

IIS-EHR Partnerships: Providing and Displaying Immunizations and Clinical Decision Support in EHRs

#AIRA2016 National Meeting

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Objective

- Demonstrate how EHRs query IIS
- Identify functionality that EHRs have in common
- Motivate the IIS and healthcare provider communities to document best practices for EHR to IIS integration

Outline

- Background on Immunization Information Systems (IIS) and Electronic Health Record (EHR) integration
- Demonstrate existing bi-directional immunization information exchange between EHRs and IIS
- Vision for EHR integration with IIS

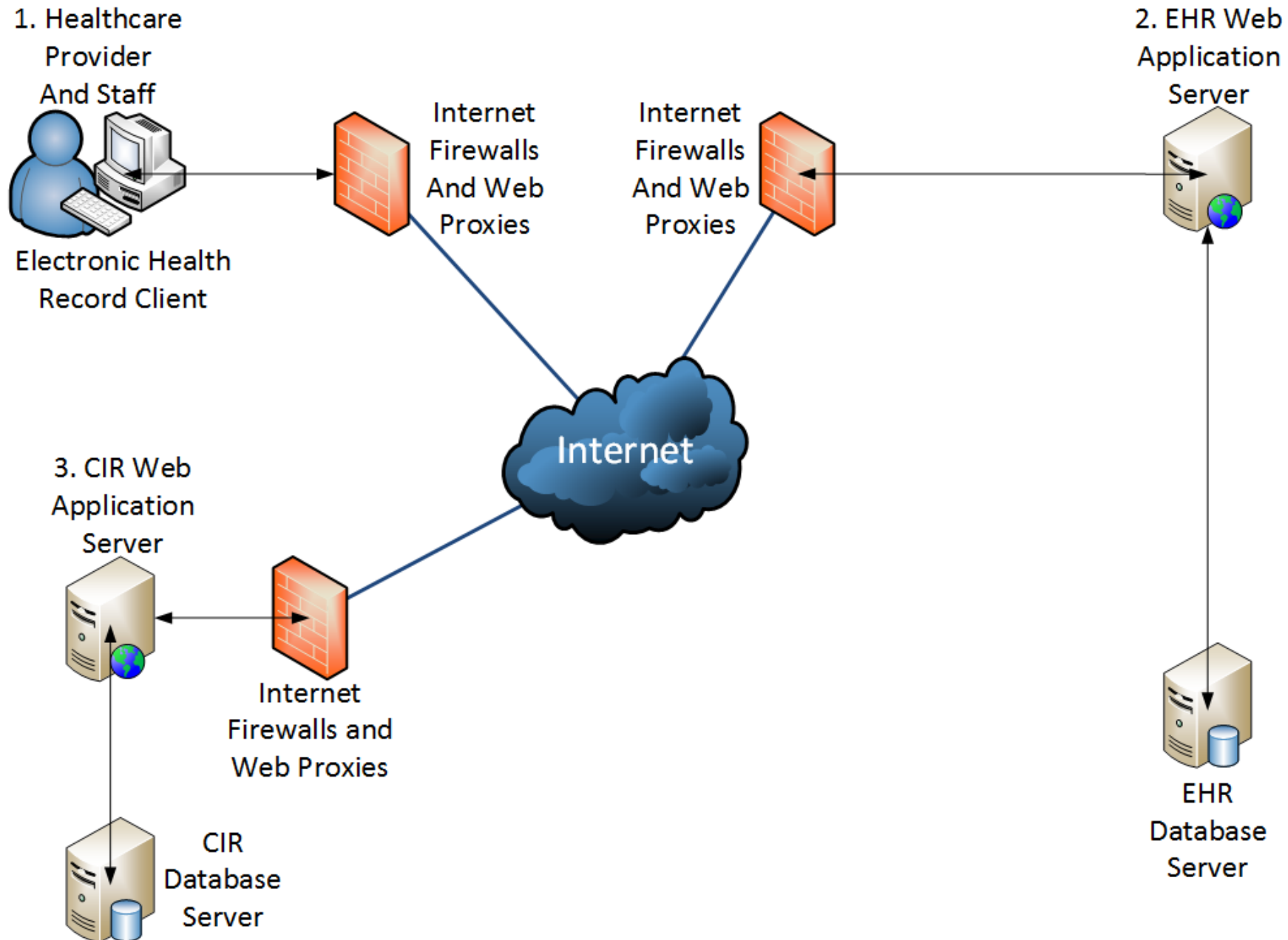
Background 1

- Immunization Information Systems (IIS) receive, consolidate, and disseminate electronic immunization records in their communities
- Electronic Health Record (EHR) systems are replacing paper records in provider offices and hospitals
- MU Stages 1 and 2 provide payment incentives to implement standard electronic reporting from EHRs to IIS
- MU Stage 3 will provide incentives to implement standard EHR to IIS queries and clinical decision support

Background 2

- Citywide Immunization Registry (CIR) is the IIS for the Bureau of Immunization (BOI) at New York City's Department of Health and Mental Hygiene (DOHMH)
 - Supports Health Level 7 (HL7) 2.3.1 and 2.5.1 reporting (VXU) and query (VXQ, QBP) messages
 - Implements Centers for Disease Control (CDC) Transport Layer Workgroup Web Service interface
 - Provides real-time immunization report, query, and decision support services
- CIR uses the Immunization Calculation Engine (ICE) for clinical decision support

