

Implementing CDC's VTrckS API for Vaccine Ordering and Transactions Data in NYC

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Pittsburgh, Pennsylvania

Background

Citywide Immunization Registry (CIR) Overview

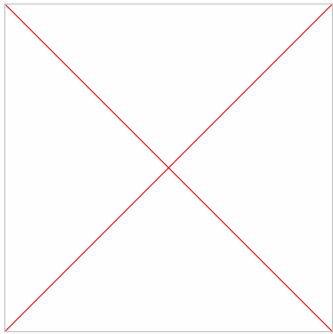
- The Immunization Information System (IIS) for New York City (NYC)
 - Began citywide in 1997
 - As of March 2026, contains ~15.4 million patient records and > 188 million unique immunizations
 - Reporting of immunizations for children 0-18 years is mandatory
 - Reporting for adults 19 years and older requires consent

Partnership with HLN Consulting

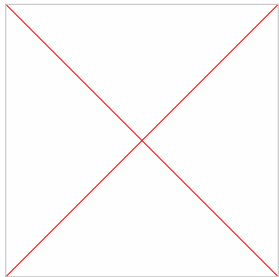
- HLN has provided software development and support services to the CIR continuously since the year 2000
- CIR owns the copyright for its source code



NYC Vaccines For Children (VFC) Program



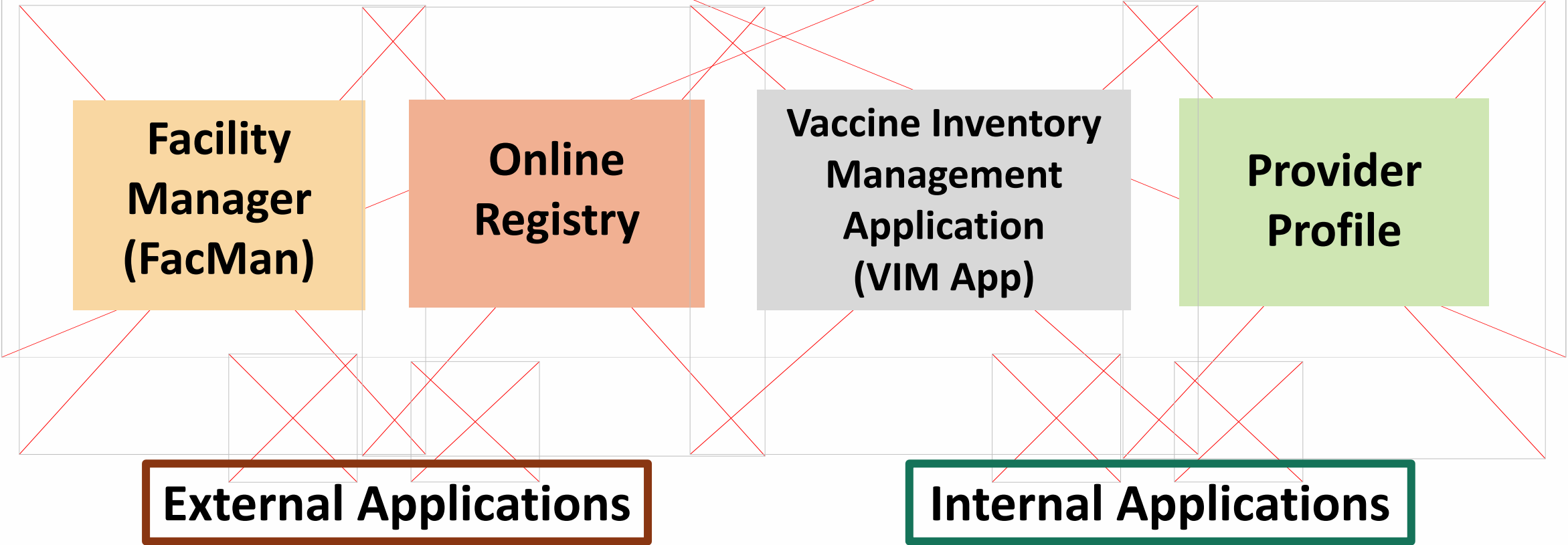
- ~1,200 provider sites enrolled



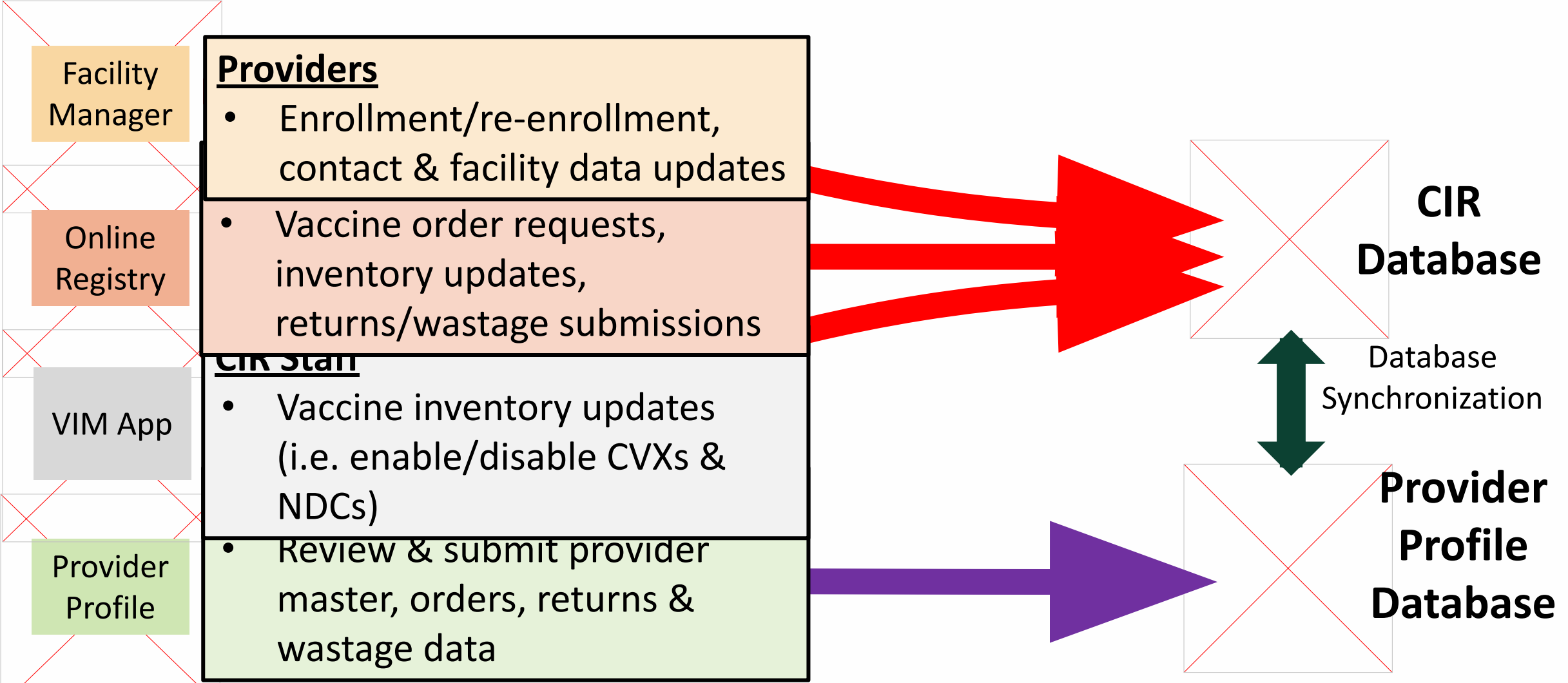
- NYC distributes ~3 million doses of vaccines annually



Citywide Immunization Registry (CIR)



