

# Shifting Resources: Moving from Onboarding to Data Quality Maintenance

Kim Gulliver, MS  
Steve Jarvis

AIRA 2019

August 14, 2019



COLORADO  
Department of Public  
Health & Environment

# Colorado Immunization Information System (CIIS)

# Outline

---

- CIIS Background
- CIIS Onboarding Statistics
- Shifting Resources
- Lessons Learned
- Next Steps

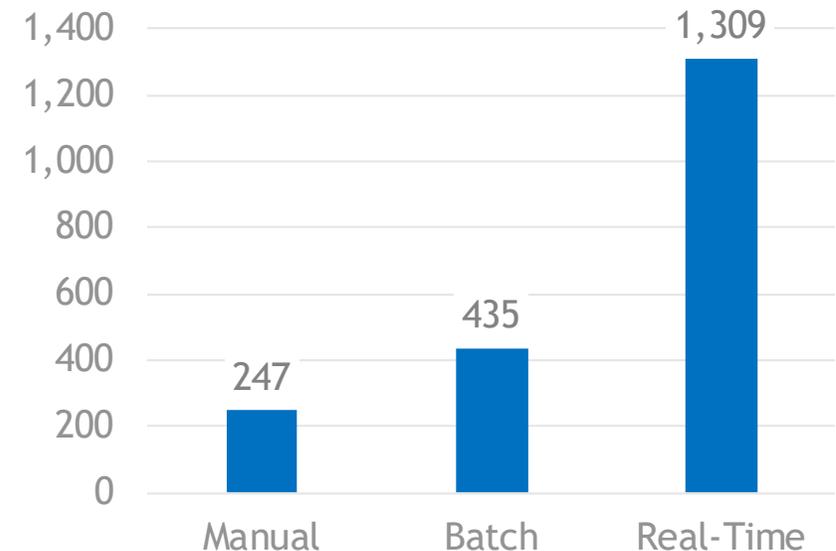
# CIIS Background

**Confidential, secure, population-based, web-based system that:**

- Consolidates immunization records for Coloradans of all ages
- Recommends the vaccines a patient needs based on history and age
- Supports the increase and sustainability of high immunization coverage rates

## CIIS by the numbers (as of June 30, 2019)

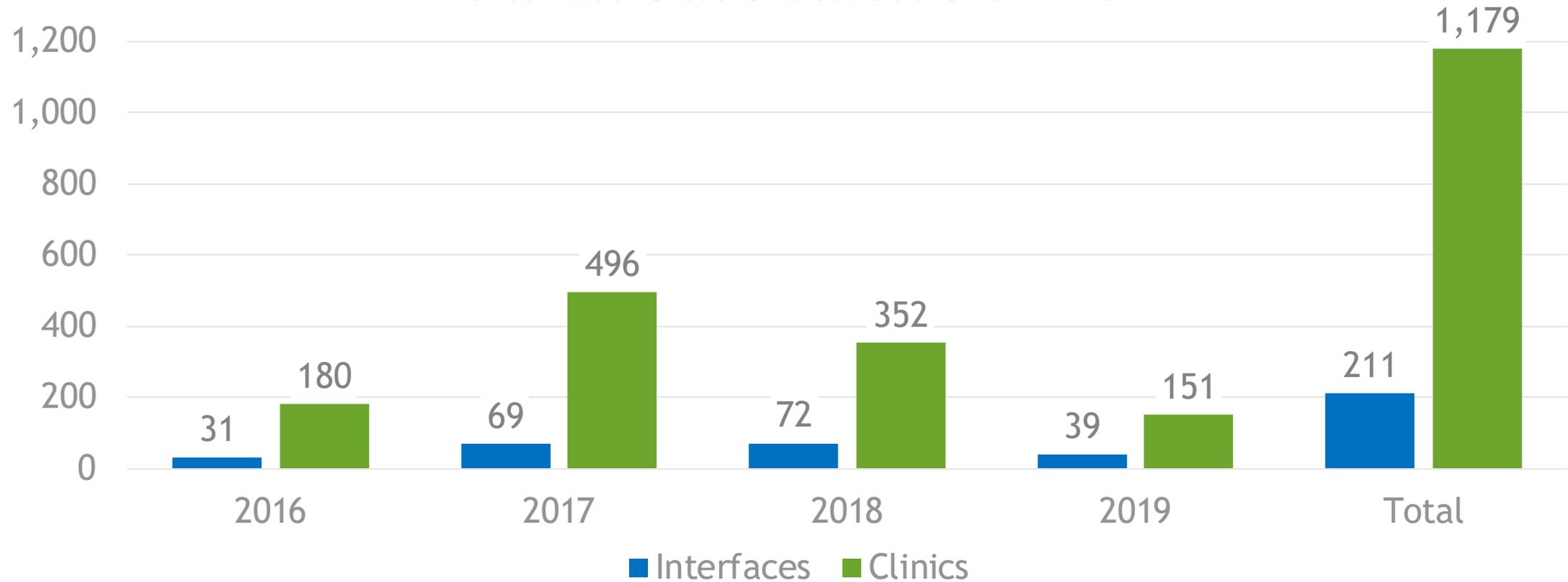
- Total Patients: 6.3 million
- Total Vaccinations: 70.9 million
- Sites Submitting Data to CIIS
  - Manually Reporting: 247
  - Electronically Reporting: 1,744
    - Batch: 435
    - Real-Time: 1,309
    - Bi-Directional: 475



