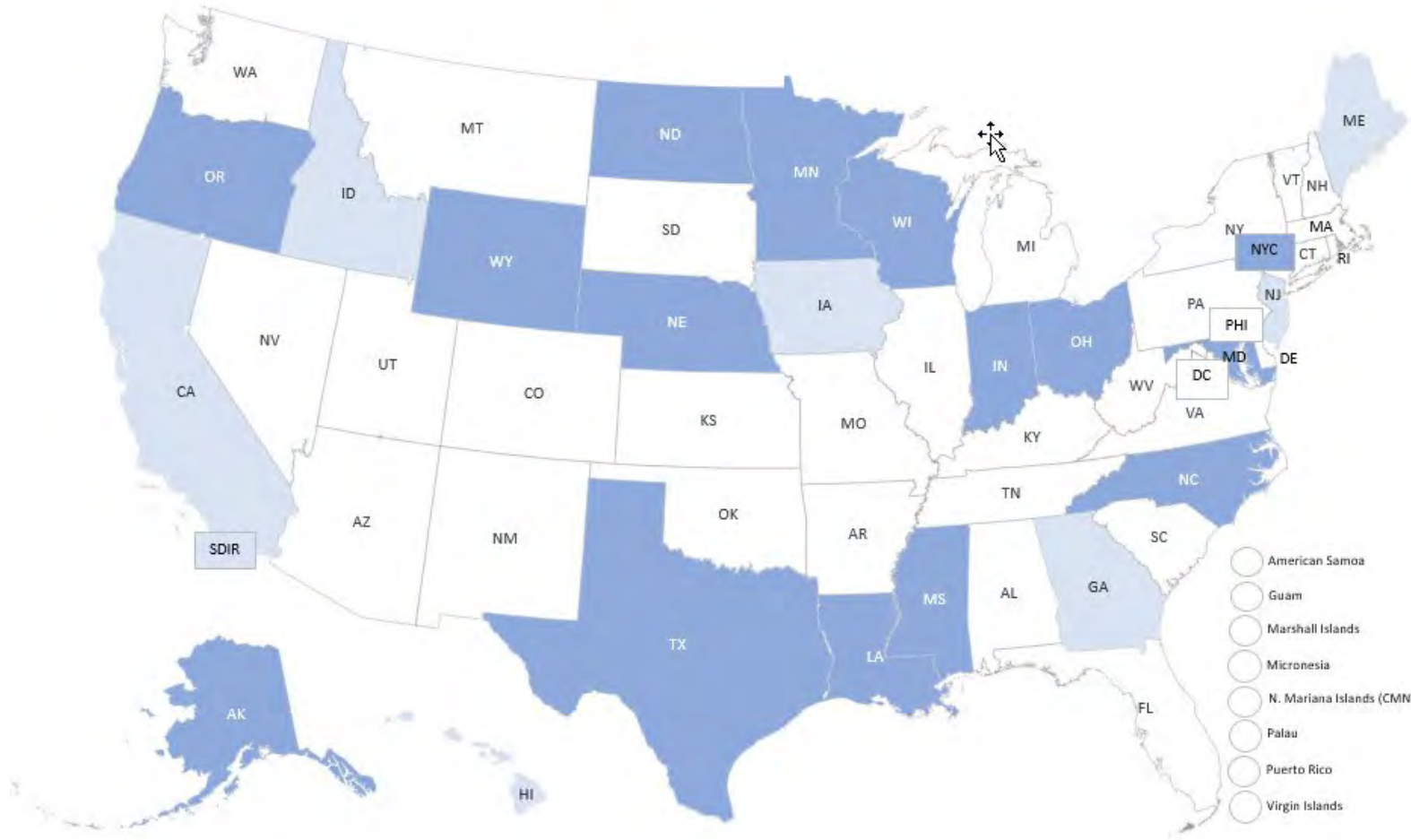
2021 - IIS Validated in One Content Area



- California
- Georgia
- Hawaii
- Idaho
- Iowa
- Maine
- New Jersey
- San Diego

(n=8)