EHR to IIS Bi-directional Technology Architecture



Method

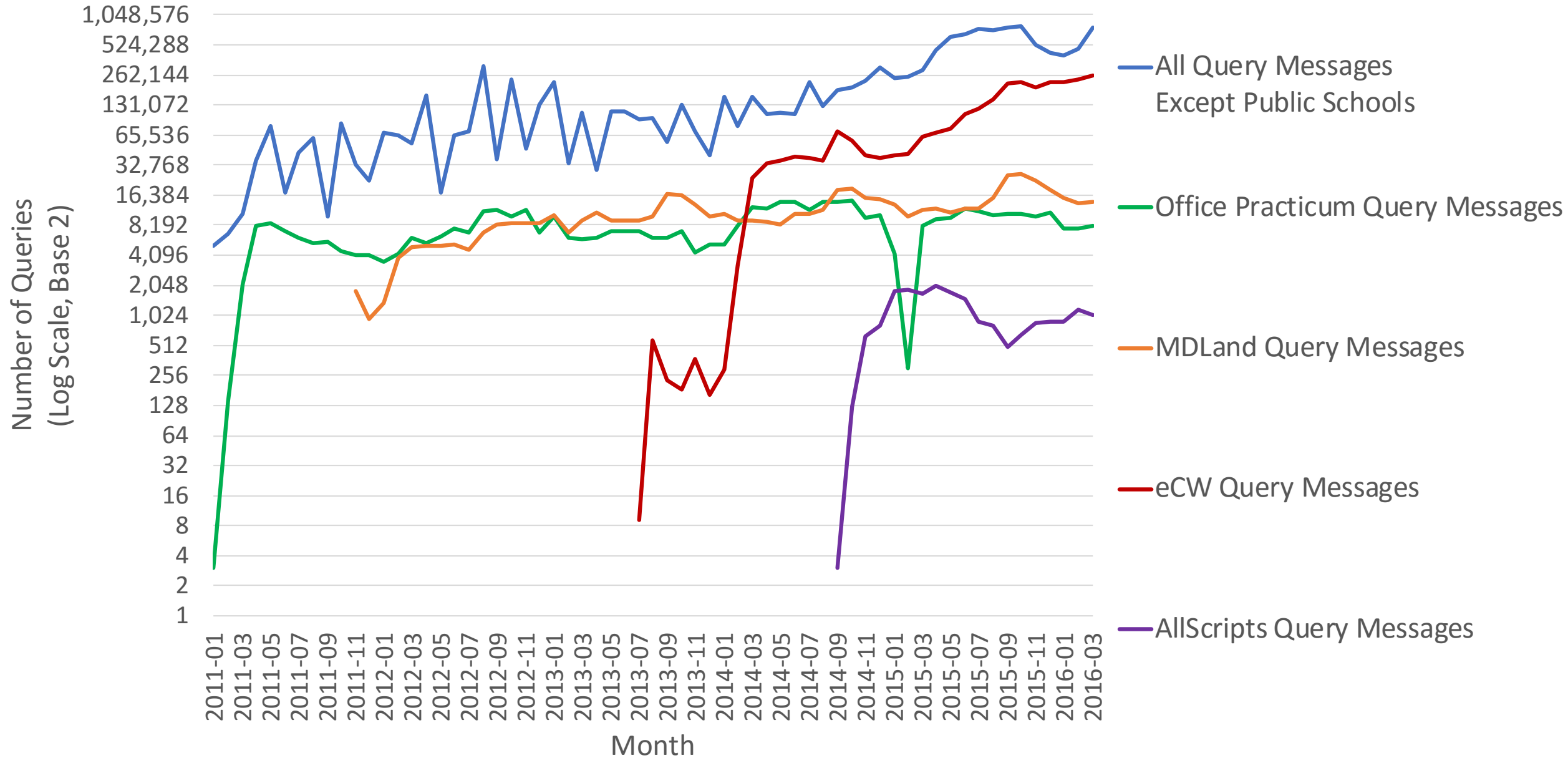
- Reached out to EHRs and healthcare facilities for a demonstration of their integration with NYC's real-time Web Service
- Notified EHR vendors that screen shots from the demonstration will be presented
- Created test records with immunizations in CIR, to observe EHR behavior
- Took screen shots of the EHRs for review and discussion
- Participants are iClinic from MDLand, eClinicalWorks (eCW), Sunrise Clinical Manager by AllScripts, and Office Practicum by Connexin Software

Status of bi-directional EHR Integration With CIR

- 43 EHRs have integrated with CIR's real-time HL7 Web Service
- 12 of those EHRs are querying the CIR
 - 118 out of 119 MDLand iClinic sites
 - 301 out of 302 eCW sites
 - 85 out of 87 Connexin Software Office Practicum sites
 - 17 out of 58 AllScripts Sunrise Clinical Manager sites

Number of HL7 Web Service Queries Performed by CIR Data Exchange Partners

January, 2011 to March, 2016



EHR to IIS Integration Features

- Automatic or Manual
 - Immunization queries and uploads
 - Reconciliation of immunization information
 - Decision support update when new information is added to EHR
- EHR or IIS clinical decision support module
- User interface, color coding, and context-sensitive help
 - Immunization information source
 - Valid and invalid shots
 - Shots due now
 - Forecast to schedule appointment for future shots

iClinic by MDLand

- Manual query, **automatic record reconciliation**, manual record upload, **automatic decision support update**
- Uses decision support from NYC CIR HL7 Web Service and **color codes invalid shots**
- Provides immunization forecast for **next vaccine due date**
- **Color coding for immunization information source** added to EHR test environment as a result of this presentation.