**88% of data is electronically reported**

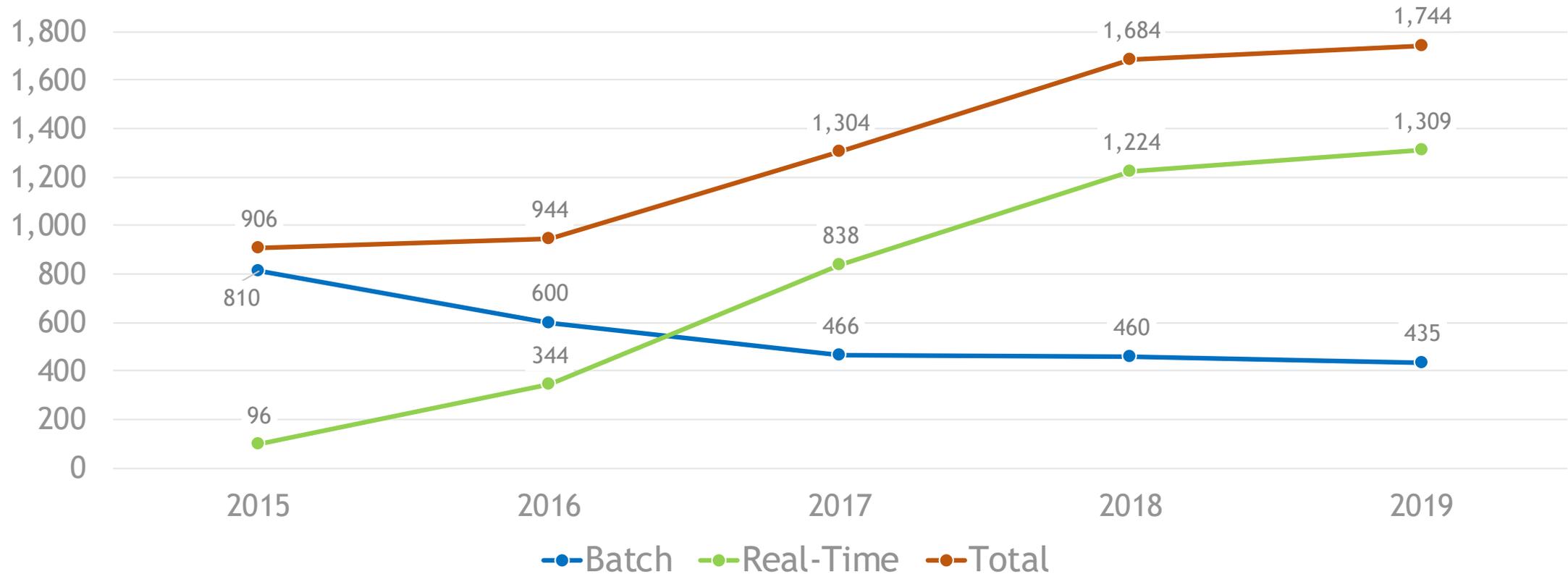
# CIIS Onboarding Statistics

Interface/Sites Onboarded Over Time



# CIIS Interfacing Clinics By Year

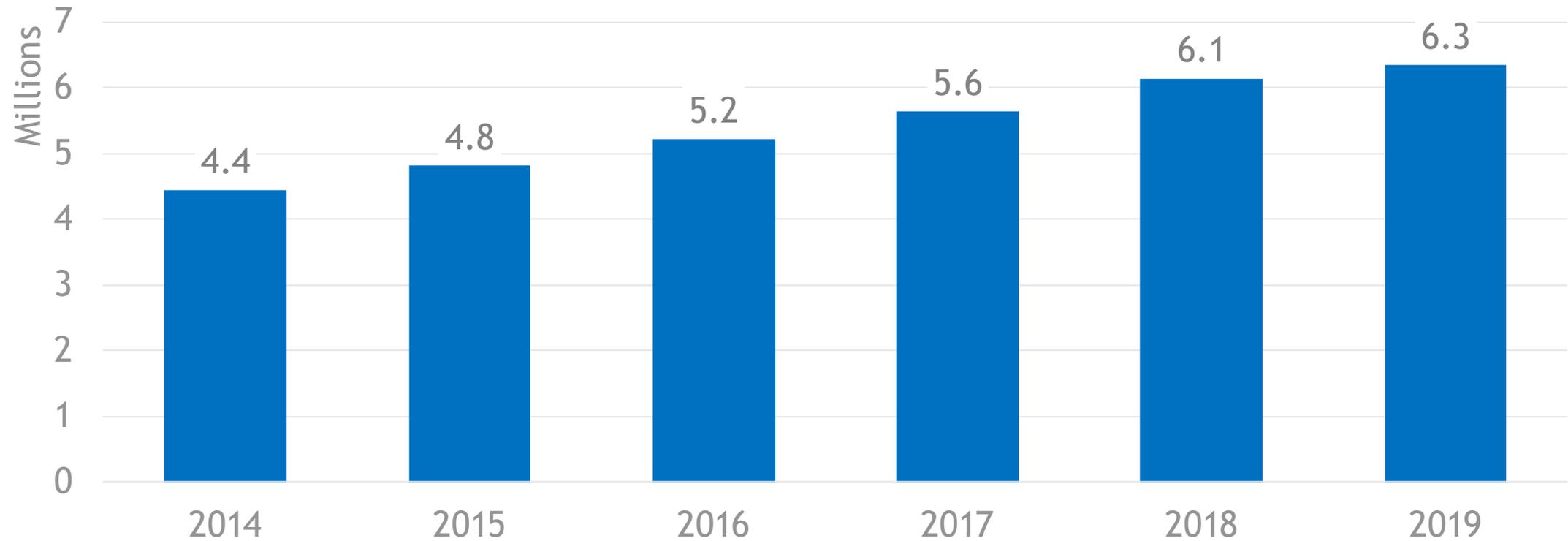
Interfacing Clinics Over Time



92% Increase between 2015-2019

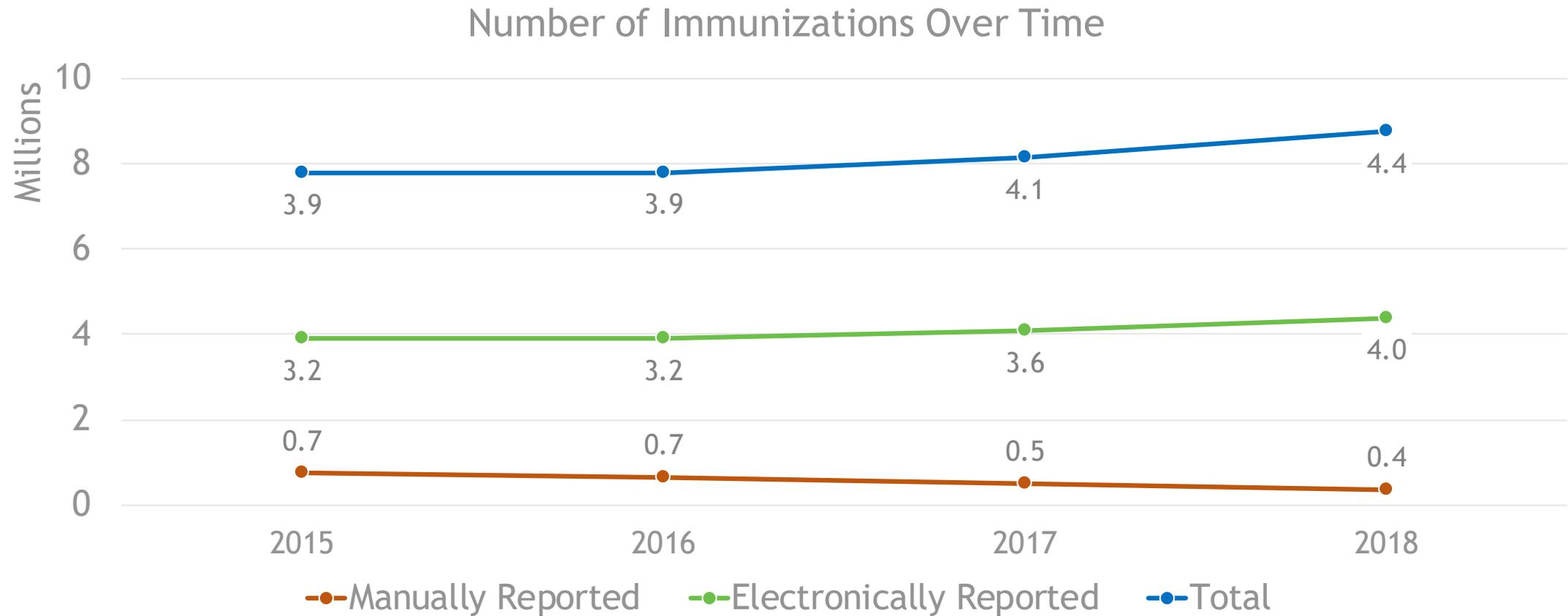
# CIIS Onboarding Statistics

Number of Patients Over Time



43% Increase in 4.5 Years

# CIIS Onboarding Statistics



12% Increase in imms/year

# Shifting Resources

---

**More focus on maintenance/monitoring of data, including:**

- Monitoring Real-Time, Bi-Directional Messaging Gateway
- Delinquent File Transfers
- Missing Electronically Submitted Data
- Data Clean-Up
- Ongoing Data Quality Reviews
- Assigning Code Mappings

