Cardiology: Post-Cardiac Catheterization Order Set

Order Set: Conceptual Structure

Contract: VA118-16-D-1008, Task Order (TO): VA-118-16-F-1008-0007, CLIN0008BA

Department of Veterans Affairs (VA)

Knowledge Based Systems (KBS)
Office of Informatics and Information Governance (OIIG)
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by Knowledge Based Systems (KBS), Office of Informatics and Information Governance (OIIG), and Clinical Decision Support (CDS)

B3 Group, Inc.

Cognitive Medical Systems, Inc.

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Table 1. Revision History

Date	Life Cycle Event
June 18, 2018	Published
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April 25, 2018	Reviewed
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Table 2. Clinical White Paper Contributors

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Table 3. Artifact Identifier

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:r1	04436c8e-e526-55e7-bb12-814c6b08a0d3	O19

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
TargetUser	Cardiologists			N/A	N/A
ClinicalFocus	Adult Catheterization lab patients			N/A	N/A
ClinicalVenue	Inpatient			N/A	N/A
ClinicalVenue	Cardiology Service			N/A	N/A
PatientAgeGroup	Adult patients with suspected cardiac disease requiring invavise diagnosis and/or treatment	SNOMED CT	133936004 |Adult (person)|	N/A	N/A
PatientGender	All			N/A	N/A
WorkflowTask	Cardiac Catheterization			N/A	N/A

Models

Table 5. Model References

Referenced Model	Description
urn:solor.io:anf-model:1.0	VA Analysis Normal Form Model

Chapter 1. External Data Definitions

No externalData expression definitions and no trigger definitions are present.

Chapter 2. Expression Definitions

No expression definitions are present.

Chapter 3. Post-Cath Patient Placement

Admit patient to:

Intensive Care Unit (ICU)

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

    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

    topic: Precoordinated Expression 305351004 |Admission to intensive care unit (procedure)|

Telemetry Unit

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

    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

    topic: Precoordinated Expression 1071000205100 |Admission to telemetry department (procedure)

Medical-Surgical Unit

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

    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

    topic: Precoordinated Expression 305408004 |Admission to surgical department (procedure)|

    # Other destination

    # unit?

        prompt: Unit

        response: String (Single)

        # prompt: Specify details

        response: String (Single)

Chapter 4. Vital Signs and Monitoring

Select all that apply

Vital Signs every 4 hours

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

    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

    topic: Precoordinated Expression 61746007 |Taking patient vital signs (procedure)|

    repetition[0].eventFrequency.lowerBound: 4

    repetition[0].eventFrequency.upperBound: 4

    repetition[0].eventFrequency.includeLowerBound: true

    repetition[0].eventFrequency.inludeUpperBound: true

    repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258702006 |hour (qualifier value)|

Vital signs every 15 minutes times four, then every 30 minutes times four, then every 60 minutes for duration of bed rest

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

    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

    topic: Precoordinated Expression 61746007 |Taking patient vital signs (procedure)|

    repetition[0].periodStart.upperBound: 60

    repetition[0].periodStart.includeLowerBound: true

    repetition[0].periodStart.includeUpperBound: true

    repetition[0].periodDuration.lowerBound: 60

    repetition[0].periodDuration.upperBound: 60

    repetition[0].periodDuration.includeLowerBound: true

    repetition[0].periodDuration.inludeUpperBound: true

    repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258701004 |min (qualifier value)|

    repetition[0].eventFrequency.lowerBound: 15

    repetition[0].eventFrequency.upperBound: 15

    repetition[0].eventFrequency.includeLowerBound: true

    repetition[0].eventFrequency.inludeUpperBound: true

    repetition[0].eventFrequency.resolution: 15

    repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258701004 |min (qualifier value)|

    # Telemetry Monitoring

        # prompt: Specify details

        response: String (Single)

Telemetry Monitoring

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Precoordinated Expression 422952004 | Cardiac telemetry (regime/therapy)|

Chapter 5. Activity and Hemostasis Post Cardiac Catheterization

For patient who is status post catheterization via radial artery: Select all that apply