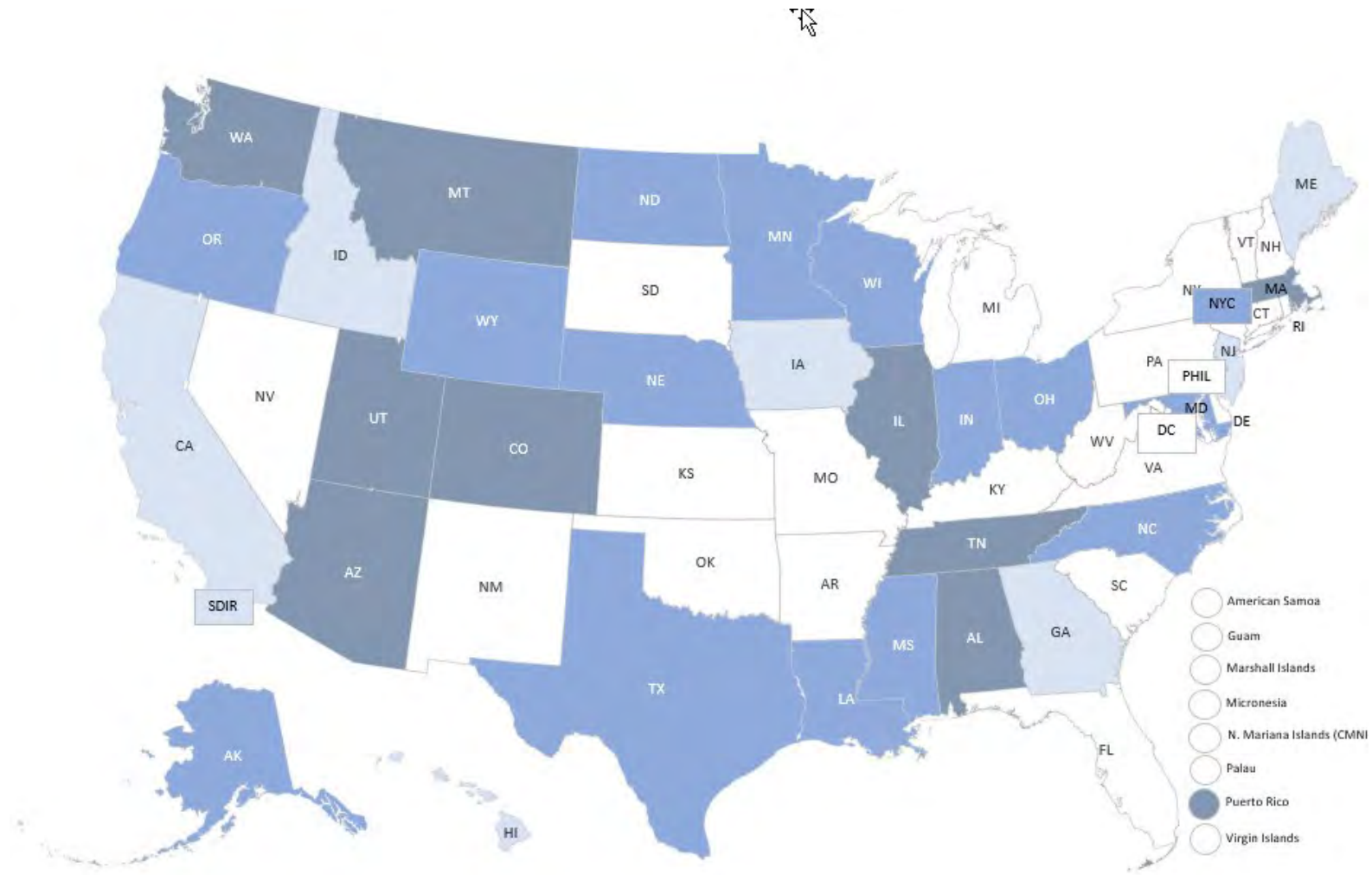
2021 - IIS Validated in Two Content Areas



- Alaska
- Indiana
- Louisiana
- Maryland
- Minnesota
- Mississippi
- Nebraska
- New York City
- North Carolina
- North Dakota
- Ohio
- Oregon
- Texas
- Wisconsin
- Wyoming

(n=15)