# Monitoring Real-Time, Bi-Directional Messaging Gateway

## GOAL

Monitor uptime and performance of real-time, bi-directional messaging gateway

## TOOL

SQL Server Management Studio and NextGen Connect (MIRTH)

## EXAMPLES (REPORTS/QUERIES)

- Development of log files
- Creation of reports
  - Processing time of messages (current performance)
  - Periods of slow performance

## TIME COMMITMENT

- Checked periodically throughout the day

# CIG Monitoring

Results		Messages									
AL_Id_Record	Arrived	seconds	UserName	Facility_Id	Interchange_Id	Description	Direction	Message Type	PatientID	Payload	
1	38200111	07/24/2019 10:57:28.7330000	0.157	EXO	SCLHS	2BAF0240-2093-41B3-8B7A-523CA64B4410	Validation Passed	Request	QBP	X006138851	MSH ^~\&IEPIC SCLHS CII
2	38200111	07/24/2019 10:57:28.7330000	0.157	EXO	SCLHS	2BAF0240-2093-41B3-8B7A-523CA64B4410	Validation Passed	Response	QBP	X006138851	MSH ^~\&ICIS^2.16.840.1
3	38200110	07/24/2019 10:57:28.4370000	0.186	TCH	CHCO	2AB8DDEE-FE15-4021-9297-7176EE3DC17F	Validation Passed	Request	QBP	1618265	MSH ^~\&IEPIC TCH CII
4	38200110	07/24/2019 10:57:28.4370000	0.186	TCH	CHCO	2AB8DDEE-FE15-4021-9297-7176EE3DC17F	Validation Passed	Response	QBP	1618265	MSH ^~\&ICIS^2.16.840.1
5	38200109	07/24/2019 10:57:28.1870000	0.22	EXO	SCLHS	EE7E29B2-21C6-4F95-931D-62A9CFE569	Validation Passed	Request	QBP	X004600485	MSH ^~\&IEPIC SCLHS CII
6	38200109	07/24/2019 10:57:28.1870000	0.22	EXO	SCLHS	EE7E29B2-21C6-4F95-931D-62A9CFE569	Validation Passed	Response	QBP	X004600485	MSH ^~\&ICIS^2.16.840.1
7	38200108	07/24/2019 10:57:27.8730000	0.25	TCH	CHCO	57E7F1F7-8BD5-455E-9413-CF9D9EA5BBA4	Validation Passed	Request	QBP	1200413	MSH ^~\&IEPIC TCH CII
8	38200108	07/24/2019 10:57:27.8730000	0.25	TCH	CHCO	57E7F1F7-8BD5-455E-9413-CF9D9EA5BBA4	Validation Passed	Response	QBP	1200413	MSH ^~\&ICIS^2.16.840.1
9	38200107	07/24/2019 10:57:27.6870000	0.186	KPCO	KPCO	2C697996-598C-4293-9349-94B870F51B3F	Validation Passed	Request	QBP	427580346	MSH ^~\&KPCO KPCO CII
10	38200107	07/24/2019 10:57:27.6870000	0.186	KPCO	KPCO	2C697996-598C-4293-9349-94B870F51B3F	Validation Passed	Response	QBP	427580346	MSH ^~\&CII^2.16.840.1
11	38200106	07/24/2019 10:57:27.6230000	0.017	TCH	CHCO	AE5D867F-CDCD-40A0-8EB8-86B1C8A1C857	Validation Passed	Request	QBP	2049811	MSH ^~\&IEPIC TCH CII
12	38200106	07/24/2019 10:57:27.6230000	0.017	TCH	CHCO	AE5D867F-CDCD-40A0-8EB8-86B1C8A1C857	Validation Passed	Response	QBP	2049811	MSH ^~\&ICIS^2.16.840.1
13	38200105	07/24/2019 10:57:26.5130000	0.157	CORHIO	CORHIO	E9019878-4159-46C3-B414-ER314A709D50	Validation Failed	Request	VXU	CEUE00618824	MSH ^~\&IEPIA CII
AL_Id_Record	Arrived	seconds	UserName	Facility_Id	Interchange_Id	Description	Direction	Message Type	PatientID	Payload	
1	38198883	07/24/2019 10:46:03.5130000	5.17	KPCO	KPCO	D8E2C73B-CE95-4769-BE96-B63B5F8C1DAF	Validation Passed	Request	QBP	415911305	MSH ^~\&KPCO KPCO CII
2	38198883	07/24/2019 10:46:03.5130000	5.17	KPCO	KPCO	D8E2C73B-CE95-4769-BE96-B63B5F8C1DAF	Validation Passed	Response	QBP	415911305	MSH ^~\&CII^2.16.840.1.11
3	38198882	07/24/2019 10:46:03.3100000	5.043	KPCO	KPCO	E4C96D9B-2647-4D9D-8865-7EC4DBF7A3FD	Validation Passed	Request	QBP	421275146	MSH ^~\&KPCO KPCO CII
4	38198882	07/24/2019 10:46:03.3100000	5.043	KPCO	KPCO	E4C96D9B-2647-4D9D-8865-7EC4DBF7A3FD	Validation Passed	Response	QBP	421275146	MSH ^~\&CII^2.16.840.1.11
5	38194743	07/24/2019 10:06:30.6470000	6.76	EXO	SCLHS	E4C801C4-EAE1-4E7A-8A8A-EBC98089DEA9	Validation Passed	Request	QBP	X005692280	MSH ^~\&IEPIC SCLHS CII
6	38194743	07/24/2019 10:06:30.6470000	6.76	EXO	SCLHS	E4C801C4-EAE1-4E7A-8A8A-EBC98089DEA9	Validation Passed	Response	QBP	X005692280	MSH ^~\&ICIS^2.16.840.1.11
7	38194742	07/24/2019 10:06:29.2170000	6.193	KPCO	KPCO	3BAC1AFC-EA47-4135-BAAE-512190102B30	Validation Passed	Request	QBP	901343215	MSH ^~\&KPCO KPCO CII
8	38194742	07/24/2019 10:06:29.2170000	6.193	KPCO	KPCO	3BAC1AFC-EA47-4135-BAAE-512190102B30	Validation Passed	Response	QBP	901343215	MSH ^~\&CII^2.16.840.1.11
9	38194741	07/24/2019 10:06:27.8400000	6.54	KPCO	KPCO	06EC8E92-13B8-4E00-93EB-EB915BB265BC	Validation Passed	Request	QBP	424531649	MSH ^~\&KPCO KPCO CII
10	38194741	07/24/2019 10:06:27.8400000	6.54	KPCO	KPCO	06EC8E92-13B8-4E00-93EB-EB915BB265BC	Validation Passed	Response	QBP	424531649	MSH ^~\&CII^2.16.840.1.11
11	38194740	07/24/2019 10:06:26.6670000	6.54	MEE	Athena...	2149CD77-8001-419D-8064-04C47C521FBC	Validation Passed	Request	QBP	4914836	MSH ^~\&ATHENANET MEE
12	38194740	07/24/2019 10:06:26.6670000	6.54	MEE	Athena...	2149CD77-8001-419D-8064-04C47C521FBC	Validation Passed	Response	QBP	4914836	MSH ^~\&CII^2.16.840.1.11
13	38194739	07/24/2019 10:06:25.0930000	6.05	KPCO	KPCO	A58F91CD-BC92-4035-95CF-5139A418C19F	Validation Passed	Request	QBP	413279856	MSH ^~\&KPCO KPCO CII

