

# **Women's Health: Osteoporosis Screening Order Set**

## **Order Set: Conceptual Structure**

**Contract: VA118-16-D-1008, Task Order  
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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: Osteoporosis Screening 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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## Table of Contents

Preface .....	v
Artifact Applicability .....	vi
Models .....	vii
1. External Data Definitions .....	1
2. Expression Definitions .....	2
3. Laboratory Testing .....	3
4. Imaging Studies .....	4
5. Patient and Caregiver Education .....	5
6. Consults and Referrals .....	6
7. Tabular List .....	7
8. Behavior Symbols .....	8
A. References .....	10

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## List of Tables

1. Revision History .....	v
2. Clinical White Paper Contributors .....	v
3. Artifact Identifier .....	v
4. Applicability Foci, Description and Codes .....	vi
5. Model References .....	vii
7.1. Terminology Versions .....	7
7.2. Terminology References .....	7
8.1. Group Organizational Behavior .....	8
8.2. Group Selection Behavior .....	8
8.3. Required Behavior .....	8
8.4. Precheck Behavior .....	9
8.5. Cardinality Behavior .....	9
8.6. Item Flags .....	9
8.7. Read Only Behavior .....	9

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# Preface

**Table 1. Revision History**

Date	Life Cycle Event
June 6, 2018	Published
May 20, 2018	Published
March 22, 2018	Published
March 21, 2018	Pre-published
March 20, 2018	Reviewed
March 6, 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	ef9a8ba0-be72-55dd-b662-105d2182039f	O26

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# Artifact Applicability

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

Focus	Description	Code System	Code	Value Set	Value Set Version
PatientGender	Female			N/A	N/A
PatientAgeGroup	Population 18 years old or older			N/A	N/A
TargetUser	Primary Care			N/A	N/A
TargetUser	Women's Health			N/A	N/A
ClinicalVenue	Outpatient			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. Laboratory Testing

# Complete blood count

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
    topic: Precoordinated Expression 26604007 |Complete blood count (procedure)|
```

# Complete metabolic panel

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
    topic: Precoordinated Expression 1411000205104 |Comprehensive metabolic panel (proce-
    dure)
```

# Thyroid stimulating hormone

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
    topic: Precoordinated Expression 61167004 |Thyroid stimulating hormone measurement
    (procedure)|
```

# 25- hydroxyvitamin D

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
    topic: Precoordinated Expression 447678008 |Measurement of 25-hydroxyergocalciferol
    (procedure)|
```

# 24-hour urinary calcium

```
actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]
    statementType: Precoordinated Expression 385644000 |Requested (qualifier value)|
    topic: Precoordinated Expression 313492004 |24 hour urine calcium output measurement
    (procedure)|
```

---

# Chapter 4. Imaging Studies

# Dual-energy x-ray absorptiometry screen for osteoporosis

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

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

topic: Precoordinated Expression 241686001 |Dual energy X-ray photon absorptiometry (procedure)|

purpose[0]: Postcoordinated Expression [386053000 |Evaluation procedure (procedure)] ->(363702006 |Has focus (attribute))->[64859006 |Osteoporosis (disorder)]

---

# Chapter 5. Patient and Caregiver Education

# Osteoporosis education

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

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

topic: Precoordinated Expression 394936006 |Osteoporosis health education (procedure)|

---

# Chapter 6. Consults and Referrals

Based upon the patient's history, indicate the appropriate options for the screening osteoporosis order.

To determine appropriate osteoporosis screening for this patient, please provide the following information.

