

Applied Use of Bi-Directional Exchanges: A Case Study of Rockwood Clinic

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ROCKWOOD

PRESENTERS

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Disclosure

Scientific Technologies Corporation (STC) provides software solutions and public health consulting for public health, including Immunization Information System software used by numerous states. Additionally, STC develops software tools used by private providers to facilitate connections to state IIS.

ABOUT ROCKWOOD

- ▶ Multi-specialty clinic
- ▶ Largest free-standing outpatient center between Central Washington and Minneapolis
- ▶ Spokane area
 - ▶ Third largest city in Washington
 - ▶ 400,000 people in metro area
 - ▶ Healthcare hub for over 1.5 million people in eastern Washington, northern Idaho and western Montana
- ▶ 110,000 patients a year
- ▶ 300 physicians and providers
- ▶ 1,100 employees
- ▶ 40 specialties

GOALS OF INTEGRATION

- 
- Integrate the IIS data into the clinic workflow

- 
- Reduce duplicate data entry

- 
- Streamline process for meeting immunization documentation requirements

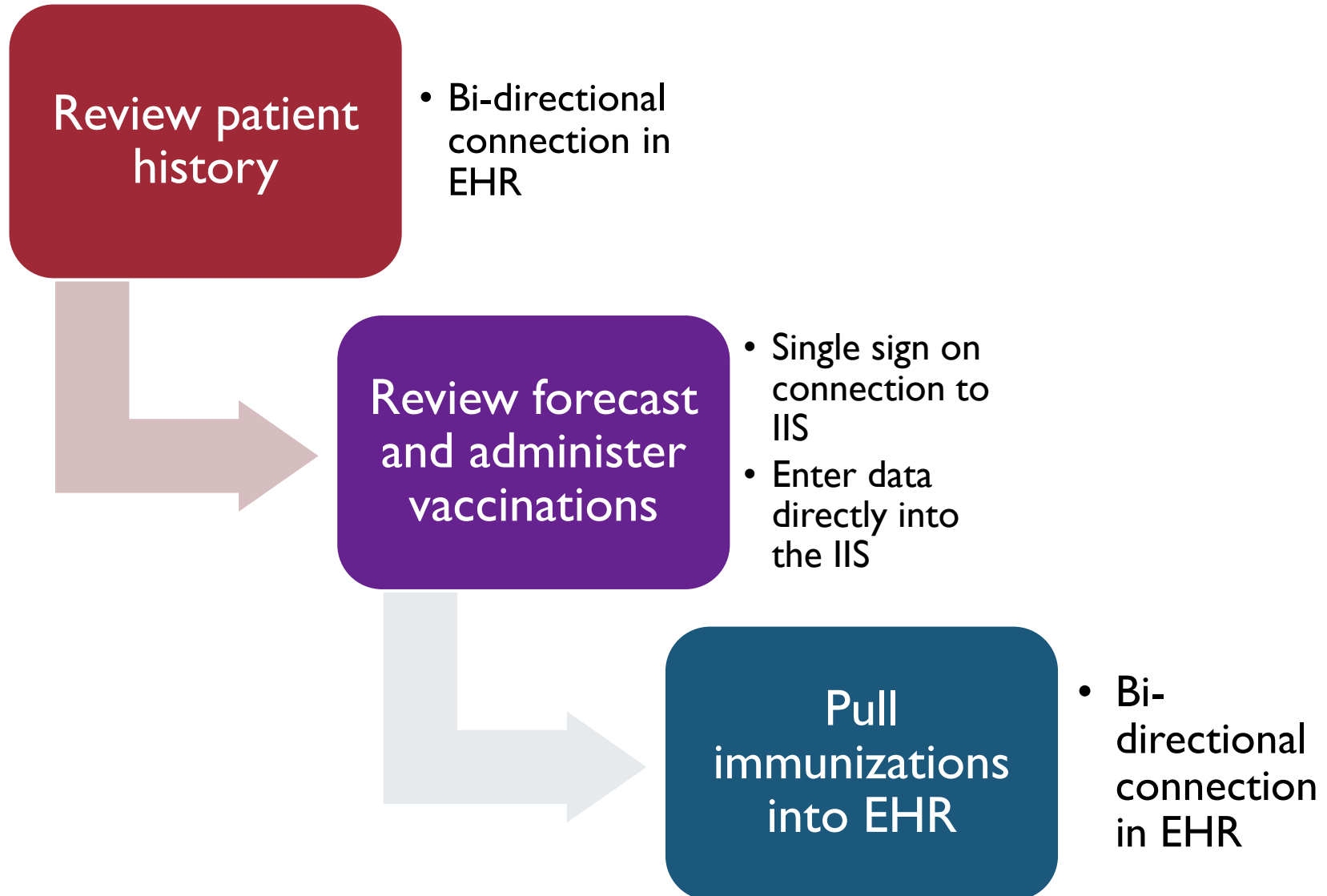
BUSINESS NEED

- ▶ Wanted to use IIS features
 - More efficient data entry process
 - Decision making & data quality reports
 - Streamlined inventory management and accountability
 - Reminder-recall
 - Coverage rate reporting and analysis
- ▶ Did not want to do double data entry
- ▶ Wanted a way to use the registry and then load the data back into their system

DEVELOPMENT HISTORY

- ▶ Based on an initial grant from Spokane Regional Health District, engage with Lost Creek Consulting to modify their existing IIS submission/connection tool to meet the workflow
- ▶ Lost Creek had established basic bi-directional services with other Washington customers
- ▶ ImmsLink was subsequently sold to MDEM Systems in 2010 and later acquired by STC in March 2013.

WORKFLOW



WORKFLOW WALKTHROUGH

Get Imms From Registry



ImmsLink Connector Registry Data for 228-TEST011, Benjamin Peterson, 03/13/2002