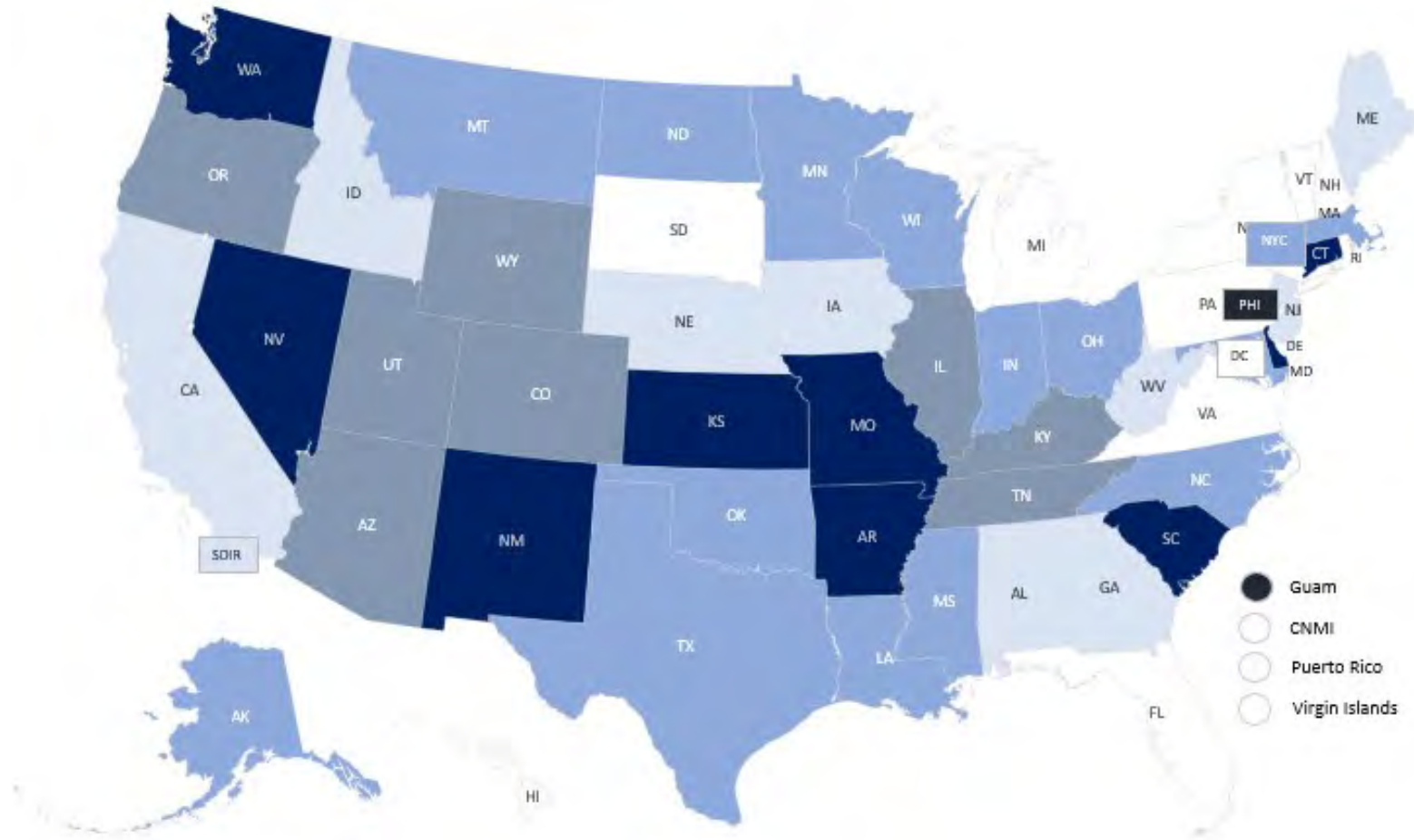
2021 - IIS Validated in Three Content Areas



- Alabama
- Arizona
- Colorado
- Illinois
- Massachusetts
- Montana
- Puerto Rico
- Tennessee
- Utah
- Washington

(n=10)

