Article
Henrique Dias · Aug 22, 2020 2m read
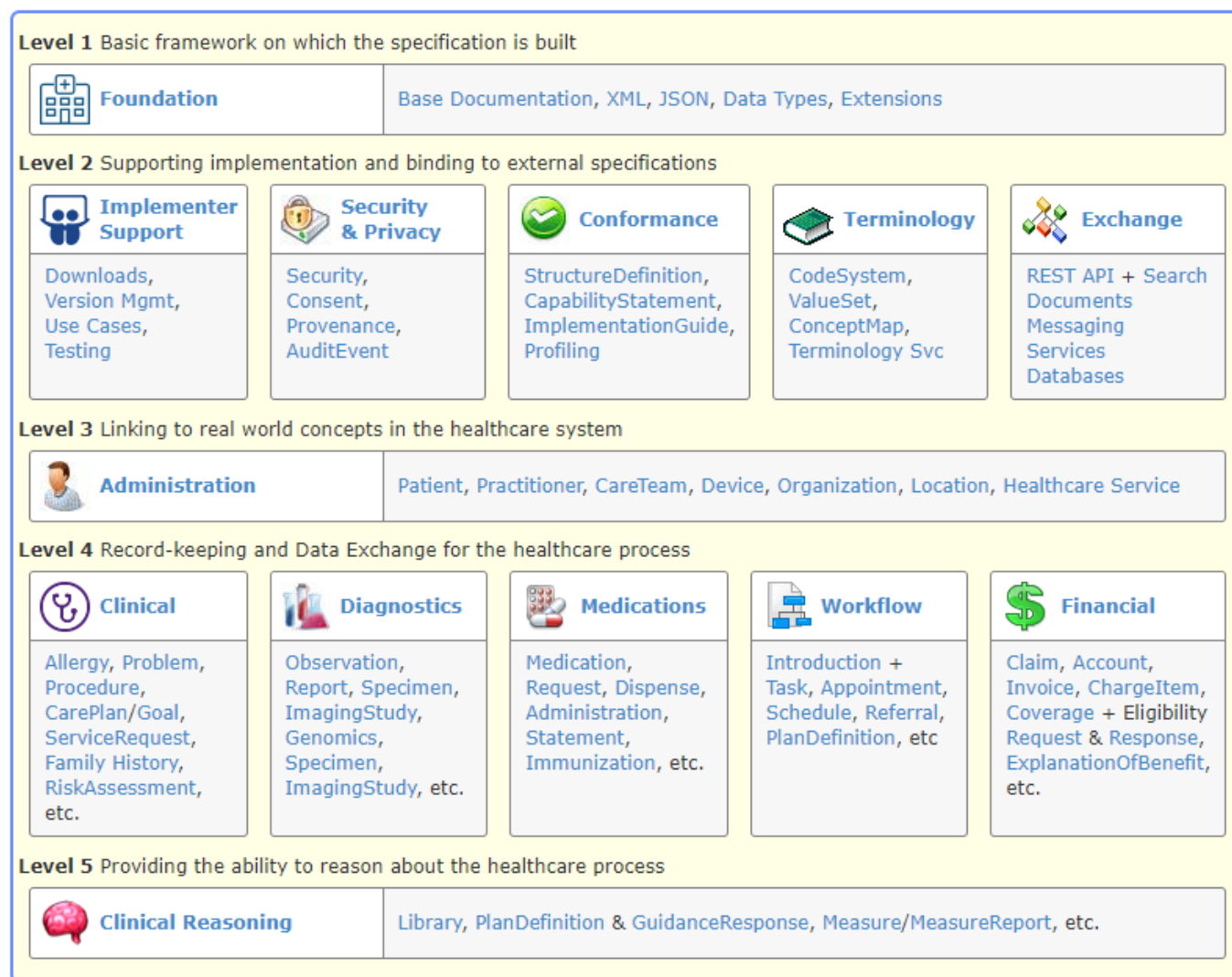
 Open Exchange

My experience working with FHIR

Hi Community,

I want to share my experience creating the iris-fhir-portal with FHIR.