	#	Transradial hemostasis band
		Represented Concepts: [51241000 |Control of hemorrhage (procedure)] ->(424226004 |Using device (attribute))->[c7179507-4a60-4fe0-b412-4b31320d4787 |Transradial hemostasis band, device (physical object)]
		# prompt: Specify START times for transradial band
		response: Timestamp (Single)
		responseBinding: Property ("startTime")
		# prompt: Specify STOP times for transradial band
		response: Timestamp (Single)
		responseBinding: Property ("stopTime")
		# Transradial hemostasis band as specified
		actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
		statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
		topic: Postcoordinated Expression [51241000 |Control of hemorrhage (procedure)] ->(424226004 |Using device (attribute))->[c7179507-4a60-4fe0-b412-4b31320d4787 |Transradial hemostasis band, device (physical object)]
		repetition[0].periodStart.lowerBound: startTime
		repetition[0].periodStart.upperBound: stopTime
		repetition[0].periodStart.includeLowerBound: true
		repetition[0].periodStart.includeUpperBound: true

For patient who is status post catheterization via femoral artery: Select all that apply

	Arterial closure device	
	# Arterial closure device per local policy	
	actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]	
	statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|	
	topic: Postcoordinated Expression [410619003 |Application (procedure)] ->(424226004 |Using device (attribute))->[3e6b54c1-c13c-4684-ac69-e81bd4b0d1e9 |Vascular closure device (physical object)]	
	#	Device information and instructions
		# prompt: Specify device type utilized
		response: String (Single)
		# prompt: Specify inflation pressure
		response: Integer (Single)

prompt: Specify duration

response: String (Single)

prompt: Observations

response: String (Single)

Bed rest

\#

prompt: Hours of bed rest

response: Integer (Single)

responseBinding: Property ("bedRestHours")

\# Bed rest per local policy

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Precoordinated Expression 225316001 | Bedrest (regime/therapy)|

repetition[0].periodStart.lowerBound: 1

repetition[0].periodStart.upperBound: bedRestHours

repetition[0].periodStart.includeLowerBound: true

repetition[0].periodStart.includeUpperBound: false

repetition[0].periodStart.measureSemantic: Precoordinated Expression 258702006 |hour (qualifier value)|

\# Maintain straight leg on the catheter site side during bed rest

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Precoordinated Expression b4aeb053-3ced-4c16-8a36-f6db564bcc47 |Recommendation to maintain straight leg (procedure)

\# Log roll side-to-side during bed rest as needed

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Precoordinated Expression 398213004 |Log roll (procedure)|

\# Elevate head of bed 30 degrees 2 hours after procedure

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Precoordinated Expression 423171007 |Elevation of head of bed (procedure)|

timing.lowerBound:

timing.upperBound:

timing.includeLowerBound: true

timing.inludeUpperBound: true

repetition[0].periodStart.upperBound: 1

requestedResult.lowerBound: 30

requestedResult.upperBound: 30

requestedResult.includeLowerBound: true

requestedResult.includeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 277255000 |Angular degrees (qualifier value)|

Chapter 6. Nursing Care

Nursing Care Orders

Check access site every 15 minutes times four, then every 30 minutes times four, then every 60 minutes for duration of bed rest routine

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 444713005 |Assessment of catheter entry site (procedure)|

        repetition[0].periodStart.upperBound:

        repetition[0].periodStart.includeLowerBound: true

        repetition[0].periodStart.includeUpperBound: true

        repetition[0].periodDuration.lowerBound: 60

        repetition[0].periodDuration.upperBound: 60

        repetition[0].periodDuration.includeLowerBound: true

        repetition[0].periodDuration.inludeUpperBound: true

        repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258701004 |min (qualifier value)|

        repetition[0].eventFrequency.lowerBound: 15

        repetition[0].eventFrequency.upperBound: 15

        repetition[0].eventFrequency.includeLowerBound: true

        repetition[0].eventFrequency.inludeUpperBound: true

        repetition[0].eventFrequency.resolution: 15

        repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258701004 | min (qualifier value)|

Check distal pulses every 15 minutes times four, then every 30 minutes times four, then every 60 minutes for duration of bed rest routine