MDLand iClinic: Download to Empty Immunization Record

The screenshot shows the iClinic web application interface. At the top, the header includes the iClinic logo, the user's role (Medicine, Internal, MD), the account name (MDLand Demo Account), and a Sign Out link. Below the header, there are tabs for Waiting Room, Test, Test, and a patient selection tab for BABYGIRL, ONEYEAR. The main content area is titled 'Patient Home' and displays patient information for BABYGIRL, ONEYEAROLD M (02/13/2015 1y Female). The attending physician is Medicine, Internal, and the referral is Change Specialty (Internal Medicine). The 'Vaccine' section is active, showing a table of vaccine groups. A dropdown menu is open under the 'Record Up/Download' button, showing options: Upload Selected Vaccines, Download All Vaccines, View Up/Download History, Vaccine File, FLSHOTS File, ImmTrac File, NYSIIS File, and CIR File Form. The table lists vaccine groups: DTaP/DT/Td/Tdap, H1N1 Influenza, Hep A, Hep B, Hib, HPV, Influenza, Meningococcal, and MMR/Measles/Rubella.

Medicine, Internal, MD MDLand Demo Account Sign Out

Waiting Room Test, Test X BABYGIRL, ONEYEAR X

Patient Home

BABYGIRL, ONEYEAROLD M (02/13/2015 1y Female) Attending: Medicine, Internal Referral: Change Specialty (Internal Medicine)

Save Refresh Follow Up Action Return

Patient Home Visit History Medical History Payment/Account Msg/Activity

Vaccine

New Vaccine Past Vaccine Vaccine Inventory Record Up/Download Delete Selected Select All Vaccines

Vaccine Group	1	3	4
DTaP/DT/Td/Tdap			
H1N1 Influenza			
Hep A			
Hep B			
Hib			
HPV			
Influenza			
Meningococcal			
MMR/Measles/Rubella			

Upload Selected Vaccines
Download All Vaccines
View Up/Download History
Vaccine File
FLSHOTS File
ImmTrac File
NYSIIS File
CIR File Form

MDLand iClinic: Immunizations And Decision Support Downloaded

iClinic® Medicine, Internal, MD **MDLand Demo Account** Sign Out

Waiting Room Test, Test X **BABYGIRL, ONEYEAR** X

Patient Home

BABYGIRL, ONEYEAROLD M (02/13/2015 1y Female) **Attending:** Medicine, Internal **Referral:**

[Save](#) [Refresh](#) [Follow Up Action](#) [Return](#) [Change Specialty \(Internal Medicine\)](#)

[Patient Home](#) [Visit History](#) [Medical History](#) [Payment/Account](#) [Msg/Activity](#)

Vaccine Last CIR Download: 2015-02-29(Today)





[New Vaccine](#) [Past Vaccine](#) [Vaccine Inventory](#) [Record Up/Download](#) [Delete Selected](#) ☐ Select All Vaccin

Vaccine Group	1	2	3	Next Due
DTaP/DT/Td/Tdap	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 DTaP (20)
H1N1 Influenza No longer recommended				
Hep A				02/13/2016 Hep A, ped/... (83)
Hep B				02/13/2015 Hep B, adol... (08)
Hib	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 Hib (PRP-T) (48)
HPV				02/13/2026 HPV, unspec... (137)
Influenza	12/05/2015 Influenza, ... (161)			01/02/2016 influenza, ... (88)
Meningococcal				02/13/2026 meningococc... (114)
MMR/Measles/Rubella	02/01/2016 MMR (03) !			02/29/2016 MMR (03)

MDLand iClinic: Add Immunization

New Vaccines Entry Form

Administration Date*	2/29/2016		Patient's Age	
Provider	Medicine, Internal (MI)	▼	Other Provider	
Office Location*	(3202X01) MDLand Demo Acct	▼	Or	Other Location
Eligibility*	(V01) Not VFC Eligible ▼			
Information Source*	(00) New Immunization Record ▼			
Notes				

Vaccine Group*	Influenza	▼	Vaccine*	Influenza, seasonal, injectable, preservative free (140) ▼				
Inventory			Purchase Date					
Funding Source								
Manufacture*	Akorn, Inc	▼	Lot Number*	123456	Expiration*	06/30/2016		
VIS Provided Date		Today 	Edition Date of the VIS					
Dose(s)*	2	Unit*	ml ▼	Site	(LA) Left Arm ▼	Next Due		

