

CUTTING THE QUEUE

Colorado's Continual Onboarding Process Improvements



VISION Driving IIS Daily Business Processes

Presented by: **Darrin J Rosebrook**
AMCI Health Informatics

&

Kim Gulliver
Colorado Department of Health & Environment

Colorado's Immunization Information System (CIIS)

CIIS Background

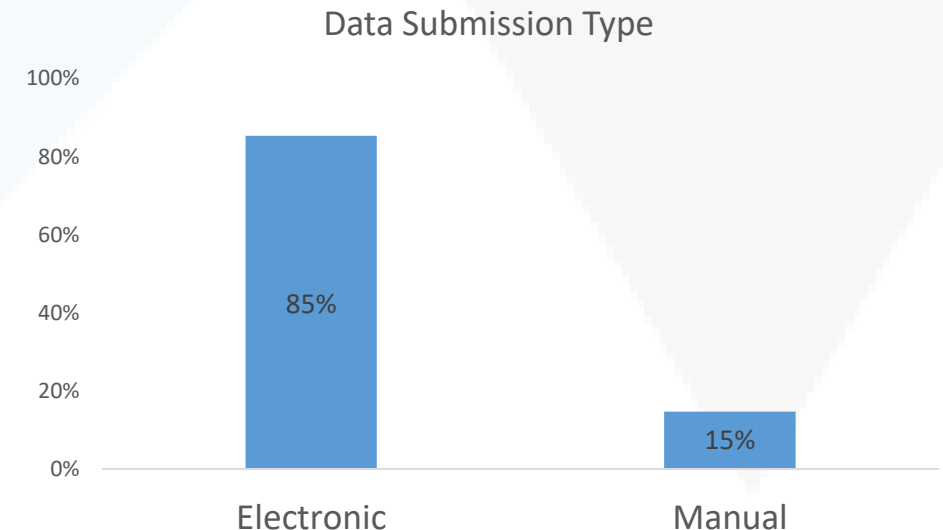
Confidential, secure, population-based, web-based system that:

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



CIIS by the numbers (as of August 1, 2018):

- Total Patients: 5.8 million
- Total Vaccinations: 65.3 million
- Sites Submitting Data Electronically: 1514
 - Real-Time: 959
 - Bi-Directional: 422
- Sites Submitting Data Manually: 260



Colorado's Immunization Information System (CIIS)

CIIS Reason for Process Improvements

- Provider backload – sites needed an interface developed
- Variable interface timelines (from 1 month to 2 years)
- IZ program received additional funding to address backlog
 - Wanted efficient process before onboarding new staff
- Working with CORHIO (HIE assists with onboarding providers)
- Backlog of providers caused gaps in data contained in CIIS



Colorado's Immunization Information System (CIIS)

CIIS Quality Improvements

Goal: Streamline onboarding process to reduce project timelines and waitlist

- Rollout of new products
 - Online HL7 Testing Tool
 - Project Management Module
- Data Validation process changes
 - Clinic Vaccine List
 - Lot ID Patterns

Message Summary

Evaluation Date: 05 15 2018 09:07 File Status: Tested By: Kim Gulliver

Immunization Reporting: Project Management

4962 - Rural Health Test - Immunization Project Owner: Assigned to:

CIIS Clinic Code: Location: 3 Rural Test Road , Boulder CO 11111 Phone: (123) 123 1231 Primary: Rural Test (123) 123 1231

DIPHTHERIA, PERTUSSIS, TETANUS	DTaP (Daptacel)	sanofi pasteur	PMC	<input type="checkbox"/>
	DTaP Infanrix)	GlaxoSmithKline	SKB	<input type="checkbox"/>
	Td (Tenivac) adult preservative free	sanofi pasteur	PMC	<input type="checkbox"/>
	TD (Generic) adult absorbed	Massachusetts Biologic Laboratories	MBL	<input type="checkbox"/>
	DT (generic) pediatric	sanofi pasteur	PMC	<input type="checkbox"/>
	Tdap (Boostrix)	GlaxoSmithKline	SKB	<input type="checkbox"/>
	Tdap (Adacel)	sanofi pasteur	PMC	<input type="checkbox"/>
	DTaP-IPV (Kinrix)	GlaxoSmithKline	SKB	<input type="checkbox"/>
	DTaP-HepB-IPV (Pedarix)	GlaxoSmithKline	SKB	<input type="checkbox"/>
	DTaP-IPV-Hib (Pentacel)	sanofi pasteur	PMC	<input type="checkbox"/>
	DTaP-IPV (Quadracel)	sanofi pasteur	PMC	<input type="checkbox"/>
	Tetanus Toxoid (Generic) absorbed	sanofi pasteur	PMC	<input type="checkbox"/>
HEPATITIS A	HepA (Havrix)	GlaxoSmithKline	SKB	<input type="checkbox"/> Ped/Adol <input type="checkbox"/> Adult
	HepA (Vaqta)	Merck and Co., Inc.	MSD	<input type="checkbox"/> Ped/Adol <input type="checkbox"/> Adult
	HepA-HepB (Twinrix)	GlaxoSmithKline	SKB	<input type="checkbox"/>



