

# **Women's Health: Breast Cancer Screening Documentation Template**

## **Documentation Tem- plate: Conceptual Structure**

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**Department of Veterans Affairs (VA)**



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

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# **Women's Health: Breast Cancer Screening Documentation Template: Documentation Template: Conceptual Structure**

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

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# Preface

**Table 1. Revision History**

Date	Life Cycle Event
April 16, 2018	Published
April 16, 2018	Reviewed
April 10, 2018	Reviewed
January 18, 2018	Created

**Table 2. Clinical White Paper Contributors**

Name	Role	Affiliation
C. Yvette Williams-Harris, MD, MPH	Author	Physician, 1670 Clairmont Rd Atlanta, GA 30033
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Caitlin M. Cusack, MD, MPH	Author	Contractor- Physician Informaticist, Office of Women's Health Services, 8455 Colesville Rd, 12th Floor Silver Spring, MD 20910

**Table 3. Artifact Identifier**

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:r1	2c790646-af49-53e-f-983d-f2923f0afb9c	B53

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# Artifact Applicability

**Table 4. Applicability Foci, Description and Codes**

Focus	Description	Code System Name	Code System	Code	Code System Version	Value Set	Value Set Version
PatientAgeGroup	Female outpatients over the age of 18						
ClinicalVenue	Primary Care						
ClinicalVenue	Obstetrics/Gynecology		SNOMED CT	702892004 Obstetrics and gynecology clinic (environment)			
ClinicalVenue	Women's Health		SNOMED CT	2651000175101 Women's health service (qualifier value)			

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# Models

**Table 5. Model References**

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

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# Chapter 1. External Data Definitions

No external data definitions present.



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# Chapter 2. Expression Definitions

**Table 2.1. mammographyImage**

Expression: type=elm:Query
Annotation:
Codes: elm:value[elm:Code]: [398166005  Performed (qualifier value)]elm:value[elm:Code]: [71651007  Mammography (procedure)]

**Table 2.2. mammographyImageInterpretation**

Expression: type=elm:Query
Annotation:
Codes: elm:value[elm:Code]: [398166005  Performed (qualifier value)]elm:value[elm:Code]: [[370851004  Evaluation of diagnostic study results (procedure)] ->(363702006  Has focus (attribute))->[71651007  Mammography (procedure)]]

**Table 2.3. biopsy**

Expression: type=elm:Query
Annotation:
Codes: elm:value[elm:Code]: [398166005  Performed (qualifier value)]elm:value[elm:Code]: [122548005  Biopsy of breast (procedure)]

---

# Chapter 3. Breast Cancer Screening History

Represented Concepts: 268547008 |Screening for malignant neoplasm of breast (procedure)|

prompt: Does the patient have breast implants?

re- Boolean (Single)

sponse:

prompt: Does the patient have a history of breast cancer screening?

re- Boolean (Single)

sponse:

**responseBinding:** Property ("historyOfBreastCancerScreening")

---

**Condition:**elm:IsTrue ( elm:Property("historyOfBreastCancerScreening" from: elm:ParameterRef (Responses) ) )

prompt: Date

response: Timestamp (Single)

prompt: Location

response: String (Single)

prompt: Results

response: Tuple (Single)

**initalValue:** mammographyImageInterpretation

prompt: Mammography image

response: Tuple (Single)

**initalValue:** mammographyImage

**Condition:**elm:IsTrue ( elm:Property("historyOfBreastCancerScreening" from: elm:ParameterRef (Responses) ) )

prompt: Does the patient have a history of abnormal breast imaging and/or history of treatment for breast abnormality?

response: Boolean (Single)

**responseBinding:** Property ("historyOfAbnormalBreastImaging")

**Condition:**elm:IsTrue ( elm:Property("historyOfAbnormalBreastImaging" from: elm:ParameterRef (Responses) ) )

prompt: Date

response: Timestamp (Single)

prompt: Location

response: String (Single)

prompt: Abnormal Results

response: Tuple (Single)

**initalValue:** mammographyImageInterpretation

prompt: Abnormal Mammography image

<p>response: Tuple (Single)</p> <p><b>initialValue:</b> mammographyImage</p> <p>prompt: Clinical Comments</p> <p>response: String (Single)</p> <p>prompt: Does the patient have a history of mammographically dense breasts?</p> <p>response: Boolean (Single)</p> <p>prompt: Does the patient have a history of a breast biopsy?</p> <p>response: Boolean (Single)</p> <p><b>responseBinding:</b> Property ("historyOfBreastBiopsy")</p> <p><b>Condition:</b>elm:IsTrue ( elm:Property("historyOfBreastBiopsy" from: elm:ParameterRef (Responses) ) )</p> <p>prompt: Biopsy Results</p> <p>response: Tuple (Single)</p> <p><b>initialValue:</b> biopsy</p>
---

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# Chapter 4. Breast Cancer Risk Assessment

prompt: Does the patient have a personal history of any breast cancer including ductal carcinoma in situ (DCIS)?

re- Boolean (Single)

sponse:

prompt: Does the patient have a history of chest wall radiation prior to the age of 31?

re- Boolean (Single)

sponse:

prompt: Does the patient have a history of known or suspected genetic mutation that increases risk of breast cancer, such as BRCA?

re- Boolean (Single)

sponse:

**responseBinding:** Property ("historyOfGeneticMutation")

**Condition:**elm.IsTrue ( elm:Property("historyOfGeneticMutation" from: elm:ParameterRef (Responses) ) )

prompt: Genetic mutation details

re- String (Single)

sponse:

prompt: Does the patient have any first degree relatives with ovarian cancer?

re- Boolean (Single)

sponse:

prompt: Does the patient have any first degree relatives with early breast cancer (breast cancer diagnosed prior to age 40)?

re- Boolean (Single)

sponse:

prompt: Does the patient have a history of prior diagnosis of benign proliferative breast disease?

re- Boolean (Single)

sponse:

prompt: Does the patient have an estimated lifetime risk of approximately 20% or greater, as defined by risk assessment models such as the Breast Cancer Risk Assessment Tool <https://www.cancer.gov/bcrisktool/>?

re- Boolean (Single)

sponse:

**responseBinding:** Property ("estimatedLifetimeRisk")

---

<b>Condition:</b> elm.IsTrue ( elm:Property("estimatedLifetimeRisk" from: elm:ParameterRef (Responses) ) )
--

Evaluate the patient's risk factors and determine the need for genetic evaluation and/or early, more frequent, or additional breast imaging.
--

prompt: Genetic Evaluation Details
------------------------------------

response: String (Single)
---------------------------

---

# Chapter 5. Decline Breast Cancer Screening

prompt: After discussing the need for breast cancer screening, does the patient decline screening?

response: Boolean (Single)

**responseBinding:** Property ("declineScreening")

**Condition:**elm:IsTrue ( elm:Property("declineScreening" from: elm:ParameterRef (Responses) ) )

prompt: Patient reason for declining screening.

response: String (Single)

---

## Chapter 6. Stop Breast Cancer Screening

prompt: Does the patient have a history of bilateral mastectomy?

response: Boolean (Single)

prompt: Does the patient have a life expectancy less than 6 months?

response: Boolean (Single)

prompt: As the patient's provider, do you feel that there is no net benefit to screening due to life expectancy less than 10 years, or that due to comorbidities the patient will be unable to tolerate further workup or treatment if breast cancer screening were positive?

response: Boolean (Single)

**responseBinding:** Property ("noNetBenefitToScreening")

**Condition:**elm:IsTrue ( elm:Property("noNetBenefitToScreening" from: elm:ParameterRef (Responses) ) )

prompt: Date counseled

response: Timestamp (Single)

prompt: Does the patient have any reason to stop screening in addition to or other than the ones listed above in this section?

response: Boolean (Single)

**responseBinding:** Property ("additionalReasonTostopScreening")

**Condition:**elm:IsTrue ( elm:Property("additionalReasonTostopScreening" from: elm:ParameterRef (Responses) ) )

prompt: Additional reason to stop screening.

response: String (Single)

---

# Chapter 7. Tabular List

## *Terminology Service Request (TSR) Mappings*

**Table 7.1. Terminology Versions**

Name	Identifier	Version
SNOMED CT	2.16.840.1.113883.6.96	United States Edition 20180301
RXNorm	2.16.840.1.113883.6.1	5-Mar-18

**Table 7.2. Terminology References**

System	Code	Display Text	References
SNOMED CT	122548005  Biopsy of breast (procedure)	Precoordinated Expression	1
SNOMED CT	2651000175101  Women's health service (qualifier value)	Women's Health	1
SNOMED CT	268547008  Screening for malignant neoplasm of breast (procedure)	Precoordinated Expression	1
SNOMED CT	398166005  Performed (qualifier value)	Precoordinated Expression	3
SNOMED CT	702892004  Obstetrics and gynecology clinic (environment)	Obstetrics/Gynecology	1
SNOMED CT	71651007  Mammography (procedure)	Precoordinated Expression	1
SNOMED CT	[370851004  Evaluation of diagnostic study results (procedure)] ->(363702006  Has focus (attribute))->[71651007  Mammography (procedure)]	Postcoordinated Expression	1

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# Chapter 8. Behavior Symbols

**Table 8.1. Group Organizational Behavior**

Sym- bol	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 8.2. Group Selection Behavior**

Sym- bol	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 8.3. Required Behavior**

Sym- bol	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 8.4. 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 8.5. 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 8.6. 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 8.7. 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] *Women's Health: Breast Cancer Screening Clinical Content White Paper*

[CSD] *Women's Health: Breast Cancer Screening Documentation Template Conceptual Structure Document*

[KVRpt] *Women's Health: Breast Cancer Screening Documentation Template KNART Validation Report*

### Supporting Evidence

[Nelson 2009] H. D. Nelson et al., "Screening for Breast Cancer A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation," *Agency for Healthcare Research and Quality, USA, Jan. 2016*. (link [<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/breast-cancer-screening>])

[Oeffinger 2015] Oeffinger, 2015. Oeffinger KC, Fontham ETH, Etzioni R, 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>])

[Pearlman 2017] Pearlman, 2017. Pearlman M, Jeudy M, Chelmow D. *Breast Cancer Risk Assessment and Screening in Average-Risk Women. OBSTETRICS AND GYNECOLOGY. 2017 Jul 1;130(1):E1-6* (link [<https://doi.org/10.1097/AOG.0000000000002158>])

[ACS 2017] American Cancer Society. *Breast Cancer Screening Guidelines | American Cancer Society [Internet]. 2018 [cited 2018 Jan 24]*. (link [<https://www.cancer.org/health-care-professionals/american-cancer-society-prevention-early-detection-guidelines/breast-cancer-screening-guidelines.html>])