Import Source: IWeb State Child Profile View Forecast Set Password Registry Edit

Select	Vaccine	Date	InCode	Given As	Source
<input checked="" type="checkbox"/>	D/T	5/13/2002	CVX-22	[R]DTP-Hib	R
<input checked="" type="checkbox"/>	D/T	7/13/2002	CVX-01	[R]DTP	R
<input checked="" type="checkbox"/>	D/T	10/10/2002	CVX-01	[R]DTP	R
<input checked="" type="checkbox"/>	D/T	6/12/2003	CVX-01	[R]DTP	R
<input type="checkbox"/>	HEP B	3/14/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	5/13/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	7/13/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	9/12/2003	CVX-45	[R]Hep B- unspecified...	R
<input type="checkbox"/>	HIB	5/13/2002	CVX-22	[R]DTP-Hib	R
<input checked="" type="checkbox"/>	HIB	7/13/2002	CVX-48	[R]Hib (PRP-T)	R
<input checked="" type="checkbox"/>	HIB	10/10/2002	CVX-48	[R]Hib (PRP-T)	R
<input checked="" type="checkbox"/>	HIB	6/12/2003	CVX-48	[R]Hib (PRP-T)	R
<input type="checkbox"/>	MMR	6/12/2003	CVX-03	[R]MMR	R
<input checked="" type="checkbox"/>	MMR	2/16/2004	CVX-03	[R]MMR	R
<input checked="" type="checkbox"/>	PNEUMONIA	5/13/2002	CVX-100	[R]pneumococcal con...	R
<input checked="" type="checkbox"/>	TETRAMUNE	5/13/2002	CVX-22	[R]DTP-Hib	R
<input type="checkbox"/>	VARICELLA	9/12/2003	CVX-21	[R]varicella	R

Check All Clear All Import

Select	Vaccine	Date	ObsCode	ObsValue	Source
<input checked="" type="checkbox"/>	D/T	5/20/2013	DTAP #1	Daptacel	E
<input checked="" type="checkbox"/>	D/T	8/30/2013	DTAP #1	Daptacel	E
<input type="checkbox"/>	HEP B	3/14/2002	HEPBVAX#1	0.5 ml given	E
<input type="checkbox"/>	HIB	5/13/2002	HEMINFB#1	0.5 ml given	E
<input type="checkbox"/>	MMR	6/12/2003	MMR #1	0.5 ml given	E
<input type="checkbox"/>	VARICELLA	9/12/2003	VARICELLA#1	0.5 ml given	E

Check All Clear All Upload

EMR

REGISTRY EDIT

Registry Edit



http://epicenter.stchome.com/waCurrent/vacc_view_add.jsp

WASHINGTON STATE IMMUNIZATION INFORMATION SYSTEM

Logged in: HL7 USER Date: September 23, 2013
 Organization (IRMS): HUB IRMS FOR INCOMING RECORDS (1016)

