

Health Information Exchanges



Presented by:

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Michelle has nearly three decades of experience in healthcare information technology. She has worked at a health insurance payer, a practice management software company, an HIE platform, healthcare publishing company, and an information technology development organization that worked on 3M products. She has been with UHIN as the director for the Clinical Health Information Exchange or CHIE for nearly three years.

Interoperability

Who

Covered Entities



What

Clinical or financial transactions



Why

Treatment, payment
or
operations



How

HI7, CCDs, FHIR
& ANSI X12 5010 A1



HIPAA Covered Entity

Covered entities or CEs are defined in by HIPAA rules as:

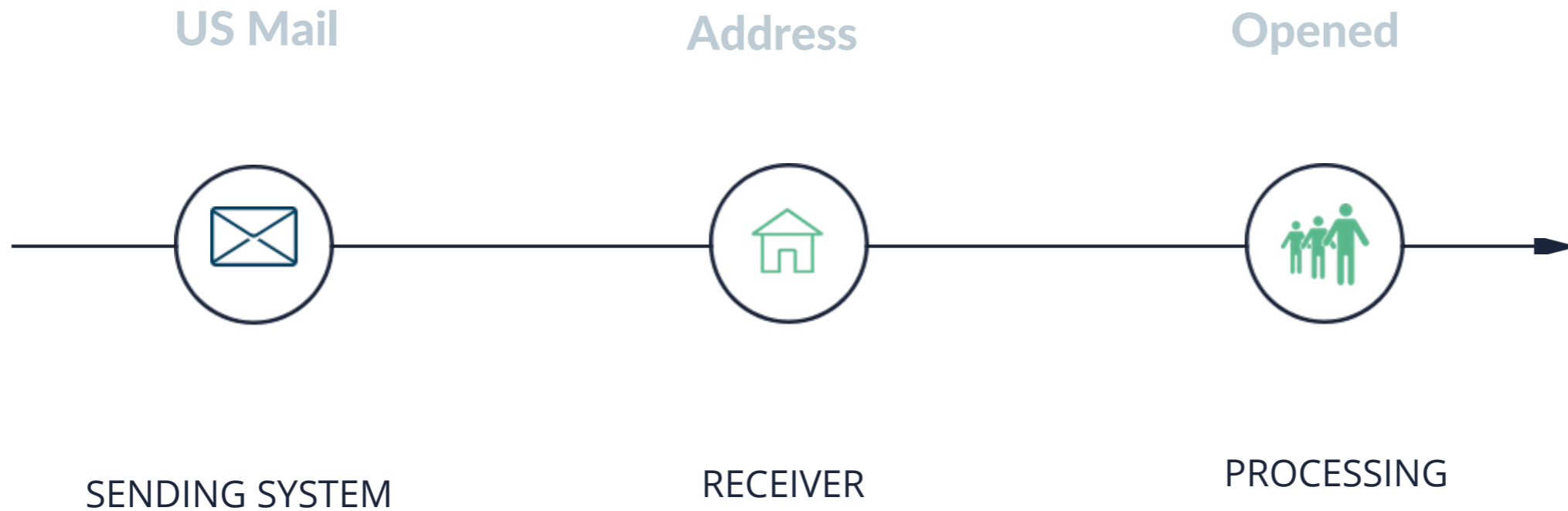
- health plans
- health care clearinghouses &
- health care providers

who electronically transmit any health information in connection with transactions for which HHS has adopted standards.



Transmitting data

STEPS ALONG THE WAY



HIEs, HINs, & RHIOs



HIE Landscape



Some states such as Texas and Colorado have a few regional exchanges. Colorado has two and Texas has a handful.

New York and California have multiple exchanges and most of the remaining states have one statewide exchange.

Nationwide networks include:

Carequality

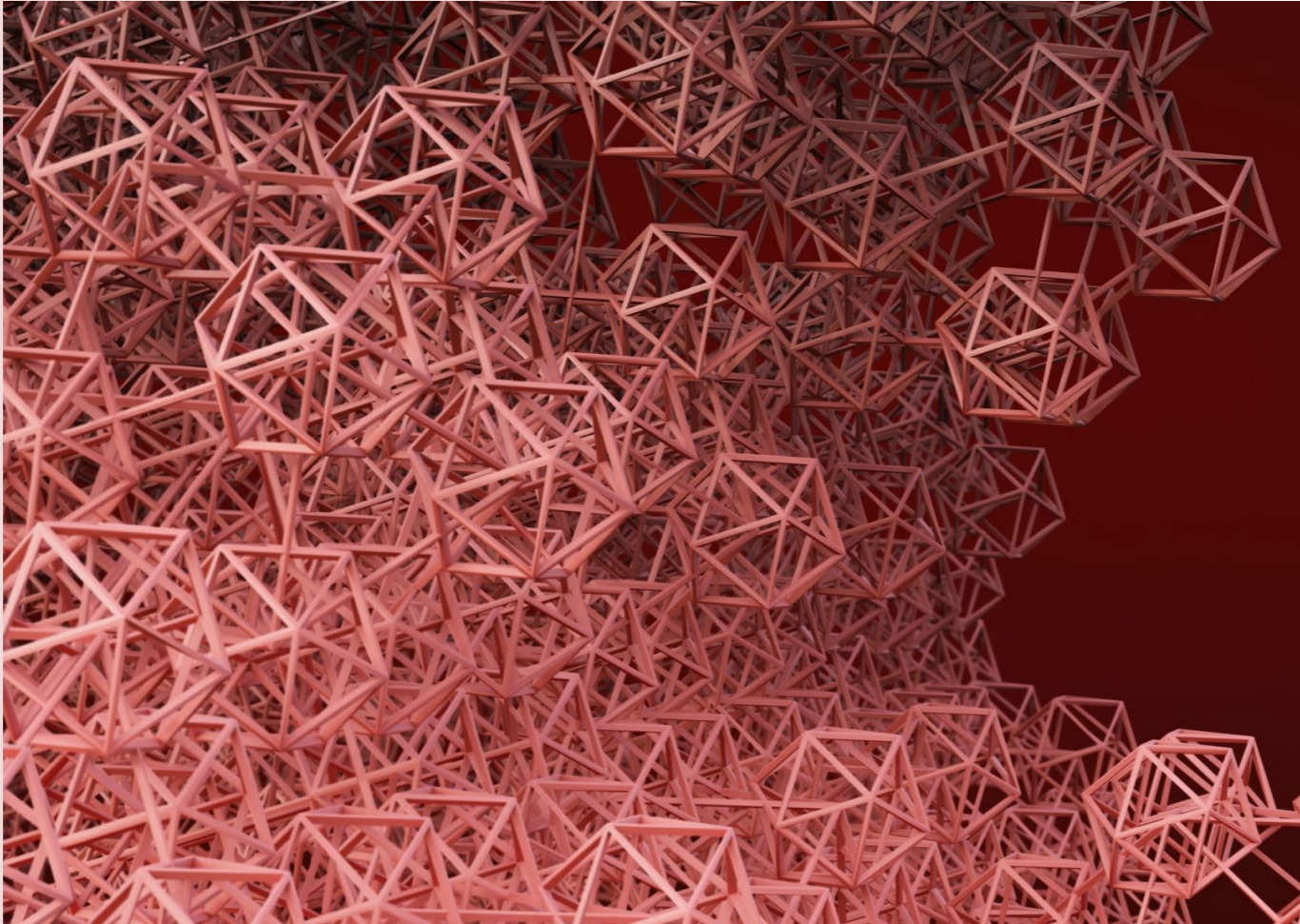
CommonWell

eHealthExchange



TEFCA

Types of Exchanges



Directed

Query Based

Consumer -
Mediated

Data Aggregator Validation (DAV certification)

NCQA



HEDIS

- **Effectiveness of Care**
- **Access/Availability of Care**
- **Experience of Care**
- **Utilization & Risk Adjusted Utilization**
- **Health Plan Descriptive Information**
- **Measures Reported Using Electronic Clinical Data Systems**





STAR ratings





**STANDARDS
DEVELOPMENT
ORGANIZATION**

The How



Protected Health Information (PHI)

Electronic PHI (ePHI)

EHI = all ePHI in the DRS

On and after October 6, 2022

The Information blocking definition includes the entire scope of the Electronic Health Information (EHI) definition (i.e., ePHI that is or would be in a Designated Record Set (DRS))*

EHI = USCDI v1

Prior to October 6, 2022

The Information blocking definition is limited to the EHI identified by the data elements represented in the United States Core Data for Interoperability (USCDI) v1.*



Paper
portion
of DRS

— — Designated Record Set (DRS) Scope

A 3D maze background with text overlaid. The maze is composed of white walls and paths, creating a complex, winding pattern that recedes into the distance. The text is in a bold, dark blue font.