# Delinquent File Transfers

## GOAL

Ensure sites submit data in a timely manner

## TOOL

Internal reporting website

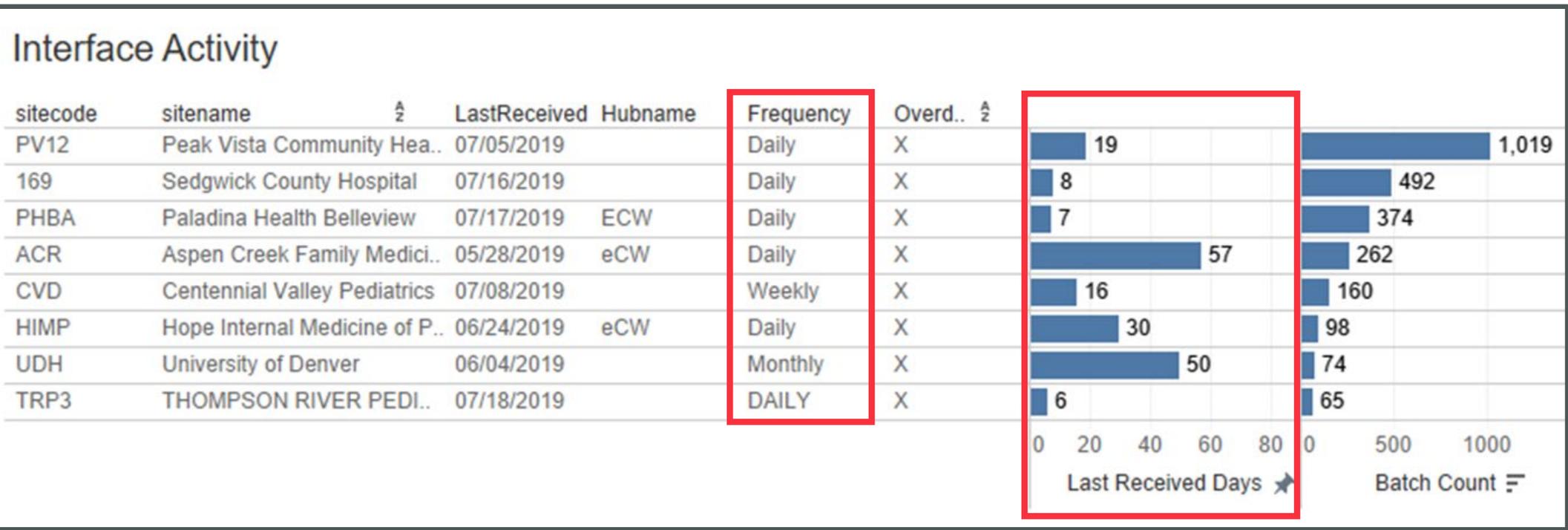
## PROCESS

- Run weekly interface activity report (delinquent report)
  - Sites setup as daily, weekly, monthly or seasonal batch submitters
- Email notification sent to site or sFTP contact noting last time CIIS received data
  - Per CIIS Letter of Agreement, sites are expected to send data within 7 days
- Reminders continuously sent until confirmation of data received
- All activities logged in provider tracking application

## TIME COMMITMENT

- 2 ½ - 5 hours per week

# DFT Report



# SQL Report

**Import Batch Activity - MFM**

Batch Report Refresh

	<u>batchid</u>	<u>Description</u>	<u>sitecode</u>	<u>SiteID</u>	<u>Date Received</u>	<u>Date Import</u>	<u>Status</u>	<u>New</u>	<u>Merged</u>	<u>New Services</u>	<u>Merged Services</u>	<u>Dup Services</u>	<u>Rs Pending</u>	<u>Unposted</u>	<u>con</u>
Select	401285	MFM 20190717	MFM	70774	07/17/2019	07/17/2019	Import Complete	0	7	6	0	0	0	0	
Select	401194	MFM 20190716	MFM	70774	07/16/2019	07/16/2019	Import Complete	0	5	3	0	24	0	0	
Select	401101	MFM 20190715	MFM	70774	07/15/2019	07/15/2019	Import Complete	2	4	6	0	0	0	0	
Select	400940	MFM 20190712	MFM	70774	07/12/2019	07/12/2019	Import Complete	1	6	5	0	0	0	0	
Select	400850	MFM 20190711	MFM	70774	07/11/2019	07/11/2019	Import Complete	1	16	22	0	2	0	0	
Select	400624	MFM 20190709	MFM	70774	07/09/2019	07/09/2019	Import Complete	2	6	16	0	0	0	0	
Select	400531	MFM 20190708	MFM	70774	07/08/2019	07/08/2019	Import Complete	0	3	3	0	1	0	0	
Select	400396	MFM 20190705	MFM	70774	07/05/2019	07/05/2019	Import Complete	2	6	8	0	0	0	0	
Select	400269	MFM 20190703	MFM	70774	07/03/2019	07/03/2019	Import Complete	2	2	5	0	0	0	0	
Select	400174	MFM 20190702	MFM	70774	07/02/2019	07/02/2019	Import Complete	2	6	12	0	7	0	0	
Select	400085	MFM 20190701	MFM	70774	07/01/2019	07/01/2019	Import Complete	5	7	51	0	17	0	0	
Select	399933	MFM 20190628	MFM	70774	06/28/2019	06/28/2019	Import Complete	1	10	10	0	1	0	0	
Select	399845	MFM 20190627	MFM	70774	06/27/2019	06/27/2019	Import Complete	4	11	21	0	2	0	0	
Select	399757	MFM 20190626	MFM	70774	06/26/2019	06/26/2019	Import Complete	0	7	6	1	0	0	0	
Select	399664	MFM 20190625	MFM	70774	06/25/2019	06/25/2019	Import Complete	0	5	5	0	0	0	0	

# Missing Electronically Submitted Data

## GOAL

Resolve missing data reported from external partners

## TOOL

Ad-hoc queries in SQL Management Studio and CIIS application

## PROCESS

- Missing data reported from external partner
- Verify if data was submitted in real-time or batch
- Attempt to find data received for patient
- Communicate resolution or next steps to external partner

## TIME COMMITMENT

- 15-30 minutes per issue reported

# Data Clean-Up

## GOAL

Resolve data quality issues to improve CIIS data accuracy

## TOOL

Ad-hoc reports, Internal website and CIIS application

### EXAMPLES OF DQ CLEAN-UP

- Incorrectly reported information
  - Duplicate patient records or immunizations
  - Incorrect Expiration dates
  - Incorrect Lot numbers
- Duplicates & Rs
  - Rs - when incoming electronic data can't positively match a CIIS record
  - Baby Names

### TIME COMMITMENT

- Variable - Rs are most time consuming

# Fillable PDF Forms



**Patient Delete Immunization (s) Template**

Please provide the following details and fax/email the completed form to f: 303-758-3640. Email: [cdphe.ciis@state.co.us](mailto:cdphe.ciis@state.co.us) attention: CIIS Data Quality Coordinator.