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 424411004 |Peripheral pulse taking (procedure)|

        repetition[0].periodStart.upperBound:

        repetition[0].periodStart.includeLowerBound: true

        repetition[0].periodStart.includeUpperBound: true

        repetition[0].periodDuration.lowerBound: 60

        repetition[0].periodDuration.upperBound: 60

        repetition[0].periodDuration.includeLowerBound: true

        repetition[0].periodDuration.inludeUpperBound: true

        repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258701004 |min (qualifier value)|

        repetition[0].eventFrequency.lowerBound: 15

        repetition[0].eventFrequency.upperBound: 15

        repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.resolution: 15

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258701004 | min (qualifier value)|

Chapter 7. Medications

Select all that apply

Aspirin
# Aspirin 81 mg tablet orally every day
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;243670 Aspirin 81 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 |Oral (qualifier value)]

        requestedResult.lowerBound: 1

        requestedResult.upperBound: 1

        requestedResult.includeLowerBound: true

        requestedResult.inludeUpperBound: true

        requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

        repetition[0].periodDuration.lowerBound: 1

        repetition[0].periodDuration.includeLowerBound: true

        repetition[0].periodDuration.inludeUpperBound: false

        repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

        repetition[0].eventFrequency.lowerBound: 1

        repetition[0].eventFrequency.upperBound: 1

        repetition[0].eventFrequency.includeLowerBound: true

        repetition[0].eventFrequency.inludeUpperBound: true

        repetition[0].eventFrequency.resolution: 1

        repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

Clopidogrel
#
# Clopidogrel 300 tablet orally, 1 time loading dose in catheterization lab
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (at-

tribute))->[Rx;749196 clopidogrel 300 MG Oral Tablet] ->(410675002 |Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 1

requestedResult.upperBound: 1

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].eventFrequency.lowerBound: 1

repetition[0].eventFrequency.upperBound: 1

repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 246432004 |Number of occurrences (qualifier value)|

prompt: Please provide start time

response: Timestamp (Single)

prompt: Details

response: String (Single)

#

prompt: Please provide start time

response: Timestamp (Single)

Clopidogrel 600 tablet orally, 1 time loading dose in catheterization lab

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;749196 clopidogrel 300 MG Oral Tablet] ->(410675002 |Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 2

requestedResult.upperBound: 2

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].eventFrequency.lowerBound: 1

repetition[0].eventFrequency.upperBound: 1

repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 246432004 |Number of occurrences (qualifier value)|

prompt: Details

response: String (Single)

#

Clopidogrel 75 mg tablet orally every day beginning 1 day after loading dose

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;309362 clopidogrel 75 MG Oral Tablet] ->(410675002 |Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 2

requestedResult.upperBound: 2

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].periodDuration.lowerBound: 1

repetition[0].periodDuration.includeLowerBound: true

repetition[0].periodDuration.inludeUpperBound: false

repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

repetition[0].eventFrequency.lowerBound: 1

repetition[0].eventFrequency.upperBound: 1

		repetition[0].eventFrequency.includeLower-Bound: true
		repetition[0].eventFrequency.inludeUpper-Bound: true
		repetition[0].eventFrequency.resolution: 1
		repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|
	# prompt:	Please provide start time
	response:	Timestamp (Single)

Prasugrel

Prasugrel 60 mg tablet orally, 1 time loading dose in catheterization lab

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

	statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
	topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;855812 prasugrel 10 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 |Oral (qualifier value)]
	requestedResult.lowerBound: 6
	requestedResult.upperBound: 6
	requestedResult.includeLowerBound: true
	requestedResult.inludeUpperBound: true
	requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|
	repetition[0].eventFrequency.lowerBound: 1
	repetition[0].eventFrequency.upperBound: 1
	repetition[0].eventFrequency.includeLowerBound: true
	repetition[0].eventFrequency.inludeUpperBound: true
	repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 246432004 |Number of occurrences (qualifier value)|
# prompt:	Please provide start time
response:	Timestamp (Single)
# prompt:	Details
response:	String (Single)