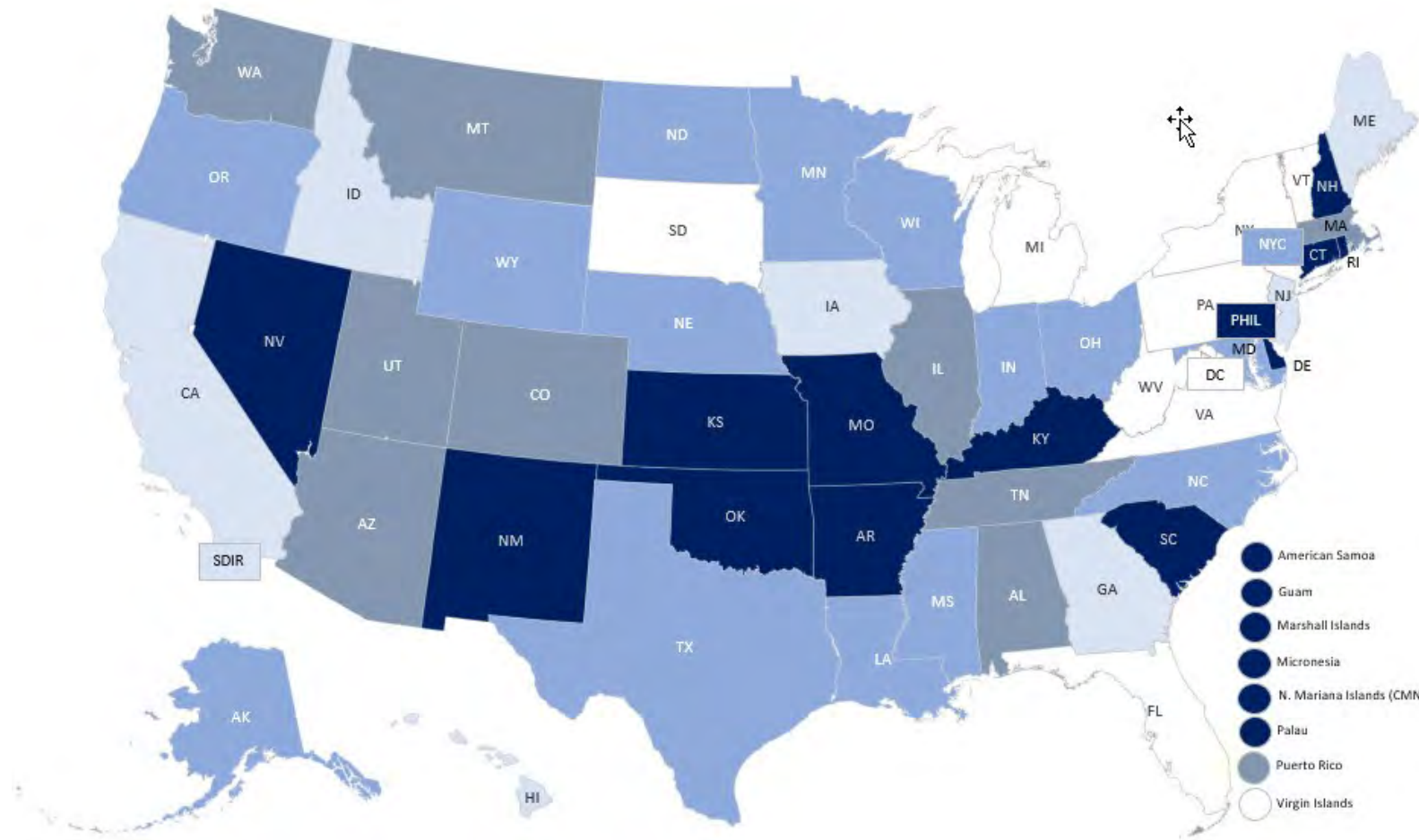
2020 - IIS Validated in Four Content Areas



- Arkansas
- Connecticut
- Delaware
- Guam
- Kansas
- Missouri
- New Mexico
- Nevada
- Philadelphia
- South Carolina
- Washington

(n=11)

And Now, 1 year later...



IIS Validated
in Four
Content
Areas (n=19)

All 19 IIS Validated in 4 (!) content areas

- American Samoa
- Arkansas
- Connecticut
- Delaware
- Guam
- Kansas
- Kentucky
- Marshall Islands
- Micronesia
- Missouri
- New Hampshire
- New Mexico
- Nevada
- Northern Mariana Islands
- Oklahoma
- Palau
- Philadelphia
- Rhode Island
- South Carolina

Congratulations

We appreciate all your hard work

You are at the forefront of moving our community forward, ensuring:

- **IIS have compiled high-quality data**
- **Partners can easily access and use these data**
- **Patients are protected from vaccine preventable diseases**

Thank you for all you do!

For More Information on IIS Measurement and Improvement:



Visit www.immregistries.org and navigate to the “Ongoing Efforts” tab



Email info@immregistries.org



Reach out to the AIRA Team or any member of
MACAW

Questions/Discussion?

Announcing: AART OFFICE HOURS!

Have any questions about the AART, your reports, DAR..?

Drop by the **Willamette 2** room during these times!

Wednesday 8/4	12-1 PM (lunch), 5-6 PM (free time)
Thursday 8/5	7-8 AM (free time), 12-3 PM **on-demand

*No prior sign-up required!

**Email Assi @ adiallo@immregistries.org if you would like to schedule a session Thursday 12-3pm