PHASE 1: Process Improvements

PHASE 1: Provider Management System

Three Components of System

Provide Management System

- Manages the Daily Operation of CIIS
 - Enrollment
 - Onboarding
 - Training
 - Helpdesk
- Tools and Resources based on CIIS Team Member's User Role

Self-Serve Resource Center (One-Stop-Shop)

- Provides appropriate Tools to accomplish tasks and facilitate processes
- Resource and Tools are based on Stakeholder Role

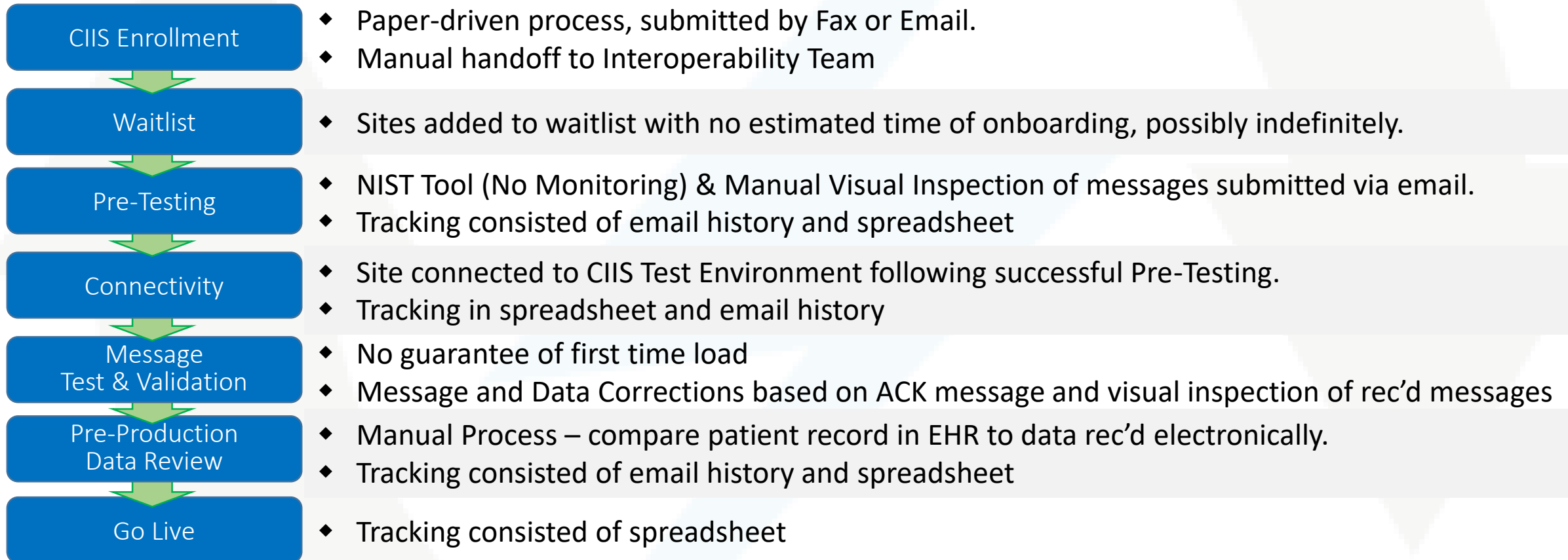
Workflow- Collaborative Engagement and Process Facilitation

- Unique to the task at hand
- Automated to decrease time-consuming administrative tasks



