HL7 C-CDA R2.1 Specification

Version 01

10.31.2023

Connie

Table of Contents

1 Overview

This specification is for CCDA message types only. Non-CCDA specifications are documented separately.

This guide is to be used for the development of data interfaces to transmit Clinical Document Architecture (CDA®) such as patient health summaries, discharge summaries, and continuity of care documents to CRISP. As the health care industry evolves toward standards-based communications for clinical data, Crisp Shared Services has recognized the need to move away from custom and proprietary methods and toward common standards that eliminate or substantially reduce the custom interface programming and program maintenance that may otherwise be required. The standard described in this guide is based on the Health Level Seven (HL7®) Release 2.1 documentation standard for electronic data exchange in health care environments, which was designed to conform to the requirements of the American National Standards Institute (ANSI).

This document describes the elements of HL7 C-CDA documentation as they relate to the CSS standard for data transmission of clinical documentation and is not intended to be an introduction to HL7 messages and standards. Readers unfamiliar with HL7 should first review the HL7 C-CDA Release 2.0 Implementation Guide and/or the information describing the HL7 Release 2.1, available at hl7.org

1.1 Getting Started

1.1.1 Transmission Options

The estimated timeline to complete connectivity setups is 3-5 business days. During the implementation process, submitters must transmit electronic data using one of the following methods:

- **HTTPS**

  Provide the following information to your Implementation or Account Manager.
  - certificate signing request (CSR) . The following articles provide insights in to how generate a CSR CSR Creation | Create Certificate Signing Request | DigiCert. We do request 2048-bit signing and a separate certificate will be issued from both TEST and PROD domains. The same CSR can be used for both TEST and PROD from the same server, or one CSR each from separate servers depending on the requirements.
  - Organization's OID
  - Organization's physical address
  - Contact information – Name, email and phone number, for the appropriate technical resource(s)
  - Public/Peer IP address(es) from which the data is sent
  - Note: SSLv3, TLSv1 & TLSv1.1 are not supported protocols
- **Secure File Transfer Protocol (SFTP)** – Requires a submitter to obtain credentials and folder set up with CRISP Shared Services. We prefer to host the MFT/SFTP account. The following information should be provided to your Implementation or Account Manager.
  - For service account; we have different types of services with different credential policies
    1. Password only – 1 year
    2. Key Pair only – 2 years
    3. Password and Whitelist or Key Pair and Whitelist – 3 years
  - Public IP's to be whitelisted? (if applicable)
  - Technical POC name, phone number, and email address for the account. It is not uncommon for

organizations to have a support or technical team that is responsible for setting up and troubleshooting connectivity. A distribution list is acceptable for the email address

The SFTP credentials will be provided to the technical contact provided above.

- VPN – Complete VPN form and return it to your Implementation or Account Manager.
  - Upon completion of the VPN and load balancer setup we will schedule a meeting to bring up the tunnel and validate traffic is being successfully routed.
  - If there is an existing connection, we can expand the connectivity for the CCD by opening a new port to the existing VPN; and proceed further for testing, QA, code review and production implementation.

1.1.2 Submitting a test file

The purpose of the testing phase is to provide submitters with a mechanism to ensure the business requirements are met and validate any special use cases. Sample files should be reflective of production quality data but should not contain any PHI. CSS requests that submitters provide a minimum of 10 CCDs per facility OID with clinical information for testing — actual patient details are not required.

If the facilities do not have the test environment or if they are not able to send any test files for CSS test environment, then the submitter can send the CCDs to CSS production environment. CSS will not process the data directly in production without going testing and peer review phases. The data will be de-identified and used for development and testing purposes.

Transactions are processed by the file transport and validation facility but are not sent for processing within the production environment.

The steps to sending a test file are described below:

1. The submitter should submit a CCD file formatted according to the specifications in the HL7 C-CDA Release 2.1 Implementation Guide.
2. The submitter should continue to test until CRISP returns a valid acknowledgement response.
3. Once a successful submission is achieved, the submitter will work with CSS Implementation Manager to set a go live date for the CCD transaction.

1.1.3 Validation Tools

CSS does not provide a validation tool, however, a free collection of testing tools and resources can be found at, https://site.healthit.gov/sandbox-ccda/ccda-validator

Organizations testing C-CDA xml files using the validation testing tool receive an immediate response regarding the validity of the file structure. If the test result is invalid, errors in the construction of the file will be displayed. All errors must be cleared to obtain a “valid” test result. Note: The testing tool also provides warning messages that may improve the file content but are not critical structure errors.

1.2 USCDI Standards

CSS requires facilities to share data that meets the latest USCDI standards. The USCDI is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange.

Please refer to https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi for complete details regarding USCDI standards and latest requirements.

1.3 Clinical Terminology Systems

Standard terminology provides a foundation for interoperability by improving the effectiveness of information exchange. See below for some of the common terminology standards used in health information and technology. See Appendix for additional information regarding the most common terminology systems.

- SNOMED International, Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)
- Current Procedural Terminology (CPT®), as maintained and distributed by the American Medical Association, for physician services and other health care services
- Healthcare Common Procedure Coding System (HCPCS), as maintained and distributed by HHS.
- For technology primarily developed to record dental procedures: Code on Dental Procedures and Nomenclature (CDT), maintained and distributed by the American Dental Association, for dental services.
- Optional: International Classification of Diseases ICD-10-PCS 2021

Acceptable code systems by CCD section.

Name	OID	Procedures	Functional status	Mental status	Immunizations	Results	Vital signs	Problems	Encounters
CPT-4	2.16.840.1.113883.6.12	✓	-	-	-	-	-	-	✓
CVX	2.16.840.1.113883.6.59	-	-	-	✓	-	-	-	-
HCPCS		-	-	-	-	-	-	-	-
ICD-10-CM	2.16.840.1.113883.6.90	-	-	-	-	-	-	✓	-
ICD-10-PCS	2.16.840.1.113883.6.4	X	-	-	-	-	-	-	-
LOINC	2.16.840.1.113883.6.1	X	X	X	-	✓	✓	-	X
RxNorm	2.16.840.1.113883.6.88	-	-	-	-	-	-	-	-
SNOMED CT	2.16.840.1.113883.6.96	X	X	X	-	X	-	X	X

Key for acceptable code systems table above:
X = CCD section generally not accepted
✓ = CCD section widely accepted
*Please note that Crisp Shared Services will accept any code system.

1.4 Triggers

The most common triggers for the CCD to be marked to be sent are:

- Physician signs the patient chart
- Physician discharges patient

1.5 Identifiers

1.5.1 Provider Identifiers

CSS prefers that NPI IDs are sent for all provider fields.

1.5.2 Organizations Identifiers

CSS requires an organization id (OID) in all CCDAs.

An OID is a globally unique ISO (International Organization for Standardization) identifier. There are multiple ways that this identifier may be represented, and HL7 has chosen to represent OID registered here and used in HL7 models using a form that consists only of numbers and dots (e.g., “2.16.840.1.113883.3.1”). OIDs are paths in a tree structure, with the left-most number representing the root and the right-most number representing a leaf.

Please refer to https://www.hl7.org/Oid/index.cfm for additional information regarding OIDs.

2 Summary of Supported Inbound Message Types

The most common CDA message types supported and displayed in the InContext App are below:

Record Type	CDA Type	Class Code	Scheme	Format Code	Scheme
40-CDA	9-Continuity of Care Document (CCD)	**34133-9**	LOINC	urn:ihe:pcc:xphr:2007	XDS
40-CDA	10-Referral Summary	**57133-1**	LOINC	urn:ihe:pcc:xds-ms:2007	XDS
	Discharge Summary	**18842-5**	LOINC		
40-CDA	38-Progress Note	**11506-3**	LOINC	urn:ihe:pcc:xphr:2007	XDS

Supported CDA messages that are not currently displayed in the InContext App. If you are interested in providing these CDA types and viewing them in context, please contact your Account Manager for consideration.

Record Type	CDA Type	Class Code	Scheme	Format Code	Scheme
40-CDA	11-Discharge Summary	34105-7	LOINC	urn:ihe:pcc:xds-ms:2007	XDS
40-CDA	14-Emergency Department Summary	11303-5	LOINC	urn:ihe:pcc:edr:2007	XDS
40-CDA	23-Overall Plan of Care	18776-5	LOINC	urn:ihe:pcc:xds-ms:2007	XDS
40-CDA	33-Consultation Note	11488-4	LOINC		
40-CDA	34-Diagnostic Imaging Report	18748-4	LOINC		
40-CDA	35-History and Physical Note	34117-2	LOINC		
40-CDA	36-Operative Note	11504-8	LOINC		
40-CDA	37-Procedure Note	28570-0	LOINC		
40-CDA	39-Physician Consulting Progress Note	28569-2	LOINC	urn:ihe:pcc:xphr:2007	XDS
	70-Cancer Registry			urn:ihe:pcc:crc:2008	XDS

3 Encounter Summary vs Patient Summary

An Encounter Summary provides a snapshot of the patient's condition at the time of the encounter as authored by the clinician. A Patient Summary on the other hand provides a historical view of the information available in the sending system for a span of time which may cross multiple encounters.

The set of twelve document templates defined in C-CDA R2.1 can be summarized in the following groupings explained in the following chapters.

3.1 Encounter Summaries

An encounter summary document is primarily a clinician authored collection of information specific to a single patient interaction with a clinician, care team or hospitalization. The document may be provided to a patient immediately upon, or soon after, the conclusion of their encounter even if all the information related to that encounter is not yet available.

Encounter summaries are used to exchange clinical information that was gathered during an encounter with the patient. The header allows information about the encompassing encounter to be included as structured data, including who was the responsible party for the rendered care and where the encounter took place. For encounter summaries, this information SHOULD be included to support emerging use cases for data from C-CDA documents to support quality measure assessment.

3.2 Patient Summaries

Patient summaries are used to exchange clinical information about a patient's care over time. A patient summary is not specific to a particular encounter. The context of the document is the span of time over which care services have been provided.

3.3 Other Categories of Clinical and Patient-Generated Documents

Other types of clinical information exchange documents used to share information that supports care delivery, planning, and transitions of care.

Encounter Summary Documents	Patient Summary Documents	Other Categories Generated Documents
Consultation Note Discharge Summary History and Physical Note Progress Note	Continuity of Care Document (CCD) Transfer Summary	Care Plan Diagnostic Imaging Report Operative Note Procedure Note Referral Note Patient Generated Document

Table: Document templates defined in C-CDA R2.1, sorted by category

4 CCDA Structure

All CDA documents include a structured header regardless of if the document is a CDA document with a structured structuredBody element (a “structured document”) or a CDA document with a nonXMLBody element (an “unstructured document”). The structured header permits computer processing (parsing) to occur on its content**.** The header section contains patient information, author, creation date, and document type.

There are many situations where a document may be updated. For example, a pending laboratory result or a missing note may trigger an update. Since senders will not know what a receiver stored, send a complete document that replaces the prior document.

5 CCDA Header Structure

All CDA documents include a structured header regardless of if the document is CDA document with a structured structuredBody element (a “structured document”) or a CDA document with a nonXMLBody element (an “unstructured document”). The structured header permits computer processing (parsing) to occur on its content.

5.1 Clinical Document

The ClinicalDocument represents the container and contains patient information, author, creation date and document type.

5.2 Patient

The recordTarget represents the medical record that the document belongs to. The recordTarget records the administrative and demographic data of the patient whose health information is described by the clinical document; each recordTarget must contain at least one patientRole element.

The recordTarget contains many elements that hold core data for interoperability. The table below summarizes data elements present in the recordTarget.

Patient matching continues to be one of the major challenges for interoperability due to the lack of a universal patient identifier, similar to a Social Security Number, but used for healthcare.

Section	XML Tag	XMLPath	Description	Optionality
Header	Contains patient information, author, creation date, document type			
	ClinicalDocument (Xmlns=”urn:hl7-org:v3” or supported HL7 versions)			
		realmCode	Country; “US”	
		typeId	extension = “POCD_HD000040” root= “2.16.840.1.113883.1.3”	R
		templateId	Denotes the document is a CCDA	R
		id	Unique document ID	R
		code	Document template noting code, codeSystem and displayName	R

		title	Document title	R
		effectiveTime	Document creation time; Required Acceptable formats: yyyyMMdd, yyyyMMddhhmmss and yyyyMMddhhmmss+zzzz Document creation time; Required; yyyyMMddhhmmss+zzzz	R
		confidentialityCode	Reference HL7 industry specifications	
		languageCode	Reference HL7 industry specifications; code="es-US"	
	recordTarget:PatientRole			
		Id	Id extension="{mrn}" root="{OID}"	R
		addr	**Required**	R
		telecom	HP= Home Phone WP= Work Phone MC= Mobile Cell Value="mailto:{email}"	R
		patient:name	**Required**	R
		patient:administrativeGenderCode	**Required**	R
		patient:birthTime	yyyyMMdd **Required**	R
		patient:maritalStatusCode	Preferred	P
		patient:racecode	Preferred	P
		patient:ethnicGroupCode	Preferred	P
		patient:languageCommunication:languageCode	Patient preferred language	P
	author:			
		time	yyyyMMddhhmmss+zzzz	R
		assignedAuthor:representedOrganization:id	root="{Author OID}"	R
		assignedAuthor:representedOrganization:addr		P
		assignedAuthor:representedOrganization:telecom		P
		assignedPerson		O
	custodian:assignedCustodian:representedCustodianOrganization			
		id	root="{Custodian OID}"	R
		name		R
		telecom		P
		addr		P
	documentationOf		Care Team entries if exist	O
		serviceEvent:effectiveTime:low	serviceStartTime; Required here or in componentOf section yyyyMMddhhmmss+zzzz	R

		serviceEvent:effectiveTime:high	serviceStopTime; Required here or in componentOf section yyyyMMddhhmmss+zzzz	R
	componentOf			
		encompassingEncounter:effectiveTime:low	serviceStartTime; Required here or in documentationOf section yyyyMMddhhmmss+zzzz	P
		encompassingEncounter:effectiveTime:high	serviceStopTime; Required here or in documentationOf section yyyyMMddhhmmss+zzzz	P
Body	Contains coded Entries such as Allergies, Medications, Problems, Immunizations, Social History and Vital Signs (See section 6 of this document for detailed information)			
	Component:structuredBody:component:section			
		templateid		R
		code		R
		title		R
		text		O

