

Rheumatology: Rheumatoid Arthritis 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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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
June 7, 2018	Published
May 6, 2018	Published
May 6, 2018	Reviewed
March 21, 2018	Published
March 21, 2018	Reviewed
March 2, 2018	Published
November 6, 2017	Created
August 24, 2017	Pre-published

Table 2. Clinical White Paper Contributors

Name	Role	Affiliation
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Table 3. Artifact Identifier

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:r1	34a8654c-a4e6-51da-9154-504de025a02b	B14

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
PatientAgeGroup	Population 18 years old or older	SNOMED CT	133936004 Adult (person)	N/A	N/A
ClinicalVenue	Primary Care	SNOMED CT	5351000124100 Primary care clinic (environment)	N/A	N/A
ClinicalVenue	Outpatient	SNOMED CT	33022008 Hospital-based outpatient department (environment)	N/A	N/A

Models

Table 5. Model References

Referenced Model	Description
urn:solor.io:anf-model:0.8	VA Analysis Normal Form Model

Chapter 1. External Data Definitions

Definitions

Table 1.1. cReactiveProteinLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: C-reactive protein
Codes: elm:element[elm:Code]: [55235003]
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month))
high: elm:Today()

Table 1.2. erythrocyteSedimentationRateLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: Erythrocyte sedimentation rate
Codes: elm:element[elm:Code]: [416838001]
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month))
high: elm:Today()

Table 1.3. hepatitisCAntibodyScreenLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: Hepatitis C antibody screen
Codes: elm:element[elm:Code]: [413107006]
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month))
high: elm:Today()

Table 1.4. completeBloodcountLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: Complete blood count
Codes: elm:element[elm:Code]: [26604007]
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month))
high: elm:Today()

Table 1.5. completeMetabolicPanelLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: Complete metabolic panel
Codes: elm:element[elm:Code]: [85acf077-d744-48bc-b57a-fa3b5ce12d97]

dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month)) high: elm:Today()
--

Table 1.6. rheumatoidFactorLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime Annotation: Rheumatoid factor Codes: elm:element[elm:Code]: [54921001] dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month)) high: elm:Today()

Table 1.7. antiCyclicCitrullinatedPeptideAntibodyLab

Expression: type=elm:Retrieve , dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime Annotation: Anti-cyclic citrullinated peptide antibody Codes: elm:element[elm:Code]: [408200008] dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-3 Month)) high: elm:Today()

Table 1.8. xRayHandsImaging

Expression: type=elm:Retrieve , dataType=anf:RadiographicImagingOfBodyStructureAction, codeProperty=topicFocus, dateProperty=dateTime Annotation: Codes: elm:element[elm:Code]: [85562004] dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-1 Year)) high: elm:Today()

Triggers

No trigger definitions are present.

Chapter 2. Expression Definitions

No expression definitions are present.

Chapter 3. Medications

No medications are required prior to a rheumatology consult. However, if prednisone is considered prior to the rheumatology consult, be aware that prednisone can potentially mask symptoms that would be evaluated by rheumatology.

prompt: Acknowledge

response: Boolean (Single)

Chapter 4. Laboratory Studies

Consider ordering the following laboratory studies if they have not been ordered within the last three months. Note: The Anti-Nuclear Antibody (ANA) test is not considered appropriate to be ordered for suspected rheumatoid arthritis.

Condition: elm:Not (elm:Exists(rheumatoidFactorLab))
Rheumatoid Factor
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Rheumatoid Factor 54921001
Condition: elm:Not (elm:Exists(antiCyclicCitrullinatedPeptideAntibodyLab))
Anti-cyclic citrullinated peptide antibody (ACPA/Anti-CCP)
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Anti-cyclic citrullinated peptide antibody (AC-PA/Anti-CCP) 408200008
Condition: elm:Not (elm:Exists(hepatitisCAntibodyScreenLab))
Hepatitis C Antibody Screen
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Hepatitis C Antibody Screen 413107006
Condition: elm:Not (elm:Exists(completeBloodcountLab))
Complete Blood Count
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Complete Blood Count 26604007
Condition: elm:Not (elm:Exists(completeMetabolicPanelLab))
Complete Metabolic Panel
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Complete Metabolic Panel 85acf077-d744-48bc-b57a-fa3b5ce12d97
Condition: elm:Not (elm:Exists(cReactiveProteinLab))
C-Reactive Protein
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: C-Reactive Protein 55235003
Condition: elm:Not (elm:Exists(erythrocyteSedimentationRateLab))
Erythrocyte Sedimentation Rate
actionSentence[type=elm:Instance, classType=anf:MeasurementOfLaboratoryTestRequest]
topicFocus: Erythrocyte Sedimentation Rate 416838001

Chapter 5. Imaging and Diagnostic Studies

Consider ordering the following imaging study if it has not been done within the past year.

Condition:elm:Not (elm:Exists(xRayHandsImaging))

x-ray hands, bilateral, to evaluate for possible rheumatoid arthritis

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

topicFocus: Hand structure 85562004

laterality: Right and left 51440002

indicationForProcedure: Rheumatoid arthritis 69896004

Chapter 6. Tabular List

Terminology Service Request (TSR) Mappings

Table 6.1. Terminology Versions

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

Table 6.2. Terminology References

System	Code	Display Text ^a	References ^b
SNOMED CT	133936004 Adult (person)	Population 18 years old or older	1
SNOMED CT	26604007	Complete blood count	2
SNOMED CT	33022008 Hospital-based outpatient department (environment)	Outpatient	1
SNOMED CT	408200008	Anti-cyclic citrullinated peptide antibody	2
SNOMED CT	413107006	Hepatitis C antibody screen	2
SNOMED CT	416838001	Erythrocyte sedimentation rate	2
SNOMED CT	51440002	Right and left	1
SNOMED CT	5351000124100 Primary care clinic (environment)	Primary Care	1
SNOMED CT	54921001	Rheumatoid factor	2
SNOMED CT	55235003	C-reactive protein	2
SNOMED CT	69896004	Rheumatoid arthritis	1
SNOMED CT	85562004	x-ray hands, bilateral	2
SNOMED CT	85acf077-d744-48bc-b57a-fa3b5ce12d97	Complete metabolic panel	2

^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.

Chapter 7. Behavior Symbols

Table 7.1. 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 7.2. 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 7.3. 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 7.4. 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 7.5. 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 7.6. 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 7.7. 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] *Rheumatology: Rheumatoid Arthritis Clinical Content White Paper*

[CSD] *Rheumatology: Rheumatoid Arthritis Order Set Conceptual Structure Document*

[KVRpt] *Rheumatology: Rheumatoid Arthritis Order Set KNART Validation Report*

Supporting Evidence

[Aletaha 2010] Aletaha, D., Neogi, T., Silman, A. J., Funovits, J., Felson, D. T., Bingham, C. O., et al. (2010). 2010 rheumatoid arthritis classification criteria: An american college of rheumatology/european league against rheumatism collaborative initiative. *Arthritis and Rheumatism*, 62(9), 2569-2581. doi:10.1002/art.27584 [doi] (link [https://doi.org/doi:10.1002/art.27584])

[Singh 2015] Singh, J. A., Saag, K. G., Bridges, S. L., Akl, E. A., Bannuru, R. R., Sullivan, M. C., et al. (2016). 2015 american college of rheumatology guideline for the treatment of rheumatoid arthritis. *Arthritis & Rheumatology* (Hoboken, N.J.), 68(1), 1-26. doi:10.1002/art.39480 [doi] (link [https://doi.org/doi:10.1002/art.39480])