 [Add more Vaccine >](#)



 Save  Close

MDLand iClinic: Upload Immunization to IIS

iClinic Medicine, Internal, MD MDLand Demo Account Sign Out

Waiting Room Test, Test X BABYGIRL, ONEYEAR X

Patient Home

BABYGIRL, ONEYEAROLD M (02/13/2015 1y Female) Attending: Medicine, Internal Referral:

Save Refresh Follow Up Action Return Change Specialty (Internal Medicine)

Patient Home Visit History **Medical History** Payment/Account Msg/Activity

Vaccine Last CIR Download: 2016-02-29(Today)

New Vaccine Past Vaccine Vaccine Inventory Record Up/Download Delete Selected ☐ Select All Vaccines

Vaccine Group	1	2	3	Next Due
DTaP/DT/Td/Tdap	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 DTaP (20)
H1N1 Influenza No longer recommended				
Hep A				02/13/2016 Hep A, ped/... (83)
Hep B				02/13/2015 Hep B, adol... (08)
Hib	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 Hib (PRP-T) (48)
HPV				02/13/2026 HPV, unspec... (137)
Influenza	12/05/2015 Influenza, ... (161)	Up Down Delete 02/29/2016 Influenza, ... (140)		01/02/2016 influenza, ... (88)
Meningococcal				02/13/2026 meningococc... (114)
MMR/Measles/Rubella	02/01/2016 MMR (03) !			02/29/2016 MMR (03)

MDLand iClinic: Updated Decision Support from CIR

iClinic Medicine, Internal, MD MDLand Demo Account Sign Out

Waiting Room Test, Test X **BABYGIRL, ONEYEAR** X

Patient Home

BABYGIRL, ONEYEAROLD M (02/13/2015 1y Female) Attending: Medicine, Internal Referral:

Save Refresh Follow Up Action Return Change Specialty (Internal Medicine)

Patient Home Visit History **Medical History** Payment/Account Msg/Activity

Vaccine Last CIR Download: 2016-02-29(Today) Last CIR Upload: 2016-02-29(Today)

New Vaccine Past Vaccine Vaccine Inventory Record Up/Download Delete Selected Select All Vaccin

Vaccine Group	1	2	3	Next Due
DTaP/DT/Td/Tdap	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 DTaP (20)
H1N1 Influenza No longer recommended				
Hep A				02/13/2016 Hep A, ped/... (83)
Hep B				02/13/2015 Hep B, adol... (08)
Hib	04/10/2015 DTaP-Hib-IP... (120)	06/15/2015 DTaP-Hib-IP... (120)	09/15/2015 DTaP-Hib-IP... (120)	05/14/2016 Hib (PRP-T) (48)
HPV				02/13/2026 HPV, unspec... (137)
Influenza	12/05/2015 Influenza, ... (161)	02/29/2016 Influenza, ... (140)		08/01/2016 influenza, ... (88)
Meningococcal				02/13/2026 meningococc... (114)
MMR/Measles/Rubella	02/01/2016 MMR (03) !			02/29/2016 MMR (03)

eCW

- **Automatic query**, manual record reconciliation, **automatic record upload**, and **automatic decision support update**
- Uses NYC's latest decision support software, ICE3 within EHR and **color codes invalid shots**
- Provides immunization forecast for **next vaccine due date**

eCW: Download to Empty Immunization Record

Immunizations/T.Injections

Hx **Imm Schedule** Flu Schedule Child, Twoyearold (F) 02/10/2014 (2Y)

Imm Forecast: All

Imm. Series	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6	Dose 7	Forecast
Hepatitis B 0 shot	Add							04/10/2014 DUE NOW
Rotavirus 0 shot	Add							Not Recommen...
DTP 0 shot	Add							04/10/2014 DUE NOW
HIB 0 shot	Add							05/10/2015 DUE NOW
PCV 0 shot	Add							02/10/2016 DUE NOW
PPSV 0 shot	Add							02/10/2079 Future Recom...
Polio 0 shot	Add							04/10/2014 DUE NOW
MMR 0 shot	Add							02/10/2015 DUE NOW
Varicella 0 shot	Add							02/10/2015 DUE NOW

Public Health Record Generate Record

Immunizations from NYCIR Immunization

Immunization Name	Given Date
DTaP-IPV/Hib (Pentacel)	04/10/2015
DTaP-IPV/Hib (Pentacel)	05/10/2014
DTaP-IPV/Hib (Pentacel)	10/10/2014
Influenza-IV4, IM, Presrv-free (>=3yrs)	10/10/2015
Hep B, adolescent or pediatric	02/10/2014
Hep B, adolescent or pediatric	06/10/2014
varicella	04/10/2015
MMR	02/03/2015
Pneumococcal, PCV-13	04/10/2014
Pneumococcal, PCV-13	06/10/2014
Pneumococcal, PCV-13	10/10/2014
Pneumococcal, PCV-13	04/10/2015

Add this immunization to patient's list.

eCW: Immunizations And Decision Support Downloaded

Immunizations/T.Injections

Hx **Imm Schedule** Flu Schedule

Child, Twoyearold (F) 02/10/2014 (2Y)

