Project sprint 4: Final Project Proposal- B581

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Introduction:

We as team of coder group have chosen use case-D in our project sprints. The case study outlines a 22-year-old male patient with a chief complaint of cough and shortness of breath. He has no past medical, medication and family history. Personal history revealed that he is a chronic smoker and alcoholic. On physical examination, the clinician made a provisional diagnosis of asthma, and this information was recorded in EHR. The clinician ordered a chest X ray through the EHR which are received by the radiologist. The procedure was performed by the radiologist, and he interpreted the study. The radiology report was sent back and recorded in EHR.

With this information, we have delivered three project sprints which include:

Project Sprint-1: Use case selection and details.

This project aimed to enumerate and evaluate all the clinical elements in the use case, search external sources to describe the best suited terminology for the concept and use case. As a team, we have come to a common agreement that SNOMED codes are appropriate for most of the elements in our use case.

Project Sprint-2: Problem Analysis and Modelling.

In this deliverable, we have analyzed the use case based on the events occurred. All the entities have been represented using UML diagrams. The events and gateways in the series of events are represented using BPMN diagrams. In these diagrams, the most important data elements have been described. Levels of interoperability and the practical scenarios where these representations are used have been described in this project. To suit our use case, we have modelled a UML and two BPMN diagrams.

Project Sprint-3: CDA Entry Mockups.

This deliverable helped us learn more about the HL-7 CDA standard set and equipped us to gain knowledge about XML and how it can play a major role in syntactic interoperability. We have chosen Cough, Smoking and Chest X ray as our events and developed CDA documentation for these events.

Project Sprint-1: Use case selection and details.

Medical coding is one of the most intricate forms of taking data form the patient. Every element of the patient's visit is codified so that, at the conclusion of the appointment, an insurance claim can be made. Throughout the whole patient visit to the healthcare professional, this paperwork is used. Medical codes are essentially made to collect consistent data so that medical practitioners can be fairly compensated. A professional should have a decent understanding of physiology, anatomy, and financial rules in order to comprehend medical coding. The origin of the medical coding dates to the 17th century England. (Health information association, n.d.)

The codes are subject to the whole patient diagnosis, treatment regimen, including prescription medication, etc. An effective comprehension of the HCPCS Level II, ICD-10-CM, and CPT® categorization systems is required of medical coders. The medical provider's transcript must be reviewed by the coder in order to ensure a seamless billing procedure. The specifics needed for medical coding to function are medical terminology. These medical terms are classified. (Health information association, n.d.)

A few of these are:

SNOMED CT – Systematized Nomenclature of Medicine.

It is distributed and owned by SNOMED international. It makes it possible for clinical content to be represented in electronic health records in a consistent, processable way. (HIMSS, 2019)

LOINC – Logical Observation Identifiers, Names, and Codes.

A set of codes that is universally used to identify health measurements, records and observations, these codes serve as the test or measurement's "question." Laboratory and clinical tests, measurements, and observations can all be classified as LOINC codes. (HIMSS, 2019)

MEDCIN

A medical vocabulary that includes symptoms, physical examination, diagnoses, tests, history, and treatments and is maintained by Medicomp Systems. (HIMSS, 2019)

ICD-10

It is the World Health Organization's (WHO) 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a list of medical classifications (WHO). It includes codes for ailments, physical characteristics, unusual observations, disputes, social contexts, and external causes of harm or illness. (HIMSS, 2019)

CPT

The American Medical Association (AMA) maintains the Current Procedural Terminology (CPT®) code system, which is used to invoice for doctor's visits and outpatient treatments. (HIMSS, 2019)

For this group assignment, we have chosen use cade D. The clinical concepts are listed below:

1.Clinical concept: 22-year-old

ICD-10 code Z68.20 (LINK)

This code is given to adults whose age group is above 21 years. These codes are included and expanded as BMI categories based on calculating height and weight. These codes are represented as percentiles based on their growth charts as advised by the Center for disease control.

CPT code: 99385 (LINK)

Cpt code for age is classified based on the preventive physical examination which means performing the overall assessment and identifying the problems. These codes are determined based on the physical review

In my opinion, CPT codes are more precise as we know that they are newly assigned based on the decision tree algorithms and not only consider height and weight but include gender, medical history, and laboratory or diagnostic procedures for categorizing them into different age groups.

2.Clinical concept: Consultation

ICD-10 code: Z00-Z99 (LINK)

The ICD 10 code for consultation: is Z00-Z99, which is given as a consultation code by WHO for contacting the physician for any illness. Consultation codes are classified based on the disease they are encountering. In the use case, the patient consulted the clinician to express his difficulties, and the consultation code according to ICD is represented above

SNOMED-CT code: 11429006 (LINK)

The SNOMED-CT consultation code for a problem is 185347001. In this use case, these codes can provide a better solution to the problem by contacting the physician by addressing the problem correctly.

The code for general respiratory consultations in specific is 267036007. (LINK)

An article published by (Lougheed et al., 2017) stated that SNOMED codes are used for representing different standards in treating asthma and they are proved to be better asthma control parameters for evidence-based practice.

3.Clinical concept: Cough

ICD-10 code: R05 (LINK)

Cough can either be acute or chronic, different codes are assigned to them. R05.1 is the code that is used to represent the acute cough. R05.3 is used to represent chronic cough.

SNOMED-CT code: 49727002 (LINK)

The center for disease control and prevention has categorized these codes. The SNOMED-CT for respiratory finding is represented as 36585200. In this use case, the smokers' cough can be given code- 46802002.

I believe that SNOMED-CT codes emphasize more about the problem or disease than ICD as I believe ICD 10 is only pertinent to a specific disease

4.Clinical concept: Clinician

The concept of clinician in SNOMED-CT is 309343006.

LOINC code: 22028-5 (LINK)

SNOMED-CT code: 3093343006 (LINK)

5.Clinical concept: Shortness of Breath - Dyspnea

ICD-10 code R06.02 for Shortness of breath is a medical classification as listed by WHO under the range - Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified.(LINK)

SNOMED-CT also gave codes for various types of breathlessness based on their causes and severity. (LINK)

Ex: Dyspnea associated with acquired immunodeficiency syndrome (disorder) - 422177004

Expiratory dyspnea (finding) – 34560001

There are also sub-division of dyspnea into 4 classes and codes are assigned accordingly

Dyspnea, class I - 17216000

Dyspnea, class II - 72365000

Dyspnea, class III - 39950000

Dyspnea, class IV – 73322006

LOINC Code- 64168-**8** (LINK)

SNOMED-CT is best designed when compared to ICD-10 and LOINC to specify dyspnea based on the classification ability and also distinguishing the type and severity and assigning codes accordingly.

6.Clinical Concept: No Medical history

SNOMED-CT Code- 435871000124102 (LINK)

It also has various codes to mention the type of past medical history that the patient underwent which makes it easier to know and differentiate one from another.

Example:

Documentation of adverse drug event history – 451671000124103 (LINK)

Allergic history documentation – 453921000124105 (LINK)

LOINC Code - 72185-2 (LINK)

This is a patient-reported previous history based on specific choices.

When compared to LOINC, SNOMED-CT is more elaborate and detailed regarding the patient's medical history.

7.Clinical Concept: No Medication History

In the clinical case chosen, the patient doesn't have any medication history. If the patient has positive medication history, the following codes are indicated.

LOINC Code- 10160-0 (LINK)

History of medication use defines a patient's current medications and history of pertinent medications. This term may also include a patient's prescription and dispense history.

ICD-10 Code- Z92.89(LINK)

For medication history, ICD-10 is quite more elaborate than LOINC.

8.Clinical Concept: Chronic smoker

ICD-10: Z72.0 (LINK)

This code is described for tobacco use and classified by WHO under range- factors influencing health. As the use case did not specify if the patient has the habit of smoking currently, ICD-10 code for personal history of nicotine dependence is Z87.891 (LINK)

SNOMED Code: 77176002 (LINK)

This is the code to describe an active smoker but as the status is not specified, code: 250171008 describes the clinical history and observation finding of smoking.

I believe SNOMED codes are more precise to describe this case as they have different codes to specifically address the habit of smoking.