Prasugrel 10 mg tablet orally every day beginning 1 day after loading dose

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

	statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
	topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (at-

tribute))->[Rx;855812 prasugrel 10 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 1

requestedResult.upperBound: 1

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].periodDuration.lowerBound: 1

repetition[0].periodDuration.includeLowerBound: true

repetition[0].periodDuration.inludeUpperBound: false

repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

repetition[0].eventFrequency.lowerBound: 1

repetition[0].eventFrequency.upperBound: 1

repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.resolution: 1

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

prompt: Please provide start time

response: Timestamp (Single)

Ticagrelor

Ticagrelor 180 mg tablet orally, 1 time loading dose in catheterization lab

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;1116633 Ticagrelor 90 MG] ->(410675002 |Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 2

requestedResult.upperBound: 2

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].eventFrequency.lowerBound: 1

repetition[0].eventFrequency.upperBound: 1

repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 246432004 |Number of occurrences (qualifier value)|

prompt: Please provide start time

response: Timestamp (Single)

prompt: Details

response: String (Single)

Ticagrelor 90 mg tablet orally, 2 times a day beginning 1 day after loading dose

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

statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;1116633 Ticagrelor 90 MG] ->(410675002 |Route of administration (attribute))->[260548002 |Oral (qualifier value)]

requestedResult.lowerBound: 1

requestedResult.upperBound: 1

requestedResult.includeLowerBound: true

requestedResult.inludeUpperBound: true

requestedResult.measureSemantic: Precoordinated Expression 421026006 |Oral tablet (qualifier value)|

repetition[0].periodDuration.lowerBound: 1

repetition[0].periodDuration.includeLowerBound: true

repetition[0].periodDuration.inludeUpperBound: false

repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

repetition[0].eventFrequency.lowerBound: 2

repetition[0].eventFrequency.upperBound: 2

repetition[0].eventFrequency.includeLowerBound: true

repetition[0].eventFrequency.inludeUpperBound: true

repetition[0].eventFrequency.resolution: 1

repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

prompt: Please provide start time

response: Timestamp (Single)

Chapter 8. Laboratory Tests

Comprehensive Metabolic Panel now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 1411000205104 |Comprehensive metabolic panel (procedure)

Complete blood count (CBC) now and in 8 hours; if hemoglobin decrease >2 g/dl with the second CBC or any subsequent CBC, repeat the CBC in 8 hours again

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 26604007 |Complete blood count (procedure)|

        unstructured[0]: if hemoglobin decrease greater than 2 g/dl with the second CBC or any subsequent CBC, repeat the CBC in 8 hours again

        timing.lowerBound:

        timing.upperBound:

        timing.includeLowerBound: true

        timing.inludeUpperBound: true

        timing.resolution:

Complete blood count daily

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 26604007 |Complete blood count (procedure)|

        repetition[0].periodDuration.lowerBound: 1

        repetition[0].periodDuration.includeLowerBound: true

        repetition[0].periodDuration.inludeUpperBound: false

        repetition[0].periodDuration.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

        repetition[0].eventFrequency.lowerBound: 1

        repetition[0].eventFrequency.upperBound: 1

        repetition[0].eventFrequency.includeLowerBound: true

        repetition[0].eventFrequency.inludeUpperBound: true

        repetition[0].eventFrequency.resolution: 1

        repetition[0].eventFrequency.measureSemantic: Precoordinated Expression 258703001 |day (qualifier value)|

Brain natriuretic peptide now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 390917008 |Brain natriuretic peptide measurement (procedure)|

Troponin now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 105000003 |Troponin measurement (procedure)|

Magnesium now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 38151008 |Magnesium measurement (procedure)|

INR now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 440685005 |Calculation of international normalized ratio (procedure)|

aPTT now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 42525009 |Partial thromboplastin time, activated (procedure)|

Fingerstick glucose now

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

        statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

        topic: Precoordinated Expression 302789003 |Capillary blood glucose measurement (procedure)|

Chapter 9. Imaging and Diagnostic Testing

Choose all that apply to patient

12-lead ECG postprocedural evaluation following cardiac catheterization

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

> statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
>
> topic: Precoordinated Expression 268400002 |12 lead electrocardiogram (procedure)|

