DATA MAPPING

[THE PICTURE-BOOK VERSION….]

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OBJECTIVES


CARE PLAN
SNOMED CT
NURSE
SNOMED CT
LOINC
CARE PLAN
FLOWSHEET
NURSE
NURSE
CARE PLAN
FLOWSHEET
NURSE
SNOMED CT
FHIR
FHIR
NURSE
CARE PLAN
NURSE
LOINC
FHIR
LOINC
CARE PLAN
NURSE
FHIR
CCC
API
FHIR
LOINC
CARE PLAN
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LOINC
SNOMED CT
NURSE
FLOWSHEET
FLOWSHEET
FLOWSHEET
FLOWSHEET
SNOMED CT

THINGS WE WILL TALK ABOUT

- HIGH LEVEL
  - Mapping
  - What is an API? What is FHIR?
  - What are SNOMED CT and LOINC and are they the same as CCC?
    - If not, how do they fit together?
    - ...and how do they get from a nurse at the bedside to the snazzy app on a patient's phone?
  - IN THE WEEDS
    - Examples
  - MOVING FORWARD
    - Nursing and Education

MAPPING. HOW HARD CAN IT BE?

- From SNOMED International:
  - Maps are associations between particular codes, concepts or terms in one code system and codes, concepts or terms in another code system that have the same (or similar) meanings.
  - Mapping is the process of defining a set of maps.
  - Maps are developed in accordance with a documented rationale, for a given purpose and as a result *there may be different maps between the same pair of code systems to meet different uses cases*.
  - Side note: if you put me, Susan Matney, and 5 other smart nurses in a room and turned them loose on a mapping exercise...you would probably come away with 7 entirely different maps.
  - Why is this so hard? Because "technically easy" stuff isn't

APIs

- Technically
  - Application Programming Interface
  - A software intermediary that allows two applications to talk to each other.
- Less-Technically
  - The "go between" for any two systems. Ordering food, finding plane tickets, booking a cruise….
    - You can do that from your computer or your phone, an Android or an Apple device, etc.
- Policy
  - The 2015 EHR Certification and Meaningful Use 3 Final Rules require patient access via APIs. Lots of focus on SMART on FHIR, too – we won't go there, today.
- So now you can get data pretty easily…right?

HL7 Standards

What's now and next for interoperability

V2 | CDA | HL7 FHIR

FHIR

Technically

- Fast Healthcare Interoperability Resources
- Standard for exchanging healthcare information electronically
- Resources (all exchangeable content = resource)
- Bundles of resources (messages, documents)
- Resources → Profiles
- https://www.hl7.org/fhir/overvie

FHIR Resource Profile

- A conformance profile: a statement of how a resource is used in a particular context
- Describes constraints on resources (constraint)
- Also describes what is added (extension)
- Links to other resource profiles for resource references (composition)
- A mash-up: building on top of the base resources
- Multiple ways to author a resource profile
- Should be interconvertible

This slide/info is courtesy of Susan Matney….

FHIR

- Less Technically
  - Instead of exchanging documents (CCD, anyone?), we can exchange much smaller bits of information, standardized.
  - Then we can roll those individual resources into profiles.

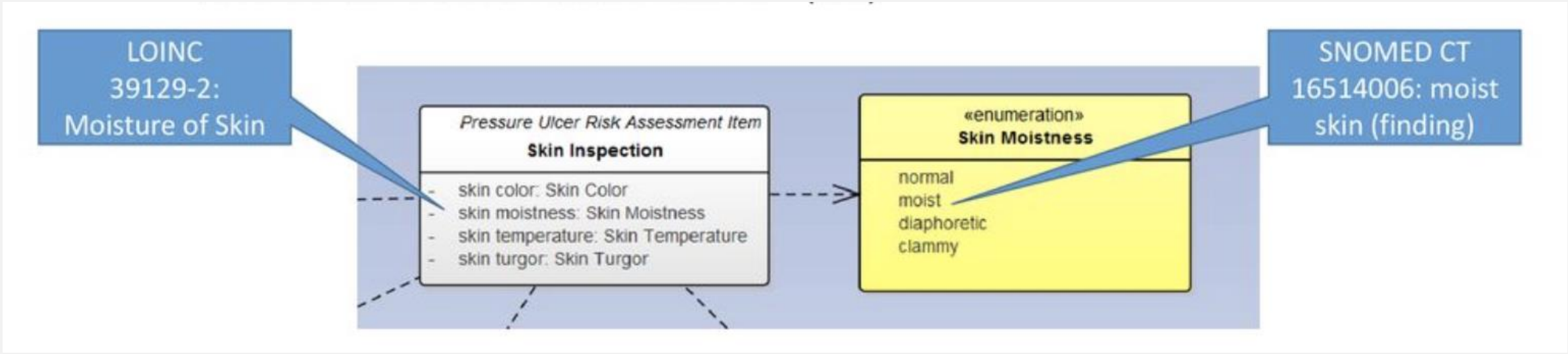
Back to my theme of nonstandard standards....