A paper also indicates that ICD-10 codes are not effective to describe the problems that have greater depths as more clinical information is required for this standard (Steindel, 2012).

9. Clinical Concept: Alcoholic

ICD-10 code: F10.2 (LINK)

This code is given by WHO under the classification of mental, behavioral, and neurodevelopmental disorder. F10.21 code explains alcohol dependence with remission

SNOMED code: 66590003 (LINK)

It has specific codes to describe the nature of alcohol dependance as well. For example, 10755041000119100 code indicated alcohol dependance in childbirth and 10741871000119101 is the code given for alcoholism in pregnancy

In LOINC, the code to indicate the history of alcohol abuse is 11331-6 (LINK)

Out of all the terminologies describing alcohol abuse, I see that LOINC code suits this case as it has various attributes to see a detailed description.

10. Clinical Concept: Family History

LOINC: 10157-6 (LINK)

This code describes the history of family diseases including medical, genetic and lifestyle factors of the patient or his ancestors. This health information is used to determine the possible risks that may impact patient's health

ICD-10: Z84.89 (LINK)

This code is given to family history of other specified conditions. Usually the codes from Z77-Z99 are pertinent to patients diagnosed with potential hazards related to family and personal history.

SNOMED-CT: 416471007 is the code the reports familial history of clinical finding (LINK)

There are attempts made to detect the risk of diseases among the patient with positive family history findings from HL7 standardized models (Melton et al., 2010). It was suggested that adding more restrictions to terminologies like SNOMED CT would add value to deal with the issues.(Melton et al., 2010). So LOINC codes best describe the family history concept as they contain various codes to comprehend multiple scenarios and play a key role in detecting risk factors.

11. Clinical Concept: Well-developed and well-nourished

ICD-10 code: Z00.00 (LINK)

SNOMED code: 102513008 (LINK)

ICD-10 codes are more appropriate to describe adult medical examination without abnormal findings.

12.Clinical Concept: Moderately Dyspneic

ICD-10-CM Diagnosis Code: R06.00 (LINK)

This code is for unspecified dyspnea, which has been used since the change in 2016. The clinical information for this code is difficulty in breathing associated with various disorders, indicating inadequate ventilation or low blood oxygen, or a subjective experience of breathing discomfort. The code for abnormalities in breathing is R06 (LINK)

SNOMED code: 267036007 (LINK)

I believe SNOMED is the perfect code for the given case because this is the given code for Dyspnea, but the synonyms of this term include SOB (Shortness of Breath). LOINC code is 64113-4**.** This is for Dyspnea Respiratory system-Trail resting. (LINK)

From all the codes, ICD- 10 code is more suitable for this diagnosis (O'Malley et al., 2005).

13. Clinical Concept: Asthma

SNOMED code for Asthma is 195967001(**LINK**) but the code for substance-induced Asthma is 424199006 (**LINK**)

The LOINC code for Asthma is 45669-9 **(LINK)**

The LOINC code for asthma, chronic obstructive pulmonary disease, or chronic lung disease in the last seven days is 54822-2. I believe that among the two LOINC codes, 45669-9 is more suitable for the case. (LINK)

From all the codes, ICD- 10 code is more suitable for this diagnosis (O'Malley et al., 2005).

14. Clinical Concept: Chest X- Ray:

ICD-10 code for plain chest X ray is BW03ZZZ (LINK)

It is a procedural code and denoted as ICD-10 PCS. Here B represents Imaging, W for Anatomical region, 0 for Plain radiography and 3 for Chest

CPT code for chest X rays: (LINK)

71045- Chest X ray 1 view (LINK)

71046- Chest X ray with 2 views (LINK)

71047 Chest X ray with APICAL LORDO (LINK)

71048- Chest X ray with OBLIQUE PROJEC (LINK)

SNOMED-CT: 399208008 is the code given for plain chest X ray procedure (LINK)

LOINC: 36554-4 code describes X ray chest single view (LINK)

PA and lateral views are described with code: 42272-5 (LINK)

Out of all the codes, CPT codes are believed to best to best describe the clinical concept of chest X ray as they are the de facto code for diagnosing and billing.

15. Clinical Concept: Provisional diagnosis:

The LOINC code: 44833-2 (LINK)

This is used to code for preliminary diagnosis.

RATIONALE

S.NO	Clinical Concept	Terminology / Code	Rationale
1.	Age: 22-year-old	CPT Code: 99385	Age refers to subtracting patient's date of birth from the reference date. (Centers for Disease Control and Prevention, 2022). It is important to understand the age as it roots to medical problems.
2.	Consultation	SNOMED-CT: 11429006	Consultation is a service provided by the physician during which detailed history and examination of the patient are done as a part of the clinical visit to formulate diagnosis and decide treatment plan.
3.	Cough	ICD-10: R05	Cough is a clinical symptom referring to the patient's chief complaint. It refers to expelling something out of the airways when there is irritation (Mayo Clinic, 2020a). Cough is to be included in the clinical concept as it plays an important role in diagnosis.

4.	Clinician	SNOMED-CT: 3093343006	Clinician refers to a certified professional to practice medicine. Clinicians are the people who provide point of care to the patients. They might include physicians, nurses, pharmacists, and allied healthcare professionals (Centers for Medicare & Medicaid Services, 2021).
5.	Shortness of breath- Dyspnea	SNOMED-CT: 267036007	Also referred to as dyspnea, characterized by not being able to get sufficient air or difficulty in breathing (Mayo Clinic, 2020b). This is an important clinical symptom to diagnose asthma and related medical conditions.
6.	No medical history	SNOMED-CT: 435871000124102	Medical history refers to past clinical conditions encountered by the patient. In this case the patient has no past history of any recorded or pressing illness. Medical history of the patient influences the diagnosis and treatment protocols. It

			also interferes with medication prescribed. It also provides insights about allergies and immunizations of the patient.
7.	No medication history	ICD-10: Z92.89	No medication history refers to the history of the patient where he is not prescribed with any medication in the past for any illness. Medication of the patient constitute a major element to be recorded and coded as the EHRs today are incorporated with software to detect any possible drug interactions. CDSS also depends on the past medication history of the patient.
8.	Chronic smoker	SNOMED-CT: 77176002	An adult who has the habit of smoking at least 100 cigarettes is referred to as chronic smoker (Centers for Disease Control and Prevention, 2017). This use case describes the patient as current chronic smoker and has the history of smoking. Social history like

			smoking plays a major role in preventive medicine.
9.	Alcoholic	LOINC Code: 11331-6	Alcoholic refers to the person who has the habit of consumption of alcohol. The patient in the use case has this habit of alcoholism. Alcohol has detrimental effects on various body organs like liver. It interferes with the absorption of medication given and has a serious influence on health.
10.	Family history	LOINC Code: 10157-6	Family history roots to the findings of genetically related disorders that the patient might experience. Here the patient has no family history reported. It is necessary to document family history as many clinical conditions draw back to the genetic origin. This needs to be coded to understand the patterns associated with the disease during syntactic and semantic interoperability. There are attempts made to detect the risk of

			diseases among the patient with positive family history findings from HL7 standardized models (Melton et al., 2010).
11.	Well-developed and well nourished	ICD-10 Code: Z00.00	Well-developed and well-nourished reflects the overall health and physical well-being of the patient. The patient here is described as fit and healthy. Physical examination of the patient reveals the overall body state and aids to detect the pathology localizing to an anatomical location.
12.	Moderately Dyspneic	ICD-10 Code: R06.00	The clinical symptom dyspnea is further categorized based on the severity of experience by the patient into moderate. The description of the clinical symptom presented by the patient must be further examined to know the status of the disease.
13.	Asthma	ICD-10 Code: J45.40	Asthma is the condition where the airways narrow down and swell those results in the production of

