Endocrinology: Hypoglycemia Rule: Rule: Conceptual Structure
by Knowledge Based Systems (KBS), Office of Informatics and Information Governance (OIIG), and Clinical Decision Support (CDS)

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Preface

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<table>
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<th>Date</th>
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<td>Published</td>
</tr>
<tr>
<td>May 29, 2018</td>
<td>Published</td>
</tr>
<tr>
<td>May 29, 2018</td>
<td>Reviewed</td>
</tr>
<tr>
<td>April 20, 2018</td>
<td>Pre-published</td>
</tr>
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<td>April 20, 2018</td>
<td>Created</td>
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Table 2. Clinical White Paper Contributors

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leonard Pogach, MD</td>
<td>Author</td>
<td>National Director MedicineVACO, 810 Vermont Ave. NW, Room 662 Washington, DC 20420</td>
</tr>
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<td>Author</td>
<td>Endocrinologist; Chief of Medicine, Boston VAMC; Chair of the Field Advisory Committee for Diabetes/Endocrinology, 1400 VFW Parkway, Boston, MA 02132</td>
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Table 3. Artifact Identifier

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## Artifact Applicability

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<td>PatientAgeGroup</td>
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## Models

### Table 5. Model References

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<td>urn:solor.io:anf-model:1.0</td>
<td>VA Analysis Normal Form Model</td>
</tr>
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# Chapter 1. External Data Definitions

## Definitions

### Table 1.1. PatientAge

Expression: type=elm:SingletonFrom

Annotaton:

Codes: elm:value[elm:Code]: [398166005 |Performed (qualifier value)|]elm:value[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[105726004 |Age AND/OR growth finding (finding)]

### Table 1.2. diabetesMellitusDiagnosis

Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement, codeProperty=topic, dateProperty=dateTime

Annotaton:

Codes: elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[46635009 |Diabetes mellitus type 1 (disorder)]elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[44054006 |Diabetes mellitus type 2 (disorder)]

### Table 1.3. lifeExpectancy

Expression: type=elm:Query

Annotaton:

Codes: elm:value[elm:Code]: [398166005 |Performed (qualifier value)|]elm:value[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[729d3508-98ba-4a1d-8334-9e024a0a760e |Prognosis of life expectancy (finding)]

### Table 1.4. hemoglobinA1c

Expression: type=elm:Query

Annotaton:

Codes: elm:value[elm:Code]: [398166005 |Performed (qualifier value)|]elm:value[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[43396009 |Hemoglobin A1c measurement (procedure)]

### Table 1.5. InclusionConditions

Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement, codeProperty=topic

Annotaton: Patient meets at least one of the following conditions

Codes: elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[386806002 |Impaired cognition (finding)]elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[52448006 |Dementia (disorder)]elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[118940003 |Disorder of nervous system (disorder)]elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))]->[363702006 |Has focus (attribute)]
Table 1.6. activeMedications

Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement, codeProperty=topic
Annotation: Patient is on active medications of insulin or sulfonylurea

Codes: elm:element[elm:Code]: [[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[126210001 |Human insulin product (product)]elm:element[elm:Code]: [[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[126210001 |Human insulin product (product)]elm:element[elm:Code]: [[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[126210001 |Human insulin product (product)]elm:element[elm:Code]: [[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[126210001 |Human insulin product (product)]]

Table 1.7. SerumCreatinine

Expression: type=elm:Query
Annotation: Serum creatinine greater than 1.7 mg/dL within 150 days.

Codes: elm:value[elm:Code]: [398166005 |Performed (qualifier value)|elm:value[elm:Code]: [113075003 |Creatinine measurement, serum (procedure)|]

Table 1.8. activeProblems

Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement, codeProperty=topic
Annotation: Active problem of cognitive impairment; or Active problem of dementia;

Codes: elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)] ->(363702006 |Has focus (attribute))->[386806002 |Impaired cognition

---

2
### External Data Definitions

(finding)\[elm:element[elm:Code]: [a997cc03-3e99-40eb-833a-6374c7750a3a |Observation procedure (procedure)]->(363702006 |Has focus (attribute))->[52448006 |Dementia (disorder)]\]

**Triggers**

**Table 1.9. hypoglycemiaEncounterEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement, codeProperty=topic  
Annotation: ED encounter for hypoglycemia  
Codes: elm:element[elm:Code]: [TSR-NoCode] |

**Table 1.10. InpatientHospitalDischargeEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement  
Annotation: Inpatient hospital discharge with a discharge diagnosis of hypoglycemia  
Codes: elm:element[elm:Code]: [TSR-NoCode] |

**Table 1.11. UrgentCareEncounterEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement  
Annotation: Urgent care encounter with a diagnosis of hypoglycemia  
Codes: elm:element[elm:Code]: [TSR-NoCode] |

**Table 1.12. SelfReportHypoglycemiaEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement  
Annotation: Self-report of hypoglycemia through patient portal (patient health record; PHR) or telemonitoring  
Codes: elm:element[elm:Code]: [TSR-NoCode] |

**Table 1.13. physicianOfficeVisitForHypoglycemiaEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement  
Annotation: Encounter in physician's office for hypoglycemia  
Codes: elm:element[elm:Code]: [TSR-NoCode] |

**Table 1.14. documentationOfHypoglycemicEpisodeEvent**

| Trigger: type=DataEventTrigger, DataElementAccessed  
Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement  
Annotation: Physician documentation of hypoglycemic episode during review of patient's records  
Codes: elm:element[elm:Code]: [TSR-NoCode] |
### Table 1.15. patientRecordAccess

<table>
<thead>
<tr>
<th>Trigger: type=DataEventTrigger, DataElementAccessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement</td>
</tr>
<tr>
<td>Annotation: Opening the patient’s record at time of visit</td>
</tr>
<tr>
<td>Codes: elm:element[elm:Code]: [TSR-NoCode]</td>
</tr>
</tbody>
</table>

### Table 1.16. PeriodicSystemRunForHypoglycemia

<table>
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<tr>
<th>Trigger: type=PeriodicEventTrigger,</th>
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<tbody>
<tr>
<td>Expression: type=elm:Retrieve , dataType=anf:ClinicalStatement</td>
</tr>
<tr>
<td>Annotation: Periodic system run of preventive rules Technical Note: Hypoglycemia rule is run every 150 days.</td>
</tr>
<tr>
<td>Codes: elm:element[elm:Code]: [TSR-NoCode]</td>
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</tbody>
</table>
Chapter 2. Expression Definitions

No expression definitions are present.
## Chapter 3. Symptomatic Hypoglycemia

### Conditions

| Condition: | elm:AllTrue |

<table>
<thead>
<tr>
<th>Primary Care: Symptomatic Hypoglycemia</th>
</tr>
</thead>
</table>

**Patient Episode of Hypoglycemia Alerts**

- **# Send a message to the independent practitioner saying, “Patient has had an episode of hypoglycemia. Assess hypoglycemia awareness, review management plan, and adjust medications and glycemic target range as appropriate.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```

- **# Send a message to the pharmacist saying, “Patient has had an episode of hypoglycemia. Review prescriptions and dosing instructions with the patient to help ensure understanding of medication use.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```

- **# Send a message to the care manager saying, “Patient has had an episode of hypoglycemia. Assess self-management adherence risks, understanding of action plan, hypoglycemia risk factors, and psychosocial barriers. Refer to services as needed.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```

- **# Send a message to the certified diabetes educator saying, “Patient has had an episode of hypoglycemia. Address any identified self-management issues.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```

- **# Send a message to the dietitian saying, “Patient has had an episode of hypoglycemia. Address any identified nutritional issues.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```

- **# Send a message to the social worker saying, “Patient has had an episode of hypoglycemia. Address any identified psychosocial barriers to care.”**

  ```
  actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value)

  topic: Precoordinated Expression TSR-NoCode
  ```
# Send a message to the care coordinator saying, “Patient has had an episode of hypoglycemia. Make sure that an urgent visit with the prescriber of their hypoglycemic medications is scheduled and completed.”

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the patient saying, “Review your self-management plan, including what to do if you have low blood sugar. If you have any questions, do not hesitate to contact your care team.”

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```

# Activate Documentation Template: Hypoglycemia KNART

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```

# Activate Order Set: Hypoglycemia KNART

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```

**Condition:** elm:AllTrue

Asymptomatic but at Risk for Hypoglycemia

**Hypoglycemia Risk Alerts**

# Send a message to the clinical provider saying, “Patient is at risk for hypoglycemia. Assess hypoglycemia awareness, review management plan, and adjust medications and glycemic target range as appropriate.”

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the pharmacist saying, “Patient is at risk for hypoglycemia. Review prescriptions and dosing instructions with the patient to help ensure understanding of medication use.”