"Today, most clinical data used for research is extracted from EHRs, transformed, and then made available for research. The variable implementation of EHRs and the idiosyncratic mappings of clinical data within EHRs have a cascading effect on data quality for research and this challenge will not be obviated by FHIR. Different EHR developers are using different versions of FHIR and even within the same version of FHIR, there may be varying degrees of consistency and constraints applied to the same FHIR Resource across implementations."

- Doug Fridsma, MD, *(AMIA CEO and*

SNOMED CT AND LOINC

- SNOMED CT and LOINC
  - Both medical terminologies.
  - GENERALLY SPEAKING...if an observation is a question and the observation value is an answer...
    - Question = LOINC
    - Answer = SNOMED CT



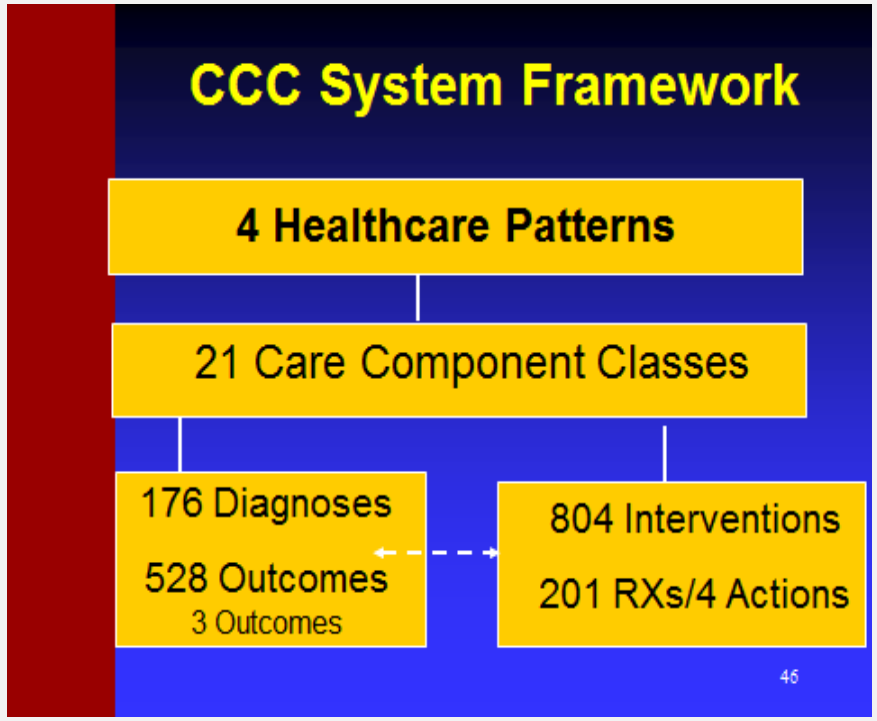