Main
 Home
 Logout
 Select Facility
 View Messages

Favorites

Patient

Vaccinations
 View/Add
 Forecast
 Summary

Reports

Settings

Imports

Exports

Job Queue

Change Password

Answers

Version: 5.13.11.0

Patient
 Name: BENJAMIN S. PETERSON SIIS Patient ID: 804
 Date of Birth: 03/13/2002 Age: 11 yrs
 Guardian: JOSHUA PETERSON Status: Active

[Print Page](#) [View Print Page](#)

Vaccination View/Add

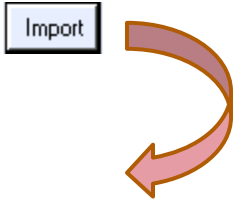
The patient was reported to have had the Chickenpox disease.
 (*- Historicals , #- Adverse Reaction , !1- Warning , !2- Warning , !3- Warning , !0- Unverified Historicals , ^ - Compromised Vaccination , C - Confidential Services)

Documented By: --select--

Double-click in any date field below to enter the default date: 09/23/2013 Barcode Scanner: **READY**

Vaccine	1	2	3	4	5	6
DTP	07/13/2002 *	10/10/2002 *	06/12/2003 *			
DTP/Hib	05/13/2002 *					
Hep B - unspecified	03/14/2002 *	05/13/2002 *	07/13/2002 *	09/12/2003 *		
Hib-PRP-T	07/13/2002 *	10/10/2002 *	06/12/2003 *			
MMR	06/12/2003 *	02/16/2004 *				
PPD Test	06/13/2003 *					
Pneumococcal(PCV)	05/13/2002 *					
Polio - unspecified	05/13/2002 *	07/13/2002 *	10/10/2002 *	02/16/2004 *		
Varicella	09/12/2003	History				

IMPORT BACK TO EHR



ImmsLink Connector Registry Data for 228-TEST011, Benjamin Peterson, 03/13/2002

Import Source: IWeb State Child Profile

View Forecast Set Password Registry Edit

Select	Vaccine	Date	InCode	Given As	Source
<input checked="" type="checkbox"/>	D/T	5/13/2002	CVX-22	[R]DTP-Hib	R
<input checked="" type="checkbox"/>	D/T	7/13/2002	CVX-01	[R]DTP	R
<input checked="" type="checkbox"/>	D/T	10/10/2002	CVX-01	[R]DTP	R
<input checked="" type="checkbox"/>	D/T	6/12/2003	CVX-01	[R]DTP	R
<input type="checkbox"/>	HEP B	3/14/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	5/13/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	7/13/2002	CVX-45	[R]Hep B- unspecified...	R
<input checked="" type="checkbox"/>	HEP B	9/12/2003	CVX-45	[R]Hep B- unspecified...	R
<input type="checkbox"/>	HIB	5/13/2002	CVX-22	[R]DTP-Hib	R
<input checked="" type="checkbox"/>	HIB	7/13/2002	CVX-48	[R]Hib (PRP-T)	R
<input checked="" type="checkbox"/>	HIB	10/10/2002	CVX-48	[R]Hib (PRP-T)	R
<input checked="" type="checkbox"/>	HIB	6/12/2003	CVX-48	[R]Hib (PRP-T)	R
<input type="checkbox"/>	MMR	6/12/2003	CVX-03	[R]MMR	R
<input checked="" type="checkbox"/>	MMR	2/16/2004	CVX-03	[R]MMR	R
<input checked="" type="checkbox"/>	PNEUMONIA	5/13/2002	CVX-100	[R]pneumococcal con...	R
<input type="checkbox"/>	POLIO	9/23/2013	CVX-10	[R]IPV	R
<input checked="" type="checkbox"/>	TETRAMUNE	5/13/2002	CVX-22	[R]DTP-Hib	R