5.3 Header Example

```
<recordTarget>
  <patientRole>
    <!-- The @root OID below (which is fictional) would be specific to an institution's record identifier system. -->
    <id root="2.16.840.1.113883.3.6132" extension="345678912-0154"/>
    <!-- HP is "primary home" from valueSet 2.16.840.1.113883.1.11.10637 -->
    <addr use="HP">
      <!-- You can have multiple [1..4] streetAddressLine elements. Single shown below -->
      <streetAddressLine>1436 Jennyhill Ln.</streetAddressLine>
      <city>Hartford</city>
      <!-- 5 or 9 digit zip codes from valueSet 2.16.840.1.113883.3.88.12.80.2-->
      <!-- PostalCode is required if the country is US. If country is not specified, it's assumed to be US. If country -->
      <!-- is something other than US, the postalCode MAY be present but MAY be bound to different vocabularies -->
      <postalCode>06106</postalCode>
      <!-- State is required if the country is US. If country is not specified, it's assumed to be US. -->
      <!-- If country is something other than US, the state MAY be present but MAY be bound to different vocabularies -->
      <!-- OR is "Oregon" from valueSet 2.16.840.1.113883.3.88.12.80.1 -->
      <state>CT</state>
      <!-- US is the two digit code for "United States" -->
      <country>US</country>
    </addr>
    <!-- MC is "mobile contact" from HL7 AddressUse 2.16.840.1.113883.5.1119 -->
    <telecom value="tel:+1(860)867-5309" use="MC"/>
    <!-- Multiple telecoms are possible -->
    <telecom value="mailto:adam@company.com" use="WP"/>
    <patient>
      <name use="L">
        <given>Adam</given>
```

```
        <family>Everyman</family>
      </name>
      <!-- From CDA R2 on administrativeGender Code: This attribute does not include terms related to clinical gender.
        Gender is a complex physiological, genetic and sociological concept that requires multiple observations in order to
        be comprehensively described. The purpose of this attribute is to provide a high level classification that can
        additionally be used for the appropriate allocation of inpatient bed assignment.-->
      <!-- Sex at birth and gender identity may be specified in social history -->
      <administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1" displayName="Male"
codeSystemName="AdministrativeGender"/>
      <birthTime value="19621022"/>
      <maritalStatusCode code="M" displayName="Married" codeSystem="2.16.840.1.113883.5.2"
codeSystemName="MaritalStatus"/>
      <religiousAffiliationCode code="1013" displayName="Christian (non-Catholic, non-specific)"
codeSystem="2.16.840.1.113883.5.1076" codeSystemName="HL7 Religious Affiliation"/>
      <!-- CDC Race and Ethnicity code set contains the five minimum race and ethnicity categories defined by OMB
Standards -->
      <raceCode code="2106-3" displayName="White" codeSystem="2.16.840.1.113883.6.238" codeSystemName="CDC
Race and Ethnicity"/>
      <ethnicGroupCode code="2186-5" displayName="Not Hispanic or Latino" codeSystem="2.16.840.1.113883.6.238"
codeSystemName="CDC Race and Ethnicity"/>
      <languageCommunication>
        <languageCode code="en"/>
        <!-- "en" is ISO 639-1 alpha-2 code for "English" -->
        <modeCode code="ESP" displayName="Expressed spoken" codeSystem="2.16.840.1.113883.5.60"
codeSystemName="LanguageAbilityMode"/>
        <proficiencyLevelCode code="E" displayName="Excellent" codeSystem="2.16.840.1.113883.5.61"
codeSystemName="LanguageAbilityProficiency"/>
        <preferenceInd value="true"/>
      </languageCommunication>
      <!-- Multiple languages are permitted. Only one should have a preferenceInd = true -->
      <languageCommunication>
        <languageCode code="ita"/>
        <!-- "ita" is ISO 639-2 alpha-3 code for "Italian" -->
        <modeCode code="ESP" displayName="Expressed spoken" codeSystem="2.16.840.1.113883.5.60"
codeSystemName="LanguageAbilityMode"/>
        <proficiencyLevelCode code="G" displayName="Good" codeSystem="2.16.840.1.113883.5.61"
codeSystemName="LanguageAbilityProficiency"/>
        <!-- Patient's preferred language -->
        <preferenceInd value="false"/>
      </languageCommunication>
    </patient>
  </patientRole>
</recordTarget>
```

5.4 Authors vs Performers

CDA includes structures to record the author of information, and separately, the performer of a service. It is important for implementers to avoid recording a performer as an author, if that performer was not the individual

who authored content.

A performer participant represents a clinician who actually and principally carried out a service. A performer participation indicated at one location in a document does not conduct throughout the document and must be repeated at each entry to indicate involvement. For example, the performer indicated in the serviceEvent in the CDA header is not automatically implied to be the performer in procedures or medication activities represented by the entries in the document. An author represents the human or machine that authored content. Authors listed in the header are responsible for all content in the document, while authors recorded in a section or entry are only responsible for content within that structure and override the author in the header. Section authorship applies to the full content of a section, including both the narrative block and any entries. Entry authorship applies only to the specific entry.

One example where confusion between these roles might arise for implementers is related to quality measurement use cases, which require clinical documentation to indicate who diagnosed a patient's condition and when a clinician made or re-confirmed the diagnosis. The provider who documents the diagnosis (data enterer or author) may not be the provider who makes the diagnosis (performer).

The Author Participation template (2.16.840.1.113883.10.20.22.4.119) is used to explicitly indicate an Author in a section or entry. The template provides conformance rules for representing the author and author.time elements associated with individual entries.

5.5 Custodian

Every CDA document has exactly one custodian. The custodian represents the organization who is in charge of maintaining the document.

6 CCDA Body Structure

Contains coded Entries such as Allergies, Medications, Problems, Immunizations, Social History, Vital Signs and others.

6.1 C-CDA Document Summary

Description	Description	Applicable Vocabulary Standard(s)
Continuity of Care Document (CCD)	The Continuity of Care Document (CCD) represents a core data set of the most relevant administrative, demographic, and clinical information facts about a patient's healthcare, covering one or more healthcare encounters. It provides a means for one healthcare practitioner, system, or setting to aggregate all the pertinent data about a patient and forward it to another to support the continuity of care.	
Referral Summary (Note)	A Referral Note communicates pertinent information from a provider who is requesting services of another provider of clinical or non-clinical services.	

Discharge Summary	The Discharge Summary is a document which synopsizes a patient's admission to a hospital, LTPAC provider, or other setting. It provides information for the continuation of care following discharge.	LOINC • At minimum: Discharge Summary (LOINC® code 18842-5)
Progress Note	This template represents a patient's clinical status during a hospitalization, outpatient visit, treatment with a LTPAC provider, or other healthcare encounter.	LOINC • At minimum: Progress Note (LOINC® code 11506-3)
Care Plan	A Care Plan (including Home Health Plan of Care (HHPoC)) is a consensus-driven dynamic plan that represents a patient's and Care Team Members' prioritized concerns, goals, and planned interventions. The CDA Care Plan represents an instance of this dynamic Care Plan at a point in time. The CDA document itself is NOT dynamic.	
Consultation Note	The Consultation Note is generated by a request from a clinician for an opinion or advice from another clinician.	LOINC • At minimum: Consult Note (LOINC® code 11488-4)
Diagnostics Imaging Report	A Diagnostic Imaging Report (DIR) is a document that contains a consulting specialist's interpretation of image data. It conveys the interpretation to the referring (ordering) physician and becomes part of the patient's medical record. It is for use in Radiology, Endoscopy, Cardiology, and other imaging specialties.	LOINC • At minimum: Diagnostic Imaging Study (LOINC® code 18748-4)
History and Physical Note	A History and Physical (H&P) Note is a medical report that documents the current and past conditions of the patient. It contains essential information that helps determine an individual's health status.	LOINC • At minimum: History and Physical Note (LOINC® code 34117-2)
Operative Note	The Operative Note is a frequently used type of procedure note with specific requirements set forth by regulatory agencies. The Operative Note is created immediately following a surgical or other high-risk procedure. It records the pre- and post-surgical diagnosis, pertinent events of the procedure, as well as the condition of the patient following the procedure	

Procedure Note	This template encompasses many types of non-operative procedures including interventional cardiology, gastrointestinal endoscopy, osteopathic manipulation, and many other specialty fields. Procedure Notes are differentiated from Operative Notes because they do not involve incision or excision as the primary act.	LOINC • At minimum: Procedure Note (LOINC® code 28570-0)

6.2 C-CDA Documents

While we have documented the sections that are required if available and optional, CSS will process CCDA documents regardless of which sections are provided.

6.2.1 Continuity of Care Document (CCD): Document Template

The Continuity of Care Document (CCD) represents a core data set of the most relevant administrative, demographic, and clinical information facts about a patient's healthcare, covering one or more healthcare encounters. Over 90% of the documents received by Connie are continuity of care document type. It provides a means for one healthcare practitioner, system, or setting to aggregate all of the pertinent data about a patient and forward it to another healthcare practitioner, system, or setting to support the continuity of care. The primary use case for the CCD is to provide a snapshot in time containing the germane clinical, demographic, and administrative data for a specific patient. The key characteristic of a CCD is that the contents of the document reflect the care that was actually provided within the time range indicated in serviceEvent.effectiveTime range. It reports on care that has already been provided.

Document Type	Required if Available Sections
Continuity of Care Document (CCD)	Allergies and Intolerances Section (entries required) (V3) Medications Section (entries required) (V2) Problem Section (entries required) (V3) Results Section (entries required) (V3) Social History Section (V3) Vital Signs Section (entries required) (V3) Procedures Section (entries required) (V2) Encounters Section (entries optional) (V3) Family History Section (V3) Functional Status Section (V2) Immunizations Section (V3) Medical Equipment Section (V2) Payers Section (V3) Plan of Treatment Section (V2) Mental Status Section (V2) Nutrition Section Advance Directives Section (entries optional) (V3) Health Concerns Section (V2)

6.2.2 Referral Summary: Document Template

A Referral Note communicates pertinent information from a provider who is requesting services of another provider of clinical or non-clinical services which includes the reason for the referral and additional information that would augment decision making and care delivery. Examples of referral situations include when a patient is:

- Referred from a family physician to a cardiologist for cardiac evaluation.
- Sent by a cardiologist to an emergency department for angina.
- Referred by a nurse practitioner to an audiologist for hearing screening.
- Referred by a hospitalist to social services.

Document Type	Required if Available Sections
Referral Summary	Problem Section (entries required) (V3) Allergies and Intolerances Section (entries required) (V3) Medications Section (entries required) (V2) Reason for Referral Section (V2) Plan of Treatment (V2) History of Present Illness Section Family History Section (V3) Immunizations Section (entries required) (V3) Procedures Section (entries optional) (V2) Results Section (entries required) (V3) Review of Systems Section Social History Section (V3) Vital Signs Section (entries required) (V3) Functional Status Section (V2) Physical Exam Section (V3) Nutrition Section Mental Status Section (V2) Medical Equipment Section (V2) Assessment Section Assessment and Plan Section (V2) Past Medical History (V3) General Status Section Advance Directives Section Health Concerns Section (V2)

6.2.3 Discharge Summary: Document Template

The Discharge Summary is a document which synopsizes a patient's admission to a hospital, LTPAC provider, or other setting. It provides information for the continuation of care following discharge. The Joint Commission76 requires the following information to be included in the Discharge Summary:

- Reason for hospitalization (the admission)
- Procedures performed, as applicable
- Care, treatment, and services provided

- Patient's condition and disposition at discharge
- Information provided to the patient and family
- Provisions for follow-up care

The best practice for a Discharge Summary is to include the discharge disposition in the display of the header.

Document Type	Required if Available Sections
Discharge Summary	Allergies and Intolerances Section (entries optional) (V3) Hospital Course Section Discharge Diagnosis Section (V3) Plan of Treatment Section (V2) Discharge Medications Section (V3) Chief Complaint Section Chief Complaint and Reason for Visit Section Nutrition Section Family History Section (V3) Functional Status Section (V2) Past Medical History (V3) History of Present Illness Section Admission Diagnosis Section (V3) Admission Medications Section Hospital Consultations Section Hospital Discharge Instructions Section Hospital Discharge Studies Summary Section Immunizations Section (V3) Procedures Section (V2) Reason for Visit Section Review of Systems Section Social History Section (V3) Vital Signs Section (V3) Discharge Medications Section(V3) Health Concerns Section (V2)

6.2.4 Progress Note: Document Template

The Progress Note represents a patient's clinical status during a hospitalization, outpatient visit, treatment with a LTPAC provider, or other healthcare encounter. Taber's medical dictionary defines a Progress Note as "An ongoing record of a patient's illness and treatment. Physicians, nurses, consultants, and therapists record their notes concerning the progress or lack of progress made by the patient between the time of the previous note and the most recent note."77 Mosby's medical dictionary defines a Progress Note as "Notes made by a nurse, physician, social worker, physical therapist, and other health care professionals that describe the patient's condition and the treatment given or planned."78 A Progress Note is not a re-evaluation note. A Progress Note is not intended to be a Progress Report for Medicare. Medicare B Section 1833(e) defines the requirements of a Medicare Progress Report.

Document Type	Required if Available Sections

Progress Note	Assessment Section Plan of Treatment Section (V2) Assessment and Plan Section (V2) Allergies and Intolerances Section (V3) Chief Complaint Section Interventions Section (V3) Instructions Section (V2) Medications Section (V2) Objective Section Physical Exam Section (V3) Problem Section (V3) Results Section (V3) Review of Systems Section Subjective Section Vital Signs Section (V3) Nutrition Section

6.2.5 Care Plan: Document Template

A Care Plan (including Home Health Plan of Care (HHPoC)) is a consensus-driven dynamic plan that represents a patient's and Care Team Members' prioritized concerns, goals, and planned interventions. It serves as a blueprint shared by all Care Team Members (including the patient, their caregivers and providers), to guide the patient's care. A Care Plan integrates multiple interventions proposed by multiple providers and disciplines for multiple conditions.

A Care Plan represents one or more Plan(s) of Care and serves to reconcile and resolve conflicts between the various Plans of Care developed for a specific patient by different providers. While both a plan of care and a care plan include the patient's life goals and require Care Team Members (including patients) to prioritize goals and interventions, the reconciliation process becomes more complex as the number of plans of care increases. The Care Plan also serves to enable longitudinal coordination of care.

The CDA Care Plan represents an instance of this dynamic Care Plan at a point in time. The CDA document itself is NOT dynamic.

This document template enables Care Plan information to be shared in a way that includes:

- The ability to identify patient and provider priorities with each act.
- A header participant to indicate occurrences of Care Plan review.

Document Type	Required if Available Sections
Care Plan	Health Concerns Section (V2) Goals Section Interventions Section (V3) Health Status Evaluations and Outcomes Section

6.2.6 Consultation Note: Document Template

The Consultation Note is generated by a request from a clinician for an opinion or advice from another clinician. Consultations may involve face-to-face time with the patient or may fall under the auspices of telemedicine visits. Consultations may occur while the patient is inpatient or ambulatory. The Consultation Note should also be used to summarize an Emergency Room or Urgent Care encounter. A Consultation Note includes the reason for the referral, history of present illness, physical examination, and decision-making components (Assessment and Plan).

Document Type	Required if Available Sections
Consultation Note	History of Present Illness Section Allergies and Intolerances Section (V3) Problem Section (V3) Assessment Section Assessment and Plan Section (V2) Plan of Treatment Section (V2) Reason for Visit Section Physical Exam Section (V3) Chief Complaint Section Chief Complaint and Reason for Visit Section Family History Section (V3) General Status Section Past Medical History (V3) Immunizations Section (V3) Medications Section (V2) Procedures Section (V2) Results Section (V3) Social History Section (V3) Vital Signs Section (V3) Functional Status Section (V2) Review of Systems Section Medical Equipment Section

6.2.7 Diagnostic Imaging Report: Document Template

A Diagnostic Imaging Report (DIR) is a document that contains a consulting specialist's interpretation of image data. It conveys the interpretation to the referring (ordering) physician and becomes part of the patient's medical record. It is for use in Radiology, Endoscopy, Cardiology, and other imaging specialties.

Document Type	Required if Available Sections	Optional Sections
Diagnostics Imaging Report	Finding Sections (DIR)	DICOM Object Catalog Section – DCM 121181

6.2.8 History and Physical Note: Document Template

The Operative Note is a frequently used type of procedure note with specific requirements set forth by regulatory agencies. The Operative Note is created immediately following a surgical or other high-risk procedure. It records the pre- and post-surgical diagnosis, pertinent events of the procedure, as well as the condition of the patient

following the procedure. The report should be sufficiently detailed to support the diagnoses, justify the treatment, document the course of the procedure, and provide continuity of care.

Document Type	Required if Available Sections
Operative Note	Complications Section (V3) Procedure Description Section Procedure Indications Section (V2) Postprocedure Diagnosis Section (V3) Assessment Section Assessment and Plan Section (V2) Plan of Treatment Section (V2) Allergies and Intolerances Section (V3) Anesthesia Section (V2) Chief Complaint Section Chief Complaint and Reason for Visit Section Family History Section (V3) Past Medical History (V3) History of Present Illness Section Medical (General) History Section Medications Section (V2) Medications Administered Section (V2) Physical Exam Section (V3) Planned Procedure Section (V2) Procedure Disposition Section Procedure Estimated Blood Loss Section Procedure Findings Section (V3) Procedure Implants Section Procedure Specimens Taken Section Procedures Section (V2) Reason for Visit Section Review of Systems Section Social History Section (V3)

6.2.9 Operative Note: Document Template

The Operative Note is a frequently used type of procedure note with specific requirements set forth by regulatory agencies. The Operative Note is created immediately following a surgical or other high-risk procedure. It records the pre- and post-surgical diagnosis, pertinent events of the procedure, as well as the condition of the patient following the procedure. The report should be sufficiently detailed to support the diagnoses, justify the treatment, document the course of the procedure, and provide continuity of care.