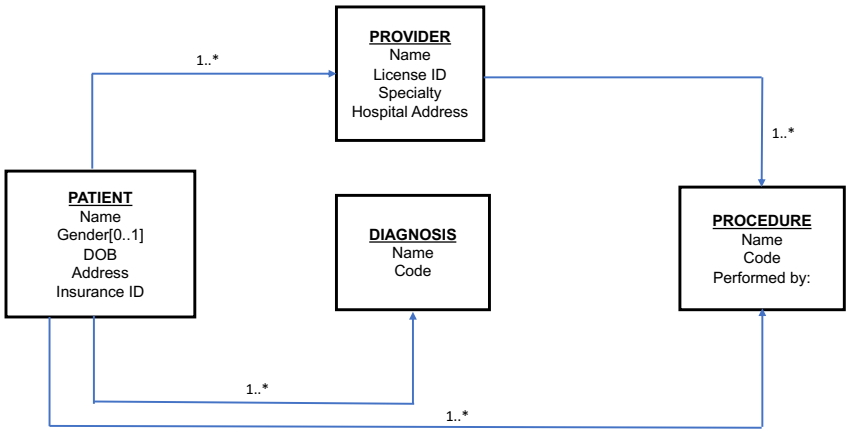
			extra mucus (Mayo Clinic, 2022). Asthma is the provisional diagnosis made for this clinical case and this needs to be medically coded to facilitate interoperability.
14.	Chest X- Ray	CPT Code: • 71045- Chest X ray 1 view • 71046- Chest X ray with 2 views • 71047 Chest X ray with APICAL LORDO • 71048- Chest X ray with OBLIQUE PROJEC	Chest X-Ray refers to the laboratory examination prescribed by the clinician to aid in diagnosis of the provisional diagnosis. As this patient presented with dyspnea and cough referring to pathology in lungs, a Chest X-Ray is recommended. The clinical concept of Chest X- Ray is important to formulate the final diagnosis. So. It needs to be included and coded based on appropriate terminology.
15.	Provisional diagnosis	LOINC Code: 44833-2	After initial examination, a provisional diagnosis helps the physician to rule out differential diagnosis and aid in final diagnosis. Based on the primary diagnosis, various laboratory procedures are

			prescribed for the patient. This case made the provisional diagnosis of asthma for the patient based on presented symptoms and initial examination.

Project Sprint-2: Problem Analysis and Modelling.

Unified Modelling Language (UML) and Business Process Modeling Notion (BPMN) models are exclusively used in the health care to deal the clinical workflows efficiently. UML class diagram serves as an important tool in defining the structure and relationships among the connected entities (Vasilakis et al.,2008). Analysis of the attributes depicted is possible with these UML diagrams. On the other hand, BPMN diagrams are used to represent control flow of a process with various activities. When concerned with healthcare, BPMN streamlines the clinical steps and workflows to aid in administration (Ramos-Merino et al., 2018). To suit the given clinical case(D), we have modelled a UML and two BPMN diagrams.

Model -1: UML Classes: Provider-Centered Relationships



Definitions:

- Code – This code refers to the terminology provider will be using to define a procedure or the diagnosis. For example, the physician might use ICD-10 but the radiologist might use SNOMED-CT. This code varies across different hospitals.

UML Class and relations :

- Here multiplicity note “0..1” is specified for gender as it is the personal preference of the patient to disclose, so we might encounter an empty field in some instances.
- The specialty of the provider holds importance as it is responsible for performing the procedures.
- Here the patient might experience multiple diagnosis and procedures performed by different providers.

Interoperability:

Semantic interoperability

With the UML diagram, it is clearly evident that the provider can perform multiple procedures depending on the specialty. According to the use case, the physician orders for chest X-ray through EHR. This transfer of request to the radiologist is facilitated through standardized terminology. So, semantic interoperability holds significance in this scenario.

Examples of instances demonstrating semantic interoperability include, reporting the diagnosis of a patient across systems and exchanging the drug prescriptions across hospitals. Semantic interoperability is commonly seen during the Health Information Exchange across the connected systems to improve the patient outcomes.

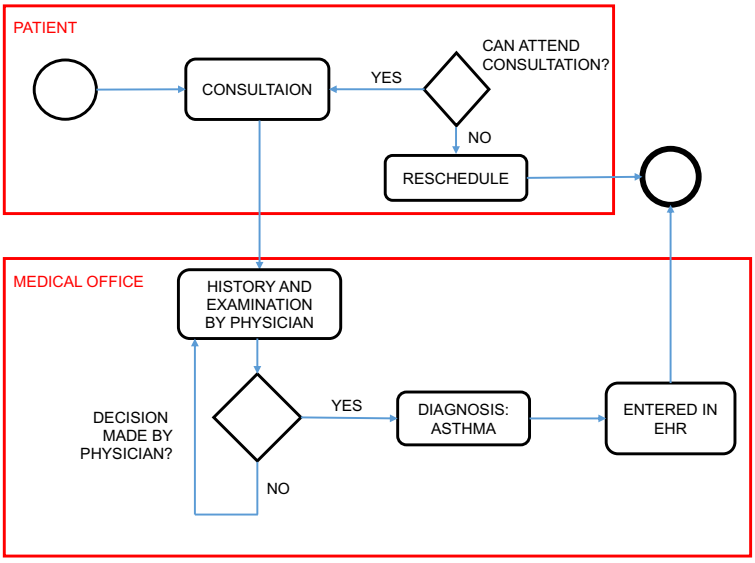
Syntactic interoperability

In the use case, it was clearly mentioned that the provisional diagnosis was recorded in the EHR. This recording is standardized with inclusion of terminologies and codes for the elements. This aids for CDA mockups and this document can be transferred electronically across the connected systems. This facilitates syntactic interoperability.

Organizational interoperability

This type of interoperability is evident when the data or information recorded in the EHR needs to be transferred across the same institution or to other hospitals. In this use case, transfer of the data from EHR recorded by the clinician to the radiologist justifies organizational interoperability.

Model -2: BPMN: Consultation and Diagnosis Decision Flow



Definitions:

- Patient – Refers to all the information and decisions taken by the patient.
- Medical Office – This includes any of the medical office staff.

Notes:

- The patient decides to attend the scheduled appointment or not.
- The physician comes to a provisional diagnosis of asthma after recording the history and physically examining the patient.
- Here the exit is out of the swim boxes as it is independent of both the entities.

Interoperability:

Semantic interoperability

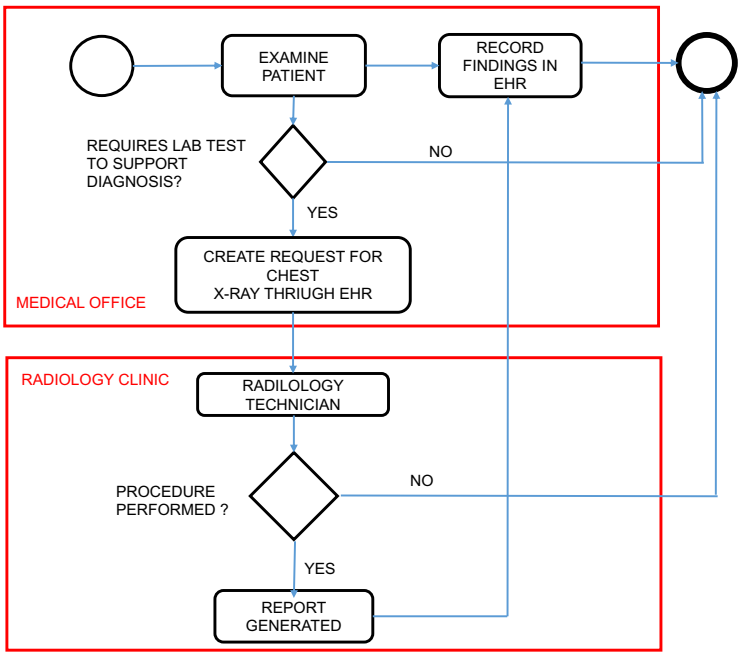
Here, in this diagram, the history of the patient is taken and saved in EHR following a standard terminology. Added to this, the physician made a provisional diagnosis of Asthma and stored the information in EHR according to any one terminology followed by the hospital (Ex: ICD-10). These activities draw to semantic interoperability as the data is stored and codified using a terminology. This facilitates ease of data exchange across various systems to discuss the clinical case efficiently.

Other examples of such interoperability are seen during reporting of any laboratory results and medication errors. Semantic interoperability is also seen during the billing procedures to facilitate ease of communication with insurance companies.