12-lead ECG as needed for chest pain

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

> statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
>
> topic: Precoordinated Expression 268400002 |12 lead electrocardiogram (procedure)|
>
> purpose[0]: Postcoordinated Expression [386053000 |Evaluation procedure (procedure)] ->(363702006 |Has focus (attribute))->[29857009 |Chest pain (finding)]

> # Echocardiogram and additional parameters
>
> > # Echocardiogram postprocedural evaluation following cardiac catheterization
> >
> > actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
> >
> > > statementType: Precoordinated Expression 385644000 | Requested (qualifier value)|
> > >
> > > topic: Postcoordinated Expression [40701008 |Echocardiography (procedure)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postoperative cardiac function (procedure)]
> >
> > # prompt: Additional parameters?
> >
> > response: String (Single)

X-ray chest PA and lateral postprocedural evaluation following cardiac catheterization

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

> statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
>
> topic: Postcoordinated Expression [42869005 |Diagnostic radiography of chest, combined posteroanterior and lateral (procedure)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postoperative cardiac function (procedure)]

X-ray chest AP portable postprocedural evaluation following cardiac catheterization

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

> statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|

topic: Postcoordinated Expression [394421000119103 |Plain x-ray of chest anteroposterior view (procedure)] ->(424226004 |Using device (attribute))->[706348008 |Radiology mobile medical facility (physical object)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postoperative cardiac function (procedure)]

Chapter 10. Tabular List

Terminology Service Request (TSR) Mappings

Table 10.1. Terminology Versions

Name	Identifer	Version
SNOMED CT	2.16.840.1.113883.6.96	United States Edition 20180301
RXNorm	2.16.840.1.113883.6.88	5-Mar-18

Table 10.2. Terminology References

System	Code	Display Text[a]	References[b]
SNOMED CT	105000003 |Troponin measurement (procedure)|	Precoordinated Expression	1
SNOMED CT	1071000205100 |Admission to telemetry department (procedure)	Precoordinated Expression	1
SNOMED CT	133936004 |Adult (person)|	Adult patients with suspected cardiac disease requiring invavise diagnosis and/or treatment	1
SNOMED CT	1411000205104 |Comprehensive metabolic panel (procedure)	Precoordinated Expression	1
SNOMED CT	225316001 |Bedrest (regime/therapy)|	Precoordinated Expression	1
SNOMED CT	246432004 |Number of occurrences (qualifier value)|	Precoordinated Expression	4
SNOMED CT	258701004 |min (qualifier value)|	Precoordinated Expression	6
SNOMED CT	258702006 |hour (qualifier value)|	Precoordinated Expression	2
SNOMED CT	258703001 |day (qualifier value)|	Precoordinated Expression	10
SNOMED CT	26604007 |Complete blood count (procedure)|	Precoordinated Expression	2
SNOMED CT	268400002 |12 lead electrocardiogram (procedure)|	Precoordinated Expression	2
SNOMED CT	277255000 |Angular degrees (qualifier value)|	Precoordinated Expression	1
SNOMED CT	302789003 |Capillary blood glucose measurement (procedure)|	Precoordinated Expression	1
SNOMED CT	305351004 |Admission to intensive care unit (procedure)|	Precoordinated Expression	1

System	Code	Display Text[a]	References[b]
SNOMED CT	305408004 |Admission to surgical department (procedure)|	Precoordinated Expression	1
SNOMED CT	38151008 |Magnesium measurement (procedure)|	Precoordinated Expression	1
SNOMED CT	385644000 |Requested (qualifier value)|	Precoordinated Expression	36
SNOMED CT	390917008 |Brain natriuretic peptide measurement (procedure)|	Precoordinated Expression	1
SNOMED CT	398213004 |Log roll (procedure)|	Precoordinated Expression	1
SNOMED CT	421026006 |Oral tablet (qualifier value)|	Precoordinated Expression	8
SNOMED CT	422952004 |Cardiac telemetry (regime/therapy)|	Precoordinated Expression	1
SNOMED CT	423171007 |Elevation of head of bed (procedure)|	Precoordinated Expression	1
SNOMED CT	424411004 |Peripheral pulse taking (procedure)|	Precoordinated Expression	1
SNOMED CT	42525009 |Partial thromboplastin time, activated (procedure)|	Precoordinated Expression	1
SNOMED CT	440685005 |Calculation of international normalized ratio (procedure)|	Precoordinated Expression	1
SNOMED CT	444713005 |Assessment of catheter entry site (procedure)|	Precoordinated Expression	1
SNOMED CT	61746007 |Taking patient vital signs (procedure)|	Precoordinated Expression	2
SNOMED CT	[386053000 |Evaluation procedure (procedure)] ->(363702006 |Has focus (attribute))->[29857009	Chest pain (finding)]	Postcoordinated Expression	1
SNOMED CT	[394421000119103	Plain x-ray of chest anteroposterior view (procedure)] ->(424226004 |Using device (attribute))->[706348008 |Radiology mobile medical facility (physical object)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postopera-	Postcoordinated Expression	1