Check All Clear All Import

Select	Vaccine	Date	ObsCode	ObsValue	Source
<input checked="" type="checkbox"/>	D/T	5/20/2013	DTAP #1	Daptacel	E
<input checked="" type="checkbox"/>	D/T	8/30/2013	DTAP #1	Daptacel	E
<input type="checkbox"/>	HEP B	3/14/2002	HEPBVAX#1	0.5 ml given	E
<input type="checkbox"/>	HIB	5/13/2002	HEMINFB#1	0.5 ml given	E
<input type="checkbox"/>	MMR	6/12/2003	MMR #1	0.5 ml given	E
<input type="checkbox"/>	POLIO	9/23/2013	IPV #1	[R]IPV	E
<input type="checkbox"/>	MMR	6/12/2003	MMR #1	0.5 ml given	E

Check All Clear All Upload

EMMR

ON-BOARDING PROCESS

- ▶ Multiple data quality review process
 - ▶ Achieve Washington 95% data quality target to be able to load historical (past immunizations) from EHR to IIS
- ▶ Establish error correction process
 - ▶ Correct manual entry errors
 - ▶ Inform user
- ▶ Added additional point of entry validations

TECHNICAL ENVIRONMENT

Centricity EMR - NOT FOR PATIENT USE - Harry S. Winston MD @ Eastside Clinic (sut90) - 9/23/2013 7:35 AM - [Chart]

Go Actions Options Help

Desktop Chart Appts Reg Reports New View Print Help EXIT

Benjamin S. Peterson *CHECK PROTOCOLS* Home: 503-499-6762 Work: None
 11 Years & 6 Months Old Male (DOB: 03/13/2002) Patient ID: 228-TEST011 Insurance: CHC (Gold Plan) Group: CHC8322

Find Pt. Protocols Graph Handouts Update Phone Nt. Refills

Summary History Problems Medications Alerts/Flags Flowsheet Orders Documents

Problems
 LARYNGITIS, ACUTE

Medications Drug interactions

Allergies
 BACTRIM

Directives

Care Alerts

Registration Notes
 Likes to be called "Benjie"

Flowsheet: [All]

	Date	Value
BIRTH WEIGHT	05/13/2002	7.68
BMI	03/03/2004	16.42
BP DIASTOLIC	02/16/2004	60
BP SYSTOLIC	02/16/2004	90
BSA	03/03/2004	0.55
CHEST EXAM	02/27/2004	normal
CHIEF CPLNT	02/27/2004	Runny nose, sore throat
COMVAX FUND		
COMVAX#1		
COMVAX#1AD		
COMVAX#1AT		

Documents:All

Date	Summary	Status
09/06/2013 8:	Clin Updt: Immunization Visit	On Hold
08/29/2013 9:	Clin Updt: Immunization Visit	On Hold
06/20/2013 8:	Clin Updt: Immunization Visit	On Hold
06/17/2013 2:	Clin Updt: Immunization Visit	On Hold
06/07/2013 1:	Clin Updt: Immunization Visit	On Hold
06/06/2013 9:	Clin Updt: Immunization Visit	On Hold
06/05/2013 9:	Clin Updt: Immunization Visit	On Hold
06/04/2013 1:	Clin Updt: Immunization Visit	On Hold
05/31/2013 1:	Clin Updt: Immunization Visit	On Hold

Done NUM

CHALLENGES OF INTEGRATION

What IIS's
like:

**CVX
Codes**

DTaP = 20
 $20^{DTaP} CVX$

What GE
Centricity
has:

**OBS
Terms**

DTaP....
DTaP #1
DTaP #2
DTaP #3

GE VACCINATION STORAGE

Centricity EMR - NOT FOR PATIENT USE - Harry S. Winston MD @ Eastside Clinic (sut90) - 9/23/2013 7:43 AM - [Chart]

Go Actions Options Help

Desktop Chart Appts Reg Reports New View Print Help EXIT

Benjamin S. Peterson *CHECK PROTOCOLS* Home: 503-499-6762 Work: None
 11 Years & 6 Months Old Male (DOB: 03/13/2002) Patient ID: 228-TEST011 Insurance: CHC (Gold Plan) Group: CHC8322

