3.20 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 70: 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	
id	0..*	SHOULD		4515-7716	
performer	0..*	SHOULD		4515-7718	
assignedEntity	1..1	SHALL		4515-	

XPath	Card.	Verb	Data Type	CONF#	Value
				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..*	SHALL		4515-7737	
addr	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	
@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-	

XPath	Card.	Verb	Data Type	CONF#	Value
				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: 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)

XPath	Card.	Verb	Data Type	CONF#	Value
					= 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

1. **SHALL** contain exactly one [1..1] **@classCode**="PROC" Procedure (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:4515-7652).
2. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:4515-7653).
3. **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).
4. **SHALL** contain at least one [1..*] **id** (CONF:4515-7655).
5. **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) or CPT (CodeSystem: 2.16.840.1.113883.6.12) or ICD-10-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 ProceduresDYNAMIC** (CONF:4515-32984).
6. **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).

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

8. **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).

9. **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.

10. **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).

11. **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).

12. **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 at least one [1..*] **telecom** (CONF:4515-7737).
           4. The representedOrganization, if present, **SHALL** contain at least one [1..*] **addr** (CONF:4515-7736).

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

14. **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).

15. **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).

16. **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).

17. **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).

18. **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).

19. **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).

20. **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.

21. **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.

22. **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).

Table 71: ProcedureAct statusCode

Value Set: ProcedureAct statusCode urn:oid:2.16.840.1.113883.11.20.9.22
(Clinical Focus: Status of a procedure activity),(Data Element Scope:),(Inclusion Criteria:),(Exclusion Criteria:)

This value set was imported on 4/24/2019 with a version of 20190103.
Value Set Source:
https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.11.20.9.22/expansion

Code	Code System	Code System OID	Print Name
aborted	HL7ActStatus	urn:oid:2.16.840.1.113883.5.14	aborted
active	HL7ActStatus	urn:oid:2.16.840.1.113883.5.14	active
cancelled	HL7ActStatus	urn:oid:2.16.840.1.113883.5.14	cancelled
completed	HL7ActStatus	urn:oid:2.16.840.1.113883.5.14	completed

Table 72: ActPriority

Value Set: ActPriority urn:oid:2.16.840.1.113883.1.11.16866

(Clinical Focus: The urgency under which the Act happened, can happen, is happening, is intended to happen, or is requested/demanded to happen.),(Data Element Scope:),(Inclusion Criteria: All members of system 2.16.840.1.113883.5.7),(Exclusion Criteria:)

This value set was imported on 6/24/2019 with a version of 20190425.
Value Set Source:
https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.1.11.16866/expansion

Code	Code System	Code System OID	Print Name
A	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	ASAP
CR	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	callback results
CS	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	callback for scheduling
CSP	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	callback placer for scheduling
CSR	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	contact recipient for scheduling
EL	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	elective
EM	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	emergency
P	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	preop
PRN	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	as needed
R	HL7ActPriority	urn:oid:2.16.840.1.113883.5.7	routine
...			

Figure 48: 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 49: 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>
```

3.21 Reason (V4)

[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.24.3.88:2023-05-01
(open)]

This template describes the thought process or justification for an action or for not performing an action. Examples include patient, system, or non-problem/diagnosis medical-related reasons for declining to perform specific actions, or any reason for performing an action. Note that the parent template that calls this template can be asserted to have occurred or to not have occurred. Therefore, this template simply adds a reason to some other (possibly negated) act. As such, there is nothing in this template that says whether the parent act did or did not occur. It is expected that the primary use of this template within C-CDA is to provide the rationale for why something was not done. If this template is called by a template that is not negated, the Reason template should contain something other than a problem or a diagnosis, such as a patient preference.
The Indication (V3) observation: 2.16.840.1.113883.10.20.22.4.19 should be used to represent a diagnosis or problem to indicate the diagnosis or problem is the rationale for an action.
Immunization Refusal Reason: 2.16.840.1.113883.10.20.22.4.53 should be used to represent the rationale for the patient declining an immunization as the value set is crafted for the immunization use case.