https://slideplayer.com/slide/13736845/

Graphic: Jay Lyle, PhD and Susan Matney, PhD, RN

SNOMED CT AND LOINC

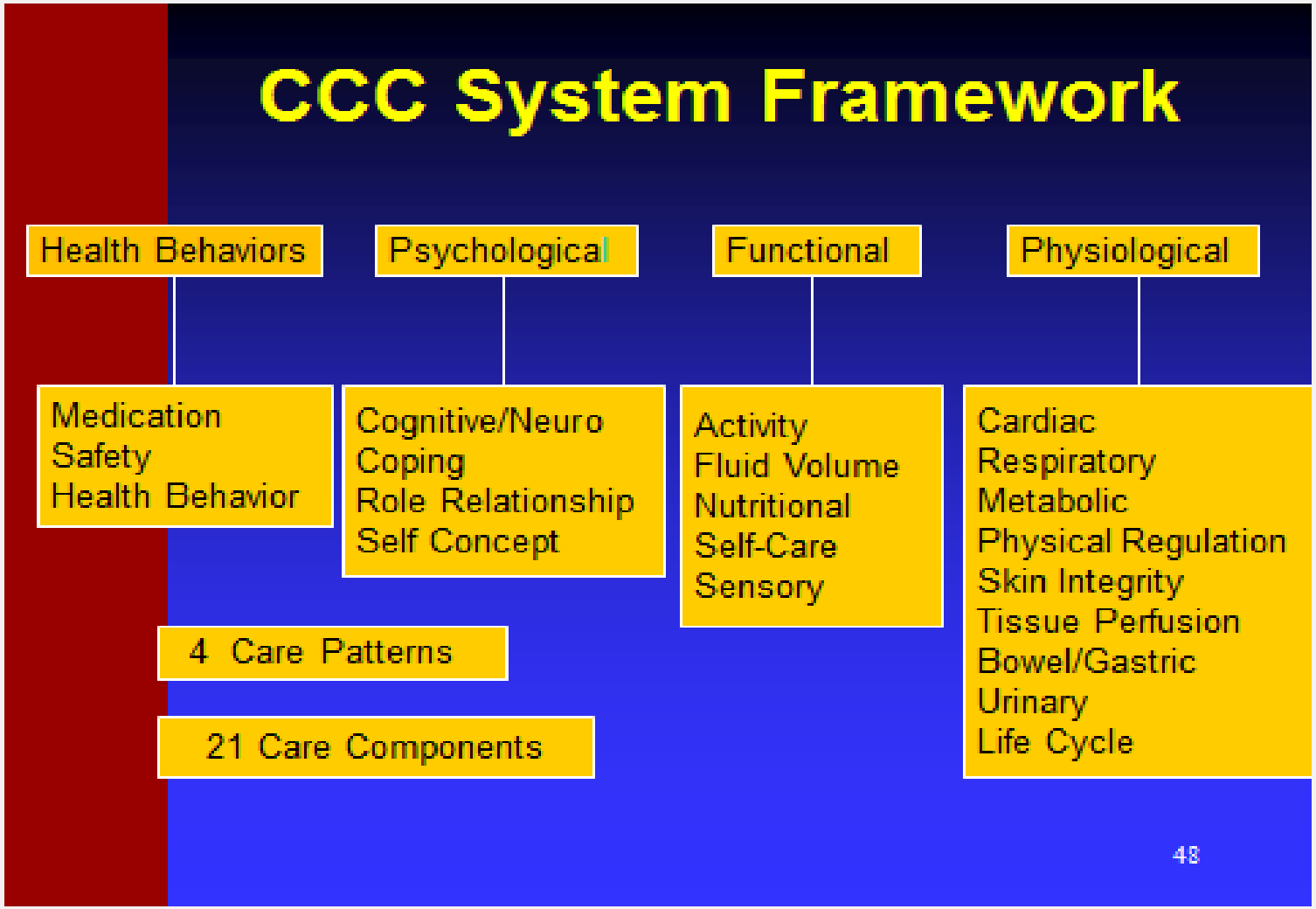
- The Federal Government
  - (2004) Consolidated Health Informatics (CHI) initiative
    - Tried to standardize health information standards for the federal government.
- The Office of the National Coordinator for Health IT (ONC)
  - The Interoperability Standards Advisory recommends SNOMED CT and LOINC for nursing assessments, nursing interventions, outcomes, and patient problems.
- The American Nurses Association (ANA)
  - "Representation of nursing knowledge and documentation to demonstrate quality and enable sharing patient data across settings requires that nursing data be standardized and consistent with federal requirements."

SO…WHAT ABOUT CCC??