Document Type	Required if Available Sections
Operative Note	Complications Section (V3) Procedure Description Section Procedure Indications Section (V2)

	Postprocedure Diagnosis Section (V3) Assessment and Plan Section (V2) Plan of Treatment Section (V2) Allergies and Intolerances Section (V3) Anesthesia Section (V2) Chief Complaint Section Chief Complaint and Reason for Visit Section Family History Section (V3) Past Medical History (V3) History of Present Illness Section Medical (General) History Section Medications Section (V2) Medications Administered Section (V2) Physical Exam Section (V3) Planned Procedure Section (V2) Procedure Disposition Section Procedure Estimated Blood Loss Section Procedure Findings Section (V3) Procedure Implants Section Procedure Specimens Taken Section Procedures Section (V2) Reason for Visit Section Review of Systems Section Social History Section (V3)

6.2.10 Procedure Note: Document Template

A Procedure Note encompasses many types of non-operative procedures including interventional cardiology, gastrointestinal endoscopy, osteopathic manipulation, and many other specialty fields. Procedure Notes are differentiated from Operative Notes because they do not involve incision or excision as the primary act. The Procedure Note is created immediately following a non-operative procedure. It records the indications for the procedure and, when applicable, post-procedure diagnosis, pertinent events of the procedure, and the patient's tolerance for the procedure. It should be detailed enough to justify the procedure, describe the course of the procedure, and provide continuity of care.

Document Type	Required if Available Sections
Procedure Note	Complications Section (V3) Procedure Description Section Procedure Indications Section (V2) Postprocedure Diagnosis Section (V3) Assessment Section Assessment and Plan Section (V2) Plan of Treatment Section (V2) Allergies and Intolerances Section (V3) Anesthesia Section (V2)

	Chief Complaint Section Chief Complaint and Reason for Visit Section Family History Section (V3) Past Medical History (V3) History of Present Illness Section Medical (General) History Section Medications Section (V2) Medications Administered Section (V2) Physical Exam Section (V3) Planned Procedure Section (V2) Procedure Disposition Section Procedure Estimated Blood Loss Section Procedure Findings Section (V3) Procedure Implants Section Procedure Specimens Taken Section Procedures Section (V2) Reason for Visit Section Review of Systems Section Social History Section (V3)

Encounter Summary Documents	Patient Summary Documents	Other Categories Generated Documents
Consultation Note History and Physical Note		Care Plan Patient Generated Document

6.3 C-CDA Sections

Sample code for each section can be found at https://cdasearch.hl7.org/ for reference.

6.3.1 Allergies and Intolerances Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.2.6.1		
		templateid	root="2.16.840.1.113883.10.20.22.2.6.1"
		code	code="48765-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. ALLERGIES AND ADVERSE REACTIONS
		text	i.e. No Known Allergies
		allergyConcern	typeCode="DRIV" classCode = “ACT”

			moodCode = “EVN” contextConductionInd act

6.3.1.1 Allergies and Intolerances Example

```
<section>
   <!-- *** Allergies and Intolerances Section (entries required) (V3) *** -->
   <templateId root="2.16.840.1.113883.10.20.22.2.6.1"/>
  <code code="48765-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
   <title>ALLERGIES AND ADVERSE REACTIONS</title>
   <text ID="allergiesNoKnown">No Known Allergies</text>
   <entry typeCode="DRIV">
      <!-- Allergy Concern Act -->
      <act classCode="ACT" moodCode="EVN">
         <templateId root="2.16.840.1.113883.10.20.22.4.30"/>
         <templateId root="2.16.840.1.113883.10.20.22.4.30"/>
         <id root="36e3e930-7b14-11db-9fe1-0800200c9a66"/>
         <!-- SDWG supports 48765-2 or CONC in the code element -->
         <code code="CONC" codeSystem="2.16.840.1.113883.5.6"/>
         <text>
            <reference value="#allergiesNoKnown"/>
         </text>
         <statusCode code="active"/>
         <!--currently tracked concerns are active concerns-->
         <effectiveTime>
            <low value="20100103"/>
            <!--show time when the concern first began being tracked-->
         </effectiveTime>
         <author>
            <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
            <time value="20100103"/>
            <assignedAuthor>
               <id extension="99999999" root="2.16.840.1.113883.4.6"/>
               <code code="207Q00000X" codeSystem="2.16.840.1.113883.6.101"
                  codeSystemName="Health Care Provider Taxonomy" displayName="Allopathic &amp;amp; Osteopathic Physicians;
Family Medicine"/>
               <telecom use="WP" value="tel:555-555-1002"/>
               <assignedPerson>
                  <name>
                     <given>Henry</given>
                     <family>Seven</family>
                  </name>
               </assignedPerson>
            </assignedAuthor>
         </author>
         <entryRelationship typeCode="SUBJ">
            <!-- No Known Allergies -->
            <!-- The negationInd = true negates the observation/value -->
            <!-- The use of negationInd corresponds with the newer Observation.valueNegationInd -->
            <observation classCode="OBS" moodCode="EVN" negationInd="true">
```

```
            <!-- allergy - intolerance observation template -->
            <templateId root="2.16.840.1.113883.10.20.22.4.7"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.7">
            <id root="4adc1020-7b14-11db-9fe1-0800200c9a66"/>
            <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"/>
            <text>
              <reference value="#allergiesNoKnown"/>
            </text>
            <statusCode code="completed"/>

            <!-- The time when this was biologically relevant ie True for the patient. -->
            <!-- For "no known allergies," this will typically be null unless information
                 is available about how long the patient has been allergy-free for. -->
            <!-- As a maximum, you would never indicate an effectiveTime/high that was greater than the current point in
time. -->
            <effectiveTime>
              <low nullFlavor="NI" />
            </effectiveTime>

            <value xsi:type="CD" code="419199007"
              displayName="Allergy to substance (disorder)"
              codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"/>
            <author>
              <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
              <time value="201001030908-0500"/>
              <assignedAuthor>
                <id extension="99999999" root="2.16.840.1.113883.4.6"/>
                <code code="207Q00000X" codeSystem="2.16.840.1.113883.6.101"
                  codeSystemName="Health Care Provider Taxonomy"
                  displayName="Allopathic &amp;amp; Osteopathic Physicians; Family Medicine"/>
                <telecom use="WP" value="tel:555-555-1002"/>
                <assignedPerson>
                  <name>
                    <given>Henry</given>
                    <family>Seven</family>
                  </name>
                </assignedPerson>
              </assignedAuthor>
            </author>
            <!-- In C-CDA R2.1 the participant is required. -->
            <participant typeCode="CSM">
              <participantRole classCode="MANU">
                <playingEntity classCode="MMAT">
                  <code nullFlavor="NA"/>
                </playingEntity>
              </participantRole>
            </participant>
          </observation>
        </entryRelationship>
      </act>
    </entry>
```

</section>

6.3.2 Medication Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.1.1		
		templateid	root="2.16.840.1.113883.10.20.22.2.1.1"
		code	code="10160-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. MEDICATIONS
		text	i.e. Narrative text of medications
		medicationActivity	Identifier = “2.16.840.1.113883.10.20.22.4.16“

6.3.2.1 Example of medication section

```
<section>
 <!--**MEDICATION SECTION (coded entries required) ** -->
 <templateId root="2.16.840.1.113883.10.20.22.2.1.1"/>
 <!-- Medications Section (entries optional) -->
 <templateId root="2.16.840.1.113883.10.20.22.2.1" />
 <code code="10160-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="HISTORY OF
MEDICATION USE" />
 <title>MEDICATIONS</title>
 <text>
     Narrative Text
  </text>
 <entry>
  <substanceAdministration classCode="SBADM" moodCode="EVN">
   <!--**MEDICATION ACTIVITY V2 ** -->
   <templateId root="2.16.840.1.113883.10.20.22.4.16"/>
       ....

  </substanceAdministration>
 </entry>
</section>
```

6.3.2.2 Example of medication to be taken at bedtime.

```
<section>
  <templateId root="2.16.840.1.113883.10.20.22.2.1.1"/>
  <!-- Medication Section (entries required) -->
  <code code="10160-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="History of
Medication Use"/>
  <title>MEDICATIONS</title>
  <text>
    <table border="1" width="100%">
      <thead>
```

```
            <tr>
              <th>Medication</th>
              <th>Instructions</th>
              <th>Dosage</th>
              <th>Effective Dates (start - stop)</th>
              <th>Status</th>
            </tr>
          </thead>
          <tbody>
            <tr ID="Medication_6">
              <td>
                <content ID="MedicationName_6">3 ML Insulin Glargine 100 UNT/ML Pen Injector [Lantus]</content>
              </td>
              <td>
                <content ID="MedicationSig_6">Administer 40 units at bedtime</content>
              </td>
              <td>
                <content>40 units</content>
              </td>
              <td>Jan-09-2009 - </td>
              <td>Active</td>
            </tr>
          </tbody>
        </table>
      </text>
      <entry typeCode="DRIV">
        <substanceAdministration classCode="SBADM" moodCode="EVN">
          <templateId root="2.16.840.1.113883.10.20.22.4.16"/>
          <id root="1310a2d3-f888-4722-b4c4-a3c5911ac7f9"/>
          <text>
            <!-- This reference refers to medication information in unstructured portion of section-->
            <reference value="#Medication_6"/>
          </text>
          <statusCode code="active"/>
          <!-- This first effectiveTime shows that medication was added on January 9, 2009 (not known to have stopped)-->
          <effectiveTime xsi:type="IVL_TS">
            <low value="20090109"/>
            <high nullFlavor="NI"/>
          </effectiveTime>
          <!-- The second effectiveTime specifies dose frequency, which can be either a period (PIVL_TS) or event (EIVL_TS). -->
          <!-- This long-lasting insulin is administered once per day before bedtime (code = "HS", hour of sleep), which is an
event-->
          <effectiveTime xsi:type="EIVL_TS" operator="A">
            <event code="HS"/>
          </effectiveTime>
          <!-- This route uses the NCI (National Cancer Institute) Thesauraus code system, which is constrained to the value set of
2.16.840.1.113883.3.88.12.3221.8.7 (FDA Medication Route) -->
          <routeCode code="C38299" codeSystem="2.16.840.1.113883.3.26.1.1" displayName="Subcutaneous Route of
Administration" codeSystemName="NCI Thesaurus"/>
          <!-- Since this dose is not pre-coordinated, specify both the amount with units in UCUM. [IU] is international units -->
          <!-- Note that this basal insulin is not administered on a sliding scale and a specific dose is administered-->
```

```
        <doseQuantity value="40" unit="[IU]"/>
        <consumable typeCode="CSM">
          <manufacturedProduct classCode="MANU">
            <!-- ** Medication information ** -->
            <templateId root="2.16.840.1.113883.10.20.22.4.23"/>
            <manufacturedMaterial>
              <!-- Medications should be specified at a level corresponding to prescription when possible (branded medication
below)-->
              <!-- Note the medication code specified in the test data is 261551, but that is not used since it's not an
administered product (just brand name)-->
              <code code="847232" codeSystem="2.16.840.1.113883.6.88" displayName="3 ML insulin glargine 100 UNT/ML
Pen Injector [Lantus]" codeSystemName="RxNorm">
                <originalText>
                  <reference value="#MedicationName_6"/>
                </originalText>
              </code>
            </manufacturedMaterial>
            <manufacturerOrganization>
              <name>SANOFI-AVENTIS</name>
            </manufacturerOrganization>
          </manufacturedProduct>
        </consumable>
        <entryRelationship typeCode="COMP">
          <substanceAdministration classCode="SBADM" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.147"/>
            <code code="76662-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Medication Instructions"/>
            <text>
              <!-- Reference into the section.text to a tag that ONLY contains free text SIG -->
              <reference value="#MedicationSig_6"/>
            </text>
            <consumable>
              <manufacturedProduct>
                <manufacturedLabeledDrug nullFlavor="NA"/>
              </manufacturedProduct>
            </consumable>
          </substanceAdministration>
        </entryRelationship>
      </substanceAdministration>
    </entry>
</section>
```

6.3.3 Problems Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.5		
		templateid	root="2.16.840.1.113883.10.20.22.2.5.1"
		code	code="11450-4"

			codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. MEDICATIONS
		text	i.e. Narrative text of medications
		Problem Concern Act	Identifier = “2.16.840.1.113883.10.20.22.4.3”
		Health Status Observation	Identifier = “2.16.840.1.113883.10.20.22.4.5”

6.3.3.1 Example of Known Problem

```
<section>
   <templateId root="2.16.840.1.113883.10.20.22.2.5.1"/>
   <templateId root="2.16.840.1.113883.10.20.22.2.5.1" />
   <code code="11450-4" codeSystem="2.16.840.1.113883.6.1" displayName="Problem List"/>
   <title>Problem List</title>
  <text>
     <table>
        <thead>
           <tr>
              <th>Name</th>
              <th>Dates</th>
              <th>Status</th>
           </tr>
        </thead>
        <tbody>
                    <tr ID="Problem1"
                          <td>Community Acquired Pneumonia</td>
                          <td>Onset: February 27 2014</td>
                          <td>Active</td>
                    </tr>
                 </tbody>
              </table>
           </text>
    <entry>
        <act classCode="ACT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.22.4.3" />
        <templateId root="2.16.840.1.113883.10.20.22.4.3"/>
          <id root="102ca2e9-884c-4523-a2b4-1b6c3469c397"/>
  <code code="CONC" codeSystem="2.16.840.1.113883.5.6"/>
     <!-- Since this is an active problem, the concern status is active. -->
     <!-- While clinicians can track resolved problems, generally active problems will have active concern status and resolved
concerns will be completed -->
  <statusCode code="active"/>
     <effectiveTime>
     <!-- This equates to the time the concern was authored in the patient's chart. This may frequently be an EHR timestamp--
>
        <low value="20140302124536-0500"/>
     </effectiveTime>
     <entryRelationship typeCode="SUBJ">
     <observation classCode="OBS" moodCode="EVN">
```

```
        <templateId root="2.16.840.1.113883.10.20.22.4.4" />
        <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
        <id extension="10241104348" root="1.3.6.1.4.1.22812.4.111.0.4.1.2.1"/>
        <code code="55607006" displayName="Problem" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT">
        <translation code="75326-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Problem"/>
        </code>
        <text>
           <reference value="#Problem1"/>
        </text>
                    <statusCode code="completed"/>
                    <effectiveTime>  <!-- This represents the date of biological onset. -->
                       <low value="20140227"/>
                    </effectiveTime>
                    <!-- This is a SNOMED code as the primary vocabulary for problem lists-->
                    <value xsi:type="CD" code="385093006" codeSystem="2.16.840.1.113883.6.96"
                    codeSystemName="SNOMED CT" displayName="Community acquired pneumonia"/>
                    <author>
                    <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
                    <time value="20140302124536"/>
                          <assignedAuthor>
                        <id extension="66666" root="2.16.840.1.113883.4.6"/>
                        <code code="207RC0000X" codeSystem="2.16.840.1.113883.6.101"
                        codeSystemName="NUCC" displayName="Allopathic &amp;amp; Osteopathic Physicians; Internal Medicine,
                    Cardiovascular Disease"/>
                        <addr>
                        <streetAddressLine>6666 StreetName St.</streetAddressLine>
                        <city>Silver Spring</city>
                        <state>MD</state>
                        <postalCode>20901</postalCode>
                        <country>US</country>
                        </addr>
                        <telecom value="tel:+1(301)666-6666" use="WP"/>
                        <assignedPerson>

                                  <name>
                                <given>Heartly</given>
                                <family>Sixer</family>
                                <suffix>MD</suffix>
                             </name>
                             </assignedPerson>
                             </assignedAuthor>
                             </author>
                             </observation>
                             </entryRelationship>
                                   </act>
                             </entry>
                           </section>
```