Requests will be reviewed and reconciled by a CIIS Data Quality Coordinator within five business days of receipt.

Today's date:

Individual making request:

Individual telephone number and email address:

CIIS Patient ID #  has immunization (s) that needs to be deleted.

Please remove the following:

Vaccine name:	Dose date:	Reason for delete:
<i>Ex: Polio-IPV</i>	<i>01/01/2000</i>	<i>Dose not given</i>



**Patient Duplicate Record (s) Template**

Please provide the following details and fax/email the completed form to f: 303-758-3640. Email: [cdphe.ciis@state.co.us](mailto:cdphe.ciis@state.co.us) attention: CIIS Data Quality Coordinator.

Request will be reviewed and reconciled by a CIIS Data Quality Coordinator within five business days of receipt.

Today's date:

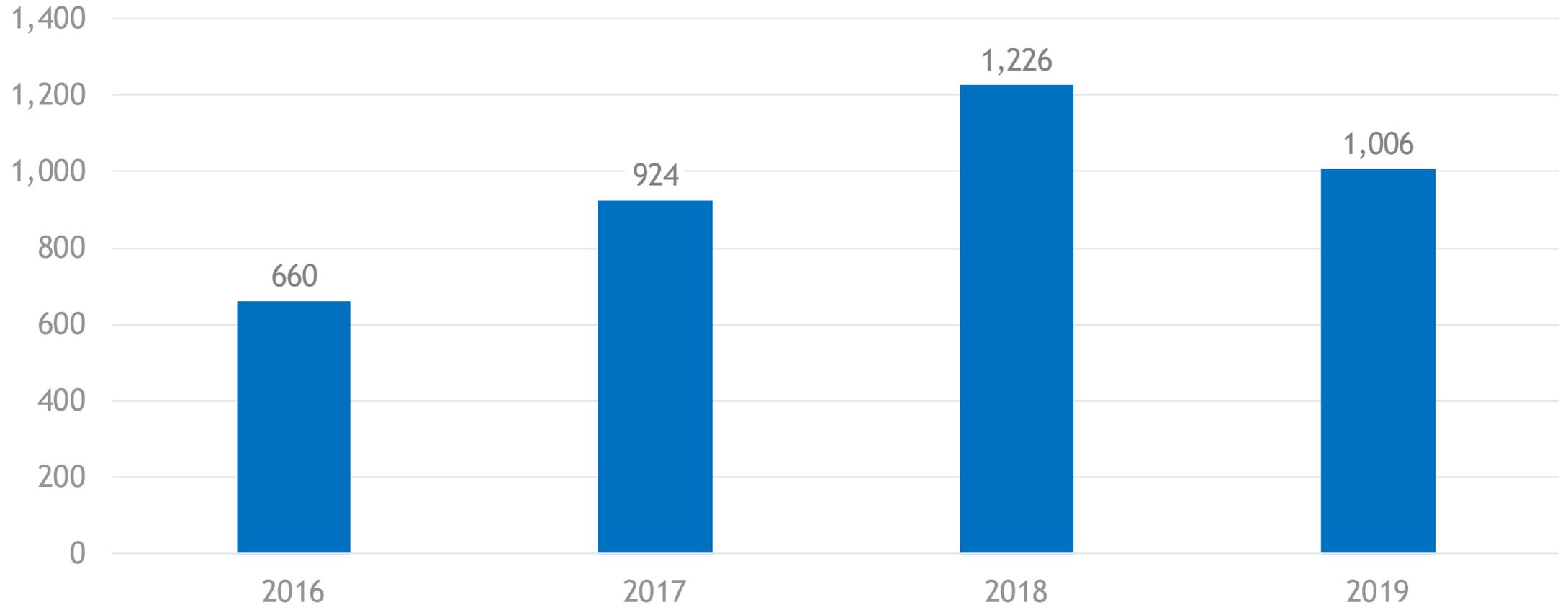
Individual making request:

Individual telephone number and email address:

Please combine the following CIIS account (s):

CIIS patient ID #	CIIS patient ID#	Please keep CIIS patient ID#
<i>Ex: 001234 duplicate of</i>	<i>005678</i>	<i>001234- has correct patient information</i>

