

Women's Health: Diagnostic Breast Imaging Order Set

Order Set: Conceptual Structure

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

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Women's Health: Diagnostic Breast Imaging Order Set: Order Set: Conceptual Structure

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

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Abstract

Diagnostic Breast Imaging

B3 Group, Inc.

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Preface

Table 1. Revision History

Date	Life Cycle Event
June 18, 2018	Published
May 18, 2018	Published
May 18, 2018	Reviewed
April 19, 2018	Pre-published
April 19, 2018	Created

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	a06a1f93-71f9-5c4b-b14b-731f4e1cf7a5	B32

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
TargetUser	Primary Care Provider	SNOMED CT	453231000124104 Primary care provider (occupation)	N/A	N/A
TargetUser	Gynecologist			N/A	N/A
ClinicalVenue	Outpatient	SNOMED CT	33022008 Hospital-based outpatient department (environment)	N/A	N/A
ClinicalFocus	Primary Care, Gynecology, Interventional Radiology, Pathology, Oncology, Surgery			N/A	N/A
PatientGender	Female	SNOMED CT	248152002 Female (finding)	N/A	N/A
PatientAgeGroup	Adult	SNOMED CT	133936004 Adult (person)	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

Definitions

Table 1.1. PatientGenderFemale

Expression: type=elm:SingletonFrom Annotation: Codes: elm:element[elm:Code]: [[a997cc03-3e99-40eb-833a-6374c7750a3a Observation procedure (procedure)] ->(363702006 Has focus (attribute))->[248152002 Female (finding)]]
--

Triggers

No trigger definitions are present.

Chapter 2. Expression Definitions

No expression definitions are present.

Chapter 3. Obtain Prior Films

Request prior films

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

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

topic: Precoordinated Expression TSR-NoCode

prompt: Location of prior films

response: String (Single)

prompt: Consent from patient to obtain

response: Boolean (Single)

Chapter 4. Obtain Prior Pathology Specimens

Request prior pathology specimens

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

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

topic: Postcoordinated Expression [24623002 |Screening
mammography (procedure)]- -(405813007 |Procedure site
- Direct (attribute))->(76752008 |Breast structure (body
structure))- -(272741003 |Laterality (attribute))->[24028007 |
Right (qualifier value)];

prompt: Location of pathology specimens

response: String (Single)

prompt: Consent from patient to obtain

response: Boolean (Single)

Chapter 5. Imaging

Screening Mammography

Screening mammogram to be scheduled when next due if no criteria for diagnostic imaging are met.

prompt: Location

response: Code (Single)

response range: EnumerationConstraint (List)

item: Right breast([24623002 |Screening mammography (procedure)]- -(405813007 |Procedure site - Direct (attribute))->(76752008 |Breast structure (body structure)]- -(272741003 |Laterality (attribute))->[24028007 |Right (qualifier value)]);)

item: Left breast([24623002 |Screening mammography (procedure)]- -(405813007 |Procedure site - Direct (attribute))->(76752008 |Breast structure (body structure)]- -(272741003 |Laterality (attribute))->[7771000 |Left (qualifier value)]);)

item: Bilateral breasts(384151000119104 |Screening mammography of bilateral breasts (procedure))

responseBinding: Property ("Screening mammogram location")

Screening Mammography

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

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

topic: Screening mammogram location

prompt: Indications

response: String (Single)

initialValue: elm:Literal (String) Screening mammogram

prompt: Priority-Routine

response: String (Single)

initialValue: elm:Literal (String) Routine

prompt: Additional details

response: String (Single)

Diagnostic Mammography in 6 months

For evaluation of BI-RADS Category 3 screening mammography in 6 months.

prompt: Location

response: Code (Single)

response range: EnumerationConstraint (List)

item: Right breast([71651007 |Mammography (procedure)]- -(405813007 |Procedure site - Direct (attribute))->(76752008 |Breast structure (body structure)]- -(272741003 |Laterality (attribute))->[7771000 |Left (qualifier value)]);)

```

        item: Left breast([71651007 |Mammography (procedure)]- -
            >(405813007 |Procedure site - Direct (attribute))->(76752008
            |Breast structure (body structure)]- ->(272741003 |Laterality
            (attribute))->[24028007 |Right (qualifier value)];)

        item: Bilateral breasts(43204002 |Bilateral mammography
            (procedure))

responseBinding: Property ("Diagnostic Mammography Location")
# Diagnostic Mammography in six months from today
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
        statementType: Precoordinated Expression 385644000 |
        Requested (qualifier value)|
        topic: Diagnostic Mammography Location
        timing.lowerBound:
        timing.upperBound:
        timing.includeLowerBound: true
        timing.includeUpperBound: true
        timing.resolution: 6

        # prompt: Indications
        response: String (Single)
initialValue: elm:Literal (String) Follow up BI-RADS Category 3 screening mammography
        # prompt: Priority-Routine
        response: String (Single)
initialValue: elm:Literal (String) Routine
        # prompt: Additional details
        response: String (Single)
# Diagnostic Mammography
For immediate evaluation of breast symptoms/clinical exam findings.