Syntactic interoperability

Here, recording of the patient demographics in a standardized format with adequate codes help to preserve the integrity of the document and aids in syntactic interoperability.
CDA documentation for the provisional diagnosis recorded in EHR can be transferred to other hospital or physicians to interpret the diagnosis made. This includes syntactic interoperability.

Model -3: BPMN: Radiology Referral and Diagnosis Flow



Definitions:

- Medical Office - This refers to any of the medical office staff.
- Radiology Clinic - Refers to the radiologist.
- Lab test – It refers to laboratory diagnosis. In this case, Chest X-Ray is used as additional supporting evidence to provisional diagnosis.

Notes:

- To support or oppose the provisional diagnosis, Chest X-Ray was requested by physician in the EHR to the radiologist.
- So, the flow is initiated from the medical office to the radiology clinic.
- The radiologist decides to perform the procedure or not and report back the diagnosis to EHR.
- The exit is drawn outside the swim lines as it is an independent event of both boxes.

Interoperability:

Syntactic interoperability

This diagram represents the request of information from one system to another and reporting back of the diagnosis to EHR. After the provisional diagnosis has been entered in the EHR, the physician ordered for Chest X-Ray. This information has to be transferred in a data format where syntactic interoperability comes into picture.

Requests for additional laboratory tests and referral requests pertaining to diagnosis are the situations that root to examples of syntactic interoperability. When finding solutions to research queries, syntactic interoperability plays an important role in exchanging data and finding meaningful inferences out of it.

Organizational interoperability

Additionally, UML and BPMN models of this use case suggest organizational interoperability as the data is transferred between two systems. Human interoperability is also seen when there is manual diagnosis and interpretation of results made by the physician and radiologist respectively.

Conclusion:

The use case's clinical concepts were all explored in depth, taking into account numerous terminologies and ontologies. Of the chosen terminologies, which complies with HL7 requirements, has been chosen as the de facto standard. For diagnostic concepts, ICD-10 is regarded as the most appropriate de facto standard, and SNOMED-CT for some procedural concepts. All the events in the clinical use case are well represented using the UML and BPMN diagrams. This concept helps to understand the levels of interoperability and the need to model the use case for better understanding. The CDA documentation helped us gain knowledge on HL-7 and XML. Introduction to FHIR templated helped us to know more about clinical documentation and role of it in interoperability.

Remarks:

As a team, we believe that the clinical symptoms and results of physical examination are not represented in the modelling as well as not addressed by the physician after primary diagnosis. Patient follow-up and revisit is not shown in the BPMN diagram. The clinical workflow from the physician office requesting a Chest X-Ray through EHR as a worklist item at the radiology clinic can include detailed data elements. The interpretation of the Chest X-Ray by the radiologist has not been modelled in any of the diagrams.

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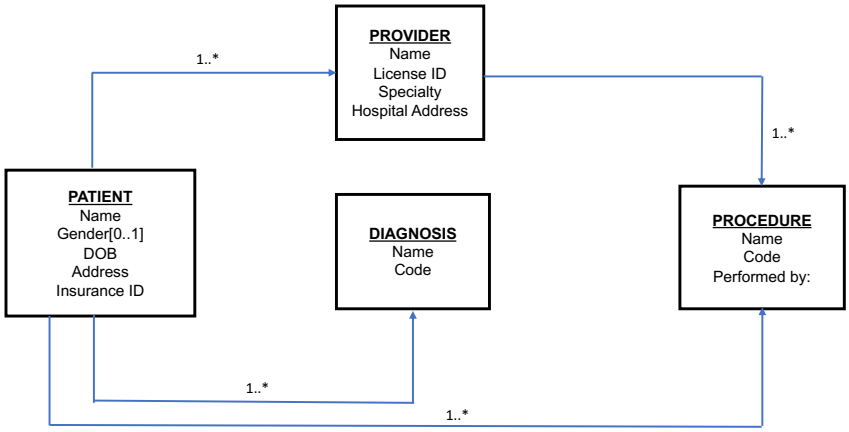
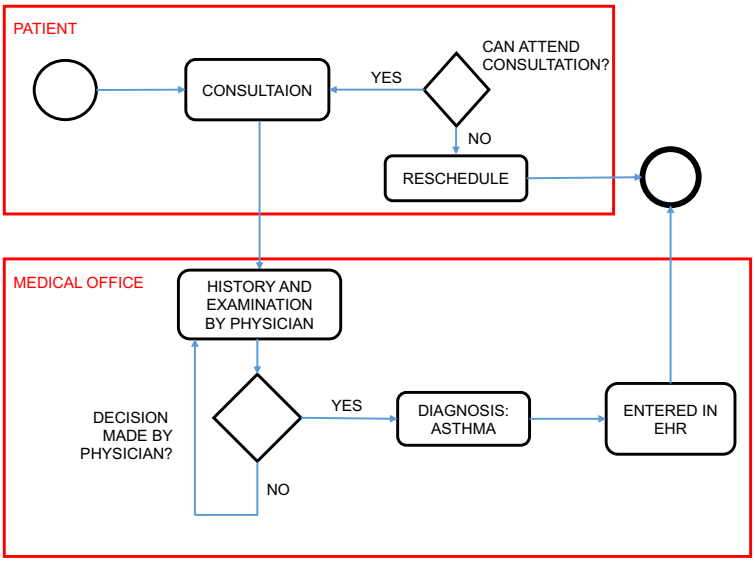
Appendix-1- BPMN and UML Diagrams

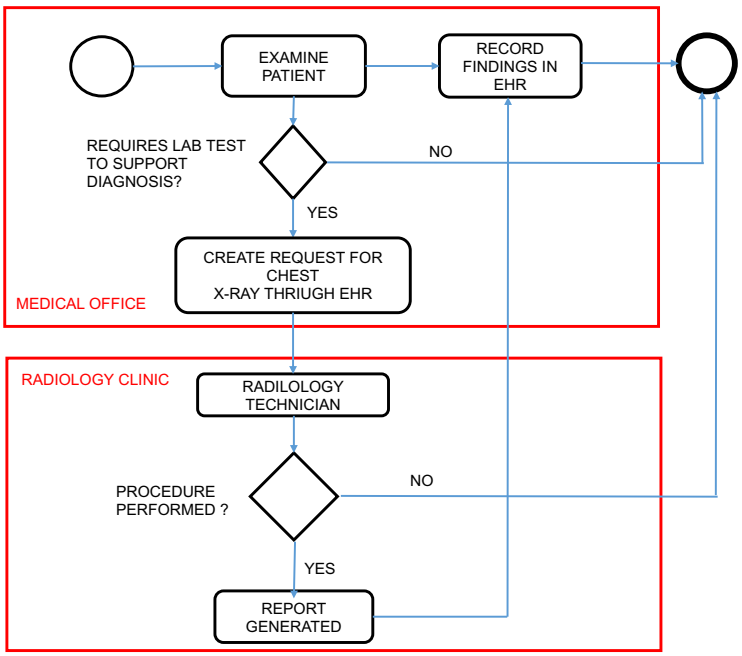
Model -1: UML Classes: Provider-Centered Relationships