6.3.4 Social History Section

6.3.4.1 Social History Pregnancy example

```
<section>
   <templateId root="2.16.840.1.113883.10.20.22.2.18" />
   <templateId root="2.16.840.1.113883.10.20.22.2.18" extension="2015-08-01" />
   <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payers" />
   <title>Insurance Providers</title>
   <text>
      <paragraph>Insurance information for Linsey Nelson via Mark Nelson's Insurance</paragraph>
      (more narrative to follow; focusing on the entries for now)
   </text>
   <entry typeCode="DRIV">
      <!--  ****  Coverage entry template  **** -->
      <act classCode="ACT" moodCode="DEF">
         <templateId root="2.16.840.1.113883.10.20.22.4.60" />
         <!-- Unique ID for the coverage, not the member, group or policy ID -->
         <id root="1fe2cdd0-7aad-11db-9fe1-0800200c9a66" />
         <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payment
sources" />
         <statusCode code="completed" />
         <entryRelationship typeCode="COMP">
            <!-- Indicates the first policy in Linsey's coverage -->
            <sequenceNumber value="1" />
            <!-- Policy Activity -->
            <act classCode="ACT" moodCode="EVN">
               <templateId root="2.16.840.1.113883.10.20.22.4.61" />
               <!-- Policy/Program ID (aka group #)
                    root should be unique Identifier for health plan, in this case, UnitedHealthCare-->
               <id root="1.3.6.1.4.1.3443" extension="9R9073" />
               <!-- Insurance Type root code from C-CDA 1.1 value set, translation from C-CDA 2.1 value set -->
               <code code="GP" codeSystem="2.16.840.1.113883.3.88.12.3221.5.2" codeSystemName="Insurance Type
Code" displayName="Group Policy">
                  <translation code="72" codeSystem="2.16.840.1.113883.3.221.5" codeSystemName="Source of Payment
Typology (PHDSC)" displayName="PPO" />
               </code>
               <statusCode code="completed"/>
               <!-- Payer (SHALL) - identified by typeCode=PRF and assignedEntity/code NOT = GUAR -->
               <performer typeCode="PRF">
                  <templateId root="2.16.840.1.113883.10.20.22.4.87" />
                  <!-- Dates of coverage (could be here or under covered party)-->
                  <time>
                     <low value="20141125" />
                     <high nullFlavor="UNK" />
                  </time>
```

```
    <assignedEntity>
      <!-- ID for the payer - OID is UnitedHealthcare, extension is policty #  -->
      <id root="1.3.6.1.4.1.3443" extension="87726" />
      <code code="PAYOR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7 RoleCode" />
      <addr use="WP">
        <streetAddressLine>PO Box 30555</streetAddressLine>
        <city>Salt Lake City</city>
        <state>UT</state>
        <postalCode>84130-0567</postalCode>
        <country>US</country>
      </addr>
      <telecom value="tel:+(577)574-3210" use="WP" />
      <representedOrganization>
        <!-- Payor's Name -->
        <name>UnitedHealthcare</name>
        <!-- the payor is the entity and the organization. Need not repeat telecom/addr here, but could. -->
      </representedOrganization>
    </assignedEntity>
  </performer>
  <!-- Guarantor (SHOULD) - identified by typeCode=PRF and assignedEntity/code=GUAR -->
  <performer typeCode="PRF">
    <templateId root="2.16.840.1.113883.10.20.22.4.88" />
    <!-- SHOULD contain effectiveTime; indicates when this guarantor is responsible for payment -->
    <time>
      <low nullFlavor="UNK" />
      <high nullFlavor="UNK" />
    </time>
    <assignedEntity>
      <!-- ID for the guarantor; would match recordTarget/id if guarantor is patient -->
      <id root="1.2.3.4.5" extension="Id4Mark"/>
      <code code="GUAR" codeSystem="2.16.840.1.113883.5.111" codeSystemName="HL7 RoleCode" />
      <!-- Guarantor's address/phone, if known
      <addr use="HP">
      </addr>
      <telecom value="tel:+(781)555-1212" use="HP" /> -->
      <assignedPerson>
        <name>
          <given>Mark</given>
          <given>A</given>
          <family>Nelson</family>
        </name>
      </assignedPerson>
    </assignedEntity>
  </performer>
  <!-- Covered Party (SHALL), identified by typecode=COV -->
  <participant typeCode="COV">
    <templateId root="2.16.840.1.113883.10.20.22.4.89.2" />
```

```
            <!-- Dates of coverage (see also payor dates, but as coverage, makes more sense here)-->
            <time>
              <low value="20141125" />
              <high nullFlavor="UNK" />
            </time>
            <participantRole classCode="PAT">
              <!-- Health plan ID for patient.
                   root should be OID or GUID identifying this plan's membership IDs -->
              <id root="1.3.6.1.4.1.3443" extension="944283475-04" />
              <!-- Type of coverage. In this case, Linsey is a family member -->
              <code code="FAMDEP" codeSystem="2.16.840.1.113883.5.111" displayName="Family Dependent"/>
              <!-- Covered party's addr/telecom, if known
              <addr use="HP">
              </addr> -->
              <playingEntity>
                <name>
                  <given>Linsey</given>
                  <family>Nelson</family>
                </name>
              </playingEntity>
              <!-- Birth time of covered party, required  -->
              <sdtc:birthTime nullFlavor="UNK" xmlns:sdtc="urn:hl7-org:sdtc"/>
            </participantRole>
          </participant>
          <!-- Subscriber (Policy Holder) SHOULD be present, but SHALL NOT be present if the subscriber is the patient
(e.g. the Covered Party)
               Identified by typeCode=HLD (policy holder)-->
          <participant typeCode="HLD">
            <templateId root="2.16.840.1.113883.10.20.22.4.90.2" />
            <participantRole>
              <!-- Health plan ID for policy holder
                   root should be OID or GUID identifying this plan's membership IDs -->
              <id root="1.3.6.1.4.1.3443" extension="944283475-01" />
              <!-- Policy holder's addr/telecom, if known
              <addr use="HP">
              </addr> -->
            </participantRole>
          </participant>
          <!-- Describes the Health Plan (SHALL) (could also be an authorization activity describing an individual
authorization) -->
          <entryRelationship typeCode="REFR">
            <act classCode="ACT" moodCode="DEF">
              <templateId root="2.16.840.1.113883.10.20.1.19" />
              <!-- Plan ID -->
              <id root="1.3.6.1.4.1.3443" extension="911-87726-04" />
              <!-- Plan type;  -->
              <code code="72" codeSystem="2.16.840.1.113883.3.221.5" codeSystemName="Source of Payment
```

```
Typology (PHDSC)" displayName="PPO" />
                <!-- alternate code that could be used
                <code code="EHCPOL" codeSystem='2.16.840.1.113883.5.4' codeSystemName='ActCode'
displayName="Extended Healthcare" /> -->
                <text>UnitedHealthcare Choice</text>
              </act>
            </entryRelationship>
          </act>
        </entryRelationship>
        <entryRelationship>
          <!-- Indicates the 2nd policy in Linsey's coverage -->
          <sequenceNumber value="2" />
          <act>
            <!-- Very similar (verbose) structure. Changes would be:
              id/@root attributes would correspond to Cigna (or Cypress...)
              act/id/@extension would be S63 for the group number
              performer/../addr & telecom would be updated for Cigna
              performer/../id/@extension would be 62308 for the Payer (entire guarantor performer would be identical)
              participant/../id/@extionsion would be based on S63000087 for Mark and Linsey
            -->
          </act>
        </entryRelationship>
      </act>
    </entry>
</section>
```

6.3.5 Vital Signs Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.4.1		
		templateid	root="2.16.840.1.113883.10.20.22.2.4.1"
		code	code="8716-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. VITAL SIGNS
		text	Narrative text of the vital signs Encounter, Performer, Location, Encounter date, Diagnosis, Diagnosis Status i.e. Office outpatient visit Dr. Samir Kahn Internal Medicine Community Urgent Care (Urgent Care Center) 1004 Healthcare Dr. Portland, OR 97005

			August 15, 2012 Costal Chondritis Active
		Vital Signs Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.26“

6.3.5.1 Vital Signs Section (entries required) Example xml

```
<component>
 <section>
  <!-- ** Vital Signs section with entries required ** -->
  <templateId root="2.16.840.1.113883.10.20.22.2.4.1"/>
  <code code="8716-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Vital signs" />
  <title>VITAL SIGNS</title>
  <text>
     . . .
    </text>
  <entry typeCode="DRIV">
   <organizer classCode="CLUSTER" moodCode="EVN">
    <!-- ** Vital signs organizer ** -->
    <templateId root="2.16.840.1.113883.10.20.22.4.26"  />
          . . .

   </organizer>
  </entry>
 </section>
</component>
```

6.3.5.2 Panel of Vital Signs

```
<section>
      <templateId root="2.16.840.1.113883.10.20.22.2.4.1"/>
      <code code="8716-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"  displayName="Vital signs"/>
      <title>Vital Signs (Last Filed)</title>
      <text>
          <table>
            <thead>
              <tr>
                 <th>Date</th>
                 <th>Blood Pressure</th>
                 <th>Pulse</th>
                 <th>Temperature</th>
                 <th>Respiratory Rate</th>
                 <th>Height</th>
                 <th>Weight</th>
                 <th>BMI</th>
                 <th>SpO2</th>
              </tr>
            </thead>
            <tbody>
```

```
                <tr>
                  <td>05/20/2014 7:36pm</td>
                  <!-- You can consolidate Systolic and Diastolic in human view if desired but should retain separate references-->
                  <td><content ID="SystolicBP_2">120</content>/<content ID="DiastolicBP_2">80</content>mm[Hg] </td>
                  <td ID="Pulse_2">80 /min</td>
                  <td ID="Temp_2">99.0 F</td>
                  <td ID="RespRate_2">18 /min</td>
                  <td ID="Height_2">5'7 (67 inches)</td>
                  <td ID="Weight_2">239.9 lbs</td>
                  <td ID="BMI_2">37.58 kg/m2</td>
                  <td ID="SPO2_2">98%</td>
                </tr>
              </tbody>
            </table>
        </text>
        <entry typeCode="DRIV">
            <!-- When a set of vital signs are recorded together, include them in single clustered organizer-->
            <organizer classCode="CLUSTER" moodCode="EVN">
                <templateId root="2.16.840.1.113883.10.20.22.4.26" />
                <id root="e421f5c8-29c2-4798-9cb5-7988c236e49d"/>
                <code code="46680005" displayName="Vital Signs" codeSystem="2.16.840.1.113883.6.96"
                    codeSystemName="SNOMED CT">
                    <translation code="74728-7"
                        displayName="Vital signs, weight, height, head circumference, oximetry, BMI, and BSA panel "
                        codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
                </code>
                <statusCode code="completed"/>
                <effectiveTime value="20140520193605-0500"/>
                <!-- Each vital sign should be its own component. Note that systolic and diastolic BP must be separate
components-->
                <component>
                    <observation classCode="OBS" moodCode="EVN">
                        <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
                        <templateId root="2.16.840.1.113883.10.20.22.4.27">
                        <id root="2721acc5-0d05-4402-9e62-79943ea3901c"/>
                        <code code="8480-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                            displayName="Systolic blood pressure"/>
                        <text>
                            <!-- This reference identifies content in human readable formatted text-->
                            <reference value="#SystolicBP_2"/>
                        </text>
                        <statusCode code="completed"/>
                        <effectiveTime value="20140520193605-0500"/>
                        <!-- Example of Value with UCUM unit. Note that mixed metric and imperial units used in this example-
->
                        <value xsi:type="PQ" value="120" unit="mm[Hg]"/>
                        <!-- Additional information of interpretation and/or reference range may be included but are optional--
>
                    </observation>
                </component>
                <component>
```

```
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="88a01c83-a096-4705-a992-b5f59eca8c8c"/>
            <code code="8462-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Diastolic blood pressure"/>
            <text>
                <reference value="#DiastolicBP_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <value xsi:type="PQ" value="80" unit="mm[Hg]"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="83bbffe1-54e5-4984-a32d-ad8f8d6896d8"/>
            <code code="8867-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Heart rate"/>
            <text>
                <reference value="#Pulse_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <value xsi:type="PQ" value="80" unit="/min"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="85f5784f-2958-4321-b7b6-3030d1577dc0"/>
            <code code="8310-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Body temperature"/>
            <text>
                <reference value="#Temp_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <!-- Note the UCUM conformant way to specify degrees Farenheit-->
            <value xsi:type="PQ" value="99.0" unit="[degF]"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="b618fa98-6596-4e19-a9e7-6bdb48012fc8"/>
            <code code="9279-1" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
```

```
                displayName="Respiratory rate"/>
            <text>
                <reference value="#RespRate_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <value xsi:type="PQ" value="18" unit="/min"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="1b1274a9-b45f-449a-8493-08eaeaeba7d6"/>
            <code code="8302-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Body height"/>
            <text>
                <reference value="#Height_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <!-- Note the UCUM conformant way to specify inches-->
            <value xsi:type="PQ" value="67" unit="[in_us]"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="1c1f89f1-8e93-4a46-b37f-9434f99727b8"/>
            <code code="29463-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Body weight"/>
            <text>
                <reference value="#Weight_2"/>
            </text>
            <statusCode code="completed"/>
            <effectiveTime value="20140520193605-0500"/>
            <!-- Note the UCUM conformant way to specify pounds-->
            <value xsi:type="PQ" value="239.9" unit="[lb_av]"/>
        </observation>
    </component>
    <component>
        <observation classCode="OBS" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
            <id root="fd4ccd0b-c045-4587-8976-a17e2e064a1e"/>
            <code code="39156-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                displayName="Body mass index (BMI) [Ratio]"/>
            <text>
                <reference value="#BMI_2"/>
            </text>
```

```
                    <statusCode code="completed"/>
                    <effectiveTime value="20140520193605-0500"/>
                    <value xsi:type="PQ" value="37.58" unit="kg/m2"/>
                </observation>
            </component>
            <component>
                <observation classCode="OBS" moodCode="EVN">
                    <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
                    <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
                    <id root="0ef4afda-1638-4ad2-9978-7321bbceb0cb"/>
                    <code code="2710-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                        displayName="OXYGEN SATURATION"/>
                    <text>
                        <reference value="#SPO2_2"/>
                    </text>
                    <statusCode code="completed"/>
                    <effectiveTime value="20140520193605-0500"/>
                    <value xsi:type="PQ" value="98" unit="%"/>
                    </observation>
            </component>
        </organizer>
    </entry>
</section>
```

6.3.6 Encounters Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.22.1:2015-08-01		
		templateid	root="2.16.840.1.113883.10.20.22.2.22.1"
		code	code="46240-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. ENCOUNTERS
		text	Narrative text of the encounter Encounter, Performer, Location, Encounter date, Diagnosis, Diagnosis Status i.e. Office outpatient visit Dr. Samir Kahn Internal Medicine Community Urgent Care (Urgent Care Center) 1004 Healthcare Dr. Portland, OR 97005 August 15, 2012 Costal Chondritis Active

		encounterActivity	Identifier = “2.16.840.1.113883.10.20.22.4.49“

6.3.6.1 Encounters Section (entries required) Example.xml

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.22.1"  />
 <!-- Encounters Section - Entries required -->
 <code code="46240-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="History of encounters" />
 <title>Encounters</title>
 <text>
  ...
 </text>
 <entry typeCode="DRIV">
  <encounter classCode="ENC" moodCode="EVN">
   <!-- Encounter Activities -->
       ...