I decided to take a step forward and join the IRIS for Health FHIR contest, but I had never worked with FHIR before.

After the FHIR Contest Kick-Off Webinar, where we got an overview of how the IRIS for Health works with FHIR, I started to looking at the FHIR documentation to create my Patient Chart project.

At HL7 FHIR (release 4) website, I found a "Resource Map":

The leading FHIR Resource for my Patient Chart it's the "Patient Resource".

Taking as an example, the Patient Resource documentation, it provides the user with all information that the

Patient Resource Bundle offers, and that was great to discover every single piece of information that I had on hands:

https://www.hl7.org/fhir/patient.html

	Structure	UML	XML	JSON	Turtle	R3 Diff	All

Structure

Name	Flags	Card.	Type	Description & Constraints	?
Patient	N		DomainResource	Information about an individual or animal receiving health care services Elements defined in Ancestors: id, meta, implicitRules, language, text, contained, extension, modifierExtension	
identifier	Σ	0..*	Identifier	An identifier for this patient	
active	?! Σ	0..1	boolean	Whether this patient's record is in active use	
name	Σ	0..*	HumanName	A name associated with the patient	
telecom	Σ	0..*	ContactPoint	A contact detail for the individual	
gender	Σ	0..1	code	male | female | other | unknown AdministrativeGender (Required)	
birthDate	Σ	0..1	date	The date of birth for the individual	
deceased[x]	?! Σ	0..1		Indicates if the individual is deceased or not	
deceasedBoolean			boolean		
deceasedDateTime			dateTime		
address	Σ	0..*	Address	An address for the individual	
maritalStatus		0..1	CodeableConcept	Marital (civil) status of a patient MaritalStatus (Extensible)	
multipleBirth[x]		0..1		Whether patient is part of a multiple birth	
multipleBirthBoolean			boolean		
multipleBirthInteger			integer		
photo		0..*	Attachment	Image of the patient	
contact	I	0..*	BackboneElement	A contact party (e.g. guardian, partner, friend) for the patient + Rule: SHALL at least contain a contact's details or a reference to an organization	
relationship		0..*	CodeableConcept	The kind of relationship Patient Contact Relationship (Extensible)	
name		0..1	HumanName	A name associated with the contact person	
telecom		0..*	ContactPoint	A contact detail for the person	
address		0..1	Address	Address for the contact person	
gender		0..1	code	male | female | other | unknown AdministrativeGender (Required)	
organization	I	0..1	Reference(Organization)	Organization that is associated with the contact	
period		0..1	Period	The period during which this contact person or organization is valid to be contacted relating to this patient	
communication		0..*	BackboneElement	A language which may be used to communicate with the patient about his or her health	
language		1..1	CodeableConcept	The language which can be used to communicate with the patient about his or her health Common Languages (Preferred but limited to AllLanguages)	
preferred		0..1	boolean	Language preference indicator	
generalPractitioner		0..*	Reference(Organization | Practitioner | PractitionerRole)	Patient's nominated primary care provider	
managingOrganization	Σ	0..1	Reference(Organization)	Organization that is the custodian of the patient record	
link	?! Σ	0..*	BackboneElement	Link to another patient resource that concerns the same actual person	
other	Σ	1..1	Reference(Patient | RelatedPerson)	The other patient or related person resource that the link refers to	
type	Σ	1..1	code	replaced-by | replaces | refer | seealso LinkType (Required)	

The information provided by my Patient Chart is:

- Patient List
- Patient Details
- Allergy
- Vital Signs
- Laboratory
- Immunization

To get the information that I need, I made use of 4 FHIR Resources:

As informed in the documentation, the Patient Resource is in level 3 and described as "Linking to real-world concepts in the healthcare system."
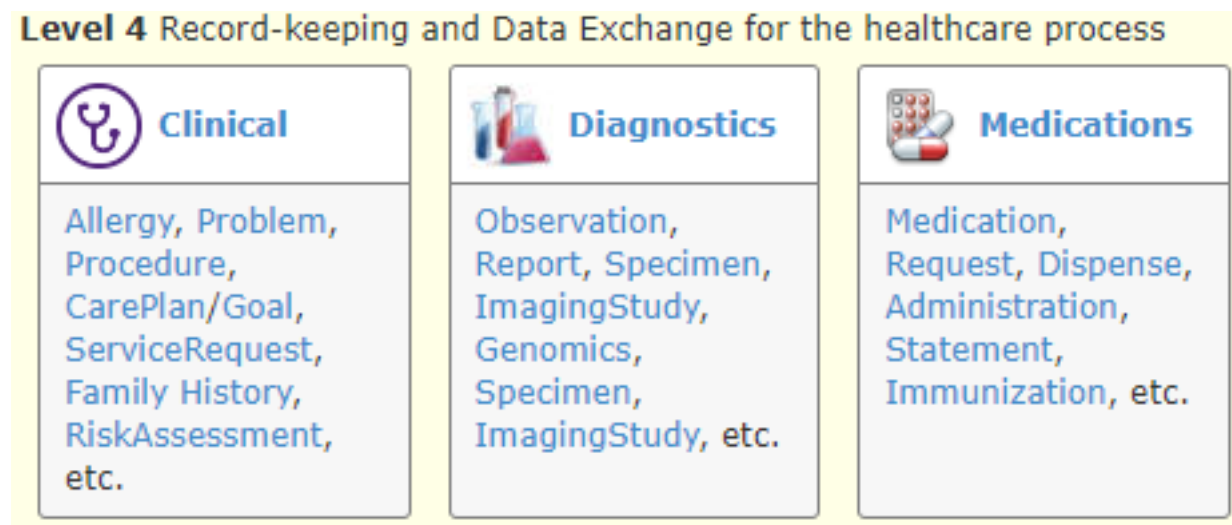
Level 3 Linking to real world concepts in the healthcare system

Administration	Patient, Practitioner, CareTeam, Device, Organization, Location, Healthcare Service

The three other I found at the next level. The description provided to this level "Record-keeping and Data Exchange for the healthcare process":

Level 4 Record-keeping and Data Exchange for the healthcare process

Clinical	Diagnostics	Medications
Allergy, Problem, Procedure, CarePlan/Goal, ServiceRequest, Family History, RiskAssessment, etc.	Observation, Report, Specimen, ImagingStudy, Genomics, Specimen, ImagingStudy, etc.	Medication, Request, Dispense, Administration, Statement, Immunization, etc.

For Patient, Allergy, and Immunization, we have specific resources for each one of them. But, for Vital Signs and Laboratory, they are all inside Observation. How can we handle that?

Using fhir.js as demonstrated in the template created by @ Guillaume Rongier , it's quite simple.

To illustrate this search in an FHIR Resouce, I'm putting this piece of code to show how I did to get the vital signs information inside the Observation Resource.

```
client.search({
    type: 'Observation',
    query: {
        patient: patientId,
        category: 'vital-signs',
        _sort: 'date'
    }
})
```

The way I achieve that it's using the category parameter.

All categories inside Observation Resource are described at https://www.hl7.org/fhir/observation.html

- Vital signs such as body weight, blood pressure, and temperature
- Laboratory Data like blood glucose, or an estimated GFR
- Imaging results like bone density or fetal measurements
- Clinical Findings* such as abdominal tenderness
- Device measurements such as EKG data or Pulse Oximetry data
- Clinical assessment tools such as APGAR or a Glasgow Coma Score
- Personal characteristics: such as eye-color
- Social history like tobacco use, family support, or cognitive status
- Core characteristics like pregnancy status, or a death assertion

As we could see in this article, getting information from FHIR Resources is pretty straightforward, and most of the part thanks to the very detailed documentation.

I hope that helps all developers that are having the same problems that I when I started using FHIR Resources.

See you in the next article

#FHIR #InterSystems IRIS for Health
Check the related application on InterSystems Open Exchange

Source URL:https://community.intersystems.com/post/my-experience-working-fhir