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
statementType: Precoordinated Expression 385644000 |
Requested (qualifier value) |
topic: Precoordinated Expression TSR-NoCode
```
### Symptomatic Hypoglycemia

# Send a message to the care manager saying, “Patient is at risk for hypoglycemia. Assess self-management adherence risks, understanding of action plan, hypoglycemia risk factors, psychosocial barriers. Refer to services as needed.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the certified diabetes educator saying, “Patient is at risk for hypoglycemia. Address any identified self-management issues.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the dietitian saying, “Patient is at risk for hypoglycemia. Address any identified nutritional issues.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the social worker saying, “Patient is at risk for hypoglycemia. Address any identified psychosocial barriers to care.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the care coordinator saying, “Patient is at risk for hypoglycemia. Make sure that a visit with the prescriber of their hypoglycemic medications is scheduled and completed.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Send a message to the patient saying, “Review your self-management plan, including what to do if you have low blood sugar. If you have any questions, do not hesitate to contact your care team.”

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```

# Activate Documentation Template: Hypoglycemia KNART

```text
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

   statementType: Precoordinated Expression 385644000 |
   Requested (qualifier value) |
   topic: Precoordinated Expression TSR-NoCode
```
Symptomatic Hypoglycemia

# Activate Order Set: Hypoglycemia KNART

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
  statementType: Precoordinated Expression 385644000 |
  Requested (qualifier value]
  topic: Precoordinated Expression TSR-NoCode
```
# Chapter 4. Tabular List

**Terminology Service Request (TSR) Mappings**

## Table 4.1. Terminology Versions

<table>
<thead>
<tr>
<th>Name</th>
<th>Identifier</th>
<th>Version</th>
</tr>
</thead>
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<td>SNOMED CT</td>
<td>2.16.840.1.113883.6.96</td>
<td>United States Edition 20180301</td>
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## Table 4.2. Terminology References

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<thead>
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<th>Code</th>
<th>Display Text</th>
<th>References</th>
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<tbody>
<tr>
<td>SNOMED CT</td>
<td>113075003</td>
<td>Creatinine measurement, serum (procedure)</td>
<td>Precoordinated Expression</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>133936004</td>
<td>Adult (person)</td>
<td>Adult</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>33022008</td>
<td>Hospital-based outpatient department (environment)</td>
<td>Outpatient</td>
</tr>
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<td>Precoordinated Expression</td>
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<td>398166005</td>
<td>Performed (qualifier value)</td>
<td>Precoordinated Expression</td>
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<td>SNOMED CT</td>
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<td>Precoordinated Expression</td>
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<td>Administration - action (qualifier value)] - &gt;(363701004</td>
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<td>Administration (procedure)] -&gt;(260686004 [Method (attribute)]- &gt;[129445006</td>
<td>Administration - action (qualifier value)] - &gt;(363701004</td>
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<tr>
<td>System</td>
<td>Code</td>
<td>Display Text</td>
<td>References</td>
</tr>
<tr>
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</tr>
<tr>
<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Observation procedure (procedure) -&gt; (363702006</td>
<td>1</td>
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<tr>
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<td>[Has focus (attribute)] -&gt; [105529008</td>
<td>Lives alone (finding)]</td>
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<td>[Observation procedure (procedure)] -&gt; (363702006</td>
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<td>Age AND/OR growth finding (finding)]</td>
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<td>[Has focus (attribute)] -&gt; [118940003</td>
<td>Disorder of nervous system (disorder)]</td>
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<td>[Observation procedure (procedure)] -&gt; (363702006</td>
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<td>[Has focus (attribute)] -&gt; [129839007</td>
<td>At risk for falls (finding)]</td>
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<td>[Observation procedure (procedure)] -&gt; (363702006</td>
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<td></td>
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<td>Alcohol abuse (disorder)]</td>
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<td>Falls (finding) ]</td>
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<td>Homeless (finding) ]</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Has focus (attribute) -&gt; [386806002] Impaired cognition (finding)</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Has focus (attribute) -&gt; [422650009] Social isolation (finding)</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Has focus (attribute) -&gt; [43396009] Hemoglobin A1c measurement (procedure)</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Observation procedure (procedure) -&gt; (363702006</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Has focus (attribute) -&gt; [44054006] Diabetes mellitus type 2 (disorder)</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
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<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>Has focus (attribute) -&gt; [46635009] Diabetes mellitus type 1 (disorder)</td>
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<td>1</td>
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<tr>
<td>SNOMED CT</td>
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<td>Has focus (attribute) -&gt; [49601007] Disorder of cardiovascular system (disorder)</td>
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<td>SNOMED CT</td>
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<td>[Observation procedure (procedure)] -(363702006 Has focus (attribute)) -</td>
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<tr>
<td></td>
<td>&gt;[598fe10-35e6-4460-a507-d23cee99c9fa] Patient concerned about quality of life (finding)]</td>
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<tr>
<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>[Observation procedure (procedure)] -(363702006 Has focus (attribute)) -</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt;[66214007 Substance abuse (disorder)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>[Observation procedure (procedure)] -(363702006 Has focus (attribute)) -</td>
<td>1</td>
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<tr>
<td></td>
<td>&gt;[706875005 Insufficient food supply (finding)]</td>
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<td></td>
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<tr>
<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>[Observation procedure (procedure)] -(363702006 Has focus (attribute)) -</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt;[709044004 Chronic kidney disease (disorder)]</td>
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<td></td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>[a997cc03-3e99-40eb-833a-6374c7750a3a]</td>
<td>[Observation procedure (procedure)] -(363702006 Has focus (attribute)) -</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&gt;[729d3508-98ba-4a1d-8334-9e024a0a760e Prognosis of life expectancy (finding)]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a* If a code is used multiple times in the KNART, only the display text of the first instance is shown.