  </encounter>
 </entry>
</section>
```

6.3.6.2 Outpatient Encounter with Diagnosis

```
<section>
  <!-- *** Encounters section (entries required) (V3) *** -->
  <templateId root="2.16.840.1.113883.10.20.22.2.22.1" />
  <templateId root="2.16.840.1.113883.10.20.22.2.22.1"/>
  <code code="46240-8" codeSystem="2.16.840.1.113883.6.1" displayName="Encounters"/>
  <title>ENCOUNTERS</title>
  <text>
    <table border="1" width="100%">
      <thead>
        <tr>
          <th>Encounter</th>
          <th>Performer</th>
          <th>Location</th>
          <th>Encounter date</th>
          <th>Diagnosis</th>
          <th>Diagnosis Status</th>
        </tr>
      </thead>
      <tbody>
        <tr ID="Encounter1">
          <td ID="Encounter1_type">Office outpatient visit</td>
          <td>Dr. Samir Kahn <content ID="Encounter1_performer_type">Internal Medicine</content> </td>
          <td>Community Urgent Care (Urgent Care Center)
            <paragraph>1004 Healthcare Dr.</paragraph>
            <paragraph>Portland, OR  97005</paragraph>
          </td>
```

```
            <td>August 15, 2012</td>
            <td ID="Encounter1_diagnosis">Costal Chondritis</td>
            <td ID="Encounter1_diagnosis_status">Active</td>
          </tr>
        </tbody>
      </table>
    </text>
    <entry typeCode="DRIV">
      <encounter classCode="ENC" moodCode="EVN">
        <!-- ** Encounter Activity (V3) ** -->
        <templateId root="2.16.840.1.113883.10.20.22.4.49" />
        <templateId root="2.16.840.1.113883.10.20.22.4.49"/>
        <id root="2a620155-9d11-439e-92b3-5d9815ff4de8"/>
        <!-- Selected reasonable encounter/code. Not in test data -->
        <code code="99213" displayName="Office or other outpatient visit for the evaluation and management of an established
patient, which requires a medically appropriate history and/or examination and low level of medical decision making. When using time
for code selection, 20-29 minutes of total time is spent on the date of the encounter."
            codeSystemName="CPT" codeSystem="2.16.840.1.113883.6.12"
            codeSystemVersion="4">
            <originalText><reference value="#Encounter1_type"/>
            </originalText>
        </code>
        <text><reference value="#Encounter1" /></text>
        <!-- August 15, 2012 - added time (pacific time) since but not present in test data -->
        <effectiveTime value="201208151000-0800"/>
        <!-- Not specified in test data, but could infer Dr. Khan from the test scenario narrative-->
        <performer>
          <assignedEntity>
            <!-- Fake Provider NPI "12345678910" -->
            <id root="2.16.840.1.113883.4.6" extension="12345678910"/>
            <code code="207R00000X" codeSystem="2.16.840.1.113883.6.101"
              codeSystemName="Health Care Provider Taxonomy"
              displayName="Allopathic &amp;amp; Osteopathic Physicians; Internal Medicine">
              <originalText><reference value="Encounter1_performer_type" /></originalText>
            </code>
            <assignedPerson>
              <name>
                <prefix>Dr.</prefix>
                <given>Samir</given>
                <family>Khan</family>
                <!--  Could alternately use <suffix>MD</suffix> -->
              </name>
            </assignedPerson>
          </assignedEntity>
        </performer>
        <participant typeCode="LOC">
          <!-- Location is inferred from the care team address in test data -->
          <participantRole classCode="SDLOC">
            <templateId root="2.16.840.1.113883.10.20.22.4.32"/>
            <!-- Service Delivery Location template -->
            <code code="1160-1" codeSystem="2.16.840.1.113883.6.259"
```

```
        codeSystemName="HealthcareServiceLocation"
        displayName="Urgent Care Center"/>
      <addr>
        <streetAddressLine>1004 Healthcare Dr.</streetAddressLine>
        <city>Portland</city>
        <state>OR</state>
        <postalCode>97005</postalCode>
      </addr>
      <telecom value="tel:+1(555)555-1004"/>
      <playingEntity classCode="PLC">
        <name>Get Well Clinic</name>
      </playingEntity>
    </participantRole>
</participant>
<entryRelationship typeCode="REFR">
  <act classCode="ACT" moodCode="EVN">
    <!-- Encounter Diagnosis -->
    <templateId root="2.16.840.1.113883.10.20.22.4.80"  />
    <templateId root="2.16.840.1.113883.10.20.22.4.80"/>
    <code code="29308-4" displayName="Diagnosis"
      codeSystem="2.16.840.1.113883.6.1"
      codeSystemName="LOINC"/>
    <!-- This example uses the Problem Status Observation to represent status of the diagnosis.
            The statusCode of the encounter diagnosis is an alternative approach.-->
    <entryRelationship typeCode="SUBJ">
      <observation classCode="OBS" moodCode="EVN">
        <!-- Problem Observation -->
        <templateId root="2.16.840.1.113883.10.20.22.4.4"  />
        <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
        <id root="db734647-fc99-424c-a864-7e3cda82e704"/>
        <code code="282291009" displayName="Diagnosis interpretation" codeSystem="2.16.840.1.113883.6.96"
          codeSystemName="SNOMED CT">
          <translation code="29308-4" displayName="Diagnosis" codeSystem="2.16.840.1.113883.6.1"
            codeSystemName="LOINC"/>
        </code>
        <statusCode code="completed"/>
        <!-- This same data may be represented in the Problem List -->
        <effectiveTime>
          <low value="20120815"/>
        </effectiveTime>
        <!-- Test data is SNOMED but in practice this is probably an ICD9/10 code -->
        <value xsi:type="CD" code="64109004" displayName="Costal chondritis"
          codeSystem="2.16.840.1.113883.6.96">
          <originalText><reference value="#Encounter1_diagnosis" /></originalText>
        </value>
        <entryRelationship typeCode="REFR">
          <observation classCode="OBS" moodCode="EVN">
            <!-- Problem Status which is strange on an encounter diagnosis but
                    included due to the test data -->
            <!-- C-CDA R2.0 deprecated this template -->
            <templateId root="2.16.840.1.113883.10.20.22.4.6"/>
```

```
                    <code code="33999-4" displayName="Status"
                      codeSystem="2.16.840.1.113883.6.1"
                      codeSystemName="LOINC"/>
                    <statusCode code="completed"/>
                    <value xsi:type="CD" code="55561003" displayName="Active"
                      codeSystem="2.16.840.1.113883.6.96">
                      <originalText><reference value="#Encounter1_diagnosis_status" /></originalText>
                    </value>
                  </observation>
                </entryRelationship>
              </observation>
            </entryRelationship>
          </act>
        </entryRelationship>
      </encounter>
    </entry>
</section>
```

6.3.7 Family History Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.15:2015-08-01		
		templateid	root="2.16.840.1.113883.10.20.22.2.15"
		code	code="10157-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. FAMILY HISTORY
		text	i.e. Narrative text of family history
		Family History Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.45”

6.3.7.1 Family History Section Example.xml

```
<section>
  <templateId root="2.16.840.1.113883.10.20.22.2.15"  />
  <!--  Family history section template  -->
  <code code="10157-6" codeSystem="2.16.840.1.113883.6.1" />
  <title>Family history</title>
  <text>
    ...
  </text>
  <entry typeCode="DRIV">
    <organizer moodCode="EVN" classCode="CLUSTER">
      <templateId root="2.16.840.1.113883.10.20.22.4.45" />
      <!--    Family history organizer template   -->
        ...
```

```
    </organizer>
  </entry>
</section>
```

6.3.7.2 Family History Generic Example

```
<section>
    <!-- C-CDAR2 Example Family History Section (Generic Family History)-->
    <templateId root="2.16.840.1.113883.10.20.22.2.15"/>
    <templateId root="2.16.840.1.113883.10.20.22.2.15" />
    <code code="10157-6" codeSystem="2.16.840.1.113883.6.1" displayName="Family History"/>
    <title>Family History</title>
    <text>
    <!-- Family history is intended to convery information about discrete family members' health conditions.
        The best way to convey "Family history of heart disease" would be to identify which family members actually HAD heart disease.
        The best way to convey "No family history of asthma" would be to explicitly state:
        The father did not have asthma.
        The mother did not have asthma.
        The grandfather did not have asthma.
        ...and so on.

            An alternative to using this section to convey generic family history would be to add
            codes from the SNOMED 416471007: Family Medical History hierarchy to the patient's problem list.

            This example, however, shows how to convey generic family history in the Family History
            section in the absence of any known discrete family relationships.
        -->

        <paragraph ID="FH1">Patient has a family history of <content ID="FHGeneric1prob">heart disease</content>.</paragraph>
        <paragraph ID="FH2">Patient has no known family history of <content ID="FHGeneric2prob">asthma</content>.</paragraph>
    </text>
    <!-- Generic family member's history -->
    <entry>
        <organizer classCode="CLUSTER" moodCode="EVN">
            <templateId root="2.16.840.1.113883.10.20.22.4.45"/>
            <templateId root="2.16.840.1.113883.10.20.22.4.45" />
            <!-- Unique ID for the collection of observations about "generic family member" -->
            <id root="01faa204-3333-4610-864f-cb50b650d0fa" />
            <statusCode code="completed"/>
            <subject>
                <relatedSubject classCode="PRS">
                    <!-- Identifies this subject as a generic 'Family Member' -->
                    <code code="FAMMEMB" codeSystem="2.16.840.1.113883.5.111" codeSystemName="HL7 RoleCode" displayName="family member" />
                    <!-- No additional subject information is necessary, since we are not talking about an individual person -->
                </relatedSubject>
            </subject>
            <!-- Heart Disease observation -->
```

```
                <component>
                    <observation classCode="OBS" moodCode="EVN">
                        <templateId root="2.16.840.1.113883.10.20.22.4.46"/>
                        <templateId root="2.16.840.1.113883.10.20.22.4.46" />
                        <!-- Unique ID for this individual observation -->
                        <id root="02faa204-3333-4610-864f-cb50b650d0fa" />
                        <code code="64572001" codeSystem="2.16.840.1.113883.6.96" displayName="Disease">
                            <translation code="75315-2" codeSystem="2.16.840.1.113883.6.1" displayName="Condition
Family member" />
                        </code>
                        <text>
                            <reference value="#FH1" />
                        </text>
                        <statusCode code="completed"/>
                        <!-- Since no date is given, effectiveTime is UNKnown -->
                        <effectiveTime nullFlavor="UNK" />
                        <!-- SNOMED for Heart Disease
                             Note: explicitly NOT using 266894000: FH Cardiovascular disease, since we are scoped by the
"family member"
                             The family member has 'Heart Disease', not a 'Family History of Heart Disease'
                            -->
                        <value xsi:type="CD" code="56265001" codeSystem="2.16.840.1.113883.6.96" displayName="Heart
disease (disorder)">
                            <originalText>
                                <reference value="#FHGeneric1prob"/>
                            </originalText>
                        </value>
                    </observation>
                </component>
                <!-- Asthma negative observation -->
                <component>
                    <!-- Similar to Problem Observation, negationInd here represents Observation.ValueNegation,
                       stating the relative does NOT have asthma-->
                    <observation classCode="OBS" moodCode="EVN" negationInd="true">
                        <templateId root="2.16.840.1.113883.10.20.22.4.46"/>
                        <templateId root="2.16.840.1.113883.10.20.22.4.46" />
                        <!-- Unique ID for this individual observation -->
                        <id root="04faa204-3333-4610-864f-cb50b650d0fa" />
                        <code code="64572001" codeSystem="2.16.840.1.113883.6.96" displayName="Disease">
                            <translation code="75315-2" codeSystem="2.16.840.1.113883.6.1" displayName="Condition
Family member" />
                        </code>
                        <text>
                            <reference value="#FH2" />
                        </text>
                        <statusCode code="completed"/>
                        <!-- Since no date is given, effectiveTime is UNKnown -->
                        <effectiveTime nullFlavor="UNK" />
                        <!-- SNOMED for Asthma
                            Again, not using 160377001: Family History of Asthma. That code would be
                          appropriate for the patient's own problem list. -->
```

```
                        <value xsi:type="CD" code="195967001" codeSystem="2.16.840.1.113883.6.96"
displayName="Asthma">
                            <originalText>
                                <reference value="#FHGeneric2prob"/>
                            </originalText>
                        </value>
                    </observation>
                </component>
            </organizer>
        </entry>
    </section>
```

6.3.8 Immunizations Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: .16.840.1.113883.10.20.22.2.2.1:2015-08-01		
		templateid	root=".16.840.1.113883.10.20.22.2.2.1"
		code	code="11369-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. IMMUNIZATIONS
		text	i.e. Narrative text of immunization
		Immunization Activity Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.52”

6.3.8.1 Immunization Section (entries required) Example xml

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.1"  />
 <!--  ********  Immunizations section template   ******** -->
 <code code="11369-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="History of
immunizations" />
 <title>Immunizations</title>
 <text>
  <table border="1" width="100%">
   <thead>
    <tr>
     <th>Vaccine</th>
     <th>Date</th>
     <th>Status</th>
    </tr>
   </thead>
   <tbody>
    <tr>
     <td>
      <content ID="immun1" />Influenza virus vaccine, IM
```

```
        </td>
        <td>Nov 1999</td>
        <td>Completed</td>
       </tr>
       <tr>
        <td>
         <content ID="immun2" />Influenza virus vaccine, IM


        </td>
        <td>Dec 1998</td>
        <td>Completed</td>
       </tr>
       <tr>
        <td>
         <content ID="immun3" />
         Pneumococcal polysaccharide vaccine, IM


        </td>
        <td>Dec 1998</td>
        <td>Completed</td>
       </tr>
       <tr>
        <td>
         <content ID="immun4" />Tetanus and diphtheria toxoids, IM


        </td>
        <td>1997</td>
        <td>Refused</td>
       </tr>
      </tbody>
     </table>
    </text>
    <entry typeCode="DRIV">
     <substanceAdministration classCode="SBADM" moodCode="EVN" negationInd="false">
      <templateId root="2.16.840.1.113883.10.20.22.4.52" />
      <!--  ****  Immunization activity template  **** -->
      ...

     </substanceAdministration>
    </entry>
    ...

   </section>
```