Imm Forecast: All

Imm. Series	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6	Dose 7	Forecast
Hepatitis B 2 shots	02/10/2014 0D HepB peds...	06/10/2014 4M HepB peds...	Add					08/10/2014 DUE NOW
Rotavirus 0 shot	Add							Not Recommen...
DTP 3 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...	Add				10/10/2015 DUE NOW
HIB 3 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...					Complete
PCV 3 shots	04/10/2014 2M Pneumococ...	06/10/2014 4M Pneumococ...	10/10/2014 8M Pneumococ...	Add				02/10/2016 DUE NOW
PPSV 0 shot	Add							02/10/2019 Future Recom...
Polio 3 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...	Add				02/10/2018 Future Recom...
MMR 1 shot	02/03/2015 11M 21D MMR							05/08/2015 DUE NOW
Varicella 1 shot	04/10/2015 14M Varicella							02/10/2018 Future Recom...

Immunization Name: MMR
Observation: INVALID
Interpretation: Below Minimum Age for Series

Public Health Record Generate Record

Immunizations from NYCIR Immunization

Immunization Name	Given Date
DTaP-IPV/Hib (Pentacel)	04/10/2015
DTaP-IPV/Hib (Pentacel)	06/10/2014
DTaP-IPV/Hib (Pentacel)	10/10/2014
Influenza-IIIV4, IM, Presrv-free (>=3yrs)	10/10/2015
Hep B, adolescent or pediatric	02/10/2014
Hep B, adolescent or pediatric	06/10/2014
varicella	04/10/2015
MMR	02/03/2015
Pneumococcal, PCV-13	04/10/2014
Pneumococcal, PCV-13	06/10/2014
Pneumococcal, PCV-13	10/10/2014
Pneumococcal, PCV-13	04/10/2015

eCW: Add Immunization

Immunization Details

☒ All ☐ My Favorites

Active

Find

do not use

DT - Pediatric

DTaP - Diphtheria, Tetanus, Acellular Pert

DTaP NOS

DTaP/HepB/IPV (PEDIARIX)

DTaP/Hib

DTaP/IPV (KINRIX) 4-6 Yrs

DTaP/IPV/Hib/ (PENTACEL)

dtap5

DTP NOS

DTP-HIB.

Td - Tetanus And Diphtheria Toxoids

Td- Preservative Free

Tdap - Tetanus, Diphtheria, & Acellular P

DTaP/HepB/IPV (PEDIARIX)

Vaccination Given in Past ☒ N ☐ Y

Visit date

2016-02-24 PED-Annua

Dose

0.5

milliliters

Dose Number

0

Lot Number *

222

...

☐ VFC

Location

Left Deltoid

Route

Intramuscular

Exp. Date *

06/23/2016

Status

Administered

Reason

...

Clr

Given By *

Shanks, Kate

Me

...

Clr

Given Date/Time *

02/24/2016

01:17 PM

Manufacturer

VFC

VIS Info

VIS given date	VIS Name	Date on VIS
<input checked="" type="checkbox"/> 03/01/2016	Hep B, adolescent or pedi...	02/02/2012
<input checked="" type="checkbox"/> 03/01/2016	IPV	11/08/2011

Comments

☒ Decrement the dose

☒ Billable

☒ Counseling

New

Previous | Next

Save and Next Due

OK

Cancel

eCW: Updated Decision Support from EHR

Immunizations/T.Injections

Hx

Imm Schedule

Flu Schedule

Child, Twoyearold (F) 02/10/2014 (2Y)

Imm Forecast: All

Imm. Series	Dose 1	Dose 2	Dose 3	Dose 4	Dose 5	Dose 6	Dose 7	Forecast
Hepatitis B 3 shots	02/10/2014 0D HepB peds...	06/10/2014 4M HepB peds...	02/24/2016 2Y DTaP-Hep...					Complete
Rotavirus 0 shot	Add							Not Recommen...
DTP 4 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...	02/24/2016 2Y DTaP-Hep...	Add			02/10/2018 Future Recom...
HIB 3 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...	02/24/2016 2Y DTaP-Hep B-IPV				Complete
PCV 3 shots	04/10/2014 2M Pneumococ...	06/10/2014 4M Pneumococ...	10/10/2014 8M Pneumococ...	Add				02/10/2016 DUE NOW
PPSV 0 shot	Add							02/10/2019 Future Recom...
Polio 4 shots	06/10/2014 4M DTaP-Hib...	10/10/2014 8M DTaP-Hib...	04/10/2015 14M DTaP-Hib...	02/24/2016 2Y DTaP-Hep...	Add			02/10/2018 Future Recom...
MMR 1 shot	02/03/2015 11M 21D MMR	Add						05/08/2015 DUE NOW
Varicella 1 shot	04/10/2015 14M Varicella	Add						02/10/2018 Future Recom...