```

```

        # prompt: Location
        response: Code (Single)
        response range: EnumerationConstraint (List)
        item: Right breast([71651007 |Mammography (procedure)]- -
            >(405813007 |Procedure site - Direct (attribute))->(76752008
            |Breast structure (body structure)]- ->(272741003 |Laterality
            (attribute))->[24028007 |Right (qualifier value)];)

        item: Left breast([71651007 |Mammography (procedure)]- -
            >(405813007 |Procedure site - Direct (attribute))->(76752008
            |Breast structure (body structure)]- ->(272741003 |Laterality
            (attribute))->[7771000 |Left (qualifier value)];)

        item: Bilateral breasts(43204002 |Bilateral mammography
            (procedure))

responseBinding: Property ("Diagnostic Mammography Location Now")
# Diagnostic Mammography Now
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

```

	<p>statementType: Precoordinated Expression 385644000 Requested (qualifier value) </p> <p>topic: Diagnostic Mammography Location Now</p> <p>priority: Precoordinated Expression 50811001 Routine (qualifier value) </p> <p># prompt: Indications</p> <p>response: String (Single)</p> <p>initialValue: elm:Literal (String) Evaluate breast symptoms/clinical exam findings.</p> <p># prompt: Priority-Now</p> <p>response: String (Single)</p> <p>initialValue: elm:Literal (String) Now</p> <p># prompt: Specify symptoms, prior result, and/or exam findings</p> <p>response: String (Single)</p> <p># prompt: Additional details</p> <p>response: String (Single)</p>
# Ultrasound Breast	<p>For immediate evaluation of breast symptoms/clinical exam findings.</p> <hr/> <p># prompt: Location</p> <p>response: Code (Single)</p> <p>response range: EnumerationConstraint (List)</p> <p>item: Right breast([47079000 Ultrasonography of breast (procedure)]- -(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- -(272741003 Laterality (attribute))->[24028007 Right (qualifier value)]);)</p> <p>item: Left breast([47079000 Ultrasonography of breast (procedure)]- -(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- -(272741003 Laterality (attribute))->[7771000 Left (qualifier value)]);)</p> <p>item: Bilateral breasts(1571000087109 Ultrasonography of bilateral breasts (procedure))</p> <p>responseBinding: Property ("Ultrasound Breast Location")</p> <p># Ultrasound Breast Now</p> <p>actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]</p> <p>statementType: Precoordinated Expression 385644000 Requested (qualifier value) </p> <p>topic: Ultrasound Breast Location</p> <p>priority: Precoordinated Expression 50811001 Routine (qualifier value) </p> <p># prompt: Indications</p> <p>response: String (Single)</p> <p>initialValue: elm:Literal (String) Abnormal breast symptoms, clinical exam findings, and/or abnormal mammogram</p>

	<p># prompt: Priority-Now response: String (Single)</p> <p>initialValue: elm:Literal (String) Now</p> <p># prompt: Specify symptoms, prior result, and/or exam findings response: String (Single)</p> <p># prompt: Additional details response: String (Single)</p>
# MRI Breast	<p>For immediate evaluation of breast symptoms/clinical exam findings.</p> <hr/> <p># prompt: Location response: String (Single) response range: EnumerationConstraint (List)</p> <p>item: Right breast([241615005 Magnetic resonance imaging of breast (procedure)]- -(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- -(272741003 Laterality (attribute))->[24028007 Right (qualifier value)]);)</p> <p>item: Left breast([241615005 Magnetic resonance imaging of breast (procedure)]- -(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- -(272741003 Laterality (attribute))->[7771000 Left (qualifier value)]);)</p> <p>item: Bilateral breasts(734951009 Magnetic resonance imaging of bilateral breasts (procedure))</p> <p>responseBinding: Property ("MRI Breast Location")</p> <p># MRI Breast Now</p> <p>actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]</p> <p>statementType: Precoordinated Expression 385644000 Requested (qualifier value) topic: MRI Breast Location priority: Precoordinated Expression 50811001 Routine (qualifier value) </p> <p># prompt: Indications response: String (Single)</p> <p>initialValue: elm:Literal (String) Abnormal breast symptoms, clinical exam findings, and/or abnormal mammogram</p> <p># prompt: Priority-Now response: Code (Single)</p> <p>initialValue: elm:Literal (Code) Now</p> <p># prompt: Specify symptoms, prior result, and/or exam findings response: String (Single)</p> <p># prompt: Additional details response: String (Single)</p>