6.3.8.2 Influenze Vacination

```
   <component>
    <section>
```

```
<!-- conforms to Immunizations section with entries optional -->
<templateId root="2.16.840.1.113883.10.20.22.2.2"/>
<templateId root="2.16.840.1.113883.10.20.22.2.2" />
<!-- Immunizations section with entries required -->
<templateId root="2.16.840.1.113883.10.20.22.2.2.1"/>
<templateId root="2.16.840.1.113883.10.20.22.2.2.1" />
<code code="11369-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
  displayName="History of immunizations"/>
<title>IMMUNIZATIONS</title>
<text>
  <content ID="immunSect"/>
  <table border="1" width="100%">
    <thead>
      <tr>
        <th>Vaccine</th>
        <th>Lot Number</th>
        <th>Date</th>
        <th>Status</th>
      </tr>
    </thead>
    <tbody>
      <tr ID="immun1">
        <td ID="ImmunizationProduct_100">Influenza Virus Vaccine</td>
        <td>1</td>
        <td>8/15/2010</td>
        <td>Completed</td>
      </tr>
    </tbody>
  </table>
</text>
<entry typeCode="DRIV">
  <substanceAdministration classCode="SBADM" moodCode="EVN" negationInd="false">
    <!-- ** Immunization activity ** -->
    <templateId root="2.16.840.1.113883.10.20.22.4.52"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.52" />
    <id root="e6f1ba43-c0ed-4b9b-9f12-f435d8ad8f92"/>
    <text>
      <reference value="#immun1"/>
    </text>
    <!-- Indicates the status of the substanceAdministartion -->
    <statusCode code="completed"/>
    <effectiveTime value="20100815"/>
    <consumable>
      <manufacturedProduct classCode="MANU">
        <!-- ** Immunization medication information ** -->
        <templateId root="2.16.840.1.113883.10.20.22.4.54"/>
        <templateId root="2.16.840.1.113883.10.20.22.4.54"/>
        <manufacturedMaterial>
          <code code="88" codeSystem="2.16.840.1.113883.12.292"
            displayName="influenza virus vaccine, unspecified formulation" codeSystemName="CVX">
            <originalText>
```

```
                    <reference value="#ImmunizationProduct_100"/>
                  </originalText>
                </code>
                <lotNumberText>1</lotNumberText>
              </manufacturedMaterial>
            <!-- Optional manufacturerOrganization
            <manufacturerOrganization>
              <name>Health LS - Immuno Inc.</name>
            </manufacturerOrganization>-->
            </manufacturedProduct>
          </consumable>
           <!-- Optional Performer -->
        <performer>
          <assignedEntity>
            <id root="2.16.840.1.113883.19.5.9999.456" extension="2981824"/>
            <addr>
              <streetAddressLine>1021 Health Drive</streetAddressLine>
              <city>Ann Arbor</city>
              <state>MI</state>
              <postalCode>99099</postalCode>
              <country>US</country>
            </addr>
            <telecom nullFlavor="UNK"/>
            <assignedPerson>
              <name>
                <given>Amanda</given>
                <family>Assigned</family>
              </name>
            </assignedPerson>
            <representedOrganization>
              <id root="2.16.840.1.113883.19.5.9999.1394"/>
              <name>Good Health Clinic</name>
              <telecom nullFlavor="UNK"/>
              <addr nullFlavor="UNK"/>
            </representedOrganization>
          </assignedEntity>
        </performer>
         <!-- Optional Author -->
          <author>
            <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
            <time value="20100815"/>
            <assignedAuthor>
              <id extension="99999999" root="2.16.840.1.113883.4.6"/>
              <code code="207Q00000X" codeSystem="2.16.840.1.113883.6.101" codeSystemName="Health Care Provider
Taxonomy" displayName="Allopathic &amp;amp; Osteopathic Physicians; Family Medicine" />
              <telecom use="WP" value="tel:555-555-1002"/>
              <assignedPerson>
                <name>
                  <given>Henry</given>
                  <family>Seven</family>
                </name>
```

```
            </assignedPerson>
          </assignedAuthor>
        </author>
      </substanceAdministration>
    </entry>
  </section>
</component>
```

6.3.9 Functional Status Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.14:2014-06-09		
		templateid	root="2.16.840.1.113883.10.20.22.2.14"
		code	code="47420-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. FUNCTIONAL STATUS
		text	i.e. Narrative text of family history
		Functional Status Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.66”
		Functional Status Observation	Identifier = “2.16.840.1.113883.10.20.22.4.67”
		Sensory Status	Identifier = “2.16.840.1.113883.10.20.22.4.127”
		Self-Care Activities	Identifier = “2.16.840.1.113883.10.20.22.4.128”

6.3.9.1 Functional Status Section (V2) Example.xml

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.14" />
 <!-- Functional Status Section template V2-->
 <code code="47420-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Functional status
assessment note" />
 <title>FUNCTIONAL STATUS</title>
 <text>
    ...
  </text>
 <entry>
  <observation classCode="OBS" moodCode="EVN">
   <!-- Self Care Activities (NEW)-->
   <templateId root="2.16.840.1.113883.10.20.22.4.128" />
      ...

  </observation>
 </entry>
 <entry>
  <observation classCode="OBS" moodCode="EVN">
   <!-- Sensory and Speech Status(NEW)-->
   <templateId root="2.16.840.1.113883.10.20.22.4.127" />
      ...
```

```
  </observation>
 </entry>
 <entry>
  <organizer classCode="CLUSTER" moodCode="EVN">
   <!-- Functional Status Organizer V2-->
   <templateId root="2.16.840.1.113883.10.20.22.4.66" />
       ....

  </organizer>
 </entry>
 <entry>
  <observation classCode="OBS" moodCode="EVN">
   <!-- Functional Status  Observation V2-->
   <templateId root="2.16.840.1.113883.10.20.22.4.67" />
       ...

  </observation>
 </entry>
 <entry>
  <observation classCode="OBS" moodCode="EVN">
   <!-- ** Caregiver characteristics ** -->
   <templateId root="2.16.840.1.113883.10.20.22.4.72" />

       ...

  </observation>
 </entry>
</section>
```

6.3.9.2 Functional Impairment Example

```
<section>
   <!-- This is an example of how to affirmatively assert there is a functional impairment -->
   <!-- Original design influenced by Transitions of Care test scenario, inpatient for MU2 170.314(b)(2)-->
   <!-- Note that in C-CDA 1.1, functional and cognitive status (mental) are within the same section -->
   <templateId root="2.16.840.1.113883.10.20.22.2.14"/>
   <templateId root="2.16.840.1.113883.10.20.22.2.14"/>
   <code code="47420-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Functional status
assessment note"/>
   <title>Functional Status</title>
   <!-- Narrative organized as a single table. Some systems may prefer simple paragraph-->
   <text>
      <table>
         <thead>
            <tr>
               <th>Assessment</th>
               <th>Date</th>
               <th>Results</th>
               <th>Comments</th>
            </tr>
         </thead>
```

```
          <tbody>
            <tr ID="FS_Narrative1">
              <td ID="FS_Type">Functional Status</td>
              <td>August 15 2012, 5:32pm</td>
              <td ID="FS_Finding1">Dependence on walking stick</td>
              <td />
            </tr>
          </tbody>
        </table>
      </text>
      <entry>
        <observation classCode="OBS" moodCode="EVN">
          <!-- Template for Functional Status Observation. Note other templates may apply. -->
          <templateId root="2.16.840.1.113883.10.20.22.4.67"/>
          <templateId root="2.16.840.1.113883.10.20.22.4.67"/>
          <id root="e4f9eb37-52ca-4e95-90f3-570dace107e6"/>
          <code code="54522-8" displayName="Functional status" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC">
            <originalText>
              <reference value="#FS_Type1" />
            </originalText>
          </code>
          <text>
            <reference value="#FS_Narrative1"/>
          </text>
          <statusCode code="completed"/>
          <effectiveTime>
            <!-- Some systems may just report this to day rather than hour and minute timestamp. Both of which are
acceptable. -->
            <low value="20120815173215-0500"/>
          </effectiveTime>
          <value xsi:type="CD" code="105504002" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"
displayName="Dependence on walking stick">
            <originalText>
              <reference value="#FS_Finding1"/>
            </originalText>
          </value>
        </observation>
      </entry>
</section>
```

6.3.10 Medical Equipment Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.23:2014-06-09		
		templateid	root="2.16.840.1.113883.10.20.22.2.23"
		code	code="46264-8" codeSystem="2.16.840.1.113883.6.1"

			codeSystemName="LOINC"
		title	I.e. MEDICAL EQUIPMENT
		text	i.e. Narrative text of medical equipment
		Medical Equipment Organizer	

6.3.10.1 Medical Equipment Section (V2) Example.xml

```
<section>
  <!-- Medical equipment section -->
  <templateId root="2.16.840.1.113883.10.20.22.2.23" />
  <code code="46264-8" codeSystem="2.16.840.1.113883.6.1" />
  <title>MEDICAL EQUIPMENT</title>
  <text>
   <content styleCode="Bold">Medical Equipment</content>
   <list>
    <item>Implanted Devices: Cardiac Pacemaker July 3, 2013</item>
    <item>Implanted Devices: Upper GI Prosthesis, January 3, 2013</item>
    <item>Cane, February 2, 2003</item>
    <item>Biliary Stent, May 5, 2013</item>
   </list>
  </text>
  <entry>
   <organizer classCode="CLUSTER" moodCode="EVN">
    <!-- Medical Equipment Organizer template -->
    <templateId root="2.16.840.1.113883.10.20.22.4.135" />
          ...

   </organizer>
  </entry>
  <entry>
   <supply classCode="SPLY" moodCode="EVN">
    <!-- Non-medicinal supply activity V2 template ******* -->
    <templateId root="2.16.840.1.113883.10.20.22.4.50" />
          ...

   </supply>
  </entry>
  <entry>
   <procedure classCode="PROC" moodCode="EVN">
    <!-- Procedure Activity Procedure V2-->
    <templateId root="2.16.840.1.113883.10.20.22.4.14"/>
          ...

   </procedure>
  </entry>
 </section>
```

6.3.11 Payers Section

This section contains data on the patient's payers, "third party" insurance, self-pay, other payer or guarantor, or some

of payers, and is used to define which entity is the responsible fiduciary for the financial aspects of a patient's care. Each unique instance of a payer and all the pertinent data needed to contact, bill to, and collect from that payer should be included. Authorization information that can be used to define pertinent referral, authorization tracking number, procedure, therapy, intervention, device, or similar authorizations for the patient or provider, or both should be included. At a minimum, the patient's pertinent current payment sources should be listed.

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.23		
		templateid	root="2.16.840.1.113883.10.20.22.2.18"
		code	code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. PAYERS
		text	i.e. Narrative text of coverage and policy information
		Coverage Activity	Identifier = "2.16.840.1.113883.10.20.22.4.60" coverageStatus
		Policy Activity	Identifier = "2.16.840.1.113883.10.20.22.4.61" coverageType RelationshipToSubscriber MemberIdentifier SubscriberIdentifier GroupIdentifier PayerIdentifer

6.3.11.1 Payer example

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.18"/>
 <!-- ******** Payers section template  ******** -->
 <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payers" />
 <title>Insurance Providers</title>
 <text>
     . . .
  </text>
 <entry typeCode="DRIV">
  <act classCode="ACT" moodCode="DEF">
   <templateId root="2.16.840.1.113883.10.20.22.4.60"/>
   <!-- **** Coverage entry template **** -->
   ...


  </act>
 </entry>
</section>
```

6.3.11.2 Payer Self Pay example

```
<entry typeCode="DRIV">
    <act classCode="ACT" moodCode="EVN">
        <!-- ** Coverage activity (V3) ** -->
        <templateId root="2.16.840.1.113883.10.20.22.4.60"/>
        <id root="1fe2cdd0-7aad-11db-9fe1-0800200c9a66"/>
        <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payment
sources"/>
        <statusCode code="completed"/>
        <entryRelationship typeCode="COMP">
            <sequenceNumber value="1"/>
            <act classCode="ACT" moodCode="EVN">
                <!-- ** Policy activity  (V3) ** -->
                <templateId root="2.16.840.1.113883.10.20.22.4.61"/>
                <id root="3e676a50-7aac-11db-9fe1-0800200c9a66"/>
                <code code="PP" displayName="Personal pay (no insurance)" codeSystem="2.16.840.1.113883.3.88.12.3221.5.2"
>
                    <translation code="81" codeSystem="2.16.840.1.113883.3.221.5" displayName="Self-pay" />
                </code>
                <statusCode code="completed"/>
                <!-- Insurance Company Information -->
                <performer typeCode="PRF">
                    <templateId root="2.16.840.1.113883.10.20.22.4.87"/>
                    <assignedEntity>
                        <id root="2.16.840.1.113883.19"/>
                        <code code="PAYOR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7 RoleCode"/>
                        <addr>
                            <streetAddressLine nullFlavor="NI" />
                            <city nullFlavor="NI" />
                            <state nullFlavor="NI" />
                            <postalCode nullFlavor="NI" />
                            <country nullFlavor="NI" />
                        </addr>
                        <telecom nullFlavor="NI"/>
                        <representedOrganization>
                            <name/>
                            <telecom nullFlavor="NI"/>
                            <addr>
                                <streetAddressLine nullFlavor="NI" />
                                <city nullFlavor="NI" />
                                <state nullFlavor="NI" />
                                <postalCode nullFlavor="NI" />
                                <country nullFlavor="NI" />
                            </addr>
                        </representedOrganization>
                    </assignedEntity>
                </performer>
                <!-- Guarantor Information... The person responsible for the final bill. -->
                <performer typeCode="PRF">
                    <templateId root="2.16.840.1.113883.10.20.22.4.88"/>
                    <time>
```

```
                <low nullFlavor="UNK"/>
                <high nullFlavor="UNK"/>
            </time>
            <assignedEntity>
                <id root="329fcdf0-7ab3-11db-9fe1-0800200c9a66"/>
                <code code="GUAR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7 RoleCode"/>
                <addr use="HP">
                    <streetAddressLine>2222 Home Street</streetAddressLine>
                    <city>Beaverton</city>
                    <state>OR</state>
                    <postalCode>97867</postalCode>
                </addr>
                <telecom value="tel:+1(555)555-1000" use="HP"/>
                <assignedPerson>
                    <name>
                        <given>Boris</given>
                        <family>Betterhalf</family>
                    </name>
                </assignedPerson>
            </assignedEntity>
        </performer>
        <participant typeCode="COV">
            <!-- Covered Party Participant -->
            <templateId root="2.16.840.1.113883.10.20.22.4.89"/>
            <time>
                <low nullFlavor="UNK"/>
                <high nullFlavor="UNK"/>
            </time>
            <participantRole classCode="PAT">
                <!-- Health plan ID for patient. -->
                <id nullFlavor="NI"/>
                <code code="SELF" codeSystem="2.16.840.1.113883.5.111" displayName="Self"/>
                <addr use="HP">
                    <streetAddressLine>2222 Home Street</streetAddressLine>
                    <city>Beaverton</city>
                    <state>OR</state>
                    <postalCode>97867</postalCode>
                </addr>
                <playingEntity>
                    <name>
                        <!-- Name is needed if different than health plan name. -->
                        <given>Boris</given>
                        <family>Betterhalf</family>
                    </name>
                    <sdtc:birthTime value="19750501"/>
                </playingEntity>
            </participantRole>
        </participant>
        <!-- Policy Holder -->
        <participant typeCode="HLD">
            <templateId root="2.16.840.1.113883.10.20.22.4.90"/>
```

```
                        <participantRole>
                            <id extension="1138345" root="2.16.840.1.113883.19"/>
                            <addr use="HP">
                                <streetAddressLine>2222 Home Street</streetAddressLine>
                                <city>Beaverton</city>
                                <state>OR</state>
                                <postalCode>97867</postalCode>
                            </addr>
                        </participantRole>
                    </participant>
                </act>
            </entryRelationship>
        </act>
</entry>
```