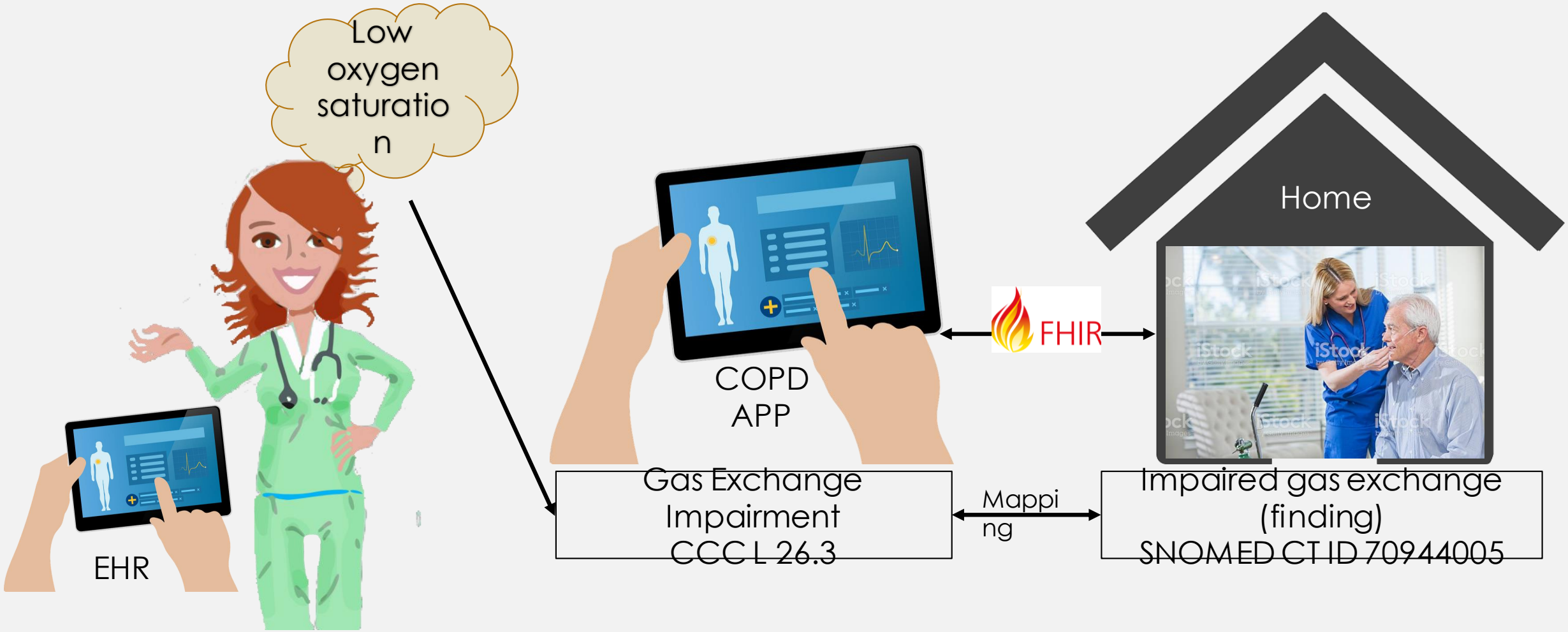
SNOMED CT and LOINC are not nursing specific…although CCC is mapped to both!

Standardized terminology



SO HOW DOES THIS ALL FIT TOGETHER?

NURSING DIAGNOSIS DATA FLOW



AND HOW DOES THAT LOOK BEHIND THE SCENES?

Select an Expected Outcome for Sub-Diagnosis L26.3 - *Gas Exchange Impairment*

L.26.3.?

L refers to: Respiratory which may be described as: *Cluster of elements that involve breathing and the pulmonary system*

26.3 refers to the sub-diagnosis code: *Gas Exchange Impairment* and may be described as: *Imbalance of oxygen and carbon dioxide transfer between lung and vascular system*

Possible Expected Outcomes

Code	Concept	Definition
1	Improve	Condition will change and/or recover
2	Stabilize	Condition will not change and requires no further care to maintain condition.
3	Deteriorate	Condition will change and worsen

You can build your codes directly from the CCC website! *Pretty cool! Mapped to CT...*

CCC

Code System Concept

Code System Concept Code	70944005
Code System Concept Name	Impaired gas exchange (finding)
Code System Preferred Concept Name	Impaired gas exchange (finding)
Concept Status	Published
Concept Status Date	09/01/2019
Code System Name	SNOMED-CT

- Concept Relationships
- Concept Details

Parent Concepts

Parent Concepts

Parent/Child (Relationship Type)

Functional finding of respiratory tract (finding) {301233008 , SNOMED-CT } Ventilatory defect (finding) {11483009 , SNOMED-CT }

