Figure 25: Social Determinant of Health Problem Observation Example

```
<!-- SDOH Problem -->
<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" extension="2015-08-01"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.4" extension="2022-06-01"/>
    <id extension="68993"
            root="1.2.840.114350.1.13.6289.1.7.2.768076"/>
    <id root="093A5380-00CE-11E6-B4C5-0050568B000B" extension="1.1"/>
    <code code="55607006" codeSystem="2.16.840.1.113883.6.96"
            codeSystemName="SNOMED CT" displayName="Problem">
        <originalText>
            <reference value="#ProblemObs_1_PT1"/>
        </originalText>
        <translation code="75326-9"
            codeSystem="2.16.840.1.113883.6.1"
            codeSystemName="LOINC" displayName="Problem"/>
    </code>
    <text>
        <reference value="#ProblemObs1"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime>
        <low value="20140909"/>
    </effectiveTime>
    <value xsi:type="CD" code="445281000124101" displayName="Nutrition impaired due to
limited access to healthful foods (finding)" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT">
        <translation code="Z59.48" codeSystem="2.16.840.1.113883.6.90" codeSystemName="ICD-
10-CM" displayName="Other specified lack of adequate food"/>
    </value>
</observation>
```

3.15 Procedure Activity Procedure (V3)

```
[procedure: identifier urn:hl7ii:2.16.840.1.113883.10.20.22.4.14:2022-06-01
(open)]
```

The common notion of "procedure" is broader than that specified by the HL7 Version 3 Reference Information Model (RIM). Therefore procedure templates can be represented with various RIM classes: act (e.g., dressing change), observation (e.g., EEG), procedure (e.g., splenectomy).

This template represents procedures whose immediate and primary outcome (post-condition) is the alteration of the physical condition of the patient. Examples of these procedures are an appendectomy, hip replacement, and a creation of a gastrostomy.

This template can be used with a contained Product Instance template to represent a device in or on a patient. In this case, targetSiteCode is used to record the location of the device in or on the patient's body. Equipment supplied to the patient (e.g., pumps, inhalers, wheelchairs) is represented by the Non-Medicinal Supply Activity (V2) template.

Procedure Activity Procedure V3 Usage Note: Common practice in the industry has shown that Procedure Activity Procedure is the usually implemented CDA template for any type of intervention or procedure regardless of if the "immediate and primary outcome (post-condition) is the alteration of the

physical condition of the patient" or not. As a result, it is recommended to use Procedure Activity Procedure when sending procedures also thought of as "interventions" such as "Home Environment Evaluation" or "Assessment of nutritional status".

Table 26: Procedure Activity Procedure (V3) Constraints Overview

XPath	Card.	Verb	Data Type	CONF#	Value
procedure (identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.14:2022-06-01)					
@classCode	1..1	SHALL		4515-7652	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = PROC
@moodCode	1..1	SHALL		4515-7653	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
templateId	1..1	SHALL		4515-7654	
@root	1..1	SHALL		4515-10521	2.16.840.1.113883.10.20.22.4.14
@extension	1..1	SHALL		4515-32506	2022-06-01
id	1..*	SHALL		4515-7655	
code	1..1	SHALL		4515-7656	
originalText	0..1	SHOULD		4515-19203	
reference	0..1	SHOULD		4515-19204	
@value	0..1	SHOULD		4515-19205	
statusCode	1..1	SHALL		4515-7661	
@code	1..1	SHALL		4515-32366	urn:oid:2.16.840.1.113883.11.20.9.22 (ProcedureAct statusCode)
effectiveTime	0..1	SHOULD		4515-7662	
priorityCode	0..1	MAY		4515-7668	urn:oid:2.16.840.1.113883.1.11.16866 (ActPriority)
methodCode	0..1	MAY		4515-7670	
targetSiteCode	0..*	SHOULD		4515-7683	urn:oid:2.16.840.1.113883.3.88.12.3221.8.9 (Body Site Value Set)
specimen	0..*	MAY		4515-7697	
specimenRole	1..1	SHALL		4515-7704	

XPath	Card.	Verb	Data Type	CONF#	Value
id	0..*	SHOULD		4515-7716	
performer	0..*	SHOULD		4515-7718	
assignedEntity	1..1	SHALL		4515-7720	
id	1..*	SHALL		4515-7722	
addr	1..*	SHALL		4515-7731	
telecom	1..*	SHALL		4515-7732	
representedOrganization	0..1	SHOULD		4515-7733	
id	0..*	SHOULD		4515-7734	
name	0..*	MAY		4515-7735	
telecom	1..1	SHALL		4515-7737	
addr	1..1	SHALL		4515-7736	
author	0..*	SHOULD		4515-32479	Author Participation (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.119
participant	0..*	MAY		4515-7751	
@typeCode	1..1	SHALL		4515-7752	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = DEV
participantRole	1..1	SHALL		4515-15911	Product Instance (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.37
participant	0..*	MAY		4515-7765	
@typeCode	1..1	SHALL		4515-7766	urn:oid:2.16.840.1.113883.5.90 (HL7ParticipationType) = LOC
participantRole	1..1	SHALL		4515-15912	Service Delivery Location (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.32
entryRelationship	0..*	MAY		4515-7768	