# Duplicate Immunization Statistics



# Rs - Review Process

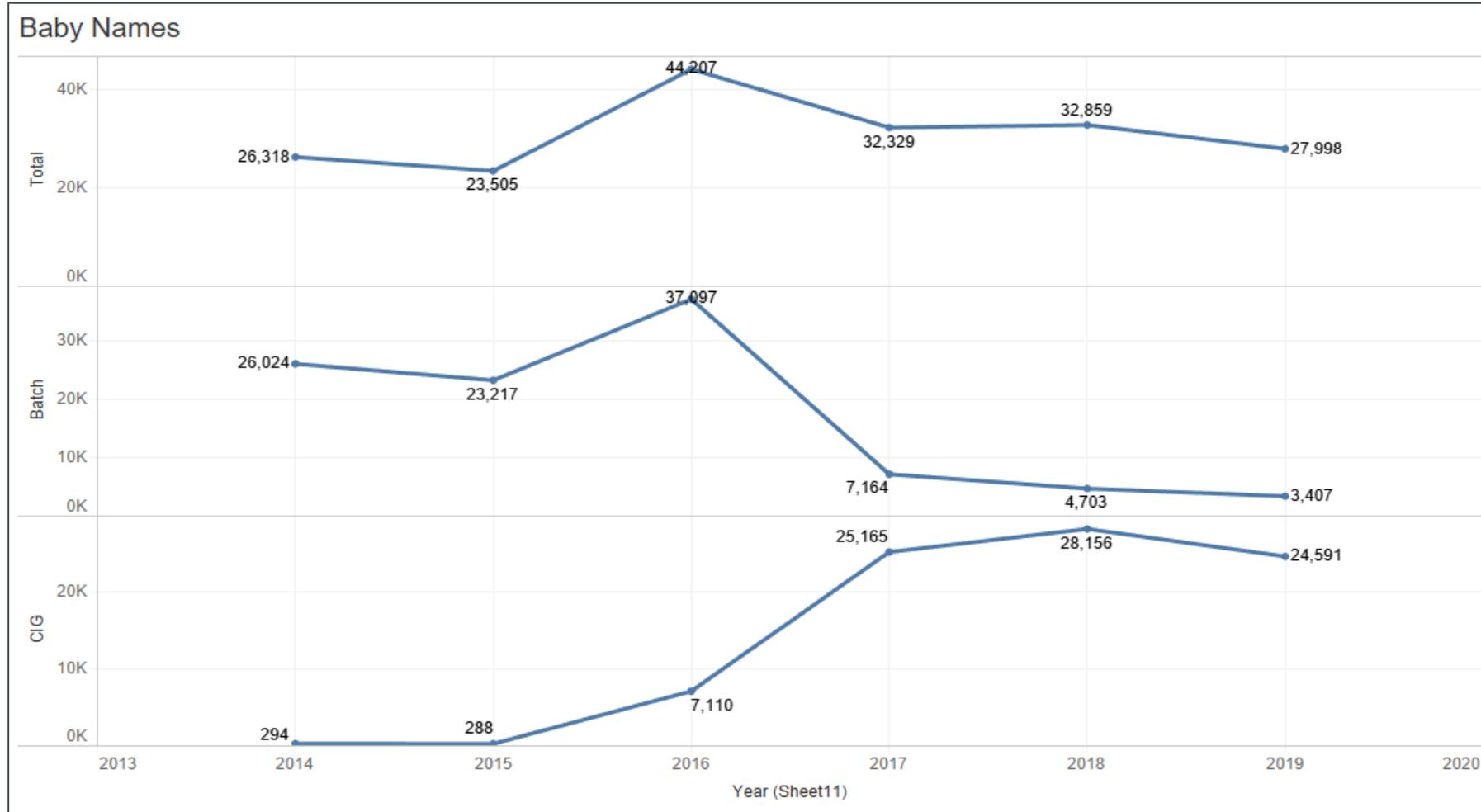
**Import Batch Viewer CIG HL7 Rs**

Import Client:		Production Client:	
Client_Id:	E6781484	Last:	TEST
Last:	TEST	First Name:	SARAH
First Name:	SARA	Middle Name:	JANE
Middle Name:	BETH	DOB:	10/20/2003
DOB:	10/20/2003	Gender:	Female
Gender:	Female	Alias Name:	
Alias Name:		Address Line 1:	
Address Line 1:		City:	
City:		Mother's First:	
Mother's First:		Mother's Last:	
Mother's Last:		Maiden:	
Maiden:		Father's First:	
Father's First:		Father's Last:	
Father's Last:		Guar First:	
Guar First:		Guar Last:	
Guar Last:		Multiple:	N
Multiple:	N	BirthOrder:	0
BirthOrder:	0	Status:	Active
Status:	Active	Site_ID:	030
Site_ID:	030	Modified Date:	07/26/2019
Modified Date:	07/26/2019	Import:	R
Import:	R	Import Msg:	Multiple dups matched
Import Msg:	Multiple dups matched	Merge Id:	6081305
Merge Id:	6081305		

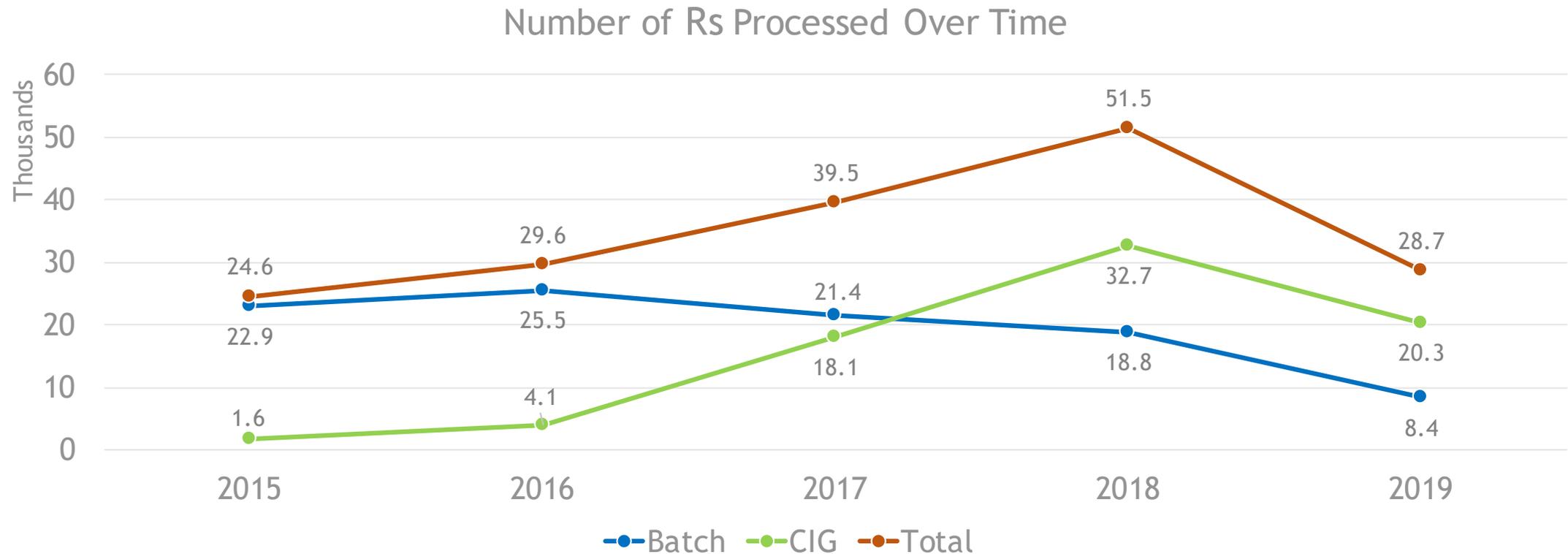
Reset Id	clinic_code	local_id	audit_update_dttm	audit_create_dttm	clinic_desc
Reset Id	075	E6183076	8/3/2018 3:22:31 AM	8/3/2018 3:22:31 AM	MEMORIAL HEALTH SYSTEM
Reset Id	UHO	E6183076	8/3/2018 3:22:31 AM	8/3/2018 3:22:31 AM	UC HEALTH ERG

Legend: Same   Different   Close

# Baby Name Statistics



# Rs Statistics



52% Increase between 2015-2018

# Ongoing Data Quality Reviews

## GOAL

Ensure CIIS data quality after initial Go Live

## TOOL

CIIS Data Review Tool, CIIS application and iSIIS Vision Project Management Tool

## PROCESS

- Review pre-production data validation and data check reports
- Review post-production electronic data
- Run Data Quality reports in Data Review tool
  - Completeness Report
  - Vaccine Quality Report
- Analyze data to determine if any reoccurring issues
- Generate and send findings report to site
  - Pass: No further action needed
  - Fail: Site expected to provide resolution to discrepancies

## TIME COMMITMENT

- Average 1-4 hours per ongoing Data Quality review

# Ongoing DQ Process

## Data Completeness Report

Selected Clients 186 Total Selected clients

ALL CLIENT FREQUENCY CVX COUNT

Select Profile:
 