6.3.11.3 Payer example

```
<section>
   <templateId root="2.16.840.1.113883.10.20.22.2.18" />
   <templateId root="2.16.840.1.113883.10.20.22.2.18" extension="2015-08-01" />
   <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payers" />
   <title>Insurance Providers</title>
   <text>
      <paragraph>Insurance information for Linsey Nelson via Mark Nelson's Insurance</paragraph>
      (more narrative to follow; focusing on the entries for now)
   </text>
   <entry typeCode="DRIV">
      <!--  ****  Coverage entry template  **** -->
      <act classCode="ACT" moodCode="DEF">
         <templateId root="2.16.840.1.113883.10.20.22.4.60" />
         <templateId root="2.16.840.1.113883.10.20.22.4.60" extension="2015-08-01" />
         <!-- Unique ID for the coverage, not the member, group or policy ID -->
         <id root="1fe2cdd0-7aad-11db-9fe1-0800200c9a66" />
         <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payment
sources" />
         <statusCode code="completed" />
         <entryRelationship typeCode="COMP">
            <!-- Indicates the first policy in Linsey's coverage -->
            <sequenceNumber value="1" />
            <!-- Policy Activity -->
            <act classCode="ACT" moodCode="EVN">
               <templateId root="2.16.840.1.113883.10.20.22.4.61" />
               <templateId root="2.16.840.1.113883.10.20.22.4.61" extension="2015-08-01" />
               <!-- Policy/Program ID (aka group #)
                  root should be unique Identifier for health plan, in this case, UnitedHealthCare-->
               <id root="1.3.6.1.4.1.3443" extension="9R9073" />
               <!-- Insurance Type root code from C-CDA 1.1 value set, translation from C-CDA 2.1 value set -->
               <code code="GP" codeSystem="2.16.840.1.113883.3.88.12.3221.5.2" codeSystemName="Insurance Type
Code" displayName="Group Policy">
```

```
        <translation code="72" codeSystem="2.16.840.1.113883.3.221.5" codeSystemName="Source of Payment Typology (PHDSC)" displayName="PPO" />
      </code>
      <statusCode code="completed"/>
      <!-- Payer (SHALL) - identified by typeCode=PRF and assignedEntity/code NOT = GUAR -->
      <performer typeCode="PRF">
        <templateId root="2.16.840.1.113883.10.20.22.4.87" />
        <!-- Dates of coverage (could be here or under covered party)-->
        <time>
          <low value="20141125" />
          <high nullFlavor="UNK" />
        </time>
        <assignedEntity>
          <!-- ID for the payer - OID is UnitedHealthcare, extension is policty #  -->
          <id root="1.3.6.1.4.1.3443" extension="87726" />
          <code code="PAYOR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7 RoleCode" />
          <addr use="WP">
            <streetAddressLine>PO Box 30555</streetAddressLine>
            <city>Salt Lake City</city>
            <state>UT</state>
            <postalCode>84130-0567</postalCode>
            <country>US</country>
          </addr>
          <telecom value="tel:+(577)574-3210" use="WP" />
          <representedOrganization>
            <!-- Payor's Name -->
            <name>UnitedHealthcare</name>
            <!-- the payor is the entity and the organization. Need not repeat telecom/addr here, but could. -->
          </representedOrganization>
        </assignedEntity>
      </performer>
      <!-- Guarantor (SHOULD) - identified by typeCode=PRF and assignedEntity/code=GUAR -->
      <performer typeCode="PRF">
        <templateId root="2.16.840.1.113883.10.20.22.4.88" />
        <!-- SHOULD contain effectiveTime; indicates when this guarantor is responsible for payment -->
        <time>
          <low nullFlavor="UNK" />
          <high nullFlavor="UNK" />
        </time>
        <assignedEntity>
          <!-- ID for the guarantor; would match recordTarget/id if guarantor is patient -->
          <id root="1.2.3.4.5" extension="Id4Mark"/>
          <code code="GUAR" codeSystem="2.16.840.1.113883.5.111" codeSystemName="HL7 RoleCode" />
          <!-- Guarantor's address/phone, if known
          <addr use="HP">
          </addr>
          <telecom value="tel:+(781)555-1212" use="HP" /> -->
```

```
            <assignedPerson>
              <name>
                <given>Mark</given>
                <given>A</given>
                <family>Nelson</family>
              </name>
            </assignedPerson>
          </assignedEntity>
        </performer>
        <!-- Covered Party (SHALL), identified by typecode=COV -->
        <participant typeCode="COV">
          <templateId root="2.16.840.1.113883.10.20.22.4.89.2" />
          <!-- Dates of coverage (see also payor dates, but as coverage, makes more sense here)-->
          <time>
            <low value="20141125" />
            <high nullFlavor="UNK" />
          </time>
          <participantRole classCode="PAT">
            <!-- Health plan ID for patient.
                 root should be OID or GUID identifying this plan's membership IDs -->
            <id root="1.3.6.1.4.1.3443" extension="944283475-04" />
            <!-- Type of coverage. In this case, Linsey is a family member -->
            <code code="FAMDEP" codeSystem="2.16.840.1.113883.5.111" displayName="Family Dependent"/>
            <!-- Covered party's addr/telecom, if known
            <addr use="HP">
            </addr> -->
            <playingEntity>
              <name>
                <given>Linsey</given>
                <family>Nelson</family>
              </name>
            </playingEntity>
            <!-- Birth time of covered party, required  -->
            <sdtc:birthTime nullFlavor="UNK" xmlns:sdtc="urn:hl7-org:sdtc"/>
          </participantRole>
        </participant>
        <!-- Subscriber (Policy Holder) SHOULD be present, but SHALL NOT be present if the subscriber is the patient
(e.g. the Covered Party)
             Identified by typeCode=HLD (policy holder)-->
        <participant typeCode="HLD">
          <templateId root="2.16.840.1.113883.10.20.22.4.90.2" />
          <participantRole>
            <!-- Health plan ID for policy holder
                 root should be OID or GUID identifying this plan's membership IDs -->
            <id root="1.3.6.1.4.1.3443" extension="944283475-01" />
            <!-- Policy holder's addr/telecom, if known
            <addr use="HP">
```

```
                </addr> -->
              </participantRole>
            </participant>
            <!-- Describes the Health Plan (SHALL) (could also be an authorization activity describing an individual
authorization) -->
            <entryRelationship typeCode="REFR">
              <act classCode="ACT" moodCode="DEF">
                <templateId root="2.16.840.1.113883.10.20.1.19" />
                <!-- Plan ID -->
                <id root="1.3.6.1.4.1.3443" extension="911-87726-04" />
                <!-- Plan type;  -->
                <code code="72" codeSystem="2.16.840.1.113883.3.221.5" codeSystemName="Source of Payment
Typology (PHDSC)" displayName="PPO" />
                <!-- alternate code that could be used
                <code code="EHCPOL" codeSystem='2.16.840.1.113883.5.4' codeSystemName='ActCode'
displayName="Extended Healthcare" /> -->
                <text>UnitedHealthcare Choice</text>
              </act>
            </entryRelationship>
          </act>
        </entryRelationship>
        <entryRelationship>
          <!-- Indicates the 2nd policy in Linsey's coverage -->
          <sequenceNumber value="2" />
          <act>
            <!-- Very similar (verbose) structure. Changes would be:
              id/@root attributes would correspond to Cigna (or Cypress...)
              act/id/@extension would be S63 for the group number
              performer/../addr & telecom would be updated for Cigna
              performer/../id/@extension would be 62308 for the Payer (entire guarantor performer would be identical)
              participant/../id/@extionsion would be based on S63000087 for Mark and Linsey
            -->
          </act>
        </entryRelationship>
      </act>
    </entry>
</section>
```

6.3.11.4 Payer example

```
<section>
      <templateId root="2.16.840.1.113883.10.20.22.2.18" extension="2015-08-01"/>
      <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Payer"/>
      <title>Payers</title>
      <text>
            <table border="1" width="100%">
                  <thead>
                        <tr>
                              <th>Payer name</th>
```

```
                        <th>Policy type / Coverage type</th>
                        <th>Policy ID</th>
                        <th>Covered party ID</th>
                        <th>Policy Holder</th>
                    </tr>
                </thead>
                <tbody>
                    <tr ID="Payer0001">
                        <td>Good Health Insurance HMO</td>
                        <td>Commercial Managed Care HMO</td>
                        <!-- Where does plan number go? Does it go in authorization activity?? -->
                        <td>P451241</td>
                        <td>1138345</td>
                        <td>Self</td>
                    </tr>
                </tbody>
            </table>
        </text>
        <entry typeCode="DRIV">
            <act classCode="ACT" moodCode="EVN">
                <!-- ** Coverage activity (V3) ** -->
                <templateId root="2.16.840.1.113883.10.20.22.4.60" extension="2015-08-01"/>
                <templateId root="2.16.840.1.113883.10.20.22.4.60"/>
                <id root="1fe2cdd0-7aad-11db-9fe1-0800200c9a66"/>
                <code code="48768-6" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Payment sources"/>
                <text>
                    <reference value="#Payer0001" />
                </text>
                <statusCode code="completed"/>
                <entryRelationship typeCode="COMP">
                    <sequenceNumber value="1"/>
                    <act classCode="ACT" moodCode="EVN">
                        <!-- ** Policy activity  (V3) ** -->
                        <templateId root="2.16.840.1.113883.10.20.22.4.61" extension="2015-08-01"/>
                        <templateId root="2.16.840.1.113883.10.20.22.4.61"/>
                        <id root="3e676a50-7aac-11db-9fe1-0800200c9a66"/>
                        <code code="C1" displayName="Commercial"
codeSystem="2.16.840.1.113883.3.88.12.3221.5.2">
                            <!-- This is the required translation to ValueSet  2.16.840.1.114222.4.11.3591 which is
necessary for QRDA reporting -->
                            <translation code="511" displayName="Commercial Managed Care - HMO"
codeSystem="2.16.840.1.113883.3.221.5"/>
                        </code>
                        <statusCode code="completed"/>
                        <!-- Insurance Company Information -->
                        <performer typeCode="PRF">
```

```
                    <templateId root="2.16.840.1.113883.10.20.22.4.87"/>
                    <assignedEntity>
                        <id root="2.16.840.1.113883.19"/>
                        <code code="PAYOR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7
RoleCode"/>
                        <addr use="WP">
                            <streetAddressLine>9009 Health Drive</streetAddressLine>
                            <city>Portland</city>
                            <state>OR</state>
                            <postalCode>99123</postalCode>
                            <country>US</country>
                        </addr>
                        <telecom value="tel:+1(555)555-1515" use="WP"/>
                        <representedOrganization>
                            <name>Good Health Insurance HMO</name>
                            <telecom value="tel:+1(555)555-1515" use="WP"/>
                            <addr use="WP">
                                <streetAddressLine>9009 Health Drive</streetAddressLine>
                                <city>Portland</city>
                                <state>OR</state>
                                <postalCode>99123</postalCode>
                            </addr>
                        </representedOrganization>
                    </assignedEntity>
                </performer>
                <!-- Guarantor Information... The person responsible for the final bill. -->
                <performer typeCode="PRF">
                    <templateId root="2.16.840.1.113883.10.20.22.4.88"/>
                    <time>
                        <low nullFlavor="UNK"/>
                        <high nullFlavor="UNK"/>
                    </time>
                    <assignedEntity>
                        <id root="329fcdf0-7ab3-11db-9fe1-0800200c9a66"/>
                        <code code="GUAR" codeSystem="2.16.840.1.113883.5.110" codeSystemName="HL7
RoleCode"/>
                        <addr use="HP">
                            <streetAddressLine>2222 Home Street</streetAddressLine>
                            <city>Beaverton</city>
                            <state>OR</state>
                            <postalCode>97867</postalCode>
                        </addr>
                        <telecom value="tel:+1(555)555-1000" use="HP"/>
                        <assignedPerson>
                            <name>
                                <given>Boris</given>
                                <family>Meatloaf</family>
```

```
                    </name>
                </assignedPerson>
            </assignedEntity>
        </performer>
        <participant typeCode="COV">
            <!-- Covered Party Participant -->
            <templateId root="2.16.840.1.113883.10.20.22.4.89"/>
            <time>
                <low nullFlavor="UNK"/>
                <high nullFlavor="UNK"/>
            </time>
            <participantRole classCode="PAT">
                <!-- Health plan ID for patient. Shown in narrative -->
                <id root="14d4a520-7aae-11db-9fe1-0800200c9a66" extension="1138345"/>
                <code code="SELF" codeSystem="2.16.840.1.113883.5.111" displayName="Self"/>
                <addr use="HP">
                    <streetAddressLine>2222 Home Street</streetAddressLine>
                    <city>Beaverton</city>
                    <state>OR</state>
                    <postalCode>97867</postalCode>
                </addr>
                <playingEntity>
                    <name>
                        <!-- Name is needed if different than health plan name. -->
                        <given>Boris</given>
                        <family>Meatloaf</family>
                    </name>
                    <!-- This is SDTC extension to CDA so that birthTime may be specified. This is
important when policy is held by another family member -->
                    <sdtc:birthTime value="19750501"/>
                </playingEntity>
            </participantRole>
        </participant>
        <!-- Policy Holder -->
        <participant typeCode="HLD">
            <templateId root="2.16.840.1.113883.10.20.22.4.90"/>
            <participantRole>
                <id extension="1138345" root="2.16.840.1.113883.19"/>
                <addr use="HP">
                    <streetAddressLine>2222 Home Street</streetAddressLine>
                    <city>Beaverton</city>
                    <state>OR</state>
                    <postalCode>97867</postalCode>
                </addr>
            </participantRole>
        </participant>
        <entryRelationship typeCode="REFR">
```

```
                    <act classCode="ACT" moodCode="EVN">
                        <templateId root="2.16.840.1.113883.10.20.1.19"/>
                        <id root="f4dce790-8328-11db-9fe1-0800200c9a66" extension="P451241"/>
                        <code nullFlavor="NI" />
                        <entryRelationship typeCode="SUBJ">
                            <procedure classCode="PROC" moodCode="PRMS">
                                <code nullFlavor="NI"/>
                            </procedure>
                        </entryRelationship>
                    </act>
                </entryRelationship>
            </act>
        </entryRelationship>
    </act>
</entry>
</section>
```

6.3.12 Plan of Treatment Section

Health professional's conclusions and working assumptions that will guide treatment of the patient.
SDOH Assessments can also be captured in this section. Screening questionnaire-based, structured evaluation (e.g., PRAPARE, Hunger Vital Sign®, AHC-HRSN screening tool) for a Social Determinants of Health-related risk. (e.g., food insecurity, housing instability, or transportation insecurity)

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.1		
		templateid	root="2.16.840.1.113883.10.20.22.2.1"
		code	code="18776-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. TREATMENT PLAN
		text	i.e. Narrative text for the plan of treatment
		HandoffCommunication	Identifier = "2.16.840.1.113883.10.20.22.4.141"
		PlanActivity	Identifier = "2.16.840.1.113883.10.20.22.4.4"

6.3.12.1 Plan of Treatment Section example

```
<section>
  <templateId root="2.16.840.1.113883.10.20.22.2.10" />
  <!--  **** Plan of Treatment Section V2 template  **** -->
  <code code="18776-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Treatment plan"
/>
  <title>TREATMENT PLAN</title>
  <text>
      ...
    </text>
```

```
        <entry>
         <act classCode="ACT" moodCode="EVN">
          <!-- Handoff Communication  template -->
          <templateId root="2.16.840.1.113883.10.20.22.4.141" />
              ...

         </act>
        </entry>
        <entry>
         <encounter moodCode="INT" classCode="ENC">
          <templateId root="2.16.840.1.113883.10.20.22.4.40" />
          <!-- Plan Activity Encounter V2 template -->
              ...


         </encounter>
        </entry>
</section>
```

6.3.13 Encounters Section

This section lists and describes any healthcare encounters pertinent to the patient's current health status or historical health history. An encounter is an interaction, regardless of the setting, between a patient and a practitioner who is vested with primary responsibility for diagnosing, evaluating, or treating the patient's condition. It may include visits, appointments, as well as non-face-to-face interactions. It is also a contact between a patient and a practitioner who has primary responsibility (exercising independent judgment) for assessing and treating the patient at a given contact. This section may contain all encounters for the time period being summarized, but should include notable encounters.

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.22.1		
		templateid	root="2.16.840.1.113883.10.20.22.2.22.1"
		code	code="46240-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. HISTORY OF ENCOUNTERS
		text	i.e. Narrative text of encounter history
		Encounter Activity	Identifier = "2.16.840.1.113883.10.20.22.4.49"

6.3.13.1 Encounters Section (required sections) Example

```
<section>
<templateId root="2.16.840.1.113883.10.20.22.2.22.1" />
<!-- Encounters Section - Entries required -->
<code code="46240-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="History of encounters" />
<title>Encounters</title>
```

```
<text>
...
</text>
<entry typeCode="DRIV">
<encounter classCode="ENC" moodCode="EVN">
<!-- Encounter Activities -->
...
</encounter>
</entry>
</section>
```

6.3.14 Mental Status Section

The Mental Status Section contains observations and evaluations related to a patient's psychological and mental competency and deficits including, but not limited to any of the following types of information:' Appearance (e.g., unusual grooming, clothing or body modifications)' Attitude (e.g., cooperative, guarded, hostile)' Behavior/psychomotor (e.g., abnormal movements, eye contact, tics)' Mood and affect (e.g., anxious, angry, euphoric)' Speech and Language (e.g., pressured speech, perseveration)' Thought process (e.g., logic, coherence)' Thought content (e.g., delusions, phobias)' Perception (e.g., voices, hallucinations)' Cognition (e.g., memory, alertness/consciousness, attention, orientation) ' which were included in Cognitive Status Observation in earlier publications of C-CDA.' Insight and judgment (e.g., understanding of condition, decision making)

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.56		
		templateid	root="2.16.840.1.113883.10.20.22.2.56"
		code	code="10190-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. MENTAL STATUS
		text	i.e. Narrative text of mental status
		Mental Status Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.75”
		Mental Status Observation	Identifier = “2.16.840.1.113883.10.20.22.4.74”
		Assessment Scale Observation	Identifier = “2.16.840.1.113883.10.20.22.4.69”

6.3.14.1 Mental Status Section example

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.14" extension="2015-08-01" />
 <!-- Mental Status Section -->
 <code code="10190-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Mental
status Narrative" />
 <title>MENTAL STATUS</title>
 <text>
    ...
  </text>
```

```
<entry>
 <observation classCode="OBS" moodCode="EVN">
  <!-- Mental Status Observation template -->
  <templateId root="2.16.840.1.113883.10.20.22.4.125" />
        ...