System	Code	Display Text[a]	References[b]
	tive cardiac function (procedure)]		
SNOMED CT	[40701008 |Echocardiography (procedure)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postoperative cardiac function (procedure)]	Postcoordinated Expression	1
SNOMED CT	[410619003 |Application (procedure)] ->(424226004 |Using device (attribute))->[3e6b54c1-c13c-4684-ac69-e81b-d4b0d1e9 |Vascular closure device (physical object)]	Postcoordinated Expression	1
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;1116633 Ticagrelor 90 MG] ->(410675002 |Route of administration (attribute))->[260548002 | Oral (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;243670 Aspirin 81 MG Oral Tablet] ->(410675002 |Route of administration (attribute))->[260548002 | Oral (qualifier value)]	Postcoordinated Expression	1
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - ac-	Postcoordinated Expression	1

System	Code	Display Text[a]	References[b]
	tion (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;309362 clopidogrel 75 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 | Oral (qualifier value)]		
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;749196 clopidogrel 300 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 | Oral (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;855812 prasugrel 10 MG Oral Tablet] ->(410675002 | Route of administration (attribute))->[260548002 | Oral (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[42869005 |Diagnostic radiography of chest, combined posteroanterior and lateral (procedure)] ->(363702006 |Has focus (attribute))->[370800005 |Evaluation of postoperative cardiac function (procedure)]	Postcoordinated Expression	1
SNOMED CT	[51241000 |Control of hemorrhage (procedure)] ->(424226004 |Using device (attribute))->[c7179507-4a60-4fe0-	Postcoordinated Expression	2

System	Code	Display Text[a]	References[b]
	b412-4b31320d4787 |Transradial hemostasis band, device (physical object)]		
SNOMED CT	b4ae-b053-3ced-4c16-8a36-f6d-b564bcc47 |Recommendation to maintain straight leg (procedure)	Precoordinated Expression	1

[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.

Chapter 11. Behavior Symbols

Table 11.1. Group Organizational Behavior

Symbol	Name	Definition
#	Sentence Group	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 "aspirin, 500 mg, 2 times per day" and "aspirin, 300 mg, 3 times per day". 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 "AtMostOne", unless it's a required action, in which case, it would be "ExactlyOne".
#	Logical Group	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.
➤	Visual Group	Any group marked with this behavior should be displayed as a visual group to the end user.

Table 11.2. Group Selection Behavior

Symbol	Name	Definition
#	Any	Any number of the items in the group may be chosen, from zero to all.
#	All	All the items in the group must be selected as a single unit.
#	AllOrNone	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.
#	ExactlyOne	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.
✪	AtMostOne	The end user may choose zero or at most one of the items in the group.
✳	OneOrMore	The end user must choose a minimum of one, and as many additional as desired.

Table 11.3. Required Behavior

Symbol	Name	Definition
◆	Must	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.

Sym-bol	Name	Definition
✧	Could	An action with this behavior may be included in the set of actions processed by the end user.
➢	MustUnlessDocumented	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.

Table 11.4. Precheck Behavior

Sym-bol	Name	Definition
▲	Yes	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 "pre-checking" such an action as a convenience for the user.
#	No	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 "pre-check" such an action.

Table 11.5. Cardinality Behavior

Sym-bol	Name	Definition
◆	Single	An action with this behavior may only be completed once.
❖	Multiple	An action with this behavior may be repeated multiple times.