- Pediatrics Office
- Internal Medicine/Family Practice
- Public Health/Hospital Pharmacy
- OBGYN
- Data Completeness**
- Vaccine Quality
- CIG Batch Range
- Quality Reports

Execute

Batch ID	Site Code	Date Received
N/A	CIG2 Data	GPP
	GRE	N/A

**Site Code:**  
VFC Status: NO

**Client Counts**  
Clients: 619  
Client Age < 19: 592(95.6381%)

### Client Demographics Details Included:

Mother's Name: 97% (573 of 592)  
 Father's Name: 94% (557 of 592)  
 Guardian Name: 1% (4 of 592)  
 Mother/Father/Guardian Name: 99% (587 of 592) - Passing Score is 90%  
 Address: 100% (619 of 619) - Passing Score is 95%  
 Phone: 100% (616 of 619) - Passing Score is 95%  
 Race: 100% (619 of 619)  
 Ethnicity: 17% (106 of 619)  
 Email: 0% (0 of 619)  
 Language: 100% (619 of 619)  
 MissingClient\_Id: 0

### Immunization Counts

Totals: 1091  
 Totals for Clients Age < 19:  
 Administered: 1091  
 Administered to Clients Age < 19: 1077 (99%)  
 Administered Date Ranges: 04/01/2019 - 04/19/2019  
 Total Historical: 0% (0)

### Immunization Details Included:

Lot ID count: 100% (1091 of 1091) - Passing Score is 100%  
 Manufacturer count: 100% (1091 of 1091) - Passing Score is 95%  
 Dosage: 100% (1091 of 1091) - Passing Score is 95%  
 Vaccine Program Eligibility: 99% (1062 of 1077) - Passing Score is 90%  
 Vaccine Funding Source: 0% (0 of 1077) - Passing Score is 90%  
 Administering Provider Name: 100% (1091 of 1091) - Passing Score is 95%  
 Administered Body Site: 100% (972 of 973) - Passing Score is 95%  
 Administered Route: 100% (1091 of 1091) - Passing Score is 95%  
 Expiration Date: 100% (1091 of 1091) - Passing Score is 95%  
 VIS Form Date: 98% (1066 of 1091) - Passing Score is 90%

Service Date	Service Day	ServiceCount
04/19/2019	Fri	37
04/18/2019	Thu	52

# Ongoing DQ Process

## Vaccine Quality Report

Selected Clients 14 Total Selected clients [Home](#)

[Data Validation Procedure Manual](#)  
[Vaccine Reference](#)  
[EHR Reference](#)  
[Data Quality Procedure Manual](#)

[Step 2](#) [Step 3](#)

ALL CLIENTS  
Pediatrics Office  
Internal Medicine/Family Practice  
Public Health/Hospital  
Pharmacy  
OBGYN  
Data Completeness  
**Vaccine Quality**  
CIG Batch Range  
Quality Reports

Execute

Execute

Mark	Whats Going On	Vaccine Description	CVX	Service ID	Manufacturer	TradeName	Dosage	ShotDate	Eqpt Name	First Name	DOB
<input type="checkbox"/>	Invalid VIS Given Date	TDAP	115	1	SKB	Boostrix	0.5 ML	01/14/2019			
<input type="checkbox"/>	Invalid VIS Given Date	TDAP	115	1	SKB	Boostrix	0.5 ML	01/17/2019			
<input checked="" type="checkbox"/>	Invalid VIS Given Date	TDAP	115	1	SKB	Boostrix	0.5 ML	01/18/2019			
<input checked="" type="checkbox"/>	Lot Id Not Typical	DTAP, HAEMOPHILUS B, POLIO	120	1	PMC	Pentacel	0.5 ML	01/17/2019			

# Ongoing DQ Process



**Ongoing Data Quality Report Card**

- Accuracy:** Electronic immunization records are checked for appropriate usage of vaccine based on vaccine manufacturer guidelines for licensure dates and the age of the patient at the time of the vaccination. The coding of each immunization is also checked
- Completeness:** The Completeness values are reviewed to help gauge how often meaningful values are found in the electronic data sent from the EHR

Data Elements Reviewed | Passed for Accuracy and Completeness | Data Quality Evaluation

**PASS**

- Patient's first and last name
- Patient's Gender
- Patient's DOB
- Patient's Address
- Patient's Phone Number
- Parent/Guardian Name
- Vaccination Admin Date
- Vaccine Name
- Vaccine Lot ID #
- Vaccine Dosage (mL)
- Manufacturer/Trade Name
- Administered Route
- Administered Body Site
- Vaccine Expiration Date
- Administered By
- VIS Edition Date
- Date the VIS Sheet was Given
- VFC Eligibility
- Funding Source
- Administering Clinic/Hospital
- CVX/CPT code

 **Ongoing Data Quality Review Purpose:** Reviews post entry errors, gaps and possible interference issues which can be ensure that the issues found are not recurring.

Report Card  
Summary & Table



**CIIS Ongoing Data Quality Report**

**Issues Found During Data Validation**  
**Baseline for Ongoing Data Quality Review**

What's Going On	COUNT	What's Seen	What Needs to Be Done	Recurrence of Issue
Body site does not match	15	Charted Record vs. Electronic Record PO (Oral) vs. RA-Right Arm	Workflow/training Consult EHR vendor	No
Incorrect VIS edition date	33	VIS edition date 10/6/09 sent for all shots	Workflow/training Consult EHR vendor	No
Lot ID # is not typical for this Manufacturer	1	Lot ID 7RJ9B for MVX PMC	Verify Lot ID is correct	No
Lot ID incomplete	1	Typhoid Lot ID 1234	Workflow/training	No
Vaccination has an incorrect dosage amount	1	HPV9 0.6ml dosage amount	<b>Recommended Dosage:</b> 0.5ml	No
Vaccine's expiration date is missing	2	In electronic record	Update EHR's vaccine inventory	No
Vaccination was administered incorrectly	8	Yellow Fever, Varicella and MMR route is IM	<b>Recommended Route:</b> SC	No

**Vaccine Quality Review Summary**

What's Going On	Count	What's Seen	What Needs to Be Done	See Table
No Issues Found				