 </observation>
</entry>
<entry>
 <observation classCode="OBS" moodCode="EVN">
  <!-- Mental Status Observation V2 -->
  <templateId root="2.16.840.1.113883.10.20.22.4.74"/>
      ...

 </observation>
</entry>
<entry>
 <organizer classCode="CLUSTER" moodCode="EVN">
  <!-- Mental Status Organizer V2-->
  <templateId root="2.16.840.1.113883.10.20.22.4.75" />
  <id root="a7bc1062-8649-42a0-833d-ekd65bd013c9" />
      ...

 </organizer>
</entry>
</section>
```

6.3.15 Nutrition Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.57		
		templateid	root="2.16.840.1.113883.10.20.22.2.15"
		code	code="61144-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. NUTRITIONAL STATUS
		text	i.e. Narrative text of nutrition history
		Nutritional Status Observation	Identifier = “2.16.840.1.113883.10.20.22.4.124"
		Nutritional Assessment	Identifier = “2.16.840.1.113883.10.20.22.4.138"

		Observation	

6.3.15.1 *Nutrition Section example*

```
<section>
 <!-- Nutrition Section -->
 <templateId root="2.16.840.1.113883.10.20.22.2.57" />
 <code code="61144-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Diet and
Nutrition" />
 <title>NUTRITION SECTION</title>
 <text>
  <paragraph>Nutritional Status: well nourished</paragraph>
  <paragraph>Nutrition Assessment: Dietary Requirements; low sodium diet, Dietary Intake, high carbohydrate diet; BMI
25-29 overweight </paragraph>
  <paragraph>Nutritional Recommendations: BMI 22; Nutrition Education "Lean Meats"</paragraph>
 </text>
 <entry>
  <!-- SHOULD HAVE Nutritional Status Observation -->
  <observation classCode="OBS" moodCode="EVN">
   <!-- contains NUTRITIONAL STATUS Observation -->
   <templateId root="2.16.840.1.113883.10.20.22.4.124" />
          ...

   <entryRelationship typeCode="SUBJ">
    <observation classCode="OBS" moodCode="EVN">
     <!-- ** Nutritional Assessment observation** -->
     <templateId root="2.16.840.1.113883.10.20.22.4.138" />
     <id root="ab1791b0-5c71-11db-b0de-0800200c9a66" />
       <code code="75303-8" displayName="Nutrition assessment Narrative" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC" />
  <statusCode code="completed" />
  <effectiveTime value="20130512" />
  <value xsi:type="CD" code="437421000124105"
        displayName="Decreased sodium diet (regime/therapy)"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT" />
  <author typeCode="AUT">
   <templateId root="2.16.840.1.113883.10.20.22.4.119" />
   <time value="201300512" />
    </observation>
   </entryRelationship>
  </observation>
 </entry>
</section>
```

6.3.16 Advance Directives Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.21.1		

		templateid	root="2.16.840.1.113883.10.20.22.2.21.1"
		code	code="42348-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. ADVANCE DIRECTIVES
		text	i.e. Narrative text of advance directives
		Advance Directive Organizer	Identifier = “2.16.840.1.113883.10.20.22.4.108”

6.3.16.1 Advance Directives example

```
<section>
 <!-- C-CDA Advance Directives Section (required entries)template id -->
 <templateId root="2.16.840.1.113883.10.20.22.2.21.1"  />
 <code code="42348-3" codeSystem="2.16.840.1.113883.6.1" />
 <title>ADVANCE DIRECTIVES</title>
 <text>
    Narrative Text
  </text>
 <entry typeCode="DRIV">
  <organizer classCode="CLUSTER" moodCode="EVN">
   <templateId root="2.16.840.1.113883.10.20.22.4.108" />
   <!-- ***Advance Directive Organizer template -->
   <id root="af6ebdf2-d996-11e2-a5b8-f23c91aec05e" />
    <code code="45473-6"
      displayName="advance directive - living will"
      codeSystem="2.16.840.1.113883.6.1"
      codeSystemName="LOINC">
      <originalText>
       <reference value="#ADO1" />
      </originalText>
     </code>
     <statusCode code="completed" />
     <!-- Author Participation -->
     <author>
      <templateId root="2.16.840.1.113883.10.20.22.4.119" />
      <time value="20130807150000-0500" />
      <assignedAuthor>
       <id extension="5555555551" root="2.16.840.1.113883.4.6" />
       <code code="163W00000X"
        displayName="Nursing Service Providers; Registered Nurse"
        codeSystem="2.16.840.1.113883.6.101"
        codeSystemName="Healthcare Provider Taxonomy (HIPAA)" />
       <assignedPerson>
        <name>
         <given>Nurse</given>
         <family>Nightingale</family>
         <suffix>RN</suffix>
        </name>
       </assignedPerson>
       <representedOrganization classCode="ORG">
        <id root="2.16.840.1.113883.19.5" />
```

```
            <name>Good Health Hospital</name>
           </representedOrganization>
          </assignedAuthor>
         </author>
  </organizer>
 </entry>
 <entry typeCode="DRIV">
  <organizer classCode="CLUSTER" moodCode="EVN">
   <templateId root="2.16.840.1.113883.10.20.22.4.108" />
   <!-- ***Advance Directive Organizer template -->
   <id root="af6ebdf2-d996-11e2-a5b8-f23c91aec05e" />
  </organizer>
 </entry>
</section>
```

6.3.17 Goals Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.60		
		templateid	root="2.16.840.1.113883.10.20.22.2.60"
		code	code="61146-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. GOALS
		text	i.e. Narrative text of patient goals
		Goal Observation	Identifier = “2.16.840.1.113883.10.20.22.4.121”

6.3.17.1 Goals example

```
<section>
  <!-- Goals Section -->
  <templateId root="2.16.840.1.113883.10.20.22.2.60"/>
  <code code="61146-7" displayName="Goals" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
  <title>Goals Section</title>
  <text><paragraph ID="Goals">Patient is targeting a pulse oximetry of 92% and a weight of 195 lbs</paragraph></text>
  <entry>
    <!-- Goal Observation -->
    <observation classCode="OBS" moodCode="GOL">
      <!-- Goal Observation -->
      <templateId root="2.16.840.1.113883.10.20.22.4.121"/>
      <!-- If you have an id for your goal, include here -->
      <id nullFlavor="UNK"/>
      <code nullFlavor="UNK"/>
      <text><reference value="#Goals" /></text>
      <statusCode code="active"/>
    </observation>
  </entry>
</section>
```

6.3.18 Health Concerns Section

Sections	XML Tag	XMLPath	Description
Body	**Component:structuredBody:component:section** identifier: urn:hl7ii: 2.16.840.1.113883.10.20.22.2.58		
		templateid	root="2.16.840.1.113883.10.20.22.2.58"
		code	code="75310-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
		title	I.e. HEALTH CONCERNS
		text	i.e. Narrative text of health concerns
		Health Concern Act	Identifier = “2.16.840.1.113883.10.20.22.4.132”

6.3.18.1 Health Concerns example

```
<section>
    <!-- Health Concerns Section -->
    <templateId root="2.16.840.1.113883.10.20.22.2.58" >
    <code code="75310-3" displayName="Health Concerns Document" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC"/>
    <title>Health Concerns</title>
    <text><paragraph ID="Concern">On March 1, 2014, the patient expressed concern about spreading their Community
Acquired Pneumonia.</paragraph></text>
    <entry>
      <!-- Health Concern Act -->
      <act classCode="ACT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.22.4.132" extension="2015-08-01"/>
        <id nullFlavor="UNK"/>
        <!-- Fixed act/code in C-CDA -->
        <code code="75310-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Health
Concern"/>
        <text><reference value="#Concern" /></text>
        <statusCode code="active"/>
      </act>
    </entry>
  </section>
```

7 Terminology Services

These standards address a fundamental requirement for effective communication – the ability to represent concepts in an unambiguous manner between a sender and receiver of information. Most communication between health information systems relies on structured vocabularies, terminologies, code sets and classification systems to represent health concepts. Standard terminology provides a foundation for interoperability by improving the effectiveness of information exchange.

See below for some of the common terminology standards used in health information and technology.

7.1 International Classification of Diseases (ICD)

ICD represents patient information on claims records, data collection for use in performance measurement, reimbursement for medical claims, and more. In the United States, data submitted to CMS transitioned from ICD-9-CM to ICD-10-CM/Procedure Coding System (PCS) beginning October 1, 2015.

There are two parts to ICD:

• ICD-10-CM—Diagnosis classification system developed by the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS) for use in health care treatment settings in the United States. Diagnosis coding under this system uses three to seven alphanumeric characters and full code titles, but the format is the same as ICD-9-CM.

• ICD-10-PCS—Procedure classification system developed by CMS for use in the United States for inpatient hospital settings. The new procedure coding system uses seven alphanumeric characters, whereas the ICD-9-CM coding system uses three or four numeric digits.

7.2 Current Procedural Terminology (CPT)

CPT is a registered trademark of the American Medical Association (AMA).

The CPT Category I (CPT I) codes are a listing of descriptive terms and identifying codes for reporting medical services and procedures performed by physicians. The purpose of the terminology is to provide a uniform language that accurately describes medical, surgical, and diagnostic services, and thereby provides an effective means for reliable nationwide communication among physicians, patients, and third parties.

7.3 Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT)

SNOMED International owns and maintains SNOMED CT. SNOMED CT is a general clinical reference terminology, meaning its intent is to represent clinical concepts across many domains, which includes conditions, diagnoses, symptoms, and signs, all of which are a type of finding. SNOMED CT also represents procedures, observations, and some laboratory tests, drugs, and devices.

As a general reference terminology, the expectation is for SNOMED CT to provide many of the concepts needed for clinical information encoding, and unless otherwise noted, a specific terminology should be the primary source for standardized terminology encoding.

7.4 Logical Observation Identifier Names and Codes (LOINC)

LOINC is a code system (i.e., set of identifiers, names, and codes) for clinical and laboratory observations, health care screening/survey instruments, and document type identifiers. Each LOINC record corresponds to a single observation of almost any type (i.e., observables) and is best known for concepts that represent laboratory tests. LOINC also includes representation of document types and thus, frequently represents a document section in consolidated clinical document architecture (C-CDA) and other templated exchange standards. There is no intent for LOINC codes to transmit all possible information about a test or observation; the intent is only to identify the observations. The LOINC code for a name is unique and permanent. Always transmit LOINC codes with a hyphen before the check digit (e.g., 10154-3). Transmit the numeric code as a variable length number, without leading zeros. LOINC codes are available for commercial use without charge, subject to the terms of a license that assures the integrity and ownership of the codes.

7.5 RxNorm

The NLM produces RxNorm. RxNorm provides normalized names and unique identifiers for medicines and drugs. The goal of RxNorm is to allow computer systems to communicate drug-related information efficiently and

unambiguously.

7.6 Other Important Coding Systems

Best practice for encoding some data elements is to use code systems that represent a specific type of information, particularly when the code system is in widespread use. When considering inclusion of data in a measure not already identified above, determine whether a specific authoritative code system is in widespread use and consider including that code system into the measure.

Examples
- CDT – Code on Dental Procedures and Nomenclature
- CVX (for vaccines)
- Health Level Seven International® (HL7) (e.g., Administrative Gender, Discharge Disposition)
- ICF—International Classification of Functioning, Disability, and Health
- NHSN Healthcare Facility Patient Care Location (HSLOC in the Value Set Authority Center [VSAC])
- NUCC – National Uniform Claim Committee
- Source of Payment Typology (National Association of Health Data Organizations [NAHDO])
- UCUM – The Unified Code for Units of Measure

8 Definitions

8.1 Consolidated Clinical Document Architecture (C-CDA)

C-CDA is a set of HL7 standards that specify both the structure and semantics of xml-based “clinical documents” for the purpose of exchanging clinical data, represented in the HL7 CDA Release 2 standards. As its name conveys, C-CDA is an effort by HL7 to constrain the numerous and overlapping standards of the legacy CDA standard. C-CDA reuses a set of section and entry templates that form the interoperable parts of nine document templates. C-CDA documents derive their machine-processable meaning from the HL7 Reference Information Model (RIM) and use the HL7 Release 2 data types.

C-CDA may be used to express nine types of clinical documents based on different use cases:
- Continuity of Care Document (CCD)
- Consultation Note
- Diagnostic Imaging Report
- Discharge Summary
- History and Physical Note
- Operative Note
- Procedure Note
- Progress Note
- Unstructured Document

A C-CDA document may contain many data sections. Each section may contain both narrative (i.e. human-readable) text and, possibly, machine-processable data.

8.2 Clinical Document Architecture (CDA)

CDA is an HL7 document markup standard that specifies both the structure and semantics of xml-based “clinical documents” for the purpose of exchanging clinical data. CDA documents derive their machine-processable meaning from the HL7 Reference Information Model (RIM) and use the HL7 Release 2 data

types. CDA may be used to express many types of clinical documents based on different use cases, such as the following:

- Continuity of Care Document (CCD) (e.g. HITSP C32)
- Discharge Summary (e.g. HITSP C48)
- History and Physical (e.g. HITSP C84)
- Lab Report (e.g. HITSP C37)

A CDA document may contain many data sections. Each section may contain both narrative (i.e. human-readable) text and, possibly, machine-processable data.

8.3 Continuity of Care Document (CCD)

A CCD is one type of C-CDA document. "Continuity of Care Document" is a generic term to describe a clinical document that can provide the basic health information history of a patient, most recent patient demographics, patient problem list, patient encounters, patient medications, and patient labs. The CCD has been standardized by multiple standards development organizations, including HL7 and HITSP. All of the standards reflect a flexible set of optionally included data sets and, thus, the CCD can be used to conform to the broad range of data required to be exchanged to achieve Meaningful Use. The C-CDA CCD standard specifies the required and optional sections to include in a CCD.

8.4 Enterprise Master Patient Index (EMPI) Identifier

CRISP Shared Services assigns unique patients a single master identifier, the EMPI, and links all MRNs for that patient to the EMPI. The EMPI is the identifier that is returned in CSS's response to a PIX query. This unique identifier is also what allows the consolidation of clinical information for a patient to be collated.

8.5 Medical Record Number (MRN)

The Medical Record Number (MRN) is a unique ID by which a healthcare facility identifies a patient. When a new patient arrives for an encounter at a facility, an MRN is created for that patient. Thereafter, that facility attaches the patient's MRN to all electronic messages that are sent pertaining to the care of that patient.

When CSS receives a new MRN in a message from a participant facility, it adds that MRN to its database together with additional parameters describing the patient. If the same MRN arrives in another message from the same facility, CSS can immediately identify the patient and attach the new information to that patient in the database. CSS uses an algorithm to determine whether incoming data from a different facility pertains to the same named patient or a different one. If there is a positive match based up the provided patient demographic parameters, CSS adds the second facility's MRN to its database and maps both MRNs to the same patient.

Connie

Revision History

Date	Version	Author	Comments
10/31/2023	1.0	Connie	Create initial document.
12/19/2023	1.1	Connie	Incorporate feedback from CRISP
2/20/2024	2.0	Connie	Version for release