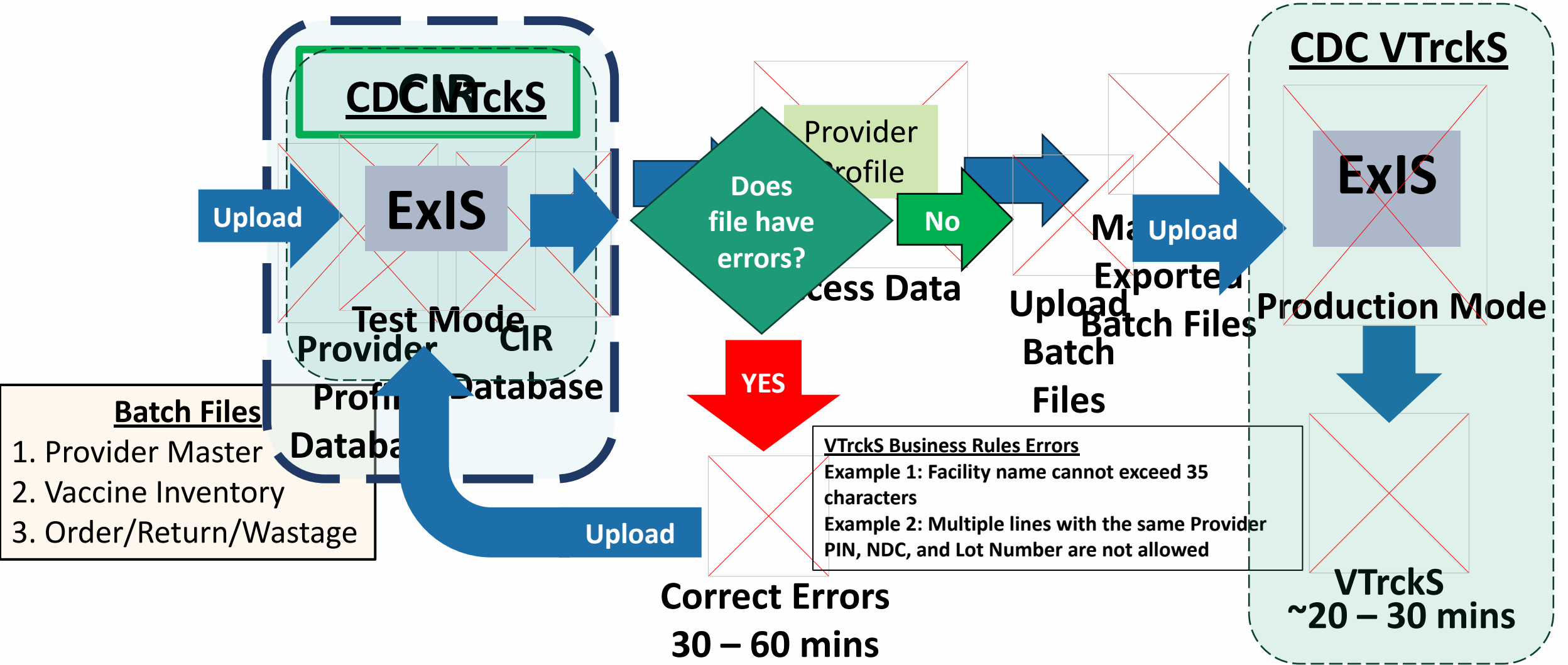
CIR Vaccine Management Applications & Databases



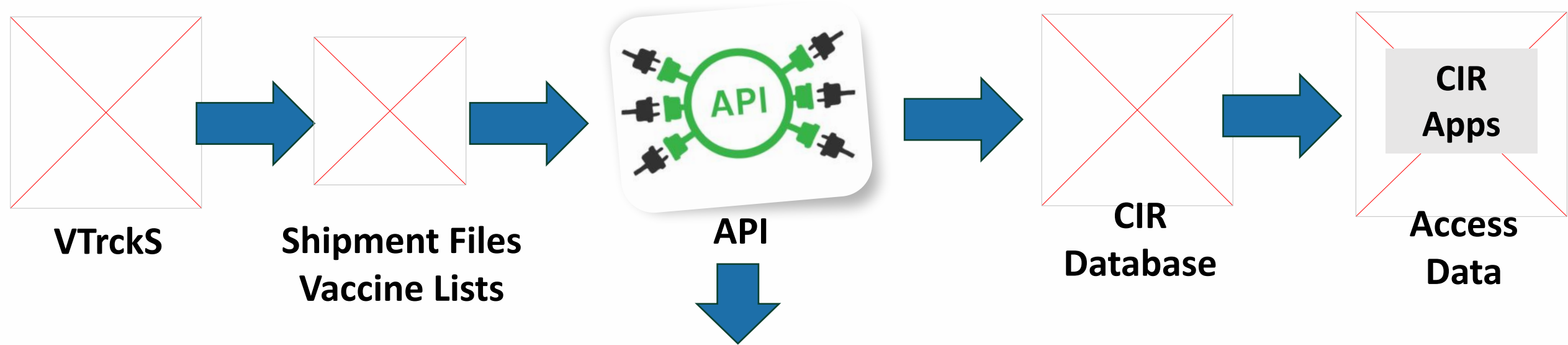
Data Exchange with CDC Vaccine Tracking System (VTrckS)