Find Pt. Protocols Graph Handouts Update Phone Nt. Refills Organize

Summary History Problems Medications Alerts/Flags Flowsheet Orders Documents

View <Attached - [All]> Set Attached View Use Date Range To

Days	08/30/2013	05/30/2013	05/20/2013	03/03/2004	02/27/2004	02/16/2004	09/12/2004
DTAP #1	Daptacel		Daptacel				
DTAP #1 DSE	0.5 mL		0.5 mL				
DTAP #1 VIS	05/17/20...		05/17/20...				
DTAP #1 AD	08/30/20...		05/20/20...				
DTAP #1 AT	10:10 AM		1:15 PM				
DTAP #1 BY	Harry S....		Harry S....				
DTAP #1 EXP	09/12/20...		06/01/20...				
DTAP #1 LOT	123456		123456				
DTAP #1 MFR	Sanofi P...		Sanofi P...				
DTAP #1 RTE	intramus...		intramus...				
DTAP #1 SITE	left del...		right de...				
DTAP #1 VFC	V01 Not ...		V02 VFC ...				
DTAP FUND	Private		Federal				
EAR EXAM					normal		
EXAM FOCUS				Neurolog...			
GEST AGE EST							

Date: Value: Tag: Comment:
 By: Range: State: Name:

Done NUM

MAPPING SOLUTION

ImmsLink XReference Editor

Update Imm | Reconcile | Families | Race/Ethnicity | VFC/Fundings | MFG/VIS | Route/Site | Vaccinator/Refusal | Upload

Select An Immunization Group
 Family:
 Group: Series:

Change Immunization Group
 Add Group | Delete Group | Change Group | Change Series

Select by CPT
 CPT Search

Export Obs Names and ML Codes
 Export All FileLocation:

Centricity OBS Terms Copy Down

	Base	Admin	Route	Site	Mfr	Vis	Lot	Exp
▶	DTAP #1	DTAP #1BY	DTAP #1RTE	DTAP #1SITE	DTAP #1MFR	DTAP #1 VIS	DTAP #1LOT	DTAP #1EXP

Immunization Codes

	ObsValue	Dose	CPT	CVX	LocalCode	Historical	DelFlag
▶	Daptacel		90700	106		<input type="checkbox"/>	<input type="checkbox"/>
	Infanrix		90700	20		<input type="checkbox"/>	<input type="checkbox"/>
	Tripedia		90700	20		<input type="checkbox"/>	<input type="checkbox"/>
	done		90700	20		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	given		90700	20		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	transcribed from ...		90700	106		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Infanrix		90700	20		<input type="checkbox"/>	<input type="checkbox"/>

PRE-DEFINED FORM

Immunization Management Form: Benjamin S. Peterson

Registry Consent **Ped Vx** Combo Vx Adult/Other Vx FLU-PPD Vx Text Edit Flowsheet

Pediatric Vaccines and History (0 - 6 yrs.)...

Hx Chickenpox Exposure: Had Chicken Pox (Year):

Hepatitis A **Rotavirus** **Hepatitis B** **Varicella**

Give today Give today Give today Give today

#2 09/06/2013 #1 09/12/2003
 #1 03/14/2002

Hib **Polio (IPV or OPV)** **MMR** **Mumps (discontinued)**

Give today Give today Give today

#2 09/06/2013 #1 06/12/2003
 #1 05/13/2002

Pneumo (PCV) **DTaP, DTP** **DT** **Measles (discontinued)**

Give today Give today Give today

#1 05/20/2013

Rubella (discontinued)

* = Required items Enter Vaccine Vaccine Not Given Historical Entry [Clear All Values](#) [Print VIS](#)

*VFC Eligibility: V01 Not VFC eligible Funding Source: Private

*Immunization: DTaP <Diphtheria-Tetanus-Pertussis>

*Vaccine Type: Daptacel

*Manufacturer:

*Lot #: *Exp. Date: *VIS Date:

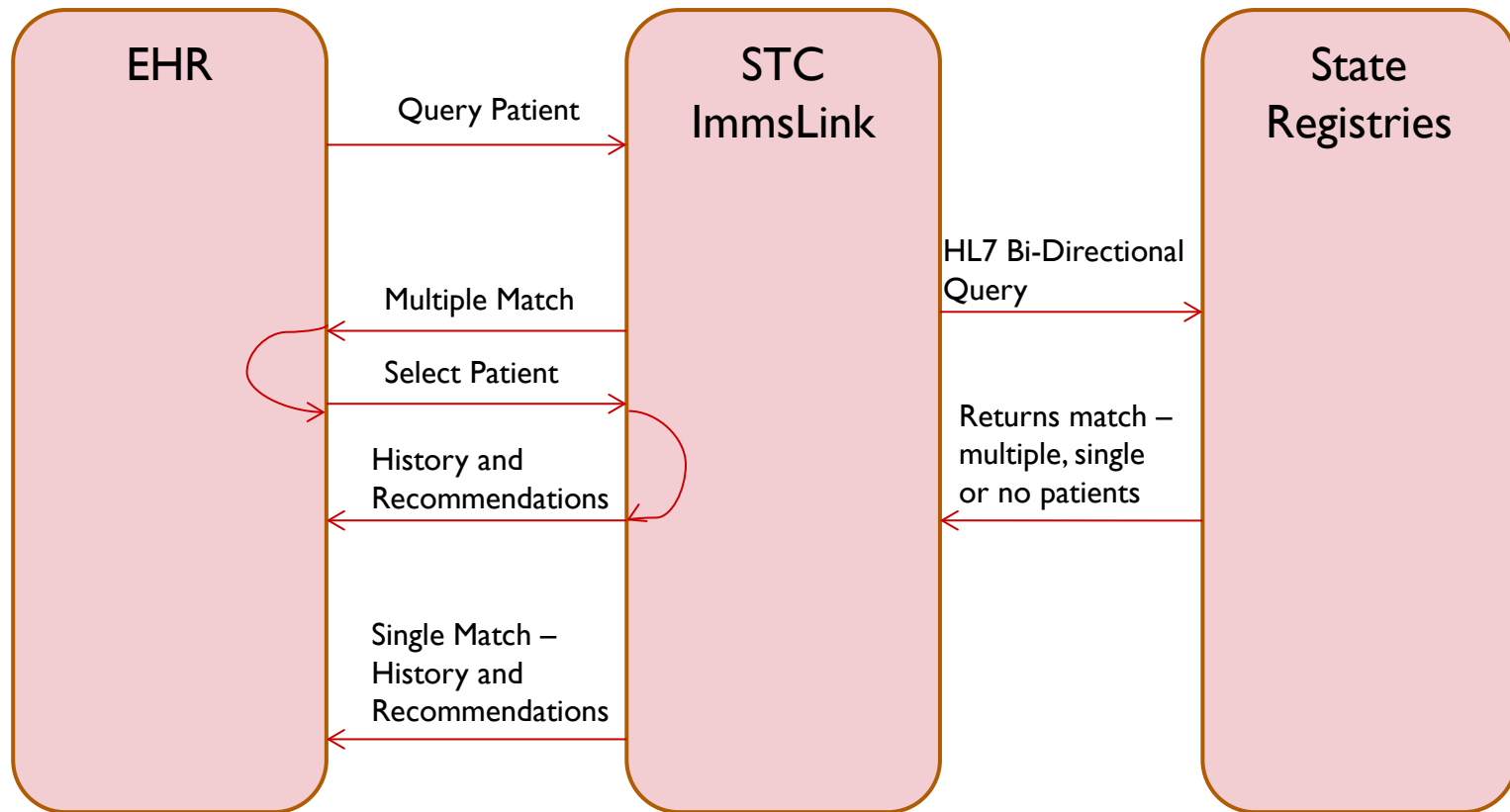
*Site: *Route: *Dose:

*Date: *Time: [< Now](#)

*Given By: Harry S. Winston MD

[Prev Form \(Ctrl+PgUp\)](#) [Next Form \(Ctrl+PgDn\)](#) [Close](#)

ABOUT IMMSLINK



- ▶ Maps EHR value sets to HL7 / IIS expected values
- ▶ Encapsulates complexities of state IIS transport and HL7 implementations

RESULTS

Save Time

- Reduce data entry and time saved in the clinic.

Improve Care

- Improved patient care due to easy access to the patient history and immunization recommendations.

Manage Inventory

- Improved ease of meeting VFC accountability requirements, including dose-level accountability.

CONCLUSIONS

- ▶ IIS can still be utilized as a valuable tool for provider practices even if data is being submitted electronically.
- ▶ Bi-directional capability improves patient care and saves time at the point of service.

NEXT STEPS

Pilot Pediatric
Workflow



Reminder/recall



Utilize forecast



Run vaccine coverage
reports



Real-time inventory
management documentation