**XCPD Patient
Discovery**

**XDS.b Cross-
enterprise document
sharing**

Master Patient Index (MPI)



Cerner

Sean Ryan

123 South Elm Street



Epic

Shawn Ryan

123 So. Elm St.



Athena

Shaun Ryan

123 Elm Street



Meditech

Ryan Shawn

123 South Elm Drive



USCDI

UNITED STATES CORE DATA FOR
INTEROPERABILITY

<https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi>



Please reference the [USCDI version 1 document](#) to the left for applicable standards versions associated with USCDI v1.

RxNorm

SNOMED

SNOMED

LOINC

Allergies and Intolerances
 Harmful or undesired physiological responses associated with exposure to a substance.

Substance (Medication)
 Substance (Drug Class)
 Reaction

Assessment and Plan of Treatment
 Health professional's conclusions and working assumptions that will guide treatment of the patient.

Immunizations
 Record of vaccine administration.

Immunizations

Laboratory
 Analysis of clinical specimens to obtain information about the health of a patient.

Tests
 Values/Results

Medications

Procedures
 Activity performed for or on a patient as part of the provision of care.

Procedures

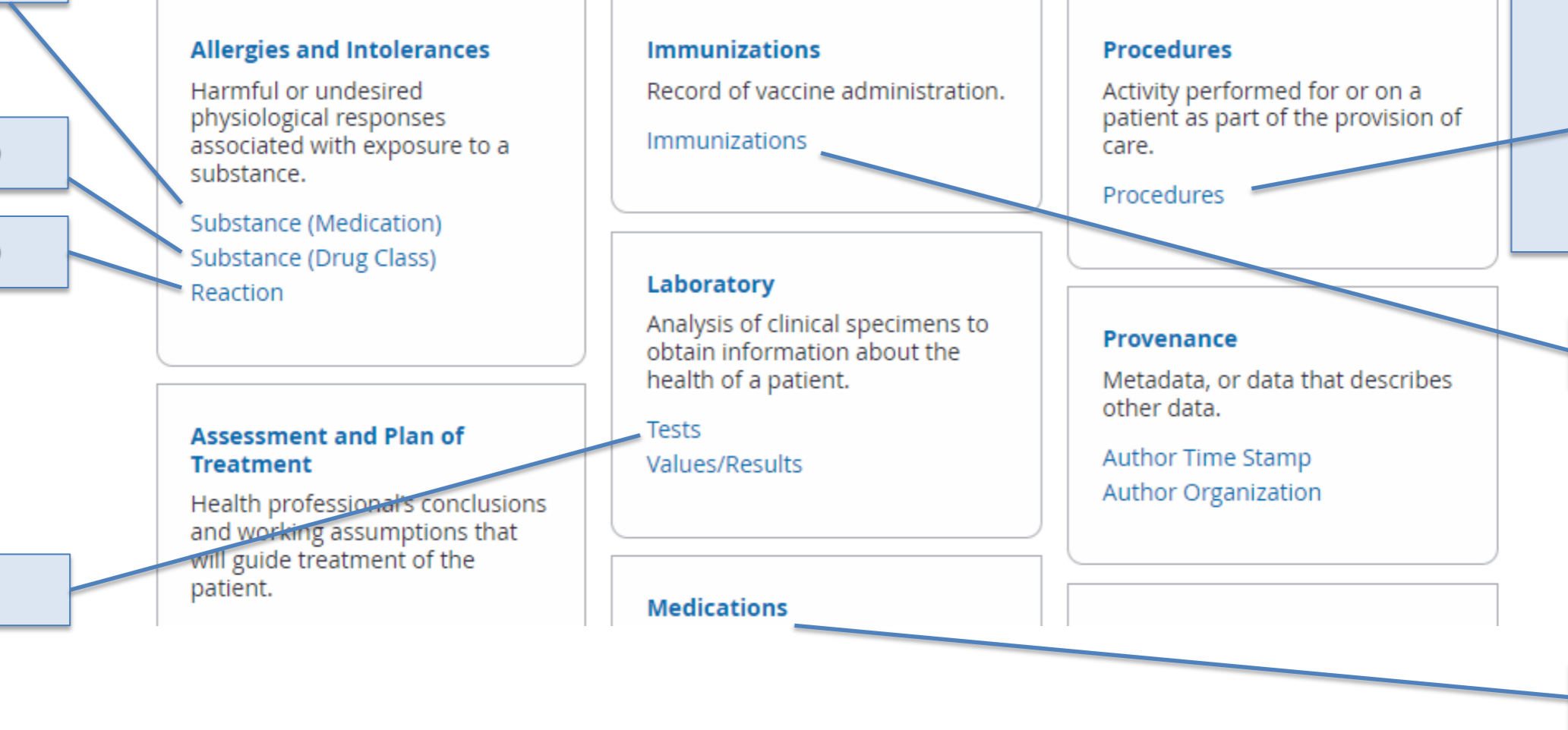
Provenance
 Metadata, or data that describes other data.