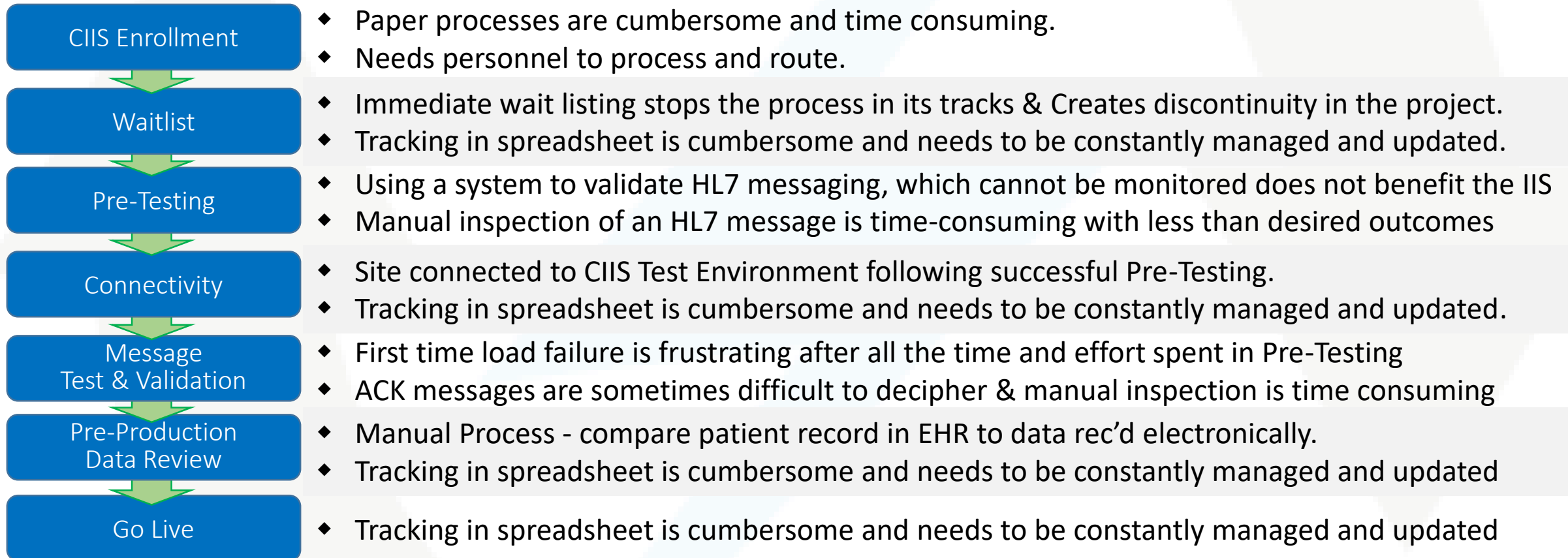
Legacy Data Exchange Onboarding Process

CIIS DE Onboarding prior to Fall 2015



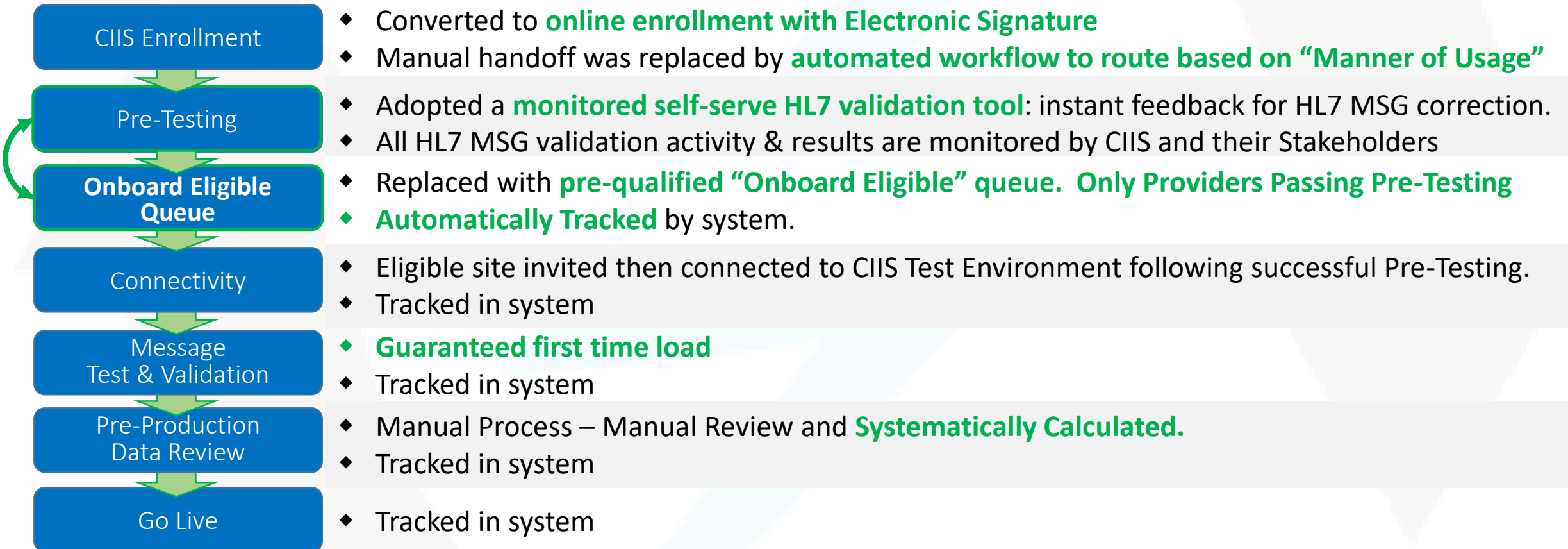
Legacy Data Exchange Onboarding Process

Identifying Shortcomings of the Old Process

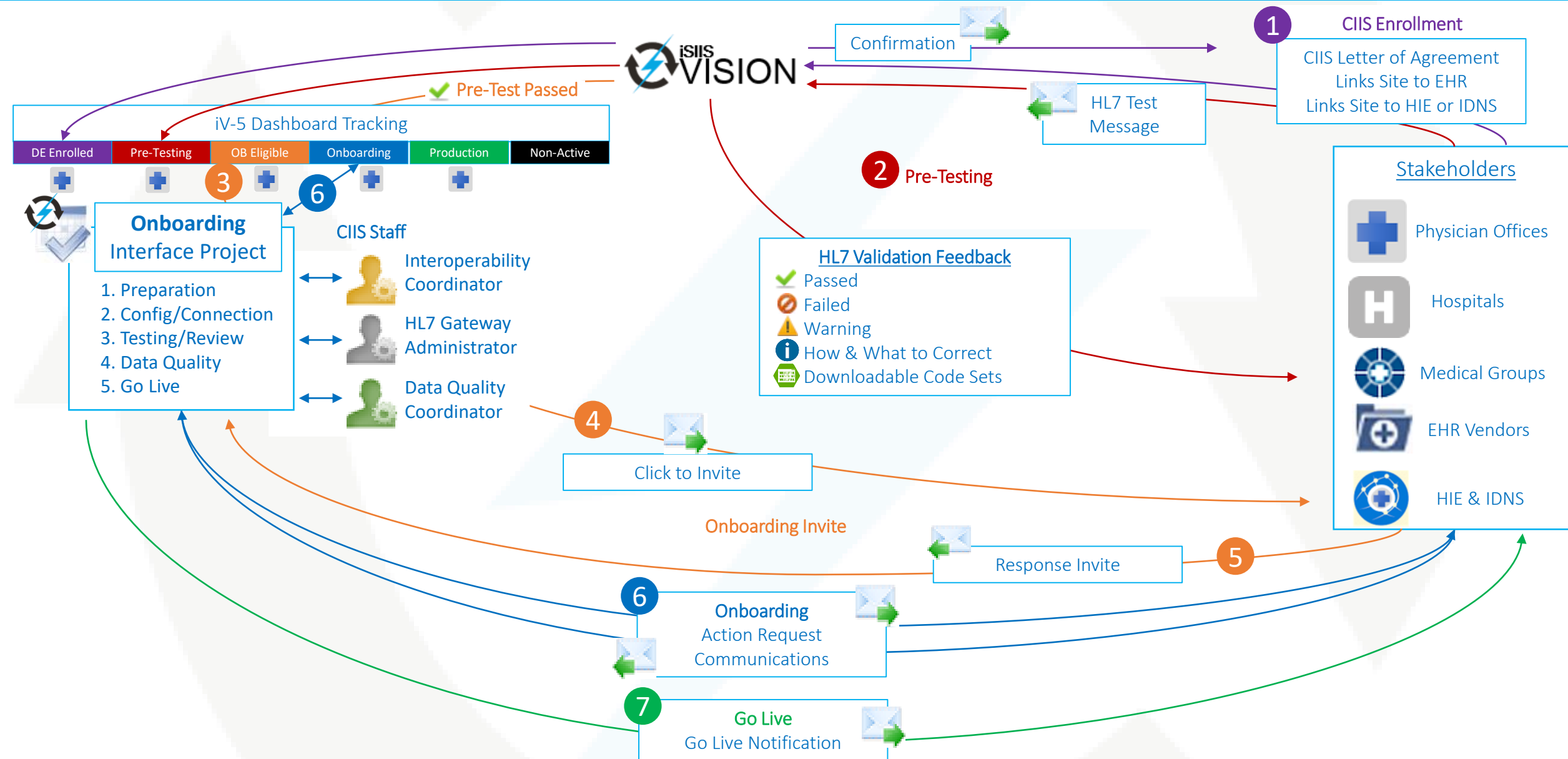


Improving the CIIS DE Onboarding Process

Phase 1. Process Improvements



CIIS Improved DE On-boarding Workflow



Conformance in Process

1131 - Denver New Site - Immunization

Denver New Site Project Owner: Assigned to:

CIIS Clinic Code: DNCC Location: 123 Denver, Denver CO 80222 Phone: (222) 222 2222 Extn. 2 Primary: Gerard Butler (222) 222 2222 Extn. 2

EHR: Advanced Medical Software Systems LLC - MedScribe - 1 Tech FromEHR (555) 555 5555 No Request

Preparation	Config/Connection	Testing/Review	Data Validation
✓ Completed	✓ Completed	✓ Completed	✓ Completed
✓ KickOff - Completed	Sending ID: DNCC	VXU Validation: 2.5.1 05/18/2018 ✓	Validation Round: 1
✓ Contacts Established	Mode of Connectivity:	Current: 10 of 10	Records Received: 20
	Dx Type:	Historical: 3 of 3	Total # of Vaccine Svcs: 20
	✓ HIE Participation: CORHIO		Total # of Discrepancies: 0
	✗ IDNs Association:		Accuracy Rate: 100%
Gerard Butler (222) 222 2222 Extn. 2	Salie HIEcontact (555) 999 9999 Extn. 9	Tech FromEHR (555) 555 5555	Devi DateReview (555) 665 5555
Go Live Status: ✓ Completed			Salie HIEcontact (555) 999 9999 Extn. 9



CIIS Staff



Interoperability
Coordinator



Data Interface
Specialist



Data Quality
Coordinator

Stakeholders



Physician Offices



Hospitals



Medical Groups



EHR Vendors



HIE & IDNs

TRANSPARENT INFORMATION EXCHANGE ADDS CONTINUITY TO PROJECT

Colorado's On-boarding Results

Number of Sites on the CIIS Interface Waitlist was over 500 in 2011.