Model -2: BPMN: Consultation and Diagnosis Decision Flow

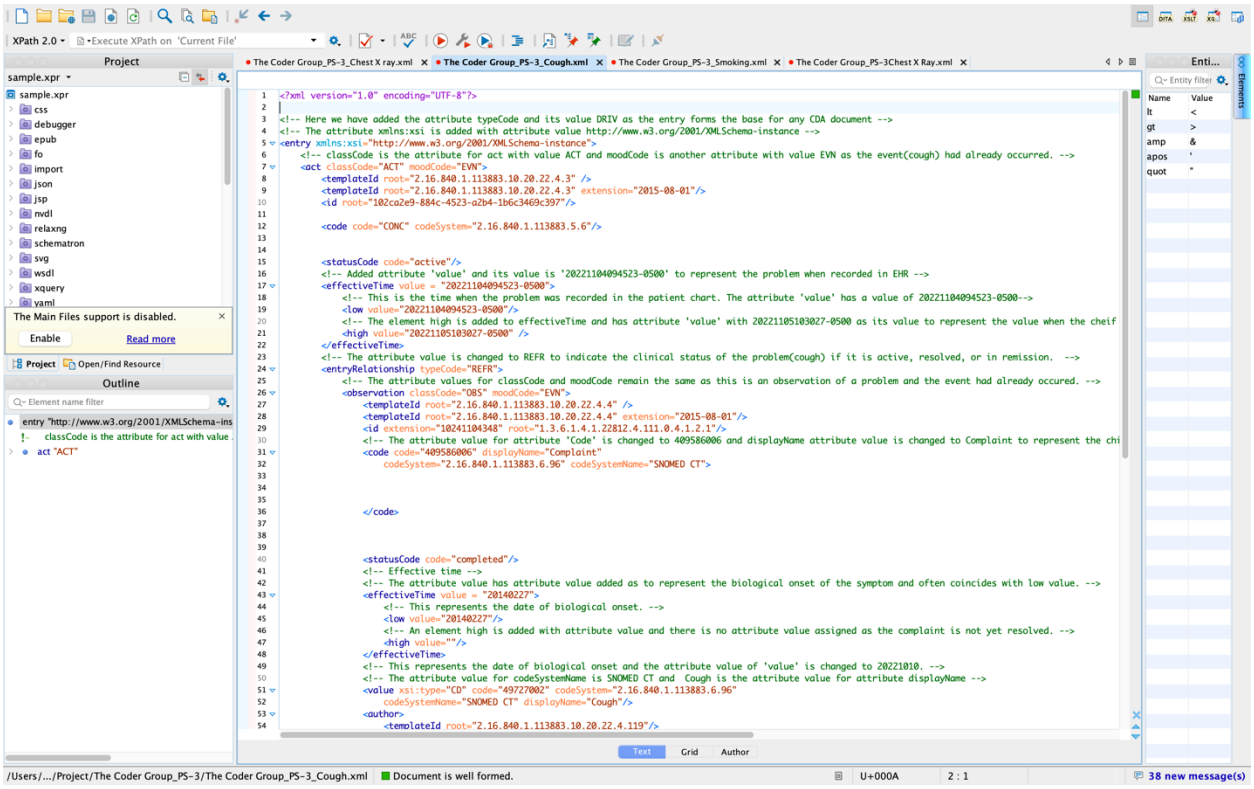


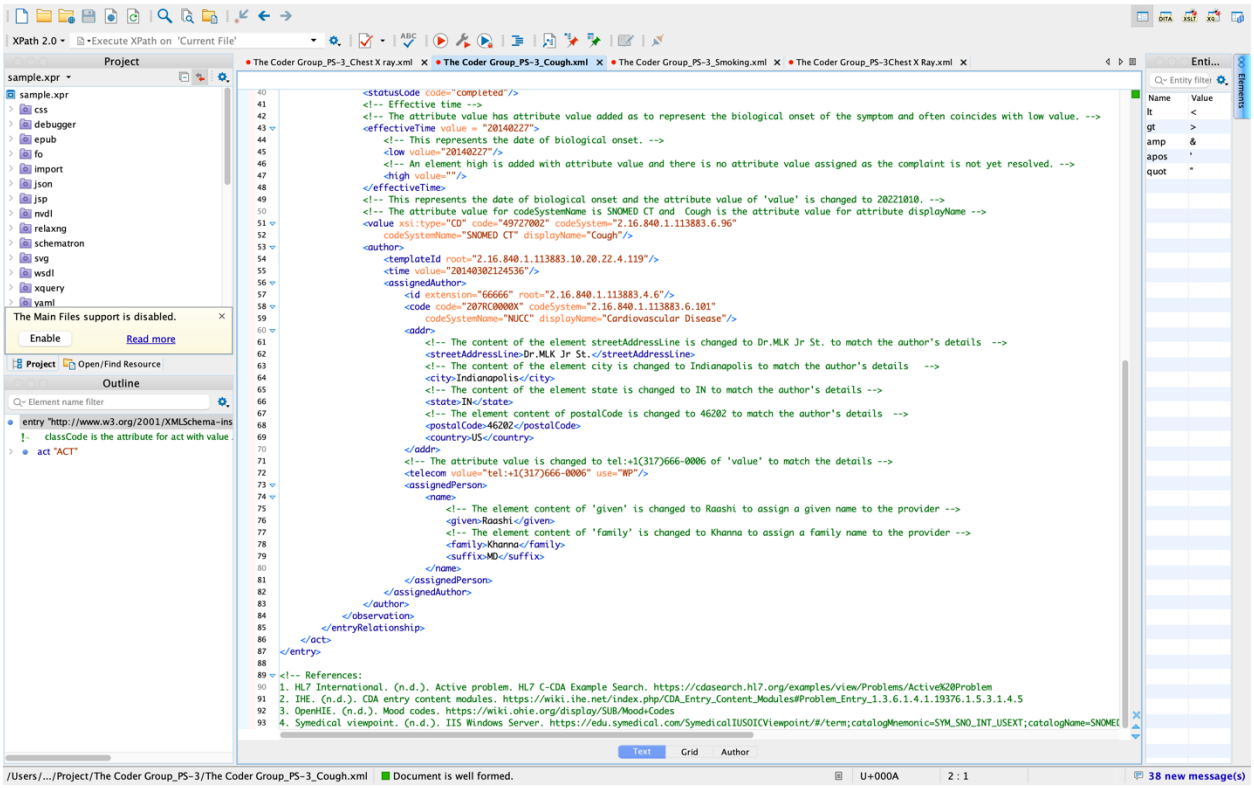
Model -3: BPMN: Radiology Referral and Diagnosis Flow