External Breast Imaging

Obtain outside breast imaging results and import into VA system

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

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

topic: Precoordinated Expression TSR-NoCode

prompt: Priority-Now

response: String (Single)

initialValue: elm:Literal (String) Now

prompt: Location

response: String (Single)

prompt: Date

response: Timestamp (Single)

prompt: Type of imaging

response: String (Single)

Chapter 6. Consult Requests

```
# Consult Interventional Radiology evaluate for breast biopsy now
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

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

    topic: Precoordinated Expression d862590d-875b-44b8-
    a7fc-791ed707093c |Interventional radiology consultation and
    report (procedure)|

    purpose[0]: Postcoordinated Expression [386053000 |
    Evaluation procedure (procedure)] ->(363702006 |Has focus
    (attribute))->[122548005 |Biopsy of breast (procedure)]

# Consult Surgery evaluate for breast biopsy now
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

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

    topic: Precoordinated Expression
    0de4d032-8955-4b77-9916-1f0bd6d46634 |Surgery
    consultation and report (procedure)|

    purpose[0]: Postcoordinated Expression [386053000 |
    Evaluation procedure (procedure)] ->(363702006 |Has focus
    (attribute))->[122548005 |Biopsy of breast (procedure)]

# Consult Oncology evaluate for breast biopsy now
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

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

    topic: Precoordinated Expression c06aa33a-92aa-42cc-8f86-
    eb5bc3d93348 |Oncology consultation and report (procedure)|

    purpose[0]: Postcoordinated Expression [386053000 |
    Evaluation procedure (procedure)] ->(363702006 |Has focus
    (attribute))->[122548005 |Biopsy of breast (procedure)]

# Consult Radiology for review of outside breast imaging study or studies
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]

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

    topic: Precoordinated Expression 28191001 |Consultation and
    report by radiologist (procedure)|

    unstructured[0]: Review of outside breast imaging study or
    studies

    purpose[0]: Postcoordinated Expression [386053000 |
    Evaluation procedure (procedure)] ->(363702006 |Has focus
    (attribute))->[452331000124102 |Review of imaging finding
    (procedure)]

# Consult Pathology for review of outside specimen(s)
```

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

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

topic: Precoordinated Expression 726007 |Pathology
consultation, comprehensive, records and specimen with report
(procedure)|

unstructured[0]: Review of outside specimen(s)

purpose[0]: Postcoordinated Expression [386053000 |
Evaluation procedure (procedure)] -(363702006 |Has focus
(attribute))->[ddab1e86-a772-4b21-ba49-1ff285a63f81 |
Review of specimen finding (procedure)]

Chapter 7. Patient and Caregiver Education

```
# Abnormal mammogram education (patient-appropriate materials)
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |
    Requested (qualifier value)|
    topic: Postcoordinated Expression [409073007 |Education
    (procedure)] ->(363702006 |Has focus (attribute))-
    >[168750009 |Mammography abnormal (finding)]
    unstructured[0]: patient-appropriate materials

# Breast symptom education (patient-appropriate materials)
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |
    Requested (qualifier value)|
    topic: Postcoordinated Expression [409073007 |Education
    (procedure)] ->(363702006 |Has focus (attribute))-
    >[198116001 |Breast signs and symptoms (finding)]
    unstructured[0]: patient-appropriate materials

# Clinical breast exam finding education (patient-appropriate materials)
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |
    Requested (qualifier value)|
    topic: Postcoordinated Expression [409073007 |Education
    (procedure)] ->(363702006 |Has focus (attribute))-
    >[163433006 |On examination - general breast examination
    (finding)]
    unstructured[0]: patient-appropriate materials

# Diagnostic breast imaging education (patient-appropriate materials)
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |
    Requested (qualifier value)|
    topic: Postcoordinated Expression [409073007 |Education
    (procedure)] ->(363702006 |Has focus (attribute))-
    >[85b90625-b862-4a8e-8cdc-2db834f88e86 |Imaging of breast
    (procedure)]
    unstructured[0]: patient-appropriate materials

# Breast biopsy education (patient-appropriate materials)
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |
    Requested (qualifier value)|
```

topic: Postcoordinated Expression [409073007 |Education
(procedure)] ->(363702006 |Has focus (attribute))-
>[122548005 |Biopsy of breast (procedure)]
unstructured[0]: patient-appropriate materials

