

IZ Gateway – Preparing for the Future

Presenters:

Kaitlyn Lamb, Sr. Project Manager

Kevin Snow, Chief Architect

Forster McCracken, HL7 SME

AIRA National Meeting – April 26th, 2022



Topics

1. Strategies to reduce onboarding time
2. Ideas and efforts to save on costs, resources, and development time
3. Testing and reporting via a self-service model
4. Monitor IZ Gateway interfaces and measuring the impact on the IIS


Strategies to Reducing Onboarding Time

❑ IZ Gateway hub configuration within the user interface

CLIENT STAGING - VCURRENT

DelVAX

📍 DHSS IMMUNIZATION PROGRAM, DHSS IMM PROGRAM, 🔍 PATIENT SEARCH



[Home](#)
[Patients](#) +
[Immunizations](#)
[Treatments](#)
[Education](#)
[IZ Quick Add](#) +
[CRA Quick Add](#) +
[Inventory](#) +
[Clinic Tools](#) +
[Program Tools](#) +
[Hepatitis B](#) +
[Campaigns](#)
[Reports/Training](#)
[Power BI](#)
[Mobile](#) +
[Billing](#) +
[VTrckS Interface](#) +
[Administration](#) +

New Template

Jurisdiction Name *

Destination Id *

HL7 Facility Code *

Phone

Email *

Address *

URL for Production *

URL for Development *

Endpoint City (CSV format)

Value Override for SOAP Facility Id

Value Override for Application

Endpoint State *


☐ Is WebIZ System?

Strategies to Reducing Onboarding Time

- ❑ Destination hub generated from template in user interface

TEST ENVIRONMENT

DeIVAX PATIENT SEARCH



Home
Patients
Immunizations
Treatments
Education
IZ Quick Add
CRA Quick Add
Inventory
Clinic Tools
Program Tools
Hepatitis B
Campaigns
Reports/Training
Mobile
Billing
VTrckS Interface
Administration
HL7 Management
HL7 Message Log
View Security Log
Batch (Incoming)
Batch (Outgoing)
HL7 Facility Codes

IZ Gateway Hub Endpoint ? i

Endpoint Name *
KENTUCKY PROD - AUTOMATED INTERFACE

Active ☐
Poison ☐

Description
THIS IS THE ENDPOINT THAT WILL BE USED BY THE AUTOMATED INTERFACE TO CALL KENTUCKY PROD

Display Order *
1

Comments

Environment

Assigned Hub * PHIZ PRODUCTION HUB
Assigned Application * /DELVAX_TEST
Assigned Environment * PRODUCTION

Endpoint State * KENTUCKY
Endpoint City (CSV format)

Connectivity

Endpoint URL *
https://www.kyir.chfs.ky.gov/HL7Engine/CDC/V1/IISService.svc
Use in Automated Interface ☒
Use in User Interface ☐

Destination Id * ky
HL7 Facility Code * KY0000

Value Override for Facility
Value Override for SOAP Facility Id
Max Messages Per Minute (0 for no limit) 0

Value Override for Application

Self Service Model

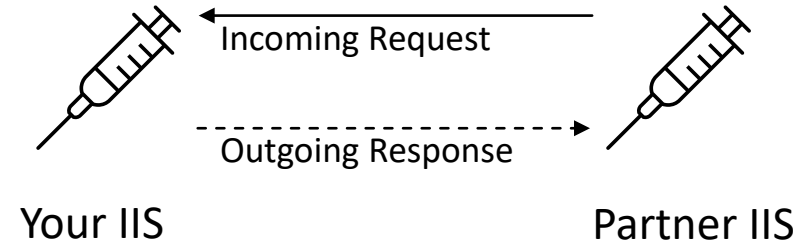
- ❑ Manual query – confirm connectivity between Jurisdictions



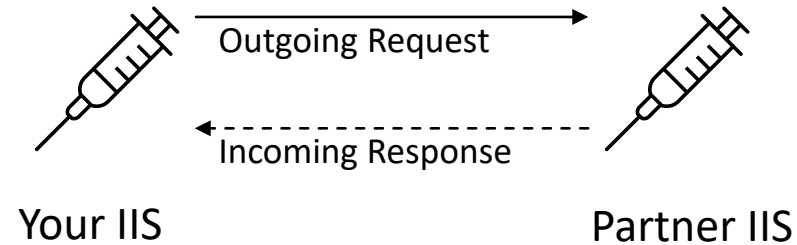
Self Service Model

❑ Log Types adjusted to IZ Gateway

Incoming VXU (Updates) or
QBP (Queries) **from**
Partner IIS



Outgoing VXU (Updates) or
QBP (Queries) **to** Partner
IIS



Self Service Model

❑ Logs Types = First-Class Citizen

HL7 Message Log [Learn More](#)

Search

Search Criteria

Facility : ALL FACILITIES

BEGIN TYPING FACILITY HERE

Log ID

Batch Log ID

Patient

Log Type

Message Type

Version

Acknowledgement Code

Message Text

Custom Acknowledgement Code

-----INCOMING COMMUNICATIONS-----
INCOMING REQUEST
OUTGOING RESPONSE
-----OUTGOING COMMUNICATIONS-----
OUTGOING REQUEST
INCOMING RESPONSE
-----OTHER-----
ERROR
RERUN

To Date

A/P)