XPath	Card.	Verb	Data Type	CONF#	Value
@typeCode	1..1	SHALL		4515-7769	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
@inversionInd	1..1	SHALL		4515-8009	true
encounter	1..1	SHALL		4515-7770	
@classCode	1..1	SHALL		4515-7771	urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = ENC
@moodCode	1..1	SHALL		4515-7772	urn:oid:2.16.840.1.113883.5.1001 (HL7ActMood) = EVN
id	1..1	SHALL		4515-7773	
entryRelationship	0..1	MAY		4515-7775	
@typeCode	1..1	SHALL		4515-7776	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = SUBJ
@inversionInd	1..1	SHALL		4515-7777	true
act	1..1	SHALL		4515-31395	Instruction (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.20:2014-06-09
entryRelationship	0..*	MAY		4515-7779	
@typeCode	1..1	SHALL		4515-7780	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observation	1..1	SHALL		4515-15914	Indication (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.19:2014-06-09
entryRelationship	0..*	MAY		4515-7886	
@typeCode	1..1	SHALL		4515-7887	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
substanceAdministration	1..1	SHALL		4515-15915	Medication Activity (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.16:2014-06-09
entryRelationship	0..*	MAY		4515-32473	
@typeCode	1..1	SHALL		4515-32474	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = COMP
observation	1..1	SHALL		4515-32475	Reaction Observation (V2) (identifier:

XPath	Card.	Verb	Data Type	CONF#	Value
					urn:hl7ii:2.16.840.1.113883.10.20.22.4.9:2014-06-09
entryRelationship	0..*	MAY		[4515-32985](#)	
@typeCode	1..1	SHALL		[4515-32987](#)	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
observation	1..1	SHALL		[4515-32986](#)	Assessment Scale Observation (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.69
entryRelationship	0..*	MAY		[4515-32988](#)	
@typeCode	1..1	SHALL		[4515-32990](#)	urn:oid:2.16.840.1.113883.5.1002 (HL7ActRelationshipType) = RSON
act	1..1	SHALL		[4515-32989](#)	Entry Reference (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.122

199. **SHALL** contain exactly one [1..1] **@classCode**="PROC" Procedure (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:4515-7652).

200. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:4515-7653).

201. **SHALL** contain exactly one [1..1] **templateId** (CONF:4515-7654) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.22.4.14" (CONF:4515-10521).
    b. **SHALL** contain exactly one [1..1] **@extension**="2022-06-01" (CONF:4515-32506).

202. **SHALL** contain at least one [1..*] **id** (CONF:4515-7655).

203. **SHALL** contain exactly one [1..1] **code** (CONF:4515-7656).
    a. This code **SHOULD** contain zero or one [0..1] **originalText** (CONF:4515-19203).
        i. The originalText, if present, **SHOULD** contain zero or one [0..1] **reference** (CONF:4515-19204).
            1. The reference, if present, **SHOULD** contain zero or one [0..1] **@value** (CONF:4515-19205).
                a. This reference/@value **SHALL** begin with a '#' and **SHALL** point to its corresponding narrative (using the approach defined in CDA Release 2, section 4.3.5.1) (CONF:4515-19206).
    b. This @code **SHOULD** be selected from LOINC (CodeSystem: 2.16.840.1.113883.6.1) or SNOMED CT (CodeSystem: 2.16.840.1.113883.6.96), and **MAY** be selected from CPT-4 (CodeSystem: 2.16.840.1.113883.6.12) or ICD10 PCS (CodeSystem: 2.16.840.1.113883.6.4) or HCPCS (Code System: 2.16.840.1.113762.1.4.1247.9) or CDT-2 (Code System: 2.16.840.1.113883.6.13) (CONF:4515-19207).

c. If the Intervention Procedure is a Social Determinant of Health Intervention, the procedure code **SHOULD** be selected from ValueSet **Social Determinant of Health Procedures**DYNAMIC (CONF:4515-32984).

204. **SHALL** contain exactly one [1..1] **statusCode** (CONF:4515-7661).

    a. This statusCode **SHALL** contain exactly one [1..1] **@code**, which **SHALL** be selected from ValueSet **ProcedureAct statusCode** urn:oid:2.16.840.1.113883.11.20.9.22 **STATIC** 2014-04-23 (CONF:4515-32366).