- Data CIR receives from VTrckS
 - Vaccine shipment – schedule of vaccine deliveries
 - Vaccine lists – vaccine NDCs and descriptions
- Data CIR sends to VtrckS
 - Provider Master – facility and contact information
 - Vaccine Inventory – provider on-hand vaccine stocks
 - Vaccine Orders – provider vaccine requests
 - Vaccine Returns – expired vaccine reports
 - Vaccine Wastage – spoiled and otherwise unusable vaccine reports

VTrckS External Information System (ExIS)



VTrckS Application Programming Interface (API) Phases 1 & 2



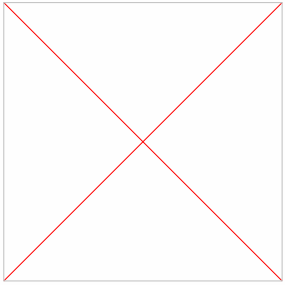
VTrckS API Manager

- ACTIVITY LOG
- ON-DEMAND REQUEST
- SHIPMENT IMPORT LOG

Data Received from VTrckS API
Automated transfer completed
in < 1 min

CDC VTrckS API Phase 3 Objectives

- Develop API connections to VTrckS and dashboard for the following data:
 - Provider Master, Vaccine Inventory, Orders, Returns, & Wastage
- Align the CIR with CDC IIS Functional Standards Goals
- Further modernize the CIR and expand VTrckS implementation
- Increase automation and improve staff productivity
- Improve error-handling processes



Method

VTrckS API Phase 3 Project Considerations

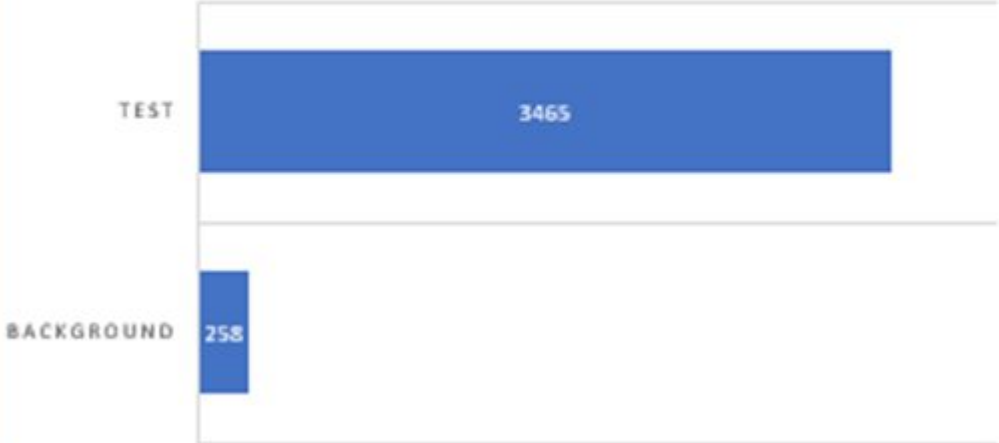
- Pre-planned data consolidating and migration
 - Consolidating data into a single database for streamlining
- Data cleaning
 - Consolidated data may have internal-use only legacy data that are not compliant with VTrckS business rules
- NYC IIS module integration
 - Multiple modules from different eras – compatibility during integration
- Minimize provider disruptions