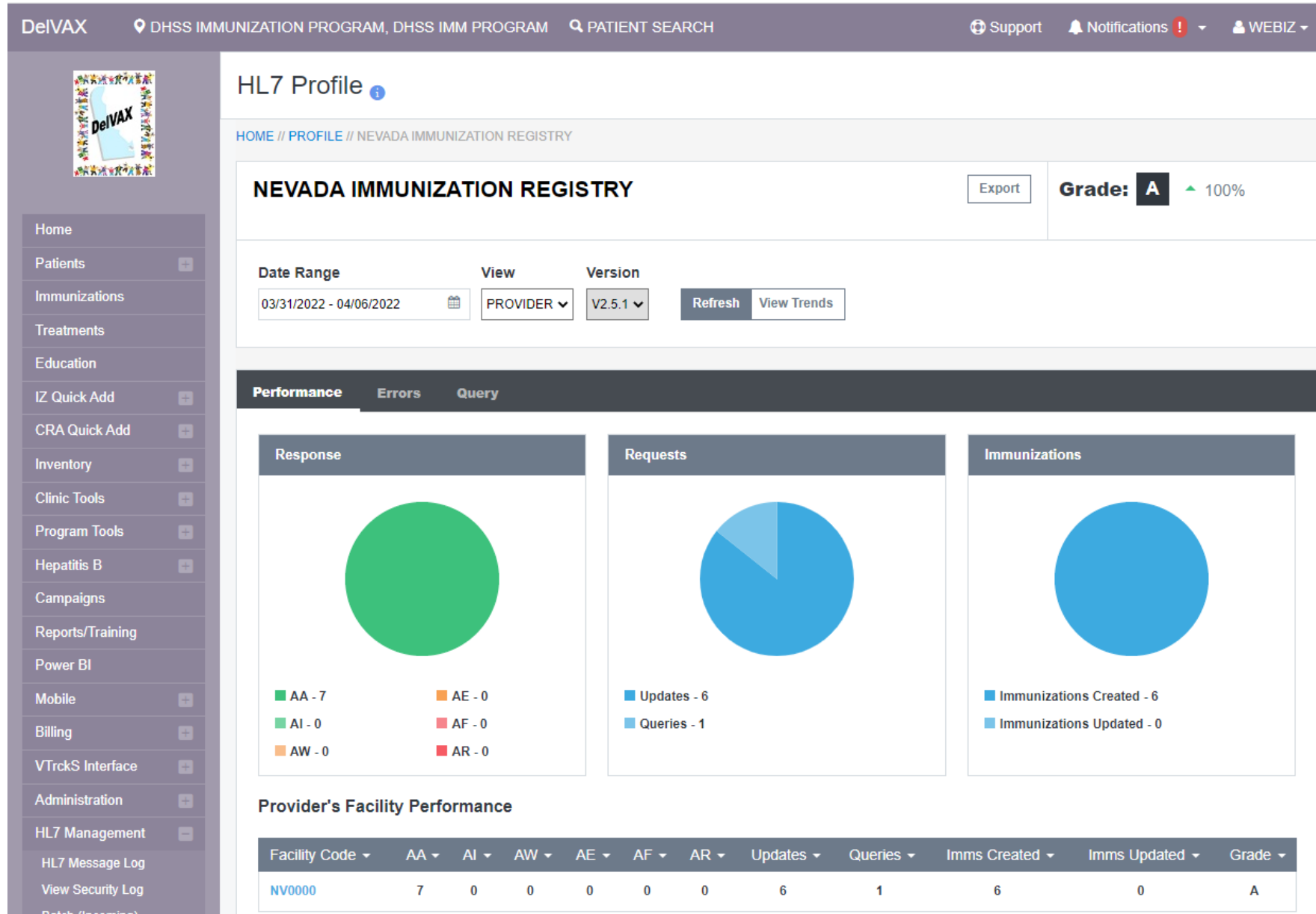
04/07/2022

To Time

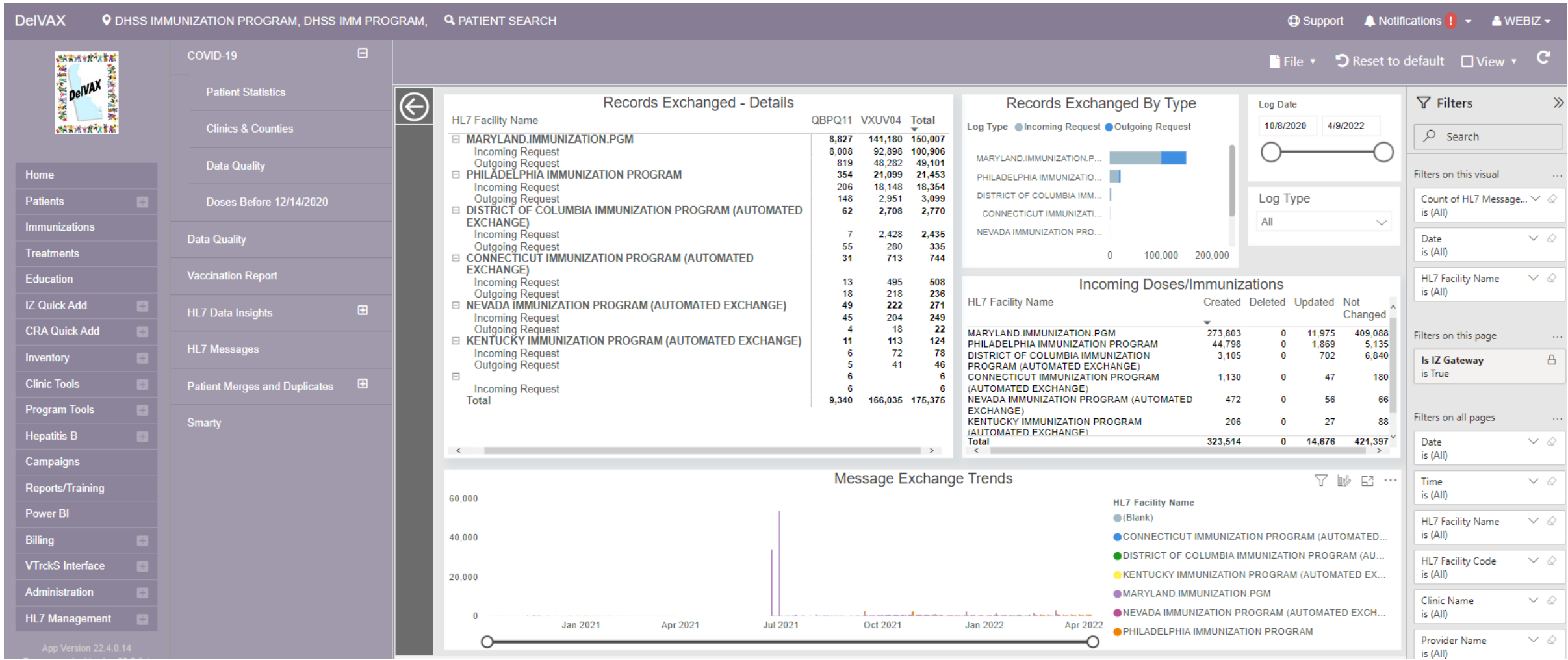
11:59 PM

(HH:MM A/P)

Traffic Analysis Module > IZ Gateway Focused



Embedded Analytics > IZ Gateway Reports



Embedded Analytics > IZ Gateway Filters

❑ Current and Future (video)