Public Health Record

Generate Record

Immunizations from NYCIR Immunization

Immunization Name	Given Date
+ DTaP-IPV/Hib (Pentacel)	04/10/2015
+ DTaP-IPV/Hib (Pentacel)	06/10/2014
+ DTaP-IPV/Hib (Pentacel)	10/10/2014
+ Influenza-IIIV4, IM, Presrv-free (>=3yrs)	10/10/2015
+ Hep B, adolescent or pediatric	02/10/2014
+ Hep B, adolescent or pediatric	06/10/2014
+ varicella	04/10/2015
+ MMR	02/03/2015
+ Pneumococcal, PCV-13	04/10/2014
+ Pneumococcal, PCV-13	06/10/2014
+ Pneumococcal, PCV-13	10/10/2014
+ Pneumococcal, PCV-13	04/10/2015

Sunrise Clinical Manager by AllScripts

- Manual query, manual record reconciliation, **automatic record upload**, and **automatic decision support update**
- Internal immunization decision support software
- Provides immunization forecast for **next vaccine due date**
- **Immunizations from IIS** are marked with a **green box**; immunizations **administered at the site** are marked with a **green circle**

AllScripts: Download to Empty Immunization Record

RDP-E48231 The Brooklyn Hospital Center #BR - E48231 - Test Environment - BR2DCTGLD.BR1ADCY1 (Citrix / SCM Client)

Allscripts Gateway | My Applications | Acute Care

My Applications ▶ Acute Care

File Registration Pharmacy View GoTo Actions Preferences Tools

MILLER, YOUNGPATIENT 00040009 [Query Immunization Registry](#)

7W-768-A Unreviewed Allergies

Allergy: PCP:
DAILY WT: kg **HT:** cm **BSA:** M2 **BMI:** Kg/M2 **IW:** kg **AIW:** kg **ADM:** Mar-14-2016 **DSC:**

Patient List | **Inbox** | ED Status Board | Orders | Results | Patient Info | Documents | Flowsheets | Clinical Summary | LabRegn | Hand Off | My View | SBAR

Current List: Temporary List Select All Patients 1 Visit(s) Save Selected Patients...

Patient Name	Patient ID / Visit Number	Birthdate	Current Location	Visit Status	Admit Date	Admit Time	Provider	To Sign	To Verify	Unack Alerts	Flag New
MILLER, YOUNGPATIENT	0004000966/20412971	Apr-10-...	7W-768-A	ADM	Mar-14-...	14:04					

Sidebar

Joshi, Hemant(JT)





AllScripts: Immunization Download Reconciliation Screen

MILLER, YOUNGPATIENT - Immunization Records Reconciliation

MILLER, YOUNGPATIENT 0004000966 / 20412971 11m (Apr-10-2015) Female
7W-768-A **Unreviewed Allergies**
Allergy: PCP:
DAILY WT: kg HT: cm BSA: M2 BMI: Kg/M2 IW: kg AIW: kg ADM: Mar-14-2016 DSC: Code Status:

Immunization Records

Click on the status icon to view details of the New or Changed records from Registry

<input checked="" type="checkbox"/>	Dose #	Vaccine		Date Of Administration
<input type="checkbox"/>	DTaP-Hib-IPV (2 items)			
<input checked="" type="checkbox"/>	Dose 1	DTaP-Hib-IPV (Pentacel)		Jun-12-2015
<input checked="" type="checkbox"/>	Dose 2	DTaP-Hib-IPV (Pentacel)		Aug-12-2015
<input type="checkbox"/>	Hepatitis B (1 item)			
<input checked="" type="checkbox"/>	Dose 1	Hep B, adolescent or pediatric		Apr-11-2015
<input type="checkbox"/>	MMR (1 item)			
<input checked="" type="checkbox"/>	Dose 1	MMR		Mar-14-2016

[Need Help?](#) Add Selected Record(s) Close

AllScripts: Immunizations And Decision Support from EHR

RDP-E48231 The Brooklyn Hospital Center #BR - E48231 - Test Environment - BR2DCTGLD.BR1ADCV1 (Citrix / SCM Client)

Health Manager - MILLER, YOUNGPATIENT

MILLER, YOUNGPATIENT

7W-768-A

0004000966 / 20412971

11m (Apr-10-2015)

Unreviewed Allergies

Options Panel

Filters

 Pending Status:

☒ Due now

♥ Near due

☒ Future pending

☒ Ordered

 Charted Status:

Done

☐ Not done

 Invalid

Deleted

 Discontinued

 Inactive

☒ Age Out

Schedule:

No Schedule Filter

Event Category:

No Event Category Filter

▼ Display Styles

Display View:

Summary

Working

Column Selection:

 All events Sorted by: **Scheduled occurrence date**

[illegible]

AllScripts: Add Immunization

Mark as Done - MILLER, YOUNGPATIENT

Event: DTaP Same action will be applied to Diphtheria, Pertussis, Tetanus. Performed: Mar-16-2016 13:36

Comments: Performed By: ☒ Me ☐ Other Huang, Yannong (Physician)

Vaccine Information:

Vaccine: DTaP Product: CERTIVA (Inactive) (North American Vaccine, Inc.)
Package: <Unlisted Package> Product #: 3468
Injection Site: Left Thigh Route: IM
Eligibility Code: VFC Eligible - Medicaid/Medicad Managed Care Total Dose: 1 milliLiter(s) ☐ Partial Dose

Lot Information (1 of 1):