Continued to grow to 637 up until Sept. 2015

System released to EHR Vendors in October 2015.

TARGET METRIC	Sept 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Aug 2018
Number of sites on CIIS wait list	637	631	623	490	390	386	385	209
% of sites on waiting list (n=637) moved to onboarding queue	0.3%	0.9%	2.2%	23.1%	38.8%	39.4%	39.6%	67.2%
Number of sites engaged in self-serve testing (cumulative)	44	44	73	80	85	125	153	432

Colorado's PHASE 1: DE On-boarding Results

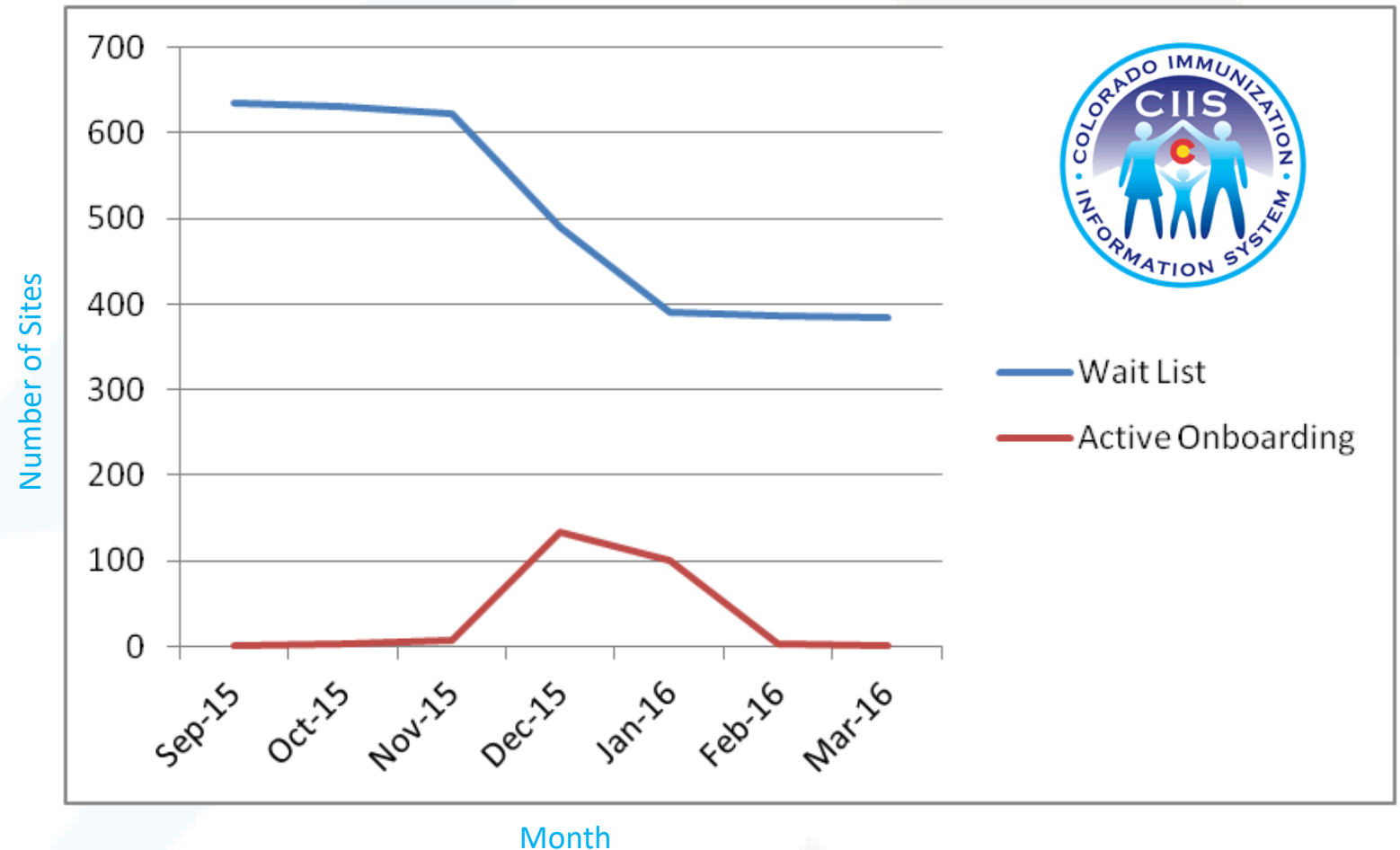
CIIS Program reduces interface waitlist by nearly **50%** in 7 months. 🏠



Congratulations!