Monitoring the IZ Gateway and Impact on the IIS

❑ PowerBI Dashboarding

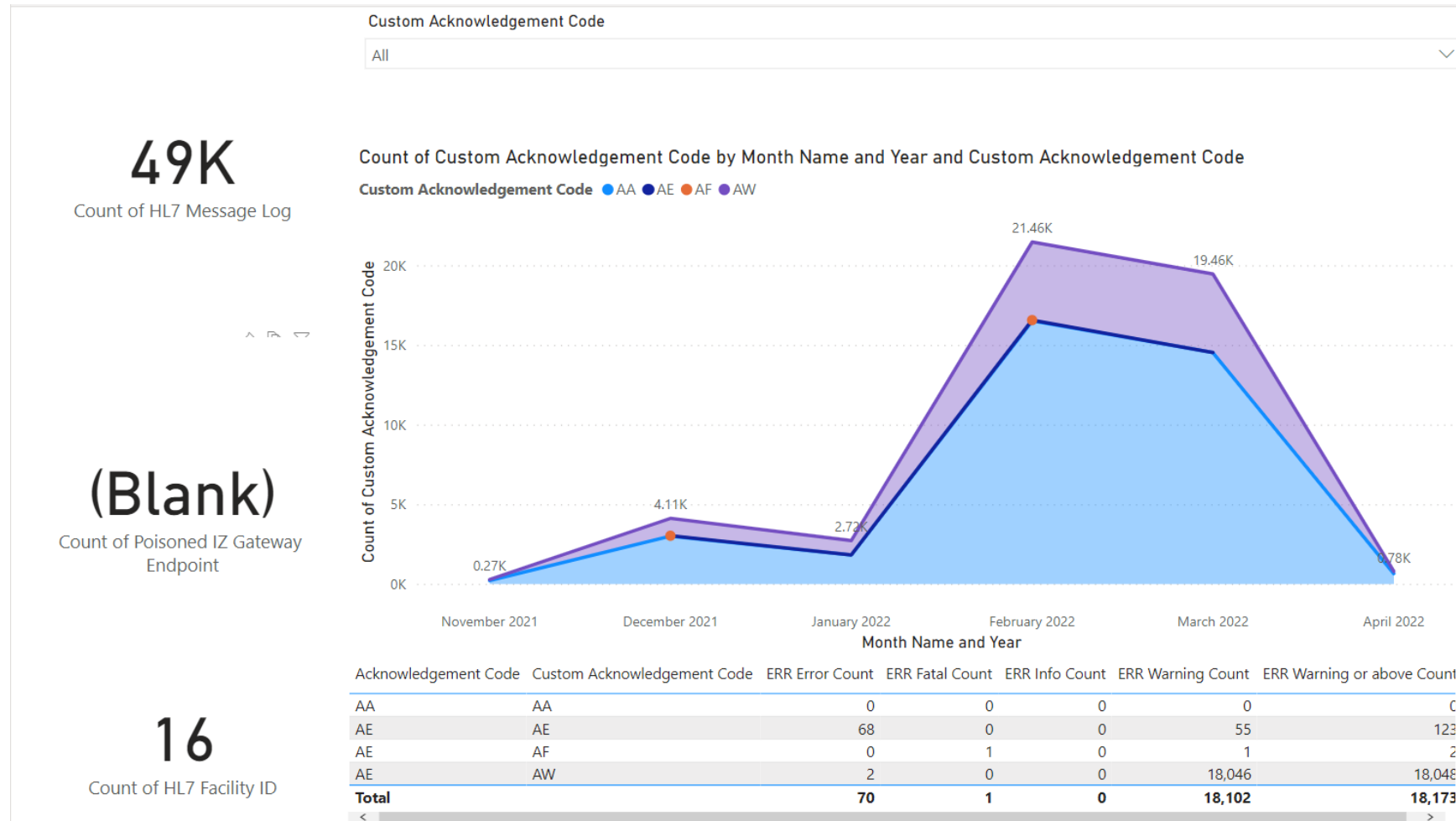
- Dashboards can be filtered to display specific IZ Gateway connections, message types, and log types for more granular analysis and monitoring

❑ Impact on the IIS

- Manual Monitoring vs Automated Monitoring
- Reduced downtimes in IZ Gateway Connections
- Potential for more robust alerting mechanisms in the future

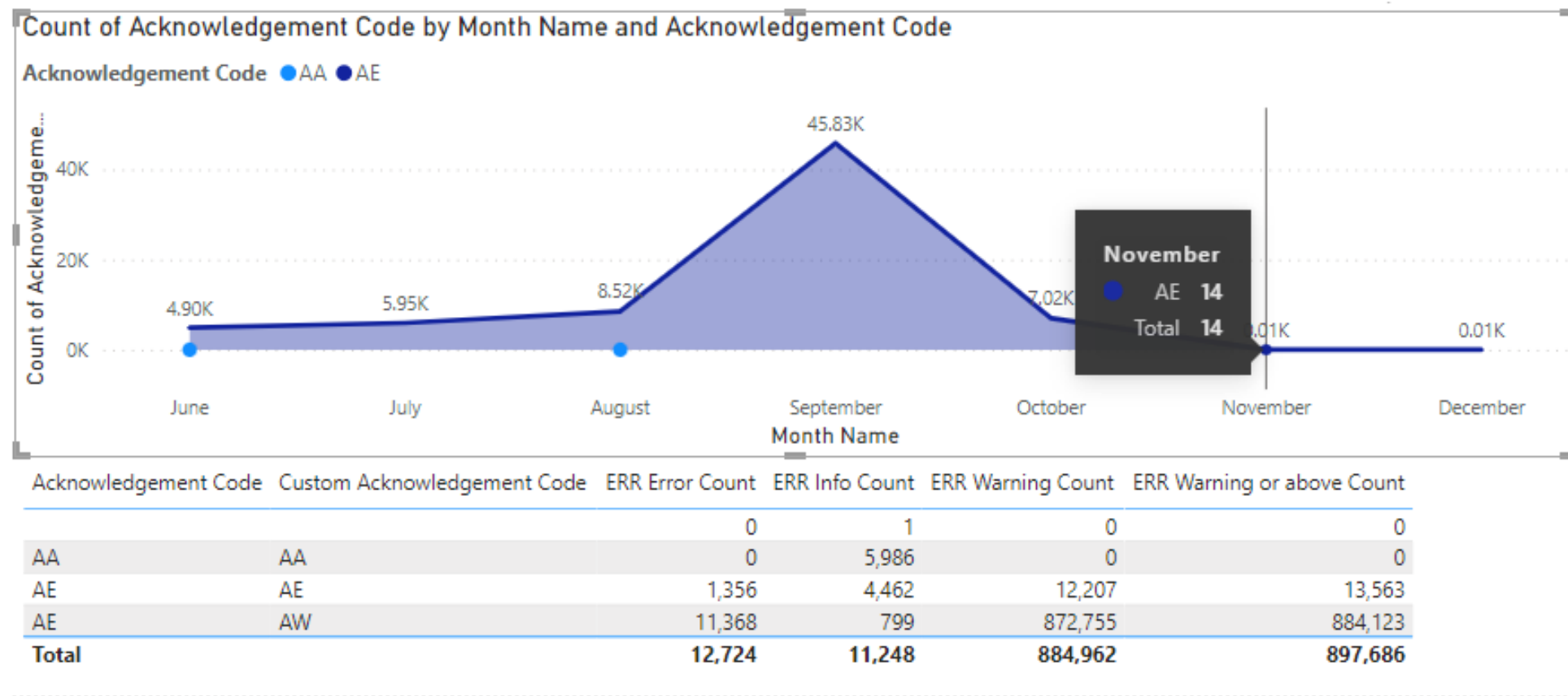
Monitoring the IZ Gateway and Impact on the IIS