Lot #: 1265
Expiry Date: Apr-30-2016 Dose: 1 milliLiter(s)
Removed From Storage: Mar-16-2016 13:00 Wasted Amount:

Consent:

Consent Type: Verbal
Signed: : By:
Relationship:

Education Material (1 of 1):

Education Type: DTaP VIS
for DTaP
Published: Mar-01-2016 Presented: Mar-16-2016

[Need Help?](#)


AllScripts: Updated Decision Support from EHR



[illegible]

Office Practicum by Connexin Software

- Manual query, manual record reconciliation, **automatic record upload**, and **automatic decision support update**
- Immunization **information source is color coded** in reconciliation screen
- Internal immunization decision support software, with **color-coding for valid and invalid shots**
- Provides immunization forecast for **next vaccine due date**

Office Practicum: Download to Empty Immunization Record

**OPONEYEAROLD S. SUMMER (103) Sex: M DOB: 04/10/2015 Age: 11 mos. 7 days**



Forecast

Complete List

Indicators

Notes

Forecast Key

Synchronize with immunization registry

Hep B	Diph Tetanus Pertuss Hib	Pneumococcal		
DUE: HepatitisB.....	BEHIND: DiphtheriaTetan.....	DUE: Hib.....		
		BEHIND: Polio.....		
		DUE: Pneumococcal.....		
		On standard PCV schedule for start age 7-11 months, continue with PCV13. Earliest: 05/22/2015 Range: 11/10/2015 - 04/10/2016		
Hep A	Td / Tdap Booster	M-M-R-V	Varicella	Meningococcal
	-NA-.....			OK min.spacing.....
Rotavirus	Flu - Seasonal (0)	Miscellaneous	RSV-MAb (Synagis®)	HPV
-NA-.....	DUE: Flu- Seasonal.....			-NA-.....
		<No data to display>		

Total vaccines: 0
VFC eligible: NO

4-day
'grace-period'
enabled

VacLogix™ ver. 3-259

Office Practicum: Immunization Record Reconciliation Screen

OP Logged In: admin Administrator (102\$AD) on IMP-APATEL1

File Activities Reports Utilities Log In/Out Tools Window Help PPE Location: Primary Location

Sched Rgstr Insur Adr Bk Tasks Chart Chron Forms Super Acct Billing Review Input Msgs Send IM e-Rx Print Stamp Pref

Import Send Reconcile Delete Refresh Select UnSelect Ping

Import selected immunization records from registry into chart


Immunizations Indicators IIS Forecast Chart Demographics IIS Demographics

Sel	Vaccine Name	Family	CVX	Vac Date	Lot Number	Exp Date	Manuf	Site	Route	VFC	Prov	Staff
<input checked="" type="checkbox"/>	DTaP-HIB-IPV	PENTACEL	120	06/10/2015			UNK			9	0	0
<input checked="" type="checkbox"/>	DTaP-HIB-IPV	PENTACEL	120	08/10/2015			UNK			9	0	0
<input checked="" type="checkbox"/>	MMR	MMR	03	03/15/2016			UNK			9	0	0



Color Key: Chart/Registry Match In Chart, NOT in Registry In Registry, NOT in Chart Drop Registry ID: 788410889

103 OPONEYEAROLD S. SUMMER [M] [DOB:04/10/2015 Age DOV:11 mos. 7 days] SELF-PAY

Office Practicum: Immunizations And Decision Support from EHR



OPONEYEAROLD S. SUMMER (103) Sex: M DOB: 04/10/2015 Age: 11 mos. 7 days



Quick Entry

Sync Registry

Consent Form

Enter Immunization

Forecast

Complete List

Indicators

Notes

Forecast Key

Go to vaccine administration screen

Hep B	Diph Tetanus Pertuss	Hib	Polio	Pneumococcal
BEHIND: HepatitisB.....	06/10/15 DTaP-HIB-IPV 08/10/15 DTaP-HIB-IPV BEHIND: DiphtheriaTetanu	06/10/15 DTaP-HIB-IPV 08/10/15 DTaP-HIB-IPV BEHIND: HIB.....	06/10/15 DTaP-HIB-IPV 08/10/15 DTaP-HIB-IPV DUE: Polio.....	DUE: Pneumococcal.....
Hep A	Td / Tdap Booster	M-M-R-V	Varicella	Meningococcal
.....	-NA-.....	x03/15/16 MMR	OK min.spacing.....
Rotavirus	Flu - Seasonal (0)	Miscellaneous	RSV-MAb (Synagis®)	HPV
-NA-.....	DUE: Flu- Seasonal.....	<No data to display>	-NA-.....

Total vaccines: 4
VFC eligible: NO

4-day
'grace-period'
enabled

VaoLogio™ ver. 3-259

View Reg Consent

View Plan - History

Office Practicum: Add Immunization

Immunization Order Management

Enter Vaccine Administration Information

Warnings/Adverse Reactions: No active medication allergies or reactions; No documented food/non-medication allergies

Date/time vaccinated: 3/17/2016 12:15 PM (Vaccination date is passed to superbill)

Vaccine: DTaP-HepB-IPV+ 1029
Manufacturer: PMC Inventory Status: 0 used 10 total
Expiration date: 12/31/2018
Lot number: TESTLOT

Body site: LA Using VFC stock: NO
Route of admin: IM Patient's VFC eligibility: NO

VIS title: Infant Multi Vaccine VIS Packet
VIS publication date: 11/16/2012 Date VIS given: 3/17/2016

Counseling/discussion: Need for vaccine, risks, benefits, potential side effects discussed with patient/family. Counseling performed where appropriate and VIS provided.