New York City VTrckS Error Tracking

Providers



MODE



Wastage



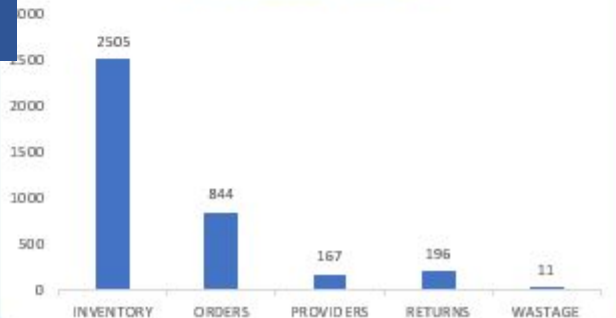
BACKGROUND

TEST

of Errors



of Errors by Interface



January 2024 thru March 2025

Development Design Decisions

- Chose to send individual records for each API call
 - Eliminated 'all or nothing' order errors
 - Allowed Provider Master near real time submissions
 - Immediately eliminated duplicate inventory errors
- Created microservices to handle VTrckS API communications
- Updated the cadence of sending/receiving records & retry logic
- Redesigned the 'send inventory' process

Phase 1
Live 3/2024

Vaccine shipment

Synchronous call

Phase 2
Live 8/2024

Vaccine list

- Federal NDCs

Phase 3 - Part A
Live 2/2025

Provider Master

Data:

- Provider PIN
- Shipping address
- Shipping hours
- Vaccine contacts
- Delivery notes

Phase 3 - Part B
Live 6/2025

Inventory & Orders

Data:

- Current inventory
- NDC
- Quantity
- Fund type
- Ordering intention

Phase 3 - Part C
Live 7/2025

Return & Wastage

Data:

- Provider PIN
- Reason for return
- NDC
- Quantity
- Lot & expire date
- Number of boxes

Asynchronous Call

VTrckS API Manager Dashboard

Provider Master Log

VTckS API Manager

ACTIVITY LOG

ON-DEMAND
REQUEST

SHIPMENT
IMPORT LOG

PROVIDER
MASTER LOG

FILTERS

Run ID	VTrckS Run Status	Transaction Start Date ↓	Completed Date	PIN	Rec Type	Orig Cert	Rnwl Cert	Provider Status	Special Project	Ship Contact	Contact Type
2600062053	COMPLETED	4/16/2026, 12:11:10 PM	4/16/2026, 12:13:15 PM		Contact					X	Contact (Z1)
2600061954	COMPLETED	4/16/2026, 9:48:15 AM	4/16/2026, 9:49:10 AM		Both	10/8/2004	10/10/2025	SUSPENDED	~		
2600061949	COMPLETED	4/16/2026, 9:44:52 AM	4/16/2026, 9:50:07 AM		Both	6/13/2016	10/23/2025	ACTIVE	~		
2600061439	COMPLETED	4/16/2026, 9:13:38 AM	4/16/2026, 9:29:01 AM		Facility	5/6/2004	11/25/2025	ACTIVE	~		
2600061518	COMPLETED	4/16/2026, 9:13:38 AM								X	Primary Vaccine Coordinator (Z4)
2600061517	COMPLETED	4/16/2026, 9:13:38 AM									Contact (Z1)
2600052212	COMPLETED	4/15/2026, 12:49:01 PM	4/16/2026, 9:37:01 AM		Facility	3/31/2005	12/15/2023	INACTIVE	~		
2600051612	ERROR	4/15/2026, 11:13:20 AM	4/16/2026, 9:36:59 AM		Both	6/13/2016	10/23/2025	ACTIVE	~		

Error Details (Run ID: 2600051612, PIN:)