❑ Oklahoma's Dashboard:



Monitoring the IZ Gateway and Impact on the IIS



❑ Example of a volume dip:




Monitoring the IZ Gateway and Impact on the IIS

❏ Alerting for Poisoned (Inactive) Endpoints

Alert for Poisoned IZ Gateway Endpoint

 Microsoft Power BI <no-reply-powerbi@microsoft.com>
To:  Forster McCracken

 If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

CAUTION: This email originated from outside of the organization. Do not click on links or open attachments unless you recognize the sender and know the content is safe.




Power BI

Alert for Poisoned IZ Gateway Endpoint

- Dashboard: Delaware Alert Dashboard
- Measure: Alert for Poisoned IZ Gateway Endpoint
- Current value: 1
- Threshold: 0

[Go to dashboard >](#)

[Get Insights >](#)

^ Alert for Count of Is Poison Endpoint 

Active

☒ On

Alert title

Alert for Count of Is Poison Endpoint

Set alerts rule for

Count of Is Poison Endpoint

Condition

Above

Threshold

0

Maximum notification frequency

☒ At most every 24 hours

☐ At most once an hour

Alerts are only sent if your data changes.

By default, you'll receive notifications on the service in the notification center.

☒ Send me email, too

Monitoring the IZ Gateway and Impact on the IIS

Subscription based weekly Snapshots

Weekly Poisoned Endpoint Snapshot - Oklahoma



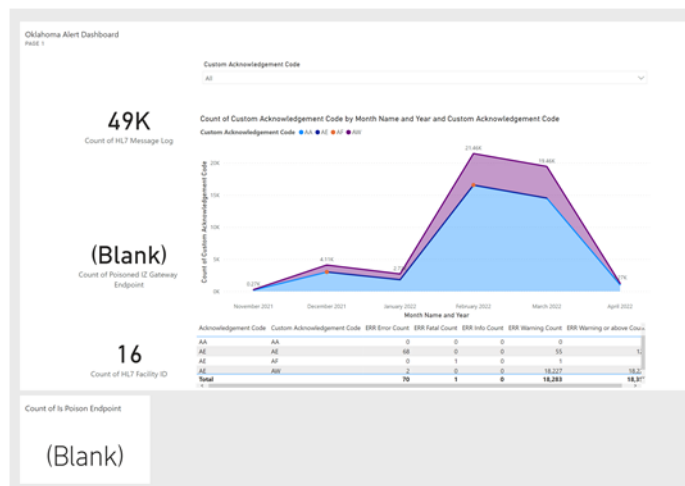
Microsoft Power BI <no-reply-powerbi@microsoft.com>
To: Forster McCracken

If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.



Oklahoma Alert Dashboard

[Go to the dashboard >](#)



You're receiving this email because you subscribed to the 'Oklahoma Alert Dashboard' dashboard. The image above was generated at April 12, 2022 16:14 UTC.

Subscribe to emails

OKLAHOMA ALERT DASHBOARD

[+ Add new subscription](#)

Oklahoma Alert Dashboard

[Run now](#) ☒ On

Subscribe

Kaitlyn Lamb Forster McCracken Melissa Berry

Subscribed users receive dashboard attachments with data based on your permissions

Subject

Weekly Poisoned Endpoint Snapshot - Oklahoma

Frequency

Weekly

☐ Sun ☐ Mon ☐ Tue ☒ Wed ☐ Thu ☐ Fri ☐ Sat

Scheduled time

8:00 AM (UTC-07:00) Mountain Time (US ar

Start date

12/29/2021

End date

12/29/2022

Also include

- ☒ Access to this dashboard
- ☒ Link to dashboard in Power BI

Emails will be sent weekly at 08:00 AM Mountain Standard Time starting 12/29/2021, 12:00:00 AM.

Monitoring the IZ Gateway and Impact on the IIS

❑ Oklahoma Dashboard with AA and AW Custom ACKS:

49K

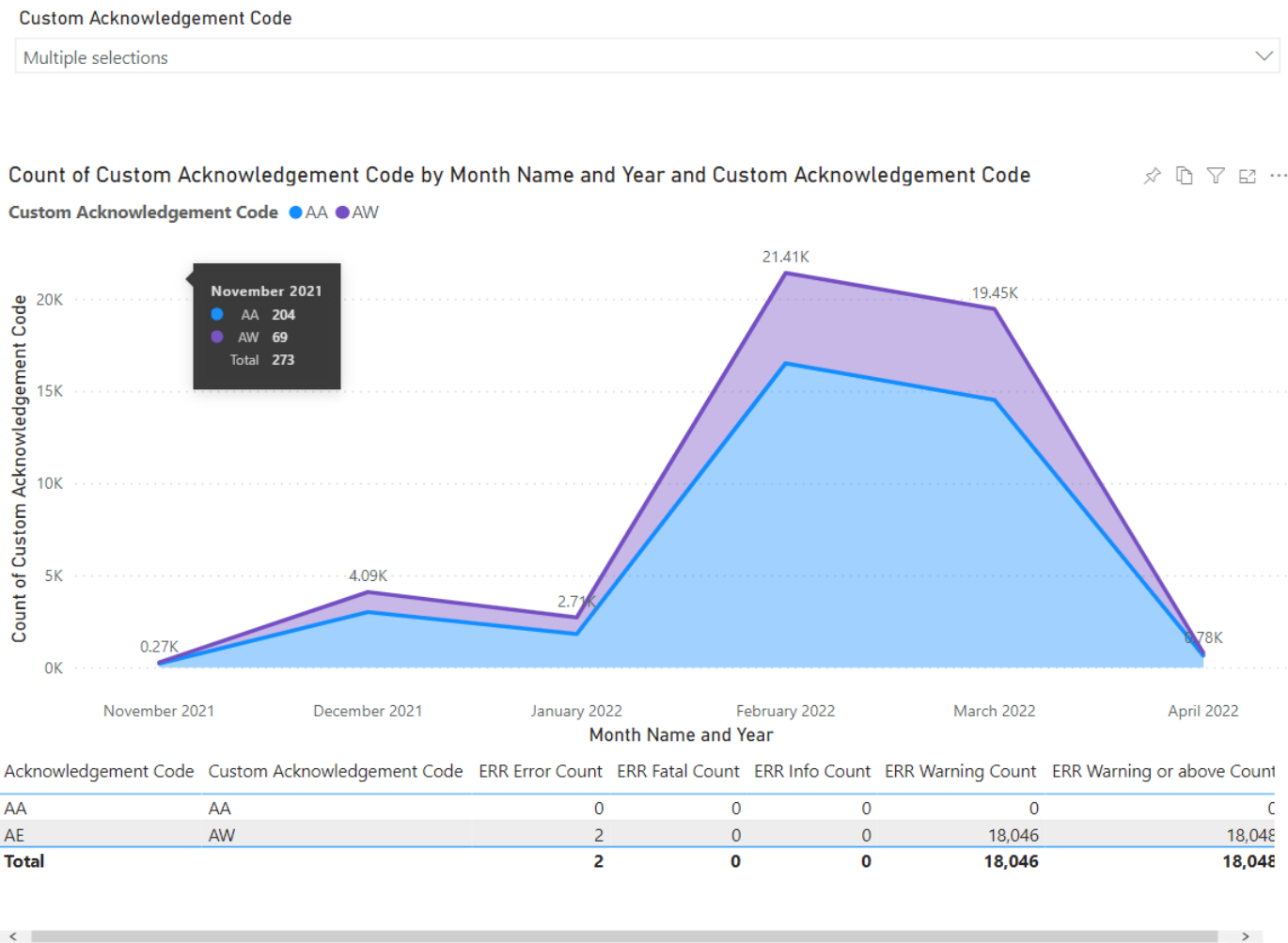
Count of HL7 Message Log

(Blank)

Count of Poisoned IZ Gateway Endpoint

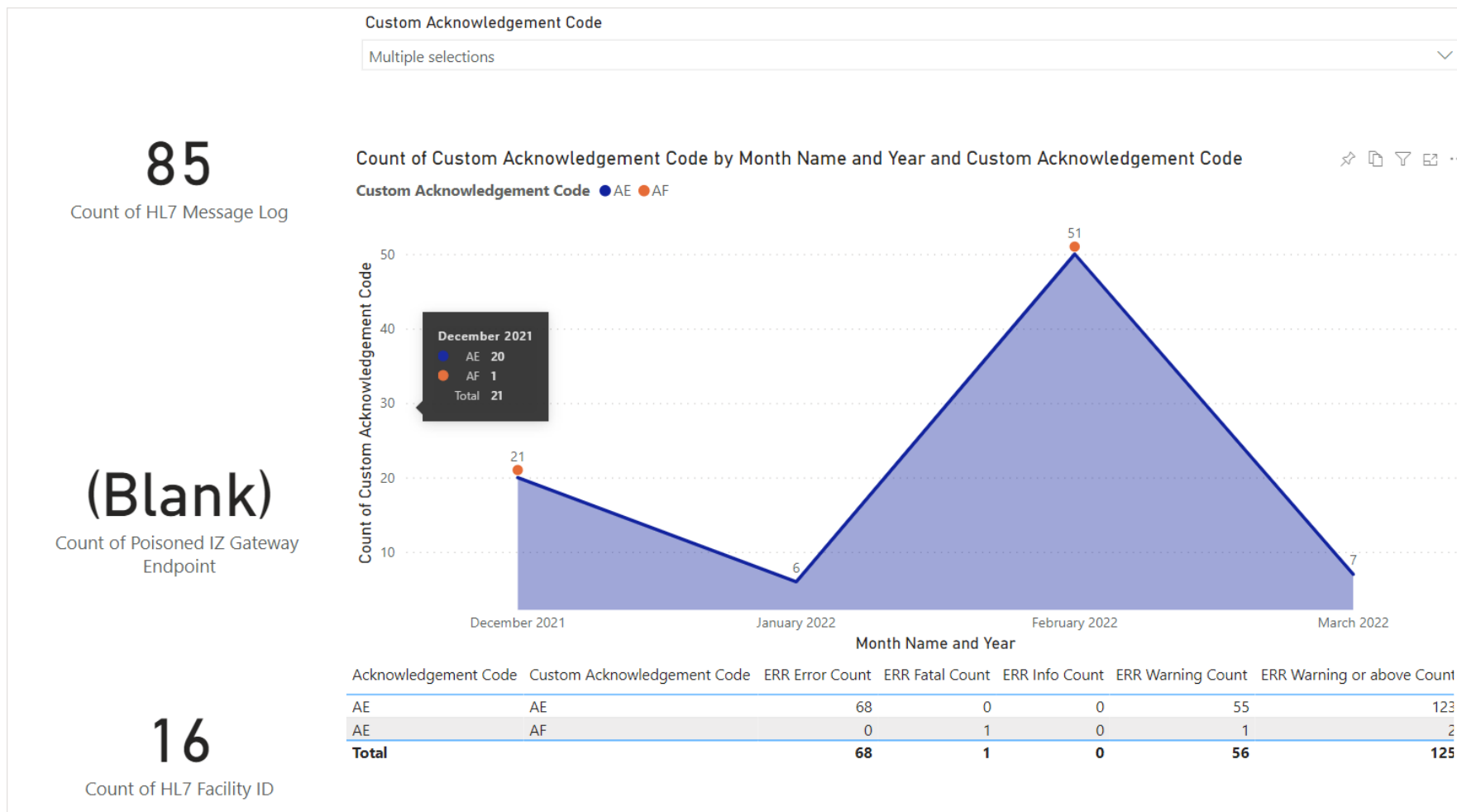
16

Count of HL7 Facility ID



Monitoring the IZ Gateway and Impact on the IIS

❑ Oklahoma Dashboard with AE and AF Custom ACKS



Conclusion and Benefits

- ❑ Make IZ Gateway interactions for testing, reporting, monitoring self-service
- ❑ Reduce development time and costs
- ❑ Decrease time to go-live
- ❑ Increase Jurisdiction access to data trends, alerts
- ❑ Quick identification of issues/errors both for Envision and Jurisdiction staff
- ❑ End goal: faster project timelines, more connections and data exchanged via the IZ Gateway

Thank you!