*b* Count of the number of times the given code system and code pair is used in the KNART.

*c* TSR-NoCode is a placeholder indicating a code was requested, but was not provided.
Chapter 5. Behavior Symbols

Table 5.1. Group Organizational Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td># Sentence Group</td>
<td>A group of related alternative actions is a sentence group if the item referenced by the action is the same in all the actions, and each action simply constitutes a different variation on how to specify the details for that item. For example, two actions that could be in a SentenceGroup are &quot;aspirin, 500 mg, 2 times per day&quot; and &quot;aspirin, 300 mg, 3 times per day&quot;. In both cases, aspirin is the item referenced by the action, and the two actions represent two different options for how aspirin might be ordered for the patient. Note that a SentenceGroup would almost always have an associated selection behavior of &quot;AtMostOne&quot;, unless it's a required action, in which case, it would be &quot;ExactlyOne&quot;.</td>
</tr>
<tr>
<td># Logical Group</td>
<td>A group with this behavior logically groups its sub-elements, and may be shown as a visual group to the end user, but it is not required to do so.</td>
</tr>
<tr>
<td>✗ Visual Group</td>
<td>Any group marked with this behavior should be displayed as a visual group to the end user.</td>
</tr>
</tbody>
</table>

Table 5.2. Group Selection Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td># Any</td>
<td>Any number of the items in the group may be chosen, from zero to all.</td>
</tr>
<tr>
<td># All</td>
<td>All the items in the group must be selected as a single unit.</td>
</tr>
<tr>
<td># AllOrNone</td>
<td>All the items in the group are meant to be chosen as a single unit: either all must be selected by the end user, or none may be selected.</td>
</tr>
<tr>
<td># ExactlyOne</td>
<td>The end user must choose one and only one of the selectable items in the group. The user may not choose none of the items in the group.</td>
</tr>
<tr>
<td>✘ AtMostOne</td>
<td>The end user may choose zero or at most one of the items in the group.</td>
</tr>
<tr>
<td>❁ OneOrMore</td>
<td>The end user must choose a minimum of one, and as many additional as desired.</td>
</tr>
</tbody>
</table>

Table 5.3. Required Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>✦ Must</td>
<td>An action with this behavior must be included in the actions processed by the end user; the end user may not choose not to include this action.</td>
</tr>
<tr>
<td>✧ Could</td>
<td>An action with this behavior may be included in the set of actions processed by the end user.</td>
</tr>
</tbody>
</table>
### Behavior Symbols

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ MustUnlessDocumented</td>
<td>An action with this behavior must be included in the set of actions processed by the end user, unless the end user provides documentation as to why the action was not included.</td>
</tr>
</tbody>
</table>

#### Table 5.4. Precheck Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲ Yes</td>
<td>An action with this behavior is one of the most frequent actions that is, or should be, included by an end user, for the particular context in which the action occurs. The system displaying the action to the end user should consider &quot;pre-checking&quot; such an action as a convenience for the user.</td>
</tr>
<tr>
<td># No</td>
<td>An action with this behavior is one of the less frequent actions included by the end user, for the particular context in which the action occurs. The system displaying the actions to the end user would typically not &quot;pre-check&quot; such an action.</td>
</tr>
</tbody>
</table>

#### Table 5.5. Cardinality Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>◆ Single</td>
<td>An action with this behavior may only be completed once.</td>
</tr>
<tr>
<td>❖ Multiple</td>
<td>An action with this behavior may be repeated multiple times.</td>
</tr>
</tbody>
</table>

#### Table 5.6. Item Flags

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>-fillIn</td>
<td>This item, in a list entry, allows the user to enter a fill in value that is not present in the set of presented choices.</td>
</tr>
</tbody>
</table>

#### Table 5.7. Read Only Behavior

<table>
<thead>
<tr>
<th>Symbol Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td># true</td>
<td>For a particular action or action group, specifies whether the elements are read only.</td>
</tr>
</tbody>
</table>
Appendix A. References

This appendix contains the list of related resources and supporting documents used in creating this KNART.

List of References

Related Resources

[CCWP] Endocrinology: Hypoglycemia Clinical Content White Paper


Supporting Evidence


References

DoD Clinical Practice Guidelines website (link [https://www.healthquality.va.gov/guidelines/CD/diabetes/VADoDDMCPGFinal508.pdf])