1: Error - First Name and Last Name combined cannot exceed 35 characters

VTrckS API Manager Dashboard Expansion

☰ VTrckS API Manager

ACTIVITY LOG

ON-DEMAND
REQUEST

SHIPMENT
IMPORT LOG

PROVIDER
MASTER LOG

INVENTORY LOG

ORDERS LOG

RETURN LOG

WASTAGE LOG


☰ FILTERS 

Run ID	VTrckS Run Status	Date/Time Initiated ↓	Date/Time Completed	PIN	Wastage Date	Wastage ID
2500292676	COMPLETED	8/5/2025, 9:02:42 AM	8/5/2025, 9:03:19 AM		8/5/2025	9912743704
2500290306	COMPLETED	7/14/2025, 12:36:43 PM	7/14/2025, 12:37:20 PM		6/5/2025	9912743314
2500290298	COMPLETED	7/14/2025, 11:54:27 AM	7/14/2025, 11:55:08 AM		6/25/2025	9912743480
2500289752	COMPLETED	7/9/2025, 8:49:15 AM	7/9/2025, 8:49:49 AM		7/9/2025	9912743692


Error Handling & Approval Workflows

VTrckS API – Error Handling

[Production] Provider Master Daily Summary - 11/19/2025

 noreply@health.nyc.gov
To
Cc

Retention Policy DOHMHRetentionPolicy (8 years) Expires 11/18/2033

 If there are problems with how this message is displayed, click here to view it in a web browser.

Attention CIR,

Listed below is a summary of the **269** updates made to the Provider Master Data via the VTrckS API on 11/19/2025:

Run ID	VTrckS Status	Transaction Start Date	PIN	Record Type
2500145460	COMPLETED	11/19/2025		Contact
2500145929	COMPLETED	11/19/2025		Contact
2500145533	COMPLETED	11/19/2025		Contact