The following appendix slides include notes and talking points for the detailed slides to provide additional context to presentation content



Appendix – Supporting notes and documentation

❑ Slide number 3:

- Strategy in Action: Envision created the ability to generate an IZ Gateway destination hub via configuration template
- Utilizing code tables, created the ability for a user to build a jurisdiction destination endpoint using available connectivity information like the MSH: 5 and MSH:6
- Template is built once, then deployed to all jurisdiction's environments
- Development time is no longer needed to configure an IZ gateway connection as this is now done by the IZ gateway team, eliminating the need for development resources
- We've reduced our project timelines by about a month with the use of this configuration template

❑ Slide number 4:

- These jurisdiction hub templates are then added with a click of a button and activated with in the Jurisdictions Environment by simply checking the “active” box
- Once an endpoint is added, our team can immediately start testing since all the connectivity information has already been included in the endpoint
- Overall, the time savings of implementing the connectivity template functionality has been significant

Appendix – Supporting notes and documentation

- ❑ Slide number 5: Manual Query video (supporting screenshots included)
 - Allows user to confirm connectivity via the user interface
 - Connectivity is tested through the User Interface – we see an indication of shared data via the blue link in the patient's immunization record

SIMPSON, BART M ID: 1164043 DOB: 01/01/1999 AGE: 22Y 6M 4D GENDER: M

Immunizations Home [Learn More](#) [Links](#) [Select Action](#)

View

[Immunizations may be available from another jurisdiction where this patient has lived.](#)

DOB: 01/01/1999 Age: 22Y 6M 4D History of Varicella?: NO Date of Varicella: MM/DD/YYYY

Recommended Immunizations for today, 7/5/2021 (22Y 6M 4D)

Vaccine
MMR
Td (adult), adsorbed
Varicella
Hep B, adult
Hep A, adult
Influenza Quad Inj P-Free
HPV9
COVID-19 mRNA (PFR)

Appendix – Supporting notes and documentation

- ❑ Slide number 5: Manual Query video (supporting screenshots included)
 - Currently, we're able to select the jurisdiction that the patient has address history in, but we have new functionality that will be available in our May 2022 release that will allow a user to search any connected jurisdiction, regardless of the patient's address history.

SIMPSON, BART M ID: 1164043 DOB: 01/01/1999 AGE: 22Y 6M 4D GENDER: M

Jurisdiction to Search

Jurisdiction Endpoint *

- MARYLAND PROD - AUTOMATED INTERFACE ✓
- MARYLAND PROD - AUTOMATED INTERFACE
- PHILLY PRODUCTION - USER INTERFACE

Search Cancel

Appendix – Supporting notes and documentation

- ❑ Slide number 5: Manual Query video (supporting screenshots included)
 - The user can confirm the shared patient on this screen by hovering over the patient demographic information

SIMPSON, BART M ID: 1164043 DOB: 01/01/1999 AGE: 22Y 6M 4D GENDER: M

Jurisdiction to Search

Jurisdiction Endpoint: **PHILLY PRODUCTION - USER INTERFACE** Cancel

Search Results - 1 record(s)

Name	Phone	Gender	DOB
SIMPSON, BART M		M	01/01/1999

15 Immunization(s)

<input type="checkbox"/>	Vaccination Date	Vaccination
<input type="checkbox"/>	01/01/1999	Hep B, ped/adol (CVX: 08)
<input type="checkbox"/>	01/30/2015	Influenza InjPF Quad (CVX: 150)
<input type="checkbox"/>	01/01/2016	Hep B, ped/adol (CVX: 08)
<input type="checkbox"/>	09/24/2018	HPV4 (Gardasil) (CVX: 62)
<input type="checkbox"/>	09/24/2018	Hep B, adult (CVX: 43)
<input type="checkbox"/>	03/05/2020	Tdap, Adsorbed (CVX: 115)
<input type="checkbox"/>	03/06/2020	Zoster Live (CVX: 121)

Patient Preview

SIMPSON, BART M

Jurisdiction Local Registry
ID: 2287847 DOB: 01/01/1999
Gender: M

Home Phone: 854-130-9701
Mother's Maiden Name: SIMPSON
Mailing Address: 1011 WINWARD
Mailing Address City: DOVER
Mailing Address State: DE
Mailing Address Zip: 19901
Physical Address: 1011 WINWARD
Physical Address City: DOVER
Physical Address State: DE
Physical Address Zip: 19901

Appendix – Supporting notes and documentation

- ❑ Slide number 5: Manual Query video (supporting screenshots included)
 - The user can then select the immunizations that they'd like to import from the partner jurisdiction and can see the immunizations that are already in the patient record at the bottom of the screen, so they don't import duplicates.

The screenshot displays a patient record for SIMPSON, BART M (ID: 1164043, DOB: 01/01/1999, AGE: 22Y 6M 4D, GENDER: M). The interface includes a 'Jurisdiction to Search' section with a dropdown menu set to 'PHILLY PRODUCTION - USER INTERFACE' and a 'Cancel' button. Below this is a 'Search Results - 1 record(s)' table with columns for Name, Phone, Gender, and DOB, showing the patient's details. At the bottom, a '15 Immunization(s)' table lists various vaccinations with checkboxes for selection. A yellow circle highlights the first row, which is also expanded in an 'Immunization Preview' sidebar on the right. The preview shows details for 'Hep B, ped/adol (CVX: 08)', including the administered amount, manufacturer, lot number, expiration date, and system entry date.