Counseling provider: No counseling provided
Vaccinator: DD9 Add vaccine to superbill

Save **Cancel**

Click on a Vaccine Name to [Continue >>]
Quick Chart
VacLogic
Consent Form
☒ Use location
☒ Expand grid

T	HL7	Dose
	03	MMR
	161	
	120	Pent
	120	Pent

Total vaccines: 103 OPONEYEAROLD S. SUMMER DOB: 04/10/2015
103 OPONEYEAROLD S. SUMMER [M] [DOB:04/10/2015 Age DOB:11 mos. 7 day] [VFC Status: NOT ELIGIBLE]

Save changes and exit.

Office Practicum: Updated Decision Support from EHR and Forecast from IIS

[F8] Patient Chart

OPONEYEAROLD S. SUMMER (103) Sex: M DOB: 04/10/2015 Age: 11 mos. 7 days

No privacy restrictions

Quick Entry Sync Registry Consent Form Enter Immunization

Forecast Complete List Indicators Notes Forecast Key

Hep B	Diph Tetanus Pertuss	Hib	Polio	Pneumococcal
03/17/16 DTaP-HepB-IPV	06/10/15 DTaP-HIB-IPV	06/10/15 DTaP-HIB-IPV	06/10/15 DTaP-HIB-IPV	DUE: Pneumococcal.....
.....	08/10/15 DTaP-HIB-IPV	08/10/15 DTaP-HIB-IPV	08/10/15 DTaP-HIB-IPV	
	03/17/16 DTaP-HepB-IPV	BEHIND: HIB.....	03/17/16 DTaP-HepB-IPV	

Hep A	Td / Tdap Booster	M-M-R-V	Varicella	Meni
.....	-NA-	x03/15/16 MMR	OK mi

Rotavirus	Flu - Seasonal (0)	Miscellaneous	RSV-MAb (Synagis®)	HPV
-NA-	DUE: Flu- Seasonal.....			-NA-
		<No data to display>		

Total vaccines: 5
VFC eligible: NO

4-day 'grace-period' enabled

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Synchronize Immunization Records

Import Send Reconcile Delete Exit

Immunizations	Indicators	IIS Forecast	Chart Demographics	IIS Demographics	
		Vaccine Name	CVX	Date	
		DTaP	20	09/15/2016	ACIP Schedule
		HPV, quadrivalent	62	04/10/2026	ACIP Schedule; Not rec
		Hep A, ped/adol, 2 dose	83	04/09/2016	ACIP Schedule
		Hep B, adolescent or pediatric	08	04/14/2016	ACIP Schedule; Not rec
		Hib (PRP-T)	48	10/09/2015	ACIP Schedule
		IPV	10	04/10/2019	ACIP Schedule
		MMR	03	04/12/2016	ACIP Schedule
		Pneumococcal, PCV-13	133	06/10/2015	ACIP Schedule
		influenza, NOS	88	01/05/2016	ACIP Schedule
		meningococcal (MCV4)	114	04/10/2026	Recommended for high
		varicella	21	04/12/2016	ACIP Schedule

Color Key: Chart/Registry Match In Chart, NOT in Registry In Registry, NOT in Chart Drop

Items Identified During EHR Presentations

- One of the EHRs didn't have a real-time implementation (~40 seconds to query the IIS)
- On-screen error messages ignored during two EHR presentations
- Manual screen refreshes needed in two EHRs
- One EHR added color coding for immunization information source to user interface in response to feedback

EHR Feature Summary

- All 4 EHRs provide
 - Automatic decision support updates
 - Forecasts for future appointments
- 3 out of 4 EHRs perform
 - Manual record download
 - Manual record reconciliation
 - Color code invalid shots
 - Have an on-screen indicator for information source
 - Internal clinical decision support

Vision for EHR to IIS Integration

- Minimize effort for healthcare provider and staff
 - EHRs query IIS automatically
 - EHRs automatically reconcile provider record with IIS
 - EHRs automatically update clinical decision support for immunization records
- IIS is an extension of provider EHR
 - Real-time bi-directional communication
 - EHR shows information source for each shot
 - Standard messages and interfaces facilitate national implementation of EHR to IIS communication

Conclusions

- IIS and healthcare provider community need to provide standard community guidance for EHR query and decision support implementation
- Interoperability teams at IIS need to review EHR immunization record query requirements, design, and implementation for MU3

Future Work

- Standardize more IIS functions for EHR integration
 - School, Camp, Child Care, and more physical forms -> increase reporting
 - VFC enrollment, vaccine ordering and inventory functions -> easier to obtain vaccine
 - Vaccine adverse events -> provide information to providers
 - Reminder/recall and vaccine coverage report functions -> increase vaccine coverage

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