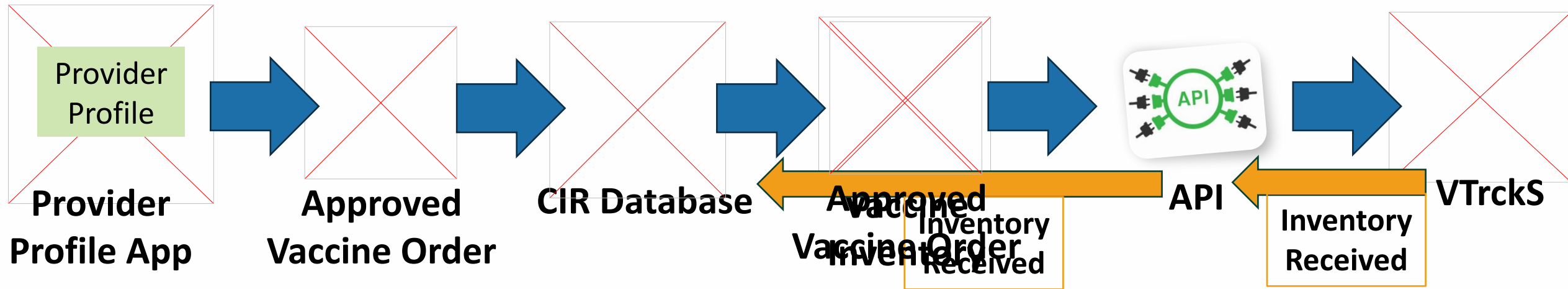
Message

Reply

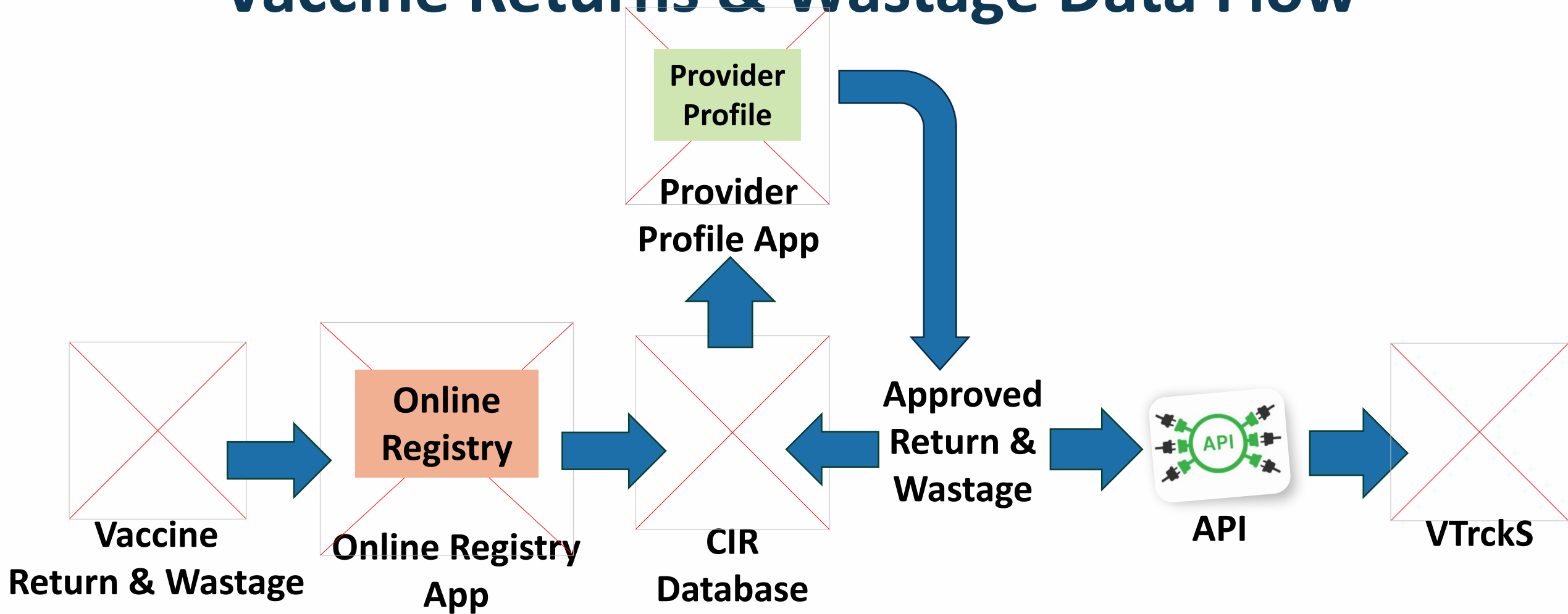
35 characters

VTrckS API – Vaccine Inventory & Order Data Flow

- Approval of vaccine order by CIR staff is a trigger
 - Associated inventory record sent to VTrckS
 - Received inventory status initiates transmission of vaccine order