Patient Information: SIMPSON, BART M ID: 1164043 DOB: 01/01/1999 AGE: 22Y 6M 4D GENDER: M

Jurisdiction to Search

Jurisdiction Endpoint
PHILLY PRODUCTION - USER INTERFACE

Cancel

Search Results - 1 record(s)

Name	Phone	Gender	DOB
SIMPSON, BART M		M	01/01/1999

15 Immunization(s)

Vaccination Date	Vaccination
01/01/1999	Hep B, ped/adol (CVX: 08)
01/30/2015	Influenza InjPF Quad (CVX: 150)
01/01/2016	Hep B, ped/adol (CVX: 08)
09/24/2018	HPV4 (Gardasil) (CVX: 62)
09/24/2018	Hep B, adult (CVX: 43)
03/05/2020	Tdap, Adsorbed (CVX: 115)

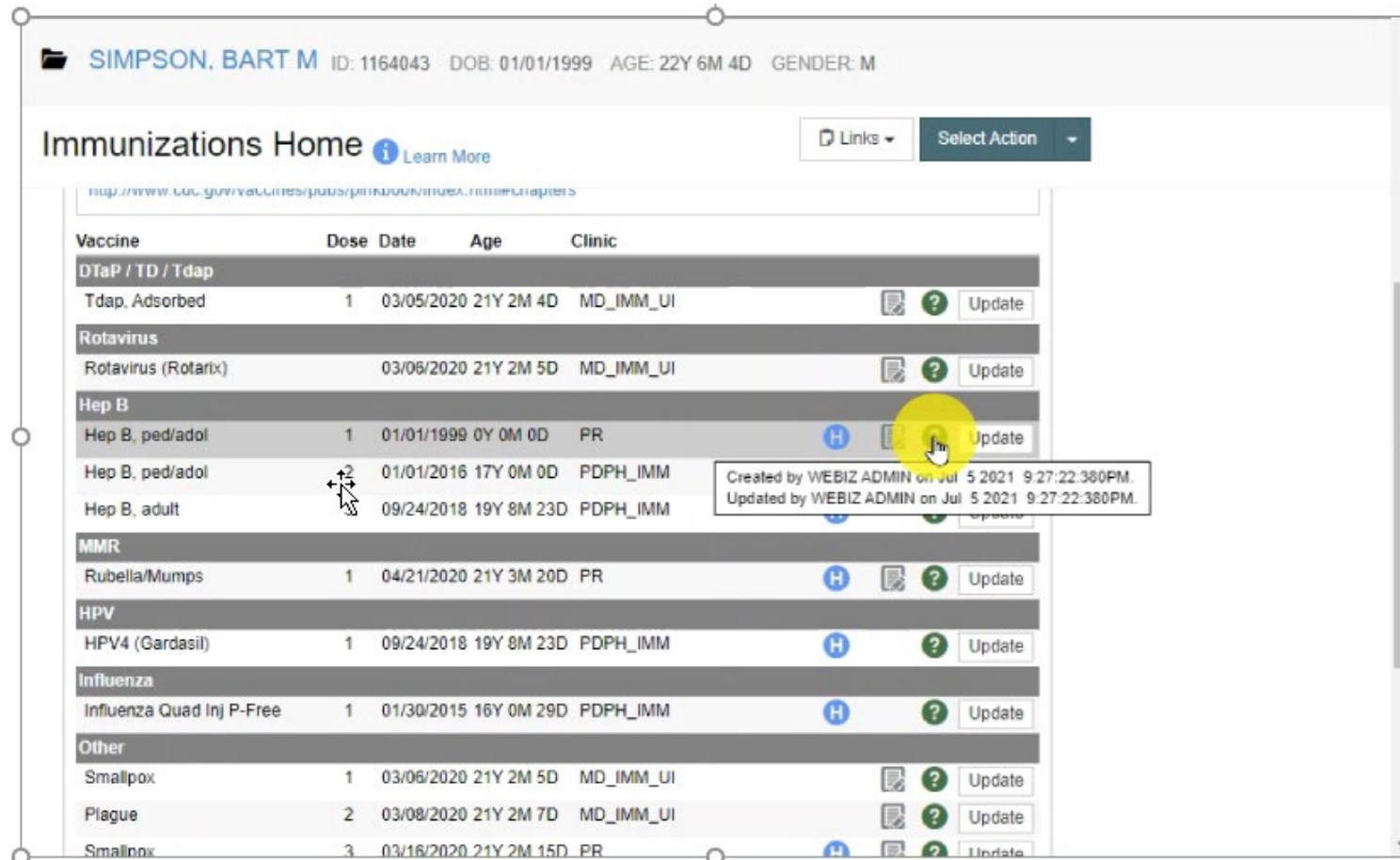
Immunization Preview

Hep B, ped/adol (CVX: 08)

Administered Amount: .5
Substance Manufacturer: SKB
Substance Lot Number: LOTNUM
Substance Expiration Date: 01/01/2000
System Entry Date: 11/29/2016

Appendix – Supporting notes and documentation

- ❑ Slide number 5: Manual Query video (supporting screenshots included)
 - The user can then view the imported immunization within the patient's immunization record.



SIMPSON, BART M ID: 1164043 DOB: 01/01/1999 AGE: 22Y 6M 4D GENDER: M

Immunizations Home [Learn More](#)

<http://www.cdc.gov/vaccines/imz/managing/immunizationrecords>

Vaccine	Dose	Date	Age	Clinic			
DTaP / TD / Tdap							
Tdap, Adsorbed	1	03/05/2020	21Y 2M 4D	MD_IMM_UI		?	Update
Rotavirus							
Rotavirus (Rotarix)		03/06/2020	21Y 2M 5D	MD_IMM_UI		?	Update
Hep B							
Hep B, ped/adol	1	01/01/1999	0Y 0M 0D	PR	H		Update
Hep B, ped/adol	2	01/01/2016	17Y 0M 0D	PDPH_IMM			
Hep B, adult	3	09/24/2018	19Y 8M 23D	PDPH_IMM			
MMR							
Rubella/Mumps	1	04/21/2020	21Y 3M 20D	PR	H	?	Update
HPV							
HPV4 (Gardasil)	1	09/24/2018	19Y 8M 23D	PDPH_IMM	H	?	Update
Influenza							
Influenza Quad Inj P-Free	1	01/30/2015	16Y 0M 29D	PDPH_IMM	H	?	Update
Other							
Smallpox	1	03/06/2020	21Y 2M 5D	MD_IMM_UI		?	Update
Plague	2	03/08/2020	21Y 2M 7D	MD_IMM_UI		?	Update
Smallpox	3	03/16/2020	21Y 2M 15D	PR	H	?	Update

Created by WEBIZ ADMIN on Jul 5 2021 9:27:22:380PM.
Updated by WEBIZ ADMIN on Jul 5 2021 9:27:22:380PM.