Child Concepts

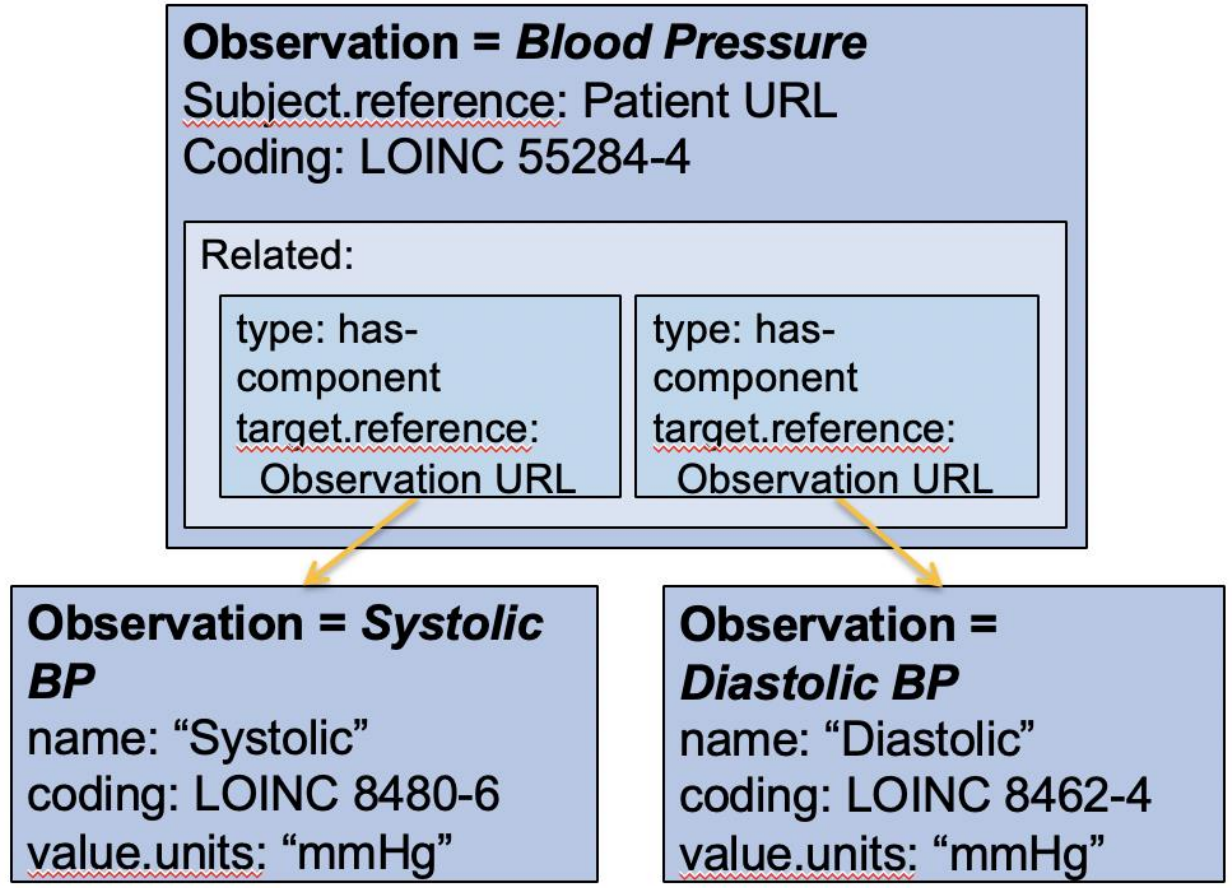
No child concepts present.

Other Relationships

No other relationships present.

SNOMED CT

Profile for “Blood pressure”



FHIR

Also courtesy of Susan Matney!

LOINC CODE	LONG COMMON NAME	LOINC STATUS
80318-9	**Respiratory assessment panel**	**Active**

FULLY-SPECIFIED NAME

Component	Respiratory assessment panel
Property	-
Time	Pt
System	Respiratory system
Scale	-
Method	

Panel Hierarchy

Details for each LOINC in Panel

LOINC	Name	R/O/C	Cardinality	Example UCUM Units
80318-9	Respiratory assessment panel	O		
9304-7	Respiration rhythm	O		
9279-1	Respiratory rate	O		{breaths}/min
80341-1	Respiratory effort	O		
80319-7	Breath sounds by Auscultation	O		
80342-9	Location of breath sounds by Auscultation	O		
80320-5	Respiratory assessment [Interpretation]	O		
8686-8	History of Respiratory system disorders	O		

Additional Names

Short Name	Resp assessment Pnl

LOINC

FINAL THOUGHTS

- Why does all of this matter?
- How do we encourage mapping at the point of care, for nursing?
- How do we educate our nurses and informaticists to:
  - Think about these frameworks and pathways, conceptually?
  - Actually perform the planning and mapping required to build this data infrastructure?
- What about all the non-CCC data?
  - We have a universe of patient generated health data, network-attached devices, "hospital in the home" services on the rise, etc.
  - How do we thoughtfully pull our universe of data together to build the best possible patient