	<p># prompt: Consult Specialty: response: <i>Response Data Type Needed</i></p> <p><b>initialValue:</b> elm:Literal (String) Endocrinology</p> <p># prompt: Reason for Consult: response: <i>Response Data Type Needed</i></p> <p><b>initialValue:</b> elm:Literal (String) Osteoporosis Screening</p> <p># prompt: Would you please provide your recommendations response: String (Single)</p> <p>response range: EnumerationConstraint (List)</p> <p>item: Return to Primary Care Provider (PCP) for therapy</p> <p>item: Start treatment and return to PCP for follow up and maintenance</p> <p>item: Start treatment, monitor for effect and when on stable therapy return to PCP</p> <p>item: Treat as long as necessary (or indefinitely)</p> <p># prompt: Priority: response: String (Single)</p> <p><b>initialValue:</b> elm:Literal (String) Routine</p> <p>Referring Physician Information?</p>
	<p># prompt: Ordering Physician/Provider Name response: String (Single)</p> <p># prompt: Ordering Physician/Provider Service/Section response: String (Single)</p> <p># prompt: Ordering Physician/Provider Telephone Number response: String (Single)</p> <p># prompt: Ordering Physician/Provider Pager response: String (Single)</p> <p># prompt: Information required by receiving facility response: String (Single)</p>

---

# 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

**Table 7.2. Terminology References**

System	Code	Display Text <sup>a</sup>	References <sup>b</sup>
SNOMED CT	1411000205104  Comprehensive metabolic panel (procedure)	Precoordinated Expression	1
SNOMED CT	241686001  Dual energy X-ray photon absorptiometry (procedure)	Precoordinated Expression	1
SNOMED CT	26604007  Complete blood count (procedure)	Precoordinated Expression	1
SNOMED CT	313492004  24 hour urine calcium output measurement (procedure)	Precoordinated Expression	1
SNOMED CT	385644000  Requested (qualifier value)	Precoordinated Expression	7
SNOMED CT	394936006  Osteoporosis health education (procedure)	Precoordinated Expression	1
SNOMED CT	447678008  Measurement of 25-hydroxyergocalciferol (procedure)	Precoordinated Expression	1
SNOMED CT	61167004  Thyroid stimulating hormone measurement (procedure)	Precoordinated Expression	1
SNOMED CT	[386053000  Evaluation procedure (procedure)] ->(363702006  Has focus (attribute))->[64859006  Osteoporosis (disorder)]	Postcoordinated Expression	1

<sup>a</sup>If a code is used multiple times in the KNART, only the display text of the first instance is shown.

<sup>b</sup>Count of the number of times the given code system and code pair is used in the KNART.

---

# 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.



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# 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: Osteoporosis Screening Clinical Content White Paper*

[CSD] *Women's Health: Osteoporosis Screening Order Set Conceptual Structure Document*

[KVRpt] *Women's Health: Osteoporosis Screening Order Set KNART Validation Report*

### Supporting Evidence

[AGOG, 2012] *Committee on Practice Bulletins-Gynecology, ACOG. AGOG Practice Bulletin N. 129. Osteoporosis. Obstet Gynecol. 2012;120(3):718-734 (link [<https://doi.org/10.1097/AOG.0b013e31826dc446>])*

[Cosman, 2014] *Cosman F, de Beur S.J., LeBoff M.S., Lewiecki E.M., Tanner B, Randall S, Lindsay R. Clinician's Guide to Prevention and Treatment of Osteoporosis. Osteoporosis International. 2014;25(10):2359-2381 (link [<http://doi.org/10.1007/s00198-014-2794-2>])*

[Gourlay, 2012] *Gourlay ML, Fine JP, Preisser JS, May RC, Li C, Lui LY, Ransohoff DF, Cauley JA, Ensrud KE. Bone-density testing interval and transition to osteoporosis in older women. New England Journal of Medicine. 2012 Jan;19(366):225-33 (link [<https://dx.doi.org/10.1056%2FNEJMoa1107142>])*

[NIH, 2017] *National Institutes of Health. Calcium Fact Sheet for Health Professionals. Accessed August 2017. (link [<https://ods.od.nih.gov/factsheets/Calcium-HealthProfessional/>])*

[USPTF 2015] *USPSTF. Final Update Summary: Osteoporosis: U.S. Preventive Services Task Force website. Reviewed July 2015 (link [<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/osteoporosis-screening>])*