Chapter 8. Tabular List

Terminology Service Request (TSR) Mappings

Table 8.1. Terminology Versions

Name	Identifier	Version
SNOMED CT	2.16.840.1.113883.6.96	United States Edition 20180301

Table 8.2. Terminology References

System	Code	Display Text ^a	References ^b
SNOMED CT	0de4d032-8955-4b77-9916-ff0000000000 Surgery consultation and report (procedure)	Precoordinated Expression	1
SNOMED CT	133936004 Adult (person)	Adult	1
SNOMED CT	1571000087109 Ultrasonography of bilateral breasts (procedure)	Bilateral breasts	1
SNOMED CT	248152002 Female (finding)	Female	1
SNOMED CT	28191001 Consultation and report by radiologist (procedure)	Precoordinated Expression	1
SNOMED CT	33022008 Hospital-based outpatient department (environment)	Outpatient	1
SNOMED CT	384151000119104 Screening mammography of bilateral breasts (procedure)	Bilateral breasts	1
SNOMED CT	385644000 Requested (qualifier value)	Precoordinated Expression	18
SNOMED CT	43204002 Bilateral mammography (procedure)	Bilateral breasts	2
SNOMED CT	453231000124104 Primary care provider (occupation)	Primary Care Provider	1
SNOMED CT	50811001 Routine (qualifier value)	Precoordinated Expression	3
SNOMED CT	726007 Pathology consultation, comprehensive, records and specimen with report (procedure)	Precoordinated Expression	1

System	Code	Display Text ^a	References ^b
SNOMED CT	734951009 Magnetic resonance imaging of bilateral breasts (procedure)	Bilateral breasts	1
SNOMED CT	TSR-NoCode ^c	Precoordinated Expression	2
SNOMED CT	[241615005 Magnetic resonance imaging of breast (procedure)]- ->(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[24028007 Right (qualifier value)];	Right breast	1
SNOMED CT	[241615005 Magnetic resonance imaging of breast (procedure)]- ->(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[7771000 Left (qualifier value)];	Left breast	1
SNOMED CT	[24623002 Screening mammography (procedure)]- ->(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[24028007 Right (qualifier value)];	Postcoordinated Expression	2
SNOMED CT	[24623002 Screening mammography (procedure)]- ->(405813007 Procedure site - Direct (attribute))->(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[7771000 Left (qualifier value)];	Left breast	1
SNOMED CT	[386053000 Evaluation procedure (procedure)] ->(363702006 Has focus (attribute))-	Postcoordinated Expression	3

System	Code	Display Text ^a	References ^b
	>[122548005 Biopsy of breast (procedure)]		
SNOMED CT	[386053000 Evaluation procedure (procedure)] ->(363702006 Has focus (attribute))->[452331000124102 Review of imaging finding (procedure)]	Postcoordinated Expression	1
SNOMED CT	[386053000 Evaluation procedure (procedure)] ->(363702006 Has focus (attribute))->[ddab1e86-a772-4b21-ba49-1ff285a63f81 Review of specimen finding (procedure)]	Postcoordinated Expression	1
SNOMED CT	[409073007 Education (procedure)] ->(363702006 Has focus (attribute))->[122548005 Biopsy of breast (procedure)]	Postcoordinated Expression	1
SNOMED CT	[409073007 Education (procedure)] ->(363702006 Has focus (attribute))->[163433006 On examination - general breast examination (finding)]	Postcoordinated Expression	1
SNOMED CT	[409073007 Education (procedure)] ->(363702006 Has focus (attribute))->[168750009 Mammography abnormal (finding)]	Postcoordinated Expression	1
SNOMED CT	[409073007 Education (procedure)] ->(363702006 Has focus (attribute))->[198116001 Breast signs and symptoms (finding)]	Postcoordinated Expression	1
SNOMED CT	[409073007 Education (procedure)] ->(363702006 Has focus (attribute))->[85b90625-b862-4a8e-8cdc-2db834f88e86 Imaging of breast (procedure)]	Postcoordinated Expression	1
SNOMED CT	[47079000 Ultrasonography of	Right breast	1