CIIS Program Received the 2016 AIMS Bull's Award for Innovation and Excellence!

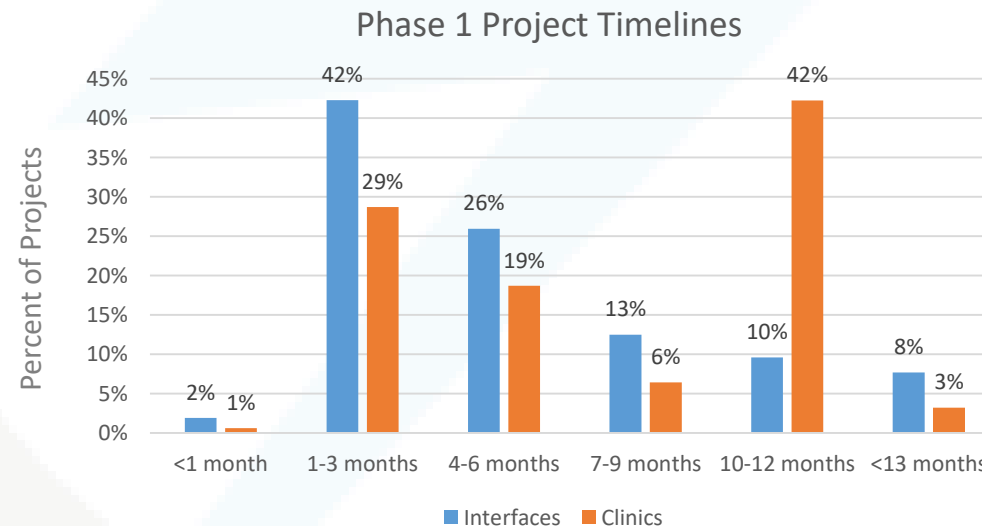
Transition from Wait List to Active Onboarding



Colorado's PHASE 1

Phase 1 Detailed Onboarding Timelines

	Preparation	Connectivity	Testing & Review	Data Validation	Go Live	Overall
All Interfaces	1 day	20 days	48 days	88 days	27 days	174 days
All Sites	1 day	15 days	44 days	136 days	21 days	225 days
HFD	1 days	1 day	4 days	6 days	9 days	24 days
RNS	1 day	13 days	179 days	437 days	16 days	656 days



Colorado's PHASE 1

Phase 1 Challenges

- Lack of engagement
- Communication delays
- Low volume process
 - Record stack timeline





PHASE 2: Enhancing Engagement Through Education

Colorado's PHASE 2

Increasing Education & Engagement

- Interface Kickoff PowerPoint
- Processes differ based on volume
- Remote EHR access for DV Review

Phase 1: Preparation

Phase 2: Connectivity/Configuration

Phase 3: Initial Data Review

Phase 4: Data Validation

Phase 5: Go Live Planning

- Includes a Go Live planning meeting (30-minute or less)
- Meeting includes the following topics:
 - CIIS Notification and Opt-Out
 - VFC Manual to Aggregate transition (if applicable)
 - CIIS access and workflow changes
 - Schedule Go Live date
 - Q&A

Phase	Status	Description
Preparation	✓	- Completed
Configuration/Connection	✓	- Completed
Testing/Review	✓	- Completed
Data Validation (DV)	✓	- Completed
Go Live	🔄	- In Progress

Colorado's PHASE 2

Phase 2 Detailed Onboarding Timelines

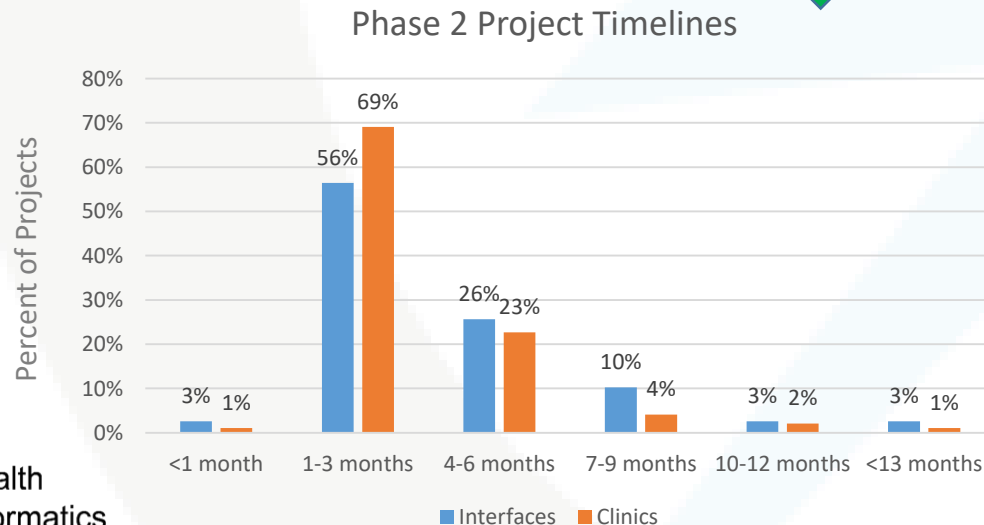
	Preparation	Connectivity	Testing & Review	Data Validation	Go Live	Overall
All Interfaces	1 day	20 days	31 days	56 days	16 days	124 days
All Sites	1 day	18 days	31 days	53 days	17 days	125 days
SCI	1 day	8 days	1 day	1 day	6 days	25 days
FLFM	1 day	63 days	212 days	182 days	1 day	440 days