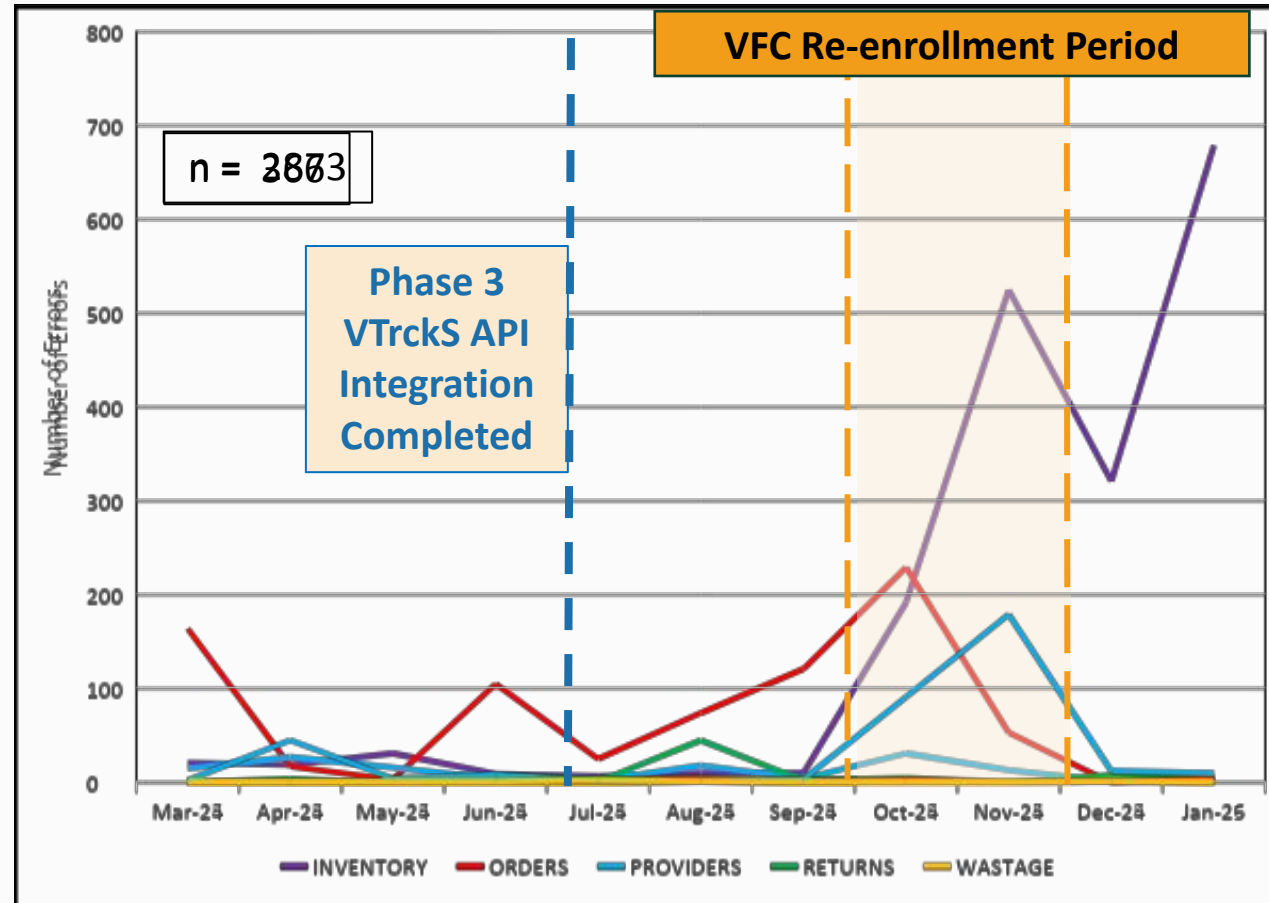
Vaccine Returns & Wastage Data Flow



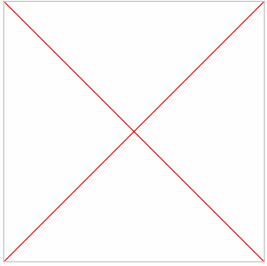
Results

Transaction Errors

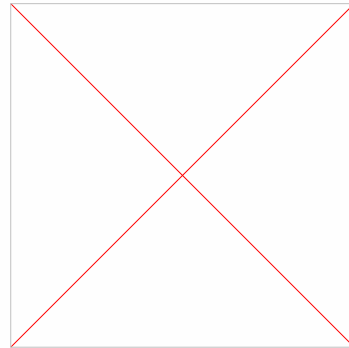
Mar 2024 to Jan 2025 (Page 8)



After VTrckS API Integration Phase 3



- Increased automation
- Records transmitted separately
- Error processing completed in ~5 minutes



Conclusion

API Integration Phase 3 Outcomes

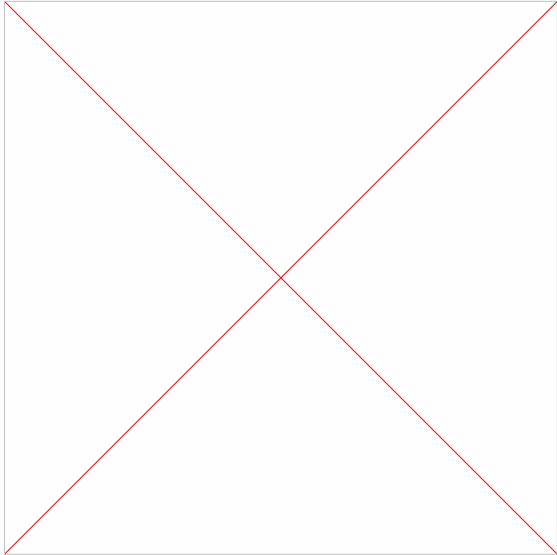
- Modernized the Citywide Immunization Registry
- Improved productivity and efficiency
- Reduced staff burden – save time and resources
- Created opportunities for further optimization
- Enhanced IIS scalability for public health responses

Acknowledgments

Many thanks to the following:

- CDC ExIS Team
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- Entire NYC DOHMH BOI staff
- Stan Markov

Questions and Comments



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