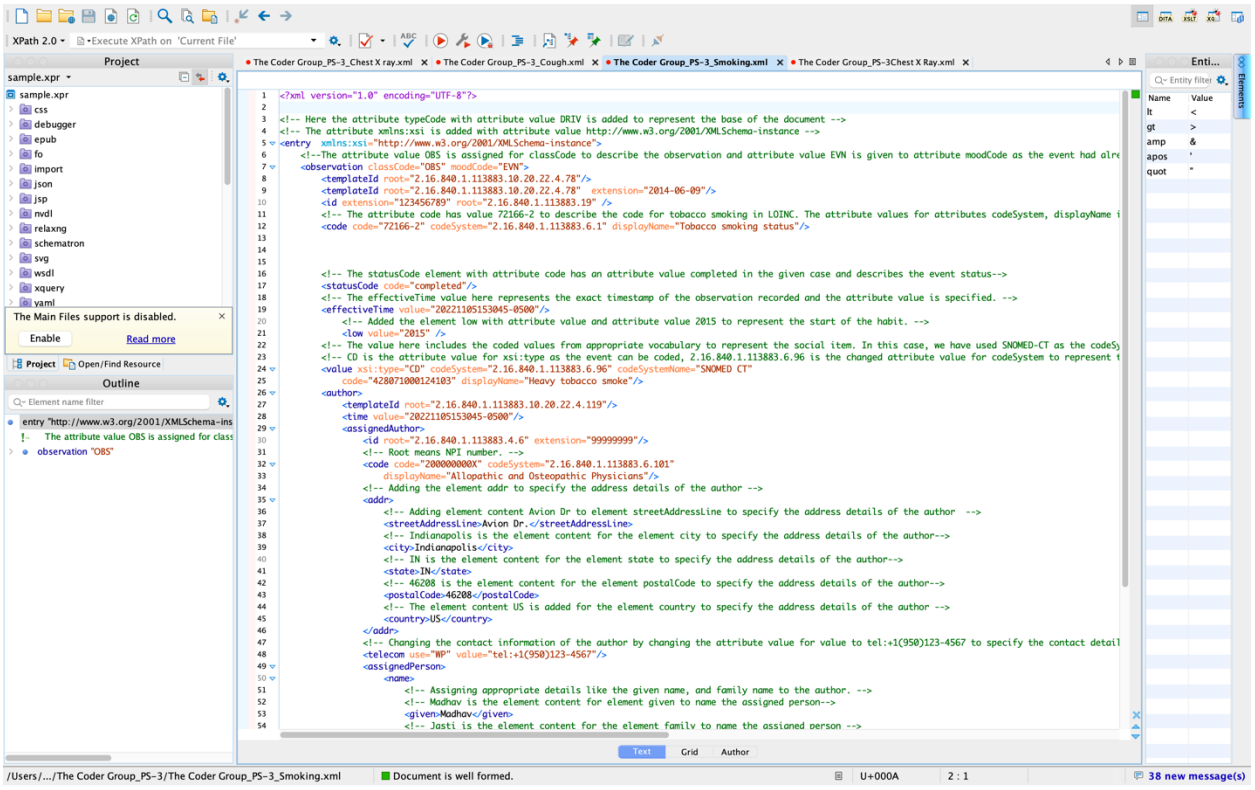
Appendix-2: CDA Mockups

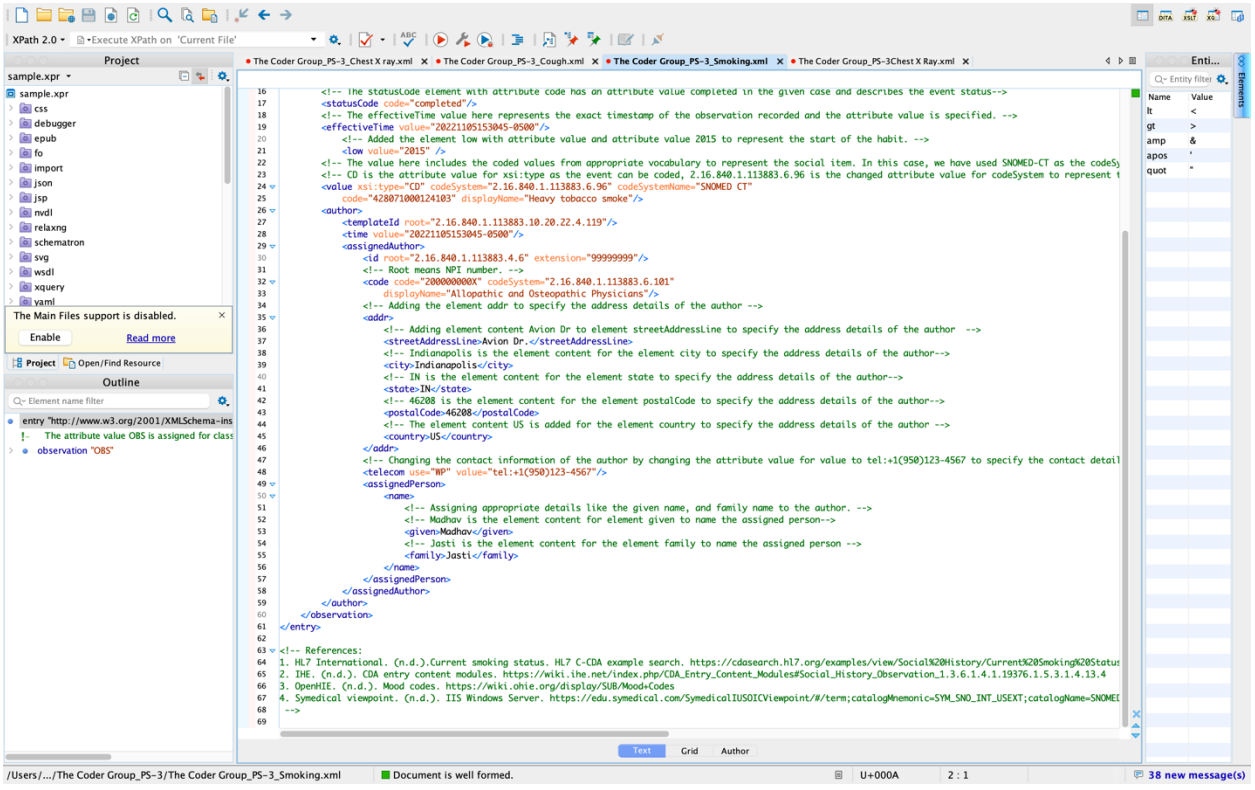
1.Cough



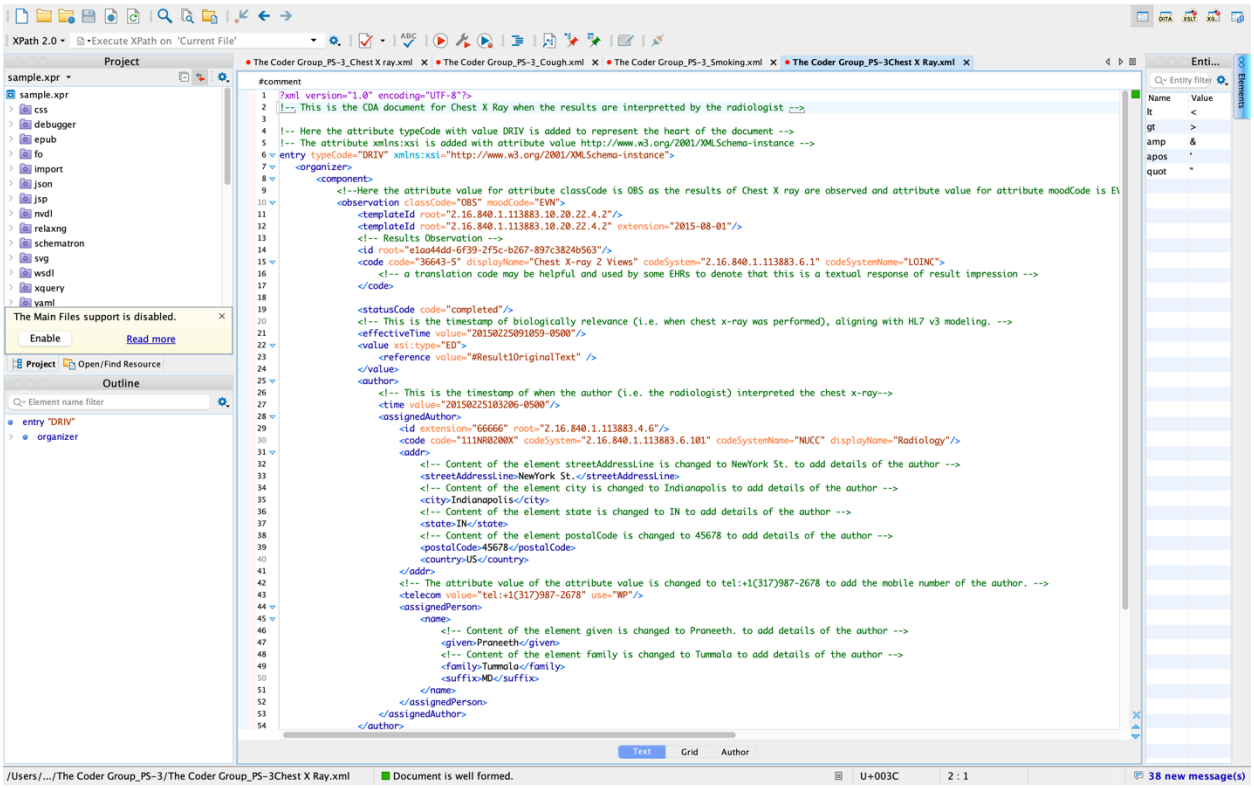


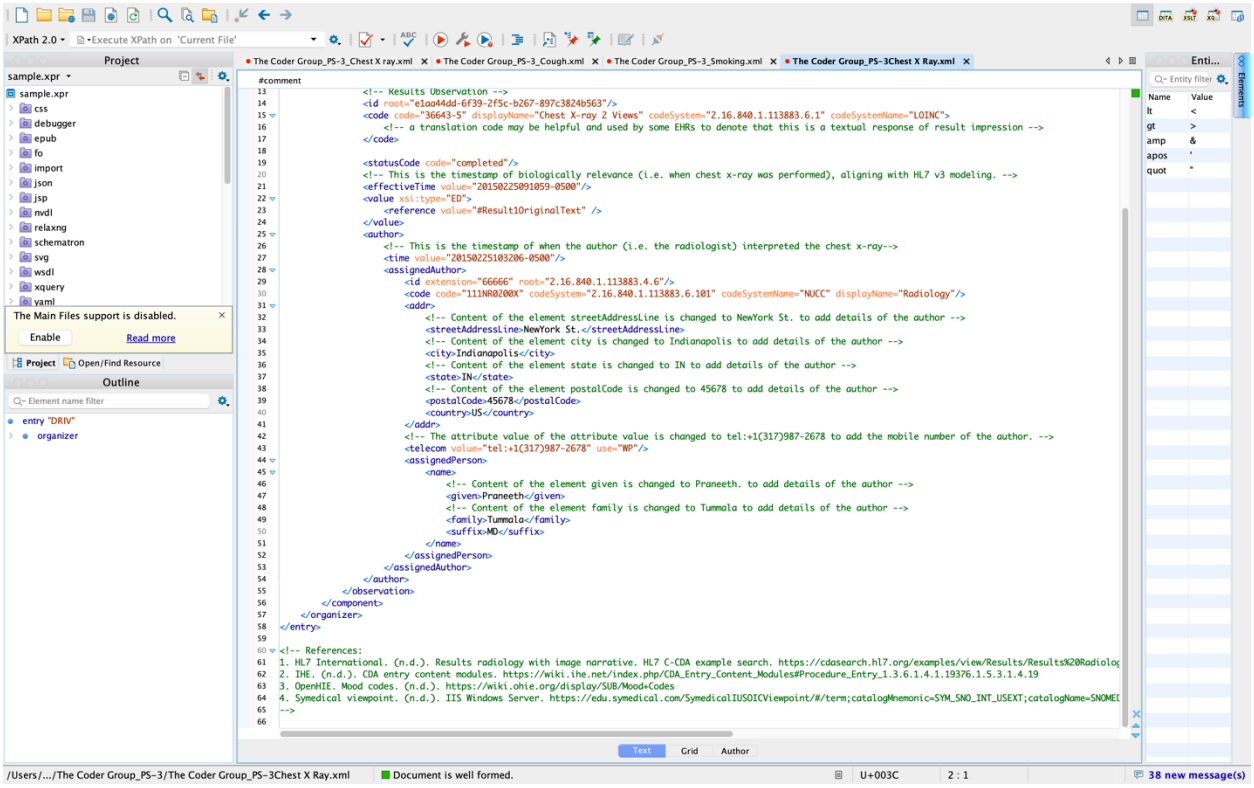
2. Smoking

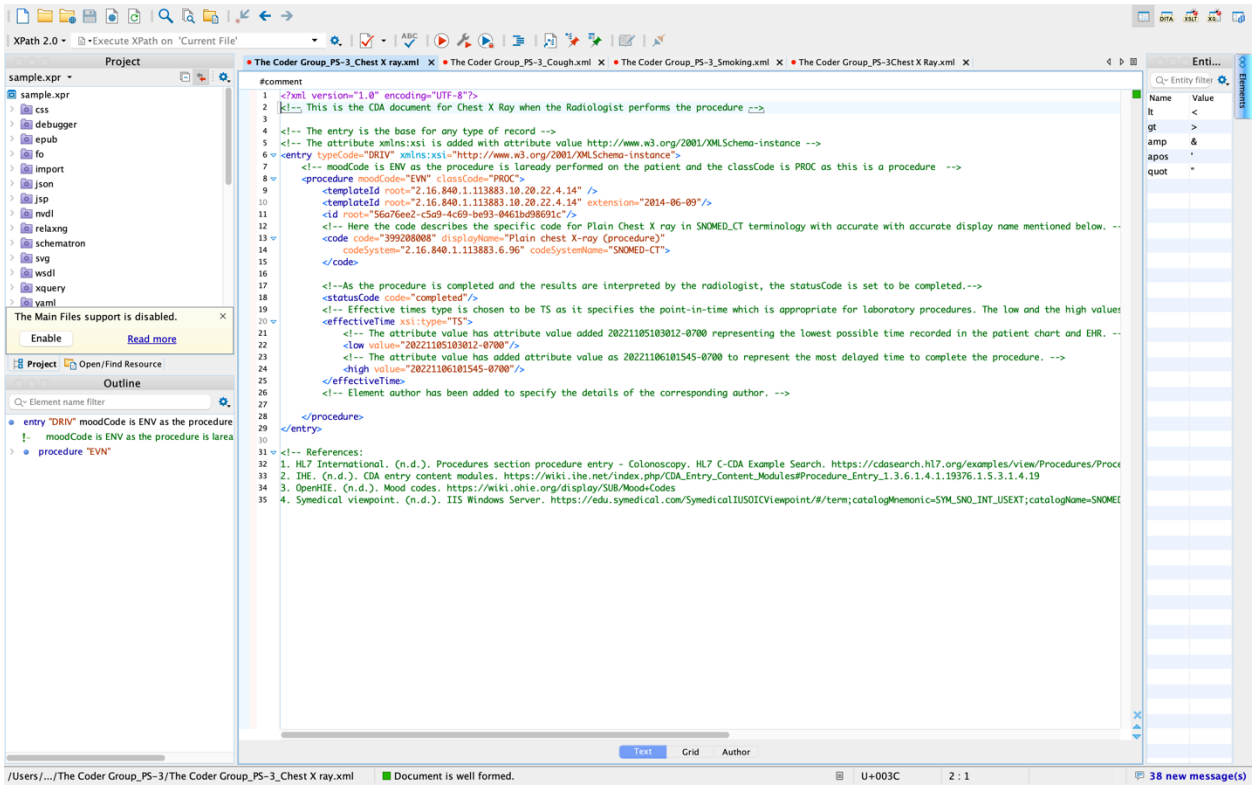

The Coder Group_PS-3_Chest X ray.xml
The Coder Group_PS-3_Cough.xml
The Coder Group_PS-3_Smoking.xml
The Coder Group_PS-3Chest X Ray.xml
Project
Outline
Text
Grid
Author
Document is well formed.


The Coder Group_PS-3_Chest X ray.xml
The Coder Group_PS-3_Cough.xml
The Coder Group_PS-3_Smoking.xml
The Coder Group_PS-3Chest X Ray.xml
Project
Outline
Text
Grid
Author
Document is well formed.

3. Chest X Ray


XPath 2.0
Execute XPath on 'Current File'
Project
sample.xpr
The Main Files support is disabled.
Enable
Read more
Outline
entry "DRIV"
organizer
The Coder Group_PS-3_Chest X ray.xml
The Coder Group_PS-3_Cough.xml
The Coder Group_PS-3_Smoking.xml
The Coder Group_PS-3Chest X Ray.xml
#comment
<?xml version="1.0" encoding="UTF-8"?>
<!-- This is the CDA document for Chest X Ray when the results are interpreted by the radiologist -->
<!-- Here the attribute typeCode with value DRIV is added to represent the heart of the document -->
<!-- The attribute xmlns:xsi is added with attribute value http://www.w3.org/2001/XMLSchema-instance -->
<entry typeCode="DRIV" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<organizer>
<component>
<!--Here the attribute value for attribute classCode is OBS as the results of Chest X ray are observed and attribute value for attribute moodCode is EV
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.2"/>
<templateId root="2.16.840.1.113883.10.20.22.4.2" extension="2015-08-01"/>
<!-- Results Observation -->
<id root="e1aa44dd-6f39-2f5c-b267-897c3824b563"/>
<code code="36643-5" displayName="Chest X-ray 2 Views" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