System	Code	Display Text ^a	References ^b
	breast (procedure)]- - >(405813007 Procedure site - Direct (attribute))- >(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[24028007 Right (qualifier value)];		
SNOMED CT	[47079000 Ultrasonography of breast (procedure)]- - >(405813007 Procedure site - Direct (attribute))- >(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[7771000 Left (qualifier value)];	Left breast	1
SNOMED CT	[71651007 Mammography (procedure)]- - >(405813007 Procedure site - Direct (attribute))- >(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[24028007 Right (qualifier value)];	Left breast	2
SNOMED CT	[71651007 Mammography (procedure)]- - >(405813007 Procedure site - Direct (attribute))- >(76752008 Breast structure (body structure)]- ->(272741003 Laterality (attribute))->[7771000 Left (qualifier value)];	Right breast	2
SNOMED CT	[a997cc03-3e99-40eb-833a- 6374c07502a2 Observation procedure (procedure)] ->(363702006 Has focus (attribute))- >[248152002 Female (finding)]	Precoordinated Expression	1
SNOMED CT	c06aa33a-92aa-42cc-8f86- eb5bc3d93348 Oncology consultation and report (procedure)	Precoordinated Expression	1
SNOMED CT	d862590d-875b-44b8- a7fc-791ed707093c Interventional radiology	Precoordinated Expression	1

Tabular List

System	Code	Display Text^a	References^b
	consultation and report (procedure)		

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

^bCount of the number of times the given code system and code pair is used in the KNART.

^cTSR-NoCode is a placeholder indicating a code was requested, but was not provided.

Chapter 9. Behavior Symbols

Table 9.1. 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 9.2. 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 9.3. 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.
◇	Could	An action with this behavior may be included in the set of actions processed by the end user.

Symbol	Name	Definition
➤	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 9.4. Precheck Behavior

Symbol	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 9.5. Cardinality Behavior

Symbol	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 9.6. Item Flags

Symbol	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 9.7. Read Only Behavior

Symbol	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] *Women's Health: Diagnostic Breast Imaging Clinical Content White Paper*

[CSD] *Women's Health: Diagnostic Breast Imaging Order Set Conceptual Structure Document*

[KVRpt] *Women's Health: Diagnostic Breast Imaging Order Set KNART Validation Report*

Supporting Evidence

[ACS 2017] *American Cancer Society. Lifetime Probability of Developing and Dying from Cancer, 2011-2013. American Cancer Society, Surveillance Research, 2017. Cancer Facts & Figures 2017 website.* (link [<https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2017/lifetime-probability-of-developing-and-dying-from-cancer-2011-2013.pdf>])

[ACR 2013] *American College of Radiology, Quality and Safety Resources – Breast Imaging - Reporting and Data Systems (BI-RADS) Atlas. 5th edition. 2013.* (link [<https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/Bi-Rads>])

[ACR 5TIER] *Radiopedia - 5-tier American College of Radiology (ACR) system of radiologic breast findings.* (link [<https://radiopaedia.org/articles/5-tier-acr-system-of-radiologic-breast-findings>])

[BIRADS FINAL] *Radiology Assistant - BI-RADS Final Assessment.* (link [<http://www.radiologyassistant.nl/en/p53b4082c92130/bi-rads-for-mammography-and-ultrasound-2013.html#in53b4389d91374>])

[BIRADS Mammography] *American College of Radiology. ACR BI-RADS Atlas 5th Edition – Mammography: Reporting System. American College of Radiology website.* (link [<https://www.acr.org/-/media/ACR/Files/RADS/BI-RADS/Mammography-Reporting.pdf>])

[BIRADS Ultrasound] *American College of Radiology. ACR BI-RADS Atlas 5th Edition – Ultrasound: Reporting System. American College of Radiology website.* (link [<https://www.acr.org/-/media/ACR/Files/RADS/BI-RADS/US-Reporting.pdf>])

[NCCN 2017] *National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Breast Cancer Screening and Diagnosis, Version 1.2017. National Comprehensive Cancer Network Guidelines website.* (link [https://www.nccn.org/professionals/physician_gls/pdf/breast-screening.pdf])

[Oeffinger 2015] *KC Oeffinger, ETH Fontham, R Etzioni, and et al. Breast Cancer Screening for Women at Average Risk: 2015 Guideline Update from the American Cancer Society. JAMA. 2015;314(15):1599-1614* (link [<https://doi.org/10.1001/jama.2015.12783>])