Author Time Stamp
 Author Organization

CPT / HCPCS
 SNOMED
 ICD-10-PCS
 CDT

CVX / NDC

RxNorm



Health Language 7 (HL7)

v2.3	(HL7)
v3	(CDA)
v4	(FHIR)

<https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi>



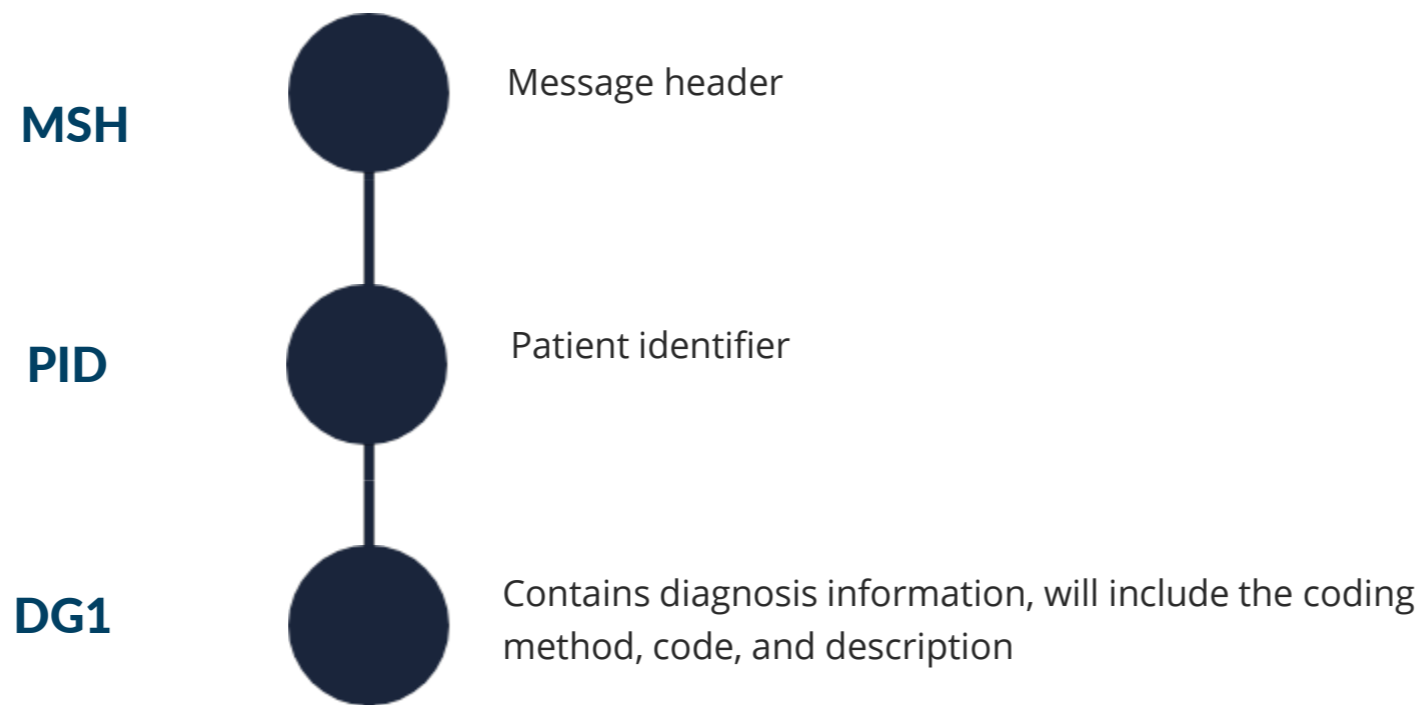
HL7 Message Types



ACK -	ACKNOWLEDGEMENT
ADT -	ADMIT, DISCHARGE, TRANSFER
DFT -	DETAILED FINANCIAL TRANSACTION
MDM -	MEDICAL DOCUMENT MANAGEMENT
MFN -	MASTER FILE NOTIFICATION
ORU -	OBSERVATION RESULT