<!-- a translation code may be helpful and used by some EHRs to denote that this is a textual response of result impression -->
</code>
<statusCode code="completed"/>
<!-- This is the timestamp of biologically relevance (i.e. when chest x-ray was performed), aligning with HL7 v3 modeling. -->
<effectiveTime value="20150225091059-0500"/>
<value xsi:type="ED">
<reference value="#Result1OriginalText" />
</value>
<author>
<!-- This is the timestamp of when the author (i.e. the radiologist) interpreted the chest x-ray-->
<time value="20150225103206-0500"/>
<assignedAuthor>
<id extension="66666" root="2.16.840.1.113883.4.6"/>
<code code="111NR0200X" codeSystem="2.16.840.1.113883.6.101" codeSystemName="NUCC" displayName="Radiology"/>
<addr>
<!-- Content of the element streetAddressLine is changed to NewYork St. to add details of the author -->
<streetAddressLine>NewYork St.</streetAddressLine>
<!-- Content of the element city is changed to Indianapolis to add details of the author -->
<city>Indianapolis</city>
<!-- Content of the element state is changed to IN to add details of the author -->
<state>IN</state>
<!-- Content of the element postalCode is changed to 45678 to add details of the author -->
<postalCode>45678</postalCode>
<country>US</country>
</addr>
<!-- The attribute value of the attribute value is changed to tel:+1(317)987-2678 to add the mobile number of the author. -->
<telecom value="tel:+1(317)987-2678" use="WP"/>
<assignedPerson>
<name>
<!-- Content of the element given is changed to Praneeth. to add details of the author -->
<given>Praneeth</given>
<!-- Content of the element family is changed to Tummala to add details of the author -->
<family>Tummala</family>
<suffix>MD</suffix>
</name>
</assignedPerson>
</assignedAuthor>
</author>
Text
Grid
Author
/Users/.../The Coder Group_PS-3/The Coder Group_PS-3Chest X Ray.xml
Document is well formed.
U+003C
2 : 1
38 new message(s)