205. **SHOULD** contain zero or one [0..1] **effectiveTime** (CONF:4515-7662).

206. **MAY** contain zero or one [0..1] **priorityCode**, which **SHALL** be selected from ValueSet **ActPriority** urn:oid:2.16.840.1.11.16866 **DYNAMIC** (CONF:4515-7668).

207. **MAY** contain zero or one [0..1] **methodCode** (CONF:4515-7670).

    a. MethodCode **SHALL NOT** conflict with the method inherent in Procedure / code (CONF:4515-7890).

In the case of an implanted medical device, targetSiteCode is used to record the location of the device, in or on the patient's body.

208. **SHOULD** contain zero or more [0..*] **targetSiteCode**, which **SHALL** be selected from ValueSet **Body Site Value Set** urn:oid:2.16.840.1.113883.3.88.12.3221.8.9 **DYNAMIC** (CONF:4515-7683).

209. **MAY** contain zero or more [0..*] **specimen** (CONF:4515-7697).

    a. The specimen, if present, **SHALL** contain exactly one [1..1] **specimenRole** (CONF:4515-7704).

        i. This specimenRole **SHOULD** contain zero or more [0..*] **id** (CONF:4515-7716).

            1. If you want to indicate that the Procedure and the Results are referring to the same specimen, the Procedure/specimen/specimenRole/id **SHOULD** be set to equal an Organizer/specimen/ specimenRole/id (CONF:4515-29744).

    b. This specimen is for representing specimens obtained from a procedure (CONF:4515-16842).

210. **SHOULD** contain zero or more [0..*] **performer** (CONF:4515-7718) such that it

    a. **SHALL** contain exactly one [1..1] **assignedEntity** (CONF:4515-7720).

        i. This assignedEntity **SHALL** contain at least one [1..*] **id** (CONF:4515-7722).

        ii. This assignedEntity **SHALL** contain at least one [1..*] **addr** (CONF:4515-7731).

        iii. This assignedEntity **SHALL** contain at least one [1..*] **telecom** (CONF:4515-7732).

        iv. This assignedEntity **SHOULD** contain zero or one [0..1] **representedOrganization** (CONF:4515-7733).

            1. The representedOrganization, if present, **SHOULD** contain zero or more [0..*] **id** (CONF:4515-7734).

            2. The representedOrganization, if present, **MAY** contain zero or more [0..*] **name** (CONF:4515-7735).

            3. The representedOrganization, if present, **SHALL** contain exactly one [1..1] **telecom** (CONF:4515-7737).

4. The representedOrganization, if present, **SHALL** contain exactly one [1..1] **addr** (CONF:4515-7736).

211. **SHOULD** contain zero or more [0..*] Author Participation (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.119) (CONF:4515-32479).

212. **MAY** contain zero or more [0..*] **participant** (CONF:4515-7751) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="DEV" Device (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:4515-7752).
    b. **SHALL** contain exactly one [1..1] Product Instance (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.37) (CONF:4515-15911).

213. **MAY** contain zero or more [0..*] **participant** (CONF:4515-7765) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="LOC" Location (CodeSystem: HL7ParticipationType urn:oid:2.16.840.1.113883.5.90 **STATIC**) (CONF:4515-7766).
    b. **SHALL** contain exactly one [1..1] Service Delivery Location (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.32) (CONF:4515-15912).

214. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-7768) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="COMP" Has Component (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:4515-7769).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" true (CONF:4515-8009).
    c. **SHALL** contain exactly one [1..1] **encounter** (CONF:4515-7770).
        i. This encounter **SHALL** contain exactly one [1..1] **@classCode**="ENC" Encounter (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:4515-7771).
        ii. This encounter **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:4515-7772).
        iii. This encounter **SHALL** contain exactly one [1..1] **id** (CONF:4515-7773).
            1. Set the encounter ID to the ID of an encounter in another section to signify they are the same encounter (CONF:4515-16843).

215. **MAY** contain zero or one [0..1] **entryRelationship** (CONF:4515-7775) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="SUBJ" Has Subject (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:4515-7776).
    b. **SHALL** contain exactly one [1..1] **@inversionInd**="true" true (CONF:4515-7777).
    c. **SHALL** contain exactly one [1..1] Instruction (V2) (identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.20:2014-06-09) (CONF:4515-31395).

216. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-7779) such that it
    a. **SHALL** contain exactly one [1..1] **@typeCode**="RSON" Has Reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:4515-7780).

b. **SHALL** contain exactly one [1..1] Indication (V2) `(identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.19:2014-06-09)` (CONF:4515-15914).

217. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-7886) such that it
     a. **SHALL** contain exactly one [1..1] **@typeCode**="COMP" Has Component (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002 **STATIC**) (CONF:4515-7887).
     b. **SHALL** contain exactly one [1..1] Medication Activity (V2) `(identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.16:2014-06-09)` (CONF:4515-15915).

218. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-32473) such that it
     a. **SHALL** contain exactly one [1..1] **@typeCode**="COMP" Has Component (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:4515-32474).
     b. **SHALL** contain exactly one [1..1] Reaction Observation (V2) `(identifier: urn:hl7ii:2.16.840.1.113883.10.20.22.4.9:2014-06-09)` (CONF:4515-32475).

When an Assessment Scale Observation is contained in a Procedure Template instance that is a Social Determinant of Health intervention procedure, that Assessment scale **MAY** contain Assessment Scale observations that represent LOINC question and answer pairs from SDOH screening instruments.

219. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-32985) such that it
     a. **SHALL** contain exactly one [1..1] **@typeCode**="RSON" Has reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:4515-32987).
     b. **SHALL** contain exactly one [1..1] Assessment Scale Observation `(identifier: urn:oid:2.16.840.1.113883.10.20.22.4.69)` (CONF:4515-32986).

When an Entry Reference Template is contained in a Procedure Template instance that is a Social Determinant of Health procedure, that Entry Reference **MAY** refer to Assessment Scale Observation in the same document that represent LOINC question and answer pairs from SDOH screening instruments.

220. **MAY** contain zero or more [0..*] **entryRelationship** (CONF:4515-32988) such that it
     a. **SHALL** contain exactly one [1..1] **@typeCode**="RSON" Has reason (CodeSystem: HL7ActRelationshipType urn:oid:2.16.840.1.113883.5.1002) (CONF:4515-32990).
     b. **SHALL** contain exactly one [1..1] Entry Reference `(identifier: urn:oid:2.16.840.1.113883.10.20.22.4.122)` (CONF:4515-32989).

Figure 26: Procedure Activity Procedure Example

```
<procedure classCode="PROC" moodCode="EVN">
    <!-- Procedure Activity Procedure  -->
    <templateId root="2.16.840.1.113883.10.20.22.4.14" />
    <templateId root="2.16.840.1.113883.10.20.22.4.14" extension="2014-06-09" />
    <templateId root="2.16.840.1.113883.10.20.22.4.14" extension="2022-06-01" />
    <id root="d5b614bd-01ce-410d-8726-e1fd01dcc72a" />
    <code code="103716009" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"
displayName="Stent Placement">
        <originalText>
            <reference value="#Proc1" />
        </originalText>
    </code>
    <statusCode code="completed" />
    <effectiveTime value="20130512" />
    <targetSiteCode code="28273000" displayName="bile duct"
codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT" />
    <specimen typeCode="SPC">
        <specimenRole classCode="SPEC">
            <id root="a6d7b927-2b70-43c7-bdf3-0e7c4133062c" />
            <specimenPlayingEntity>
                <code code="57259009" codeSystem="2.16.840.1.113883.6.96"
displayName="gallbladder bile" />
            </specimenPlayingEntity>
        </specimenRole>
    </specimen>
    <performer>
         ...
        </performer>
</procedure>
```

Figure 27: Procedure Activity Procedure Social Determinant of Health Intervention Example

```
<procedure classCode="PROC" moodCode="EVN">
    <templateId root="2.16.840.1.113883.10.20.22.4.14"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.14"
          extension="2014-06-09"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.14"
          extension="2022-06-01"/>
    <id extension="2448483" root="1.2.840.114350.1.13.5552.1.7.2.798268"/>
    <code code="61310001" codeSystem="2.16.840.1.113883.6.96"
          displayName="Nutrition education" codeSystemName="SNOMED-CT">
        <originalText>
            <reference value="#ProcedureDesc3"/>
        </originalText>
        <translation code="97802" codeSystem="2.16.840.1.113883.6.12"
            displayName="Medical nutrition therapy; initial"
            codeSystemName="CPT"/>
        <translation code="S9470" codeSystem="2.16.840.1.113883.6.13"
            displayName="Nutritional counseling, diet"
            codeSystemName="HCPCS"/>
    </code>
    <text>
        <reference value="#Procedure1"/>
    </text>
    <statusCode code="completed"/>
    <effectiveTime value="20160413"/>
</procedure>
```

3.16 Section Time Range Observation

```
[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.22.4.201:2016-06-
01 (open)]
```

This observation represents the date and time range of the information contained in a section. It is an optional entry and may be used in any section.