Segments



HL7 examples

```
MSH|^~\&|EPIC|EPICADT|iFW|SMSADT|199912271408|CHARRIS|ADT^A04|1817457|D|2.5|
PID||0493575^^^2^ID 1|454721||DOE^JOHN^^^^|DOE^JOHN^^^^|19480203|M||B|254
MYSTREET AVE^^MYTOWN^OH^44123^USA|| (216) 123-4567||M|NON|400003403~1129086|
NK1||ROE^MARIE^^^^|SPO|| (216) 123-4567||EC||||||||||||||||||||
PV1||O|168 ~219~C~PMA^^^^^^^^|||277^ALLEN MYLASTNAME^BONNIE^^^^|
||2688684||||||||||||||||199912271408|||||002376853
```

MEDICARE CONDITIONS OF PARTICIPATION



Please reference the [USCDI version 1 document](#) to the left for applicable standards versions associated with USCDI v1.

RxNorm

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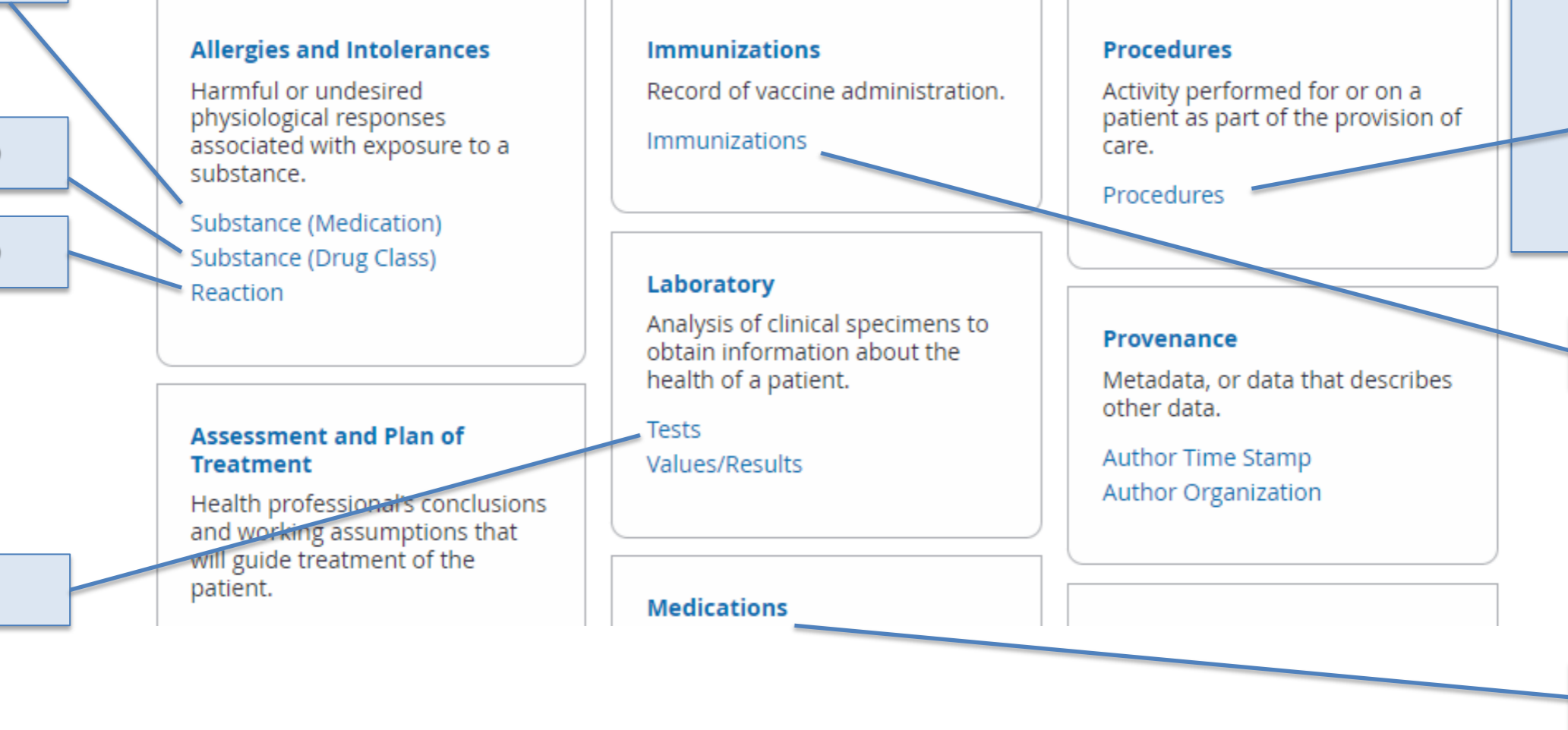
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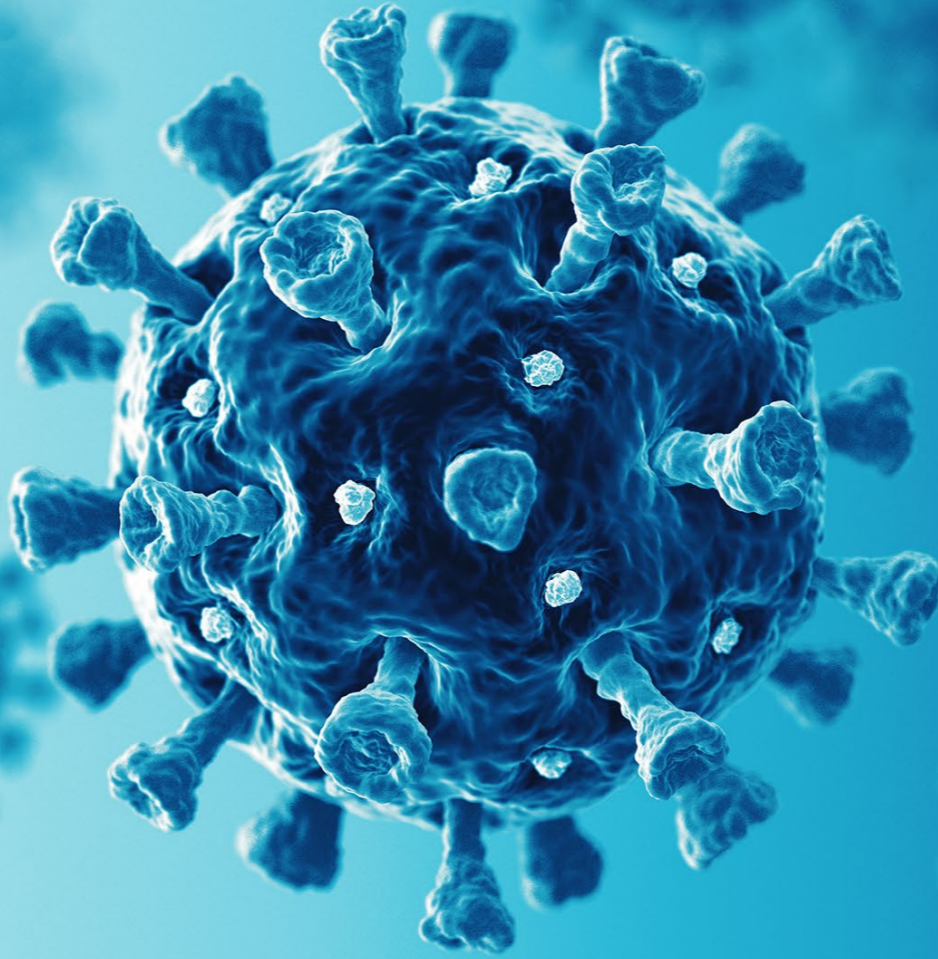
CPT / HCPCS
 SNOMED
 ICD-10-PCS
 CDT

CVX / NDC

RxNorm



International Classification of Diseases



Procedure Code Sets

Current Procedural Terminology (CPT)

Healthcare Common Procedure Coding System (HCPCS)

International Classification of Diseases
Procedural Coding Systems (ICD-10-PCS)