XPath 2.0
Execute XPath on 'Current File'
Project
sample.xpr
The Main Files support is disabled.
Enable
Read more
Outline
entry "DRIV"
organizer
The Coder Group_PS-3_Chest X ray.xml
The Coder Group_PS-3_Cough.xml
The Coder Group_PS-3_Smoking.xml
The Coder Group_PS-3Chest X Ray.xml
#comment
<!-- Results Observation -->
<id root="e1aa44dd-6f39-2f5c-b267-897c3824b563"/>
<code code="36643-5" displayName="Chest X-ray 2 Views" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC">
<!-- a translation code may be helpful and used by some EHRs to denote that this is a textual response of result impression -->
</code>
<statusCode code="completed"/>
<!-- This is the timestamp of biologically relevance (i.e. when chest x-ray was performed), aligning with HL7 v3 modeling. -->
<effectiveTime value="20150225091059-0500"/>
<value xsi:type="ED">
<reference value="#Result1OriginalText" />
</value>
<author>
<!-- This is the timestamp of when the author (i.e. the radiologist) interpreted the chest x-ray-->
<time value="20150225103206-0500"/>
<assignedAuthor>
<id extension="66666" root="2.16.840.1.113883.4.6"/>
<code code="111NR0200X" codeSystem="2.16.840.1.113883.6.101" codeSystemName="NUCC" displayName="Radiology"/>
<addr>
<!-- Content of the element streetAddressLine is changed to NewYork St. to add details of the author -->
<streetAddressLine>NewYork St.</streetAddressLine>
<!-- Content of the element city is changed to Indianapolis to add details of the author -->
<city>Indianapolis</city>
<!-- Content of the element state is changed to IN to add details of the author -->
<state>IN</state>
<!-- Content of the element postalCode is changed to 45678 to add details of the author -->
<postalCode>45678</postalCode>
<country>US</country>
</addr>
<!-- The attribute value of the attribute value is changed to tel:+1(317)987-2678 to add the mobile number of the author. -->
<telecom value="tel:+1(317)987-2678" use="WP"/>
<assignedPerson>
<name>
<!-- Content of the element given is changed to Praneeth. to add details of the author -->
<given>Praneeth</given>
<!-- Content of the element family is changed to Tummala to add details of the author -->
<family>Tummala</family>
<suffix>MD</suffix>
</name>
</assignedPerson>
</assignedAuthor>
</author>
</observation>
</component>
</organizer>
</entry>
<!-- References:
1. HL7 International. (n.d.). Results radiology with image narrative. HL7 C-CDA example search. https://cdasearch.hl7.org/examples/view/Results/Results%20Radiolog
2. IHE. (n.d.). CDA entry content modules. https://wiki.ihe.net/index.php/CDA_Entry_Content_Modules#Procedure_Entry_1.3.6.1.4.1.19376.1.5.3.1.4.19
3. OpenHIE. Mood codes. (n.d.). https://wiki.ohie.org/display/SUB/Mood+Codes
4. Symedical viewpoint. (n.d.). IIS Windows Server. https://edu.symedical.com/SymedicalIUSOICViewpoint/#/term;catalogMnemonic=SYM_SNO_INT_USEXT;catalogName=SNOMEI
-->
Text
Grid
Author
/Users/.../The Coder Group_PS-3/The Coder Group_PS-3Chest X Ray.xml
Document is well formed.
U+003C
2 : 1
38 new message(s)


XPath 2.0
Execute XPath on 'Current File'
Project
sample.xpr
sample.xpr
css
debugger
epub
fo
import
json
jsp
nvdl
relaxng
schematron
svg
wsdl
xquery
yaml
The Main Files support is disabled.
Enable
Read more
Project
Open/Find Resource
Outline
Element name filter
entry "DRIV" moodCode is ENV as the procedure
moodCode is ENV as the procedure is larea
procedure "EVN"
The Coder Group_PS-3_Chest X ray.xml
The Coder Group_PS-3_Cough.xml
The Coder Group_PS-3_Smoking.xml
The Coder Group_PS-3Chest X Ray.xml
#comment
<?xml version="1.0" encoding="UTF-8"?>
<!-- This is the CDA document for Chest X Ray when the Radiologist performs the procedure -->
<!-- The entry is the base for any type of record -->
<!-- The attribute xmlns:xsi is added with attribute value http://www.w3.org/2001/XMLSchema-instance -->
<entry typeCode="DRIV" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<!-- moodCode is ENV as the procedure is laready performed on the patient and the classCode is PROC as this is a procedure -->
<procedure moodCode="EVN" classCode="PROC">
<templateId root="2.16.840.1.113883.10.20.22.4.14" />
<templateId root="2.16.840.1.113883.10.20.22.4.14" extension="2014-06-09"/>
<id root="56a76ee2-c5a9-4c69-be93-0461bd98691c"/>
<!-- Here the code describes the specific code for Plain Chest X ray in SNOMED_CT terminology with accurate with accurate display name mentioned below. --
<code code="399208008" displayName="Plain chest X-ray (procedure)"
codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED-CT">
</code>
<!--As the procedure is completed and the results are interpreted by the radiologist, the statusCode is set to be completed.-->
<statusCode code="completed"/>
<!-- Effective times type is chosen to be TS as it specifies the point-in-time which is appropriate for laboratory procedures. The low and the high values
<effectiveTime xsi:type="TS">
<!-- The attribute value has attribute value added 20221105103012-0700 representing the lowest possible time recorded in the patient chart and EHR. --
<low value="20221105103012-0700"/>
<!-- The attribute value has added attribute value as 20221106101545-0700 to represent the most delayed time to complete the procedure. -->
<high value="20221106101545-0700"/>
</effectiveTime>
<!-- Element author has been added to specify the details of the corresponding author. -->
</procedure>
</entry>
<!-- References:
1. HL7 International. (n.d.). Procedures section procedure entry - Colonoscopy. HL7 C-CDA Example Search. https://cdasearch.hl7.org/examples/view/Procedures/Proce
2. IHE. (n.d.). CDA entry content modules. https://wiki.ihe.net/index.php/CDA_Entry_Content_Modules#Procedure_Entry_1.3.6.1.4.1.19376.1.5.3.1.4.19
3. OpenHIE. (n.d.). Mood codes. https://wiki.ohie.org/display/SUB/Mood+Codes
4. Symedical viewpoint. (n.d.). IIS Windows Server. https://edu.symedical.com/SymedicalIUSOICViewpoint/#/term;catalogMnemonic=SYM_SNO_INT_USEXT;catalogName=SNOMEI
Text
Grid
Author
Enti...
Entity filter
Name
Value
lt
<
gt
>
amp
&
apos
'
quot
"
Elements
/Users/.../The Coder Group_PS-3/The Coder Group_PS-3_Chest X ray.xml
Document is well formed.
U+003C
2 : 1
38 new message(s)