↓ 35%

↓ 36%

↓ 41%

↓ 29%



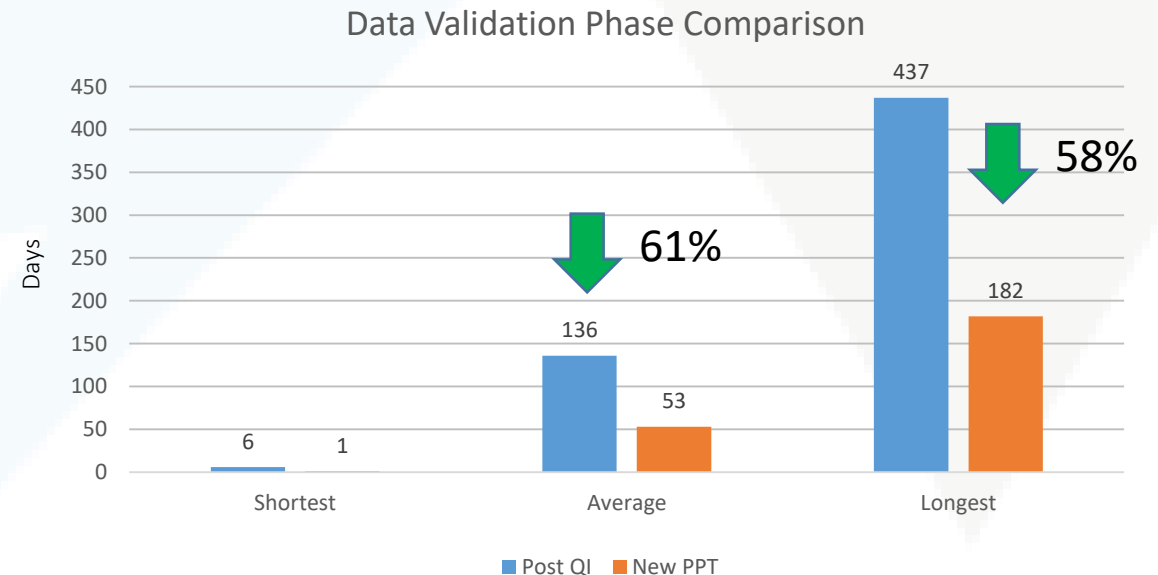
CIIS Interface: Data Validation Phase Statistics

Time it took (in months) to complete the data validation phase

- Data Validation Phase Process:
- Request and receive charted records
- Conduct review
- Compile report
- Send report with corrective action to site to review and address
- Verify corrective action

■ Post QI Process:
Includes 310 sites for reviews
done from late 2015 to current

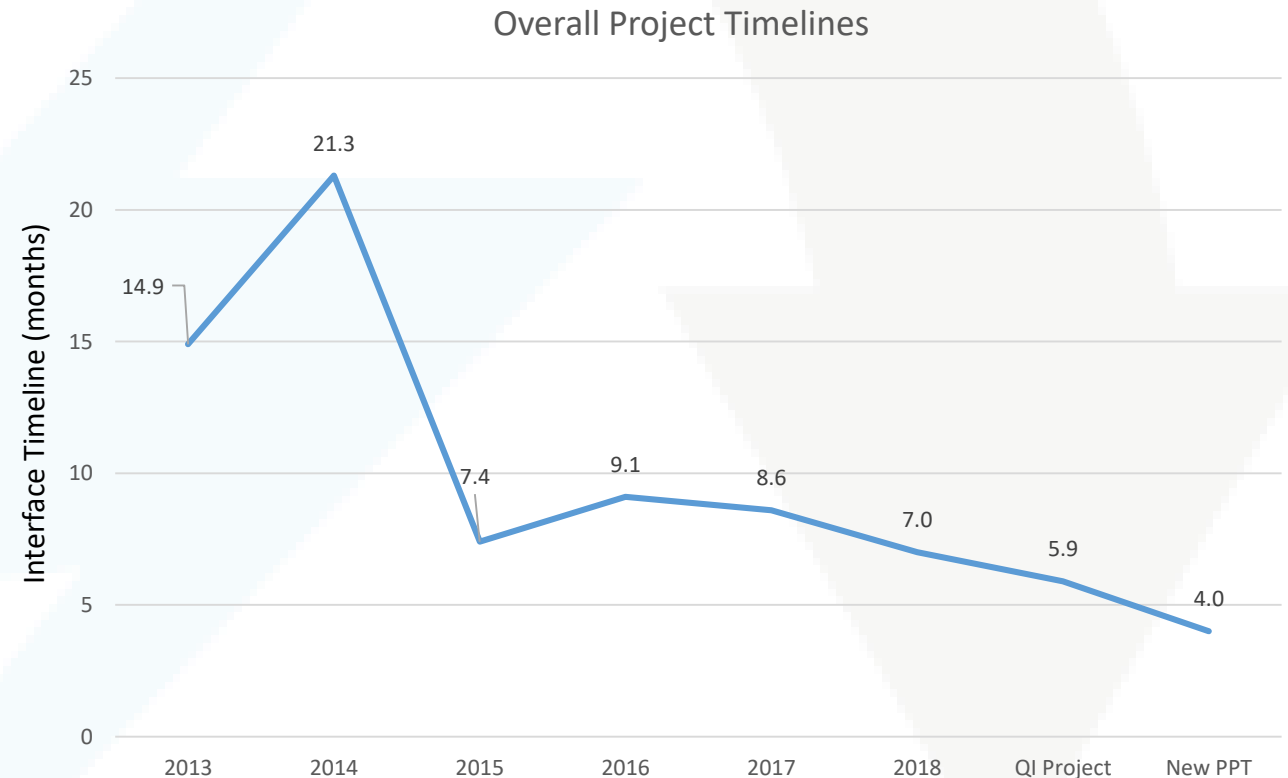
■ New PPT Process:
Includes 98 sites for
reviews done in May 2017
to current