Caliper



RxNorm SNOMED-CT LOINC



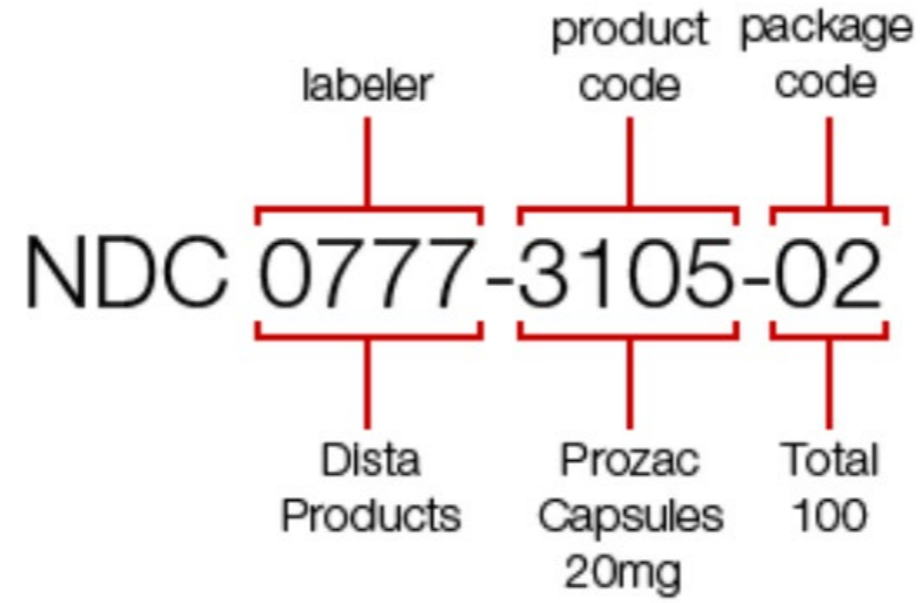
DICOM

**Digital Imaging and
Communications**





Vaccines - CVX



A healthcare worker in a white lab coat is smiling and talking to an elderly patient in a hospital bed. The patient is wearing glasses and a hospital gown. The scene is set in a hospital room with medical equipment visible in the background. The text "Putting it all together" is overlaid in the center of the image.

Putting it all together

Statistics

192

Connected Data Sources

UHIN has all but two hospitals in the state connected to us as well as some across the border in WY

8.41

Million patients

Unique patients in our Master Patient Index

35

Million HL7 messages in last twelve months

20.2

Million Alerts delivered in last twelve months



Data Sources



52 HOSPITALS

46 CLINICS

32 HIEs

27 LONG TERM CARE FACILITIES

17 HOME CARE & HOSPICE

14 COMMUNITY CENTERS

1 LAB, 1 EMS SERVICE, 1 BEH HEALTH

2 PAYERS, 2 FEDERAL PARTNERS,

1 MOBILE IMAGING



→

What this looks like to an end user.....

Advanced Filter: Patients [Clear Search Criteria](#)

Search Requirements:

- Last Name and Date of Birth
- or
- Patient ID

Reason For Search

Search Reason*

Demographic Search

Last Name* Gender

First Name Date of Birth*

Street 1 Street 2

City State

Country ZIP Code

Identifier Search

Patient ID* Insurance Plan ID

Phone Number

Additional Criteria

Results

Patients									
1 item found. Date of Birth: 01/01/1970 Last Name: atreides Clear Search									
<input type="checkbox"/>	Community ID	Name	Date of Birth	Gender	Voice #	Address	State	City	Postal
<input type="checkbox"/>	17588221	Atreides, Paul	01/01/1970	M		123 MY WAY	UT	SALT LAKE CITY	84101

Atreides, Paul Male 01/01/1970 (51 yrs) (Community ID:17568221)

123 MY WAY, SALT LAKE CITY, UT 84101

Summary More Patient Information External Document Search Patient Groups Patient Documents

Inpatient Encounters (10) Ambulatory Encounters (19)

Date	Admission Type	Source
12/08/2020	NB	JVMC
12/08/2020	ER	SLRMC
12/06/2020	ER	SLRMC
12/06/2020	Labor and Delivery	UBMC
12/05/2020	1	BLMOHO
11/30/2020	Urgent	UBMC

Emergency Encounters (2) Other Encounters (45)

Date	Admission Type	Source
12/08/2020	ER	DHMC
05/10/2018		DHMC

Care Management (0) Other Orders (0)

No Care Management to display

Laboratories (21) Imaging (25)

Date	Name	Source
12/08/2020	CBC w/ Auto Diff	UBMC
12/08/2020	Auto Diff	UBMC
12/08/2020	Auto Diff	UBMC
12/08/2020	CBC w/ Auto Diff	UBMC
12/08/2020	Hct	UBMC
12/08/2020	PTT	UBMC