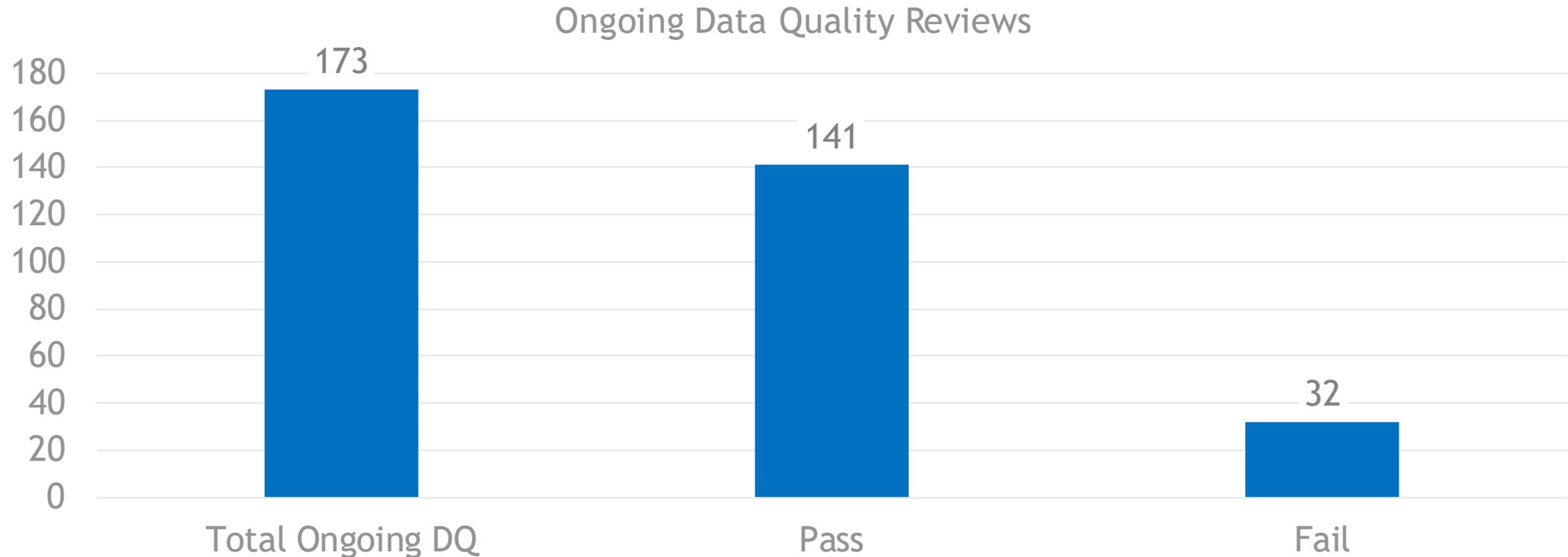
**Completeness Review Summary**

What's Going On	Count	What's Seen	What Needs to Be Done	See Table
No Issues Found				

Onboarding DV  
Review Results

Ongoing DQ Review  
Results

# Ongoing DQ Statistics



82% Passed Ongoing  
DQ Review

# Assigning Code Mappings

## GOAL

Resolve code mapping issues

## TOOL

Internal website and Google Sheet

## EXAMPLES

- Non-standard HL7 Codes
- Vaccine code issues
  - Non-Valid CVX Code - new vendor adds
  - Vaccines no longer available
- City name incorrectly spelled
- New clinic data received from group interface

## TIME COMMITMENT

- Variable - New clinics are most time consuming

# Code Mapping

**CIIS Import Management Console**

Codes Needing Conversion

Adeno type4 (CPT: 90476, CVX: 54)

Site Id:

	CodeName	FromValue	FromDescription
Select	BODY_SITE	.L ARM	.L ARM
Select	FUNDINGSOURCE	VXC2	STATE FUNDS
Select	LANGUAGE	SPANISH,CASTILIAN	
Select	PAYOR	101	
Select	PAYOR	CAA01	STATE GENERAL FUND VACCINES
Select	RELATIONSHIP	OAD	
Select	SERVICECODE	000	MENINGITIS C (DOCUMENTATION PURPOSES)
Select	SERVICECODE	145	RSV-MAB (NEW)
Select	<b>SERVICECODE</b>	<b>145</b>	<b>RSV (RESPIRATORY SYN CYTIAL VIRUS MONOCLONAL ANTIBODI</b>
Select	SERVICECODE	145	RSV-MAB (NEW)
Select	SERVICECODE	154	HEP A, IG
Select	SERVICECODE	49281075221	
Select	SERVICECODE	49281075278	
Select	SERVICECODE	999-UNKNOWN	999-UNKNOWN

**CIIS Import Management Console**

Intranasal (N)

Left Anterior Lateral Thigh (LALT)

Left Anterior Thigh (LAT)

Left Arm (LA)

Left Cranial Side Lateral (LCSL)

Left Deltoid (LD)

Left Lateral Thigh (LLT)

Left Leg (LL)

Left Outer Aspect Upper Arm (LPUA)

Left Upper Outer Quadrant Gluteus (LG)

Left Vastus Lateralis (LVL)

Oral (PO)

Other (OTH)

Right Anterior Lateral Thigh (RALT)

Right Anterior Thigh (RAT)

Right Arm (RA)

Right Deltoid (RD)

Right Lateral Thigh (RLT)

Right Leg (RL)

Right Outer Aspect Upper Arm (RPUA)

Right Upper Outer Quadrant Gluteus (RG)

Right Vastus Lateralis (RVL)

Unknown (UNK)

Site Id:

**FromVal**

STILIAN

Select SERVICECODE 145

# Lessons Learned

---

- Push conformance to HL7 standards
  - This will reduce some items identified
  - Barrier: could add to onboarding timelines
- Importance of Data Quality reviews during onboarding
  - Increased staff has allowed Colorado to standardize this more
- Develop good logs showing the path to data
  - Easier troubleshooting
  - Ability to run reports
  - Ability to go back and fix issues

# Next Steps

- Develop monitoring systems for Real-Time Gateway
- Develop front end reports to replace running from SQL Management Studio
- Develop automated reports for Ongoing Data Quality reviews

ISIS VISION  
Select Program Type:  Immunization  Electronic Lab  Syndromic  Cancer  View CoPHR Registration

Home | Calendar | Quick Search | Advanced Search | Groups | Medical Software | Onboarding | Interface Projects | **DQ Monitor** | Support Console | Reports | File Log

Immunization Reporting: Data Quality Cyclical Review

Status	Clinic Code	Clinic Site	Group Name	AA	AE-E	AE-W	DQ Rate	Assigned To	Last DQ Review	Schedule	Reports	Remove
	TCH	<a href="#">Children's Hospital Colorado</a>	<a href="#">Children's Hospital Colorado</a>	49	0	0		<a href="#">Vanessa Willis</a>				
	PPCH	<a href="#">CHPG Porter Primary Care</a>	<a href="#">Centura Health</a>	0	3	0		<a href="#">Vanessa Willis</a>				
	024	<a href="#">Paeosa Mountain Hospital</a>		2	0	0		<a href="#">Shunda Cotton</a>				
	PMT	<a href="#">Paeosa Springs Primary Care Clinic</a>		10	0	0		Assign				
	151	<a href="#">Prowers Medical Center Hospital</a>		12	11	0		Assign				
	129	<a href="#">Saint Mary's Hospital And Medical Center</a>	<a href="#">SCLHS</a>	2	0	0		Assign				
	067	<a href="#">St. Anthony Hospital</a>	<a href="#">Centura Health</a>	0	8	0		Assign				
	WMA	<a href="#">Western Medical Associates</a>		1	0	0		Assign				

Version #7.0

# Contact Information

---

Kim Gulliver

CIIS Interoperability Unit Supervisor

E: [kim.Gulliver@state.co.us](mailto:kim.Gulliver@state.co.us)

P: (303) 692-2644

Steve Jarvis

CIIS Data Interface Specialist

E: [steve.Jarvis@state.co.us](mailto:steve.Jarvis@state.co.us)

P: (303) 692-2270