Appendix – Supporting notes and documentation

❑ Slide number 6:

- This is designed for us to be able to work with two different communication flows
- Query other IIS when historical physical patient address exists in partner jurisdictions' demographic
- VXU when new patient, immunization, or updated immunization of patient current physical address in partner jurisdiction

❑ Slide number 7:

- Log Types are worked into all logs, reports, analytics, etc.
- This concept is treated as first-class citizen as we know we need to be able to report on communications from both directions

❑ Slide number 8:

- All existing reports and the Traffic Analytics Module can be filtered down to IZ Gateway Senders

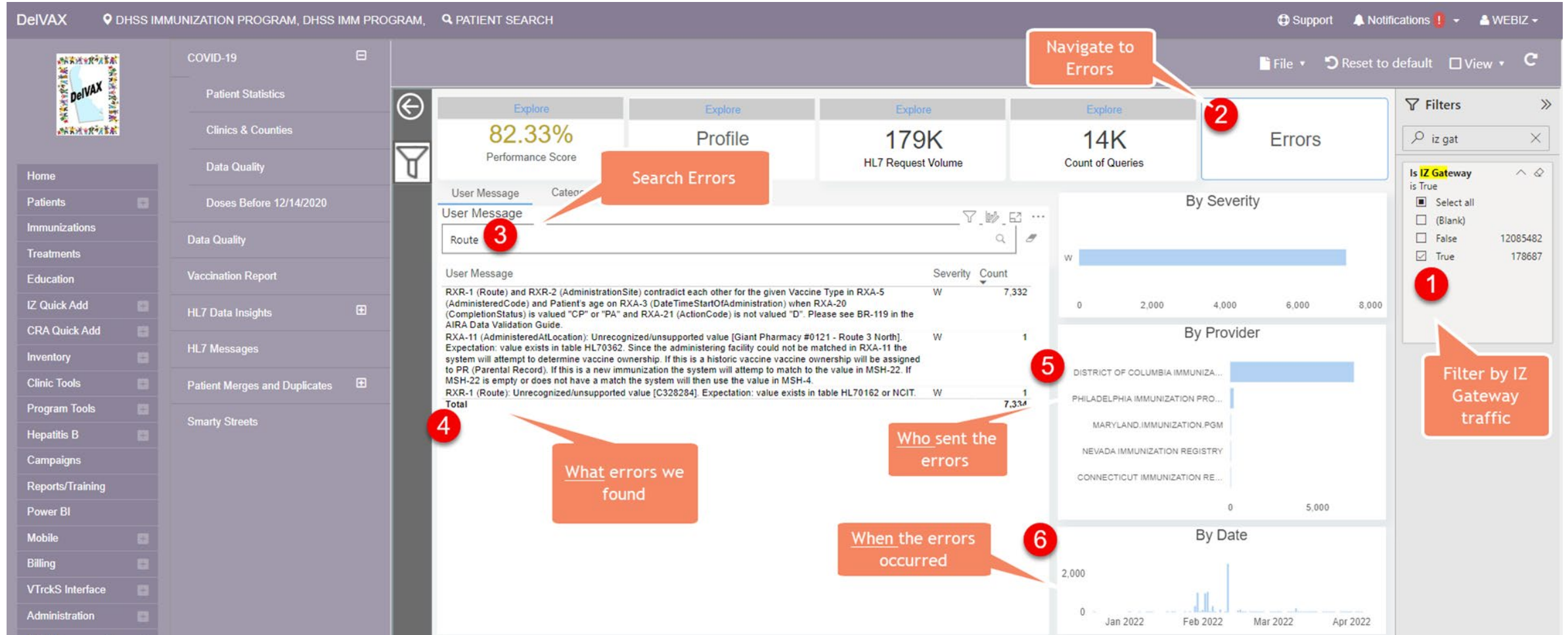
Appendix – Supporting notes and documentation

☐ Slide number 9:

- Break-down by IIS Partner **and Log Type**
- Can view:
 - Message Counts
 - Operation Counts
 - Who sent what when
- Ensures Queries and Updates are flowing in both directions and each IIS has a copy of the complete consolidated immunization record from across multiple-IIS
- **If you query the same patient that exists in multiple-IIS, each one should have the same complete record**
- The tool includes cross-highlighting and a large collections of filters are at your disposal for any additional analysis you wish to perform

Appendix – Supporting notes and documentation

❑ Slide number 10: Below visual indicates all topics discussed via red number



Appendix – Supporting notes and documentation

❑ Slide number 10: numbers correlate with red numbers on slide 28

1. We can apply IZ Gateway filters to existing HL7 Analytics

2. Walk-through the example:

- What problems
- Who the party involved was – can drill down to clinic
- When the problem occurred

3. Select specific problem - Can search problems

Again, many more filters available to you on the side

For example, you can filter down to only Outgoing Communications or Incoming Communications

4. See What the problems are

5. See Who the problems are with

Appendix – Supporting notes and documentation

❑ Slide number 10: numbers correlate with red numbers on [slide 28](#)

6. See when the problems occurred

- You can also cross-filter by Who or When, not just What

Future improvements:

- We have plans to allow category level, meaning you could filter down to all IZ Gateway traffic from Federal Partners
- We also have plans to go down one more level, so all IZ Gateway traffic from Federal Partners of type VHA
- Finally, the same analytics endpoint we use to build Power BI reports is available to jurisdictions to build ad-hoc queries and reports in tools like Power BI, Excel, Tableau
- This means this new fields will be available for filtering and reporting by all program staff

Appendix – Supporting notes and documentation

❑ Slide number 13:

- This is the example that led to the creation of these dashboards. One of our jurisdictions reached out to use to inquire about a significant dip in volume of the data they were exchanging with another jurisdiction.
- The volume dropped from 7000 messages in October to 14 for the month of November. Once we discovered the root cause of the issue, which was an inactivated endpoint, we began developing these dashboards to alert us when an endpoint becomes inactive.
- From there, the dashboards grew to include visualizations for the data exchanged.

❑ Slide number 14:

- This is the Alert we initially created for endpoints that become inactive, we receive this email telling us which environment the poisoned endpoint is in. This should alert us within 24 hours at most, instead of waiting to hear from a jurisdiction that there is an issue.

Appendix – Supporting notes and documentation

❑ Slide number 15:

- These snapshots are how we monitor the dashboards, they are sent to send out to the IZ Gateway team once a week at 8AM on Wednesday mornings and contain a screenshot of the dashboard in its current state.
- This will show us any dips in volume or rises in errors in the exchange.

❑ Slide number 16:

- Here we can see one of our dashboards that has been filtered to show more granular acknowledgement codes in which the message data was successfully added to the registry.

❑ Slide number 17:

- This is a view of all messages with that returned more granular acknowledgement codes that indicate Error or Fatal Error severity level in the response.
- We can also see breakdown of ERR segments in the messages indicating how many ERR segments were present in each message type.