Medications (5) Allergies (20)

Date	Name	Source
03/27/2019	Olanzapine 30 TABLE...	PEHP
03/25/2019	PROMETHAZINE HY...	PEHP
02/15/2019	Virtussin A/C 473 mL i...	PEHP
02/15/2019	Cephalexin 100 CAPS...	PEHP
10/06/2017	Diazepam 500 TABLE...	PEHP

Vitals (5) Immunizations (10)

Name	Value	Collected
Intravascular diastolic	70 mm[Hg]	12/08/2020
Intravascular systolic	105 mm[Hg]	12/08/2020
Body mass index	483.31 kg/m2	12/08/2020
Body weight	11 lb	12/08/2020
Body height	4.00 [in_i]	12/08/2020

Transcriptions (15) Documents (2)

Date	Name	Source
12/08/2020	Medication Management	UBMC
12/08/2020	Office/Clinic Note	UBMC
12/08/2020	Office/Clinic Note	UBMC
12/08/2020	Consultation/Specialist Note	UBMC
12/08/2020	Visit Notes	IHDE
12/08/2020	UMBC Postop Record	UBMC
12/08/2020	Consultation/Specialist Note	UBMC

Conditions (112) Procedures (11)

Name	Date	Source
Immunization due (fin...	12/08/2020	PFM
Patient encounter stat...	12/08/2020	PFM
2019-nCoV acute res...	12/02/2020	RMC
Other viral pneumonia	12/01/2020	RMC
Functional dyspepsia	12/01/2020	RMC
Dry eye syndrome of ...	11/24/2020	RMC

Family History (0) Social History (1)

No Family History to display

Atreides, Paul M 01/01/1970 (52 yrs) (Community ID:17568221)

123 MY WAY, SALT LAKE CITY, UT 84101

Summary

More Patient Information

External Document Search

Patient Groups

Patient Documents

Inpatient Encounters (0)

No Inpatient Encounters to display

Emergency Encounters (2)

Other Encounters (0)

Date	Admission Type	Source
08/06/2018		IHDE
05/10/2018		DHMC



Patient Consent

USE CASES

Transition of Care

Admit, Discharge, and Transfer
“Alerts” or “event Notifications”

HEDIS reporting

CMS requirement for STAR
rating for Medicare
replacement plans

Falls Risk

Non transport ambulance data
from the state used to create a
risk assesement

Frequent Flyers

Drug seeking behavior

Advanced Directives Registries (ADR) / ePOLSTs

End of life care instructions

LACE Scores

Prioritization of treatment

Utilization Rates

Three or more emergency
room visits in a year

Accountable Care Organizations (ACO) and Value Based Care

Reduces duplicative tests and
procedures



Alerts / Event Notifications



Transition of Care

99495

99496



Frequent Flyers



High Utilization rates

Emergency Department Utilization Total Rate

Measure Year	Commerical HMO	Commercial PPO	Medicare HMO	Medicare PPO
2021	156.2	147.4	309	294.1
2020	-	-	-	-
2019	195.3	190.3	§	§
2018	192.1	187.8	507.9	479.2

*Lower rates signify better performance.

§ Not available due to CMS suspension of data reporting during COVID-19 pandemic.

ADRs and ePOLSTs



Accountable Care Organizations





Where we go in the future....

Social Determinants of Health (SDoH)





Health Equity



Shifting landscape



Alphabet soup of Acronyms

ACK	CSV	EMS	IHE	NK1	SDO
ACO	DCT	EHR	LAB	ONC	SDOH
ADT	DICOM	FHIR	LACE	OR	SFTP
ANSI	ePOLST	HCFA	LOINC	ORU	SNOMED-CT
API	ENS	HCPCS	LOS	PACS	UB
ADR	ER	HL7	MCR	PCDH	UHIN
CE	CPT	HEDIS	MDM	PCS	USCDI
CDA	CVX	HIE	MFN	PD	U.S.P.S
C-CDA	DFT	HIN	MPI	PID	VIP
CFR	DG1	HIPAA	MRI	PHI	XML
CIE	DOB	HHS	MSH	PV1	ZIP code
CoP	DQ	HDU	MU	QNR	
CON	DRG	ICD-CM	NCQA	RHIO	
CMS	DRS	ICU	NDC	RIS	

Thank you for your time

<https://www.linkedin.com/in/michelle-suitor/>