Colorado's PHASE 2

Overall Project Timelines

	Year	Number of Interfaces	Number of Clinics	Average Project Duration
	2013	17	50	14.9 months
	2014	20	58	21.3 months
Prep	2015	28	171	7.4 months
Phase1	2016	21	21	9.1 months
Phase 2	2017	58	269	8.6 months
	2018	37	66	7.0 months
	QI Project	102	310	5.9 months
	New PPT	37	98	4.0 months



Colorado's PHASE 2

Phase 2 Challenges

- Low Volume Process
- Connectivity Delays
- EHR Changes
- HL7 2.3.1 to 2.5.1 conversions





PHASE 3: Onboarding Automation

CIIS Real-Time ACK Monitoring

OnBoarding

- Generates CIIS Clinic Code (IIS Site ID)
- Generates Prefilled SOAP WSDL for CIIS Test
- Monitors & Confirms Test Connection
- Sets & Confirms Pass Rate to begin Pre-Production
- Generates Prefilled SOAP WSDL for CIIS Production

Production

- Monitors CIIS Production Interface
- Monitors Submission Frequency
- Monitors Error and Rejection Rate
- Monitors Query Frequency

Meaningful Use

- Monitors Ongoing Submissions
- Monitors Bi-Directional Exchange



Incoming
Data Submission



**Real-Time
ACK Monitoring**



Data Interface
Specialist



Error/ Rejection Dashboard

⚠ Site_Name	ER_Rate%
🚩 Site_Name	ER_Rate%
⚠ Site_Name	ER_Rate%
🚩 Site_Name	ER_Rate%
⚠ Site_Name	ER_Rate%
🚩 Site_Name	ER_Rate%
⚠ Site_Name	ER_Rate%
🚩 Site_Name	ER_Rate%
⚠ Site_Name	ER_Rate%
🚩 Site_Name	ER_Rate%



Test WSDL



Production WSDL



Error/Reject Report



Interface Down Alerts



MU Report Card

CIIS Real-Time Data Quality Monitoring

Real-Time Data Quality Monitor

- Identifies sites for 6 Month DQ Review
- Provides Proactive Data Quality Alerts
- Prioritizes Providers for Data Quality Review
- Provides MSG drilldown detail
- Provides Data Quality Reporting
 - CIIS Data Quality Coordinator
 - Provider Site
 - Medical Group

Meaningful Use

- Monitors Prioritized Data Element Submission
 - For example: NDC



Incoming
Data Submission



**Real-Time
Data Quality Monitor**



Data Quality
Coordinator



DQ Monitor Dashboard	
⚠ Site_Name	DQ_Rate%
🚩 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🏠 Site_Name	DQ_Rate%
🚩 Site_Name	DQ_Rate%
⚠ Site_Name	DQ_Rate%
⚠ Site_Name	DQ_Rate%



DQ Alerts to CIIS/Site



Shared DQ Reports



DQ Intervention



Prioritized Assessments



MU Report Card

Colorado's PHASE 3

Thank you

Contact

Kim Gulliver, MS
CIIS Interoperability Unit Supervisor
Colorado Department of Public Health and Environment
Kim.Gulliver@state.co.us
(303) 692-2644

Darrin Rosebrook
Managing Director
AMCI Health Informatics
drosebrook@amciweb.com
(614) 390-4808