Table 11.6. Item Flags

Sym-bol	Name	Definition
☞	fillIn	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.

Table 11.7. Read Only Behavior

Sym-bol	Name	Definition
#	true	For a particular action or action group, specifies whether the elements are read only.

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] *Cardiology: Cardiac Catheterization, Pre-Cardiac Catheterization, and Post Catheterization Clinical Content White Paper*

[CSD] *Cardiology: Post-Cardiac Catheterization Order Set Conceptual Structure Document*

[KVRpt] *Cardiology: Post-Cardiac Catheterization Order Set KNART Validation Report*

Supporting Evidence

[Greenberger 1991] *Greenberger PA, Patterson R. The prevention of immediate generalized reactions to radiocontrast media in high-risk patients. J Allergy Clin Immunol. 1991;87(4):867-872* (link [Journal of Clinical Immunology 1991])

[Maddox 2014] *Maddox TM, Plomondon ME, Petrich M, et al. A national clinical quality program for Veterans Affairs catheterization laboratories (from the Veterans Affairs clinical assessment, reporting, and tracking program). Am J Cardiol. 2014;114(11):1750-1757* (link [https://doi.org/10.1016/j.amjcard.2014.08.045])

[Patel 2012] *Patel MR, Bailey SR, Bonow RO, et al. ACCF/SCAI/AATS/AHA/ASE/ASNC/HFSA/HRS/SCCM/SCCT/SCMR/STS 2012 appropriate use criteria for diagnostic catheterization. Cathet Cardiovasc Intervent. 2012;80(3):E50-E81* (link [https://doi.org/10.1016/j.jtcvs.2012.04.013])

[Dolgen Corp] *U.S. National Library of Medicine. ASPIRIN 81 MG (aspirin) tablet, coated [DOLGENCORP, LLC]. Revised January 2017* (link [http://dailymed.nlm.nih.gov/dailymed/lookup.cfm?setid=b4064039-2345-4227-b83d-54dc13a838d3])

[AstraZeneca] *U.S. National Library of Medicine. BRILINTA- ticagrelor tablet [AstraZeneca Pharmaceuticals LP]. Revised April 2017* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f7b3f443-e83d-4bf2-0e96-023448fed9a8.])

[Apotex] *U.S. National Library of Medicine. CLOPIDOGREL- clopidogrel bisulfate tablet, film coated [Apotex Corp.]. Revised November 2016* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=edae8d-f1-caf9-ff72-1304-5ae8b355f8e7])

[Upjohn and Company] *U.S. National Library of Medicine. DELTASONE- prednisone tablet [Pharmacia and Upjohn and Company]. Revised March 2007* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=3400d26a-41cb-40e4-99b4-780e1e0ec561])

[Sam's West Inc] *U.S. National Library of Medicine. DIPHENHYDRAMINE- diphenhydramine hcl tablet, coated [Sam's West Inc]. Revised June 2016* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=70a584ab-9e24-404a-aad7-f9a05c377248])

[APP Pharmaceuticals] *U.S. National Library of Medicine. DIPHENHYDRAMINE- diphenhydramine hydrochloride injection, solution [APP Pharmaceuticals, LLC]. Revised January 2012* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=fc574e74-1fdc-4a61-a1ed-492ae43faed2])

[URL] *U.S. National Library of Medicine. EFFIENT- prasugrel hydrochloride tablet, film coated [Eli Lilly and Company]. Revised July 2016* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=5fe9c118-c44b-48d7-a142-9668ae3df0c6])

[URL2] *U.S. National Library of Medicine. SOLU-CORTEF- hydrocortisone sodium succinate injection, powder, for solution [Pharmacia and Upjohn Company LLC]. Revised October 2016* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=65eefd58-b166-4d71-ade6-45c8fdf86922])

[Valgimigli 2015] *Valgimigli M, Gagnor A, Calabró P, et al. Radial versus femoral access in patients with acute coronary syndromes undergoing invasive management: a randomised multicentre trial. Lancet. 2015;385(9986):2465-2476* (link [https://doi.org/10.1016/j.amjcard.2014.08.045])