

Rheumatology: Rheumatoid Arthritis Consult Request Documentation Template

Documentation Template: Conceptual Structure

**Rheumatology: Rheumatoid Arthritis Consult Request
Documentation Template: Documentation Template: Conceptual
Structure**

Table of Contents

Preface	v
Artifact Applicability	vi
Models	vii
1. External Data Definitions	1
2. History	3
3. Physical Exam	4
4. Medication History	5
5. Laboratory Studies	6
6. Imaging and Diagnostic Studies	7
7. Tabular List	8
8. Behavior Symbols	9
A. References	11

List of Tables

1. Revision History	v
2. Clinical White Paper Contributors	v
3. Contract Information	v
4. Artifact Identifier	v
5. Applicability Foci, Description and Codes	vi
6. Model References	vii
1.1. cReactiveProteinLab	1
1.2. erythrocyteSedimentationRateLab	1
1.3. hepatitisCAntibodyScreenLab	1
1.4. completeBloodCountLab	1
1.5. completeMetabolicPanelLab	1
1.6. rheumatoidFactorLab	2
1.7. antiCyclicCitruinatedPeptideAntibodyLab	2
1.8. xRayHandsImaging	2
1.9. xRayHandsImagingInterpretation	2
7.1. Terminology References	8
8.1. Group Organizational Behavior	9
8.2. Group Selection Behavior	9
8.3. Required Behavior	9
8.4. Precheck Behavior	10
8.5. Cardinality Behavior	10
8.6. Item Flags	10

Preface

Table 1. Revision History

Date	Life Cycle Event
March 8, 2018	Published
November 6, 2017	Created
August 24, 2017	Pre-published

Table 2. Clinical White Paper Contributors

Name	Role	Affiliation
Amy Joseph, MD	Author	Chief of Rheumatology, St Louis VA Medical Center (VAMC), 915 N. Grand, St. Louis, MO 63106 Professor of Medicine, Washington University School of Medicine
J. Steuart Richards, MD	Author	Chief of Rheumatology, Pittsburgh VAMC, University Drive C, Pittsburgh, PA 15240 Clinical Professor Medicine, University of Pittsburgh

Table 3. Contract Information

Contract	Submission
Contract: VA118-16-D-1008, Task Order (TO): VA-118-16-F-1008-0007, CLIN0005AF	Draft

Table 4. Artifact Identifier

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:rl	2c3ccce7-4e81-590e-b37c-7bdbecbbe77	B38

Artifact Applicability

Table 5. Applicability Foci, Description and Codes

Focus	Description	Code System Name	Code System	Code	Code System Version	Value Set	Value Set Version
PatientAgeGroup	Population 18 years old or older	SNOMED CT	SNOMED	133936004			
ClinicalVenue	Primary Care	TSR	TSR	TSR			
ClinicalVenue	Outpatient	TSR	TSR	TSR			

Models

Table 6. Model References

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

Chapter 1. External Data Definitions

Table 1.1. cReactiveProteinLab

Expression: type=elm:Retrieve, dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime	
Annotation: C-reactive protein	
Codes: elm:List	
	element[elm:Code]: C-reactive protein 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:List	
	element[elm:Code]: Erythrocyte sedimentation rate 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:List	
	element[elm:Code]: Hepatitis C antibody screen 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:List	
	element[elm:Code]: Complete blood count 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:List
element[elm:Code]: Complete metabolic panel 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:List
element[elm:Code]: Rheumatoid factor 54921001

Table 1.7. antiCyclicCitruinatedPeptideAntibodyLab

Expression: type=elm:Retrieve, dataType=anf:MeasurementOfLaboratoryTestAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: Anti-cyclic citruinated peptide antibody
Codes: elm:List
element[elm:Code]: Anti-cyclic citruinated peptide antibody 408200008

Table 1.8. xRayHandsImaging

Expression: type=elm:Retrieve, dataType=anf:RadiographicImagingOfBodyStructureAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation: x-ray hands, bilateral, to evaluate for possible rheumatoid arthritis
Codes: elm:List
element[elm:Code]: x-ray hands, bilateral 85562004
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-12 Month))
high: elm:Today()

Table 1.9. xRayHandsImagingInterpretation

Expression: type=elm:Retrieve, dataType=anf:InterpretationOfRecordArtifactAction, codeProperty=topicFocus, dateProperty=dateTime
Annotation:
Codes: elm:List
element[elm:Code]: XR Hand 28582-5
dateRange[elm:Interval] low: elm:Add(elm:Today() elm:Quantity(-12 Month))
high: elm:Today()

Chapter 2. History

Please ask the patient the following questions:

◆ Answer Yes or No to the prompt

prompt: Is the duration of joint pain greater than 6 weeks?

response: Boolean (Single)

◆ Answer Yes or No to the prompt

prompt: Are hands or wrists involved?

response: Boolean (Single)

◆ Answer Yes or No to the prompt

prompt: Is morning stiffness present?

response: Boolean (Single)

◆ Answer Yes or No to the prompt

prompt: Did the pain have a gradual onset?

response: Boolean (Single)

◇ Optional additional information

prompt:

response: String (Single)

Chapter 3. Physical Exam

Please answer the following questions and provide any required additional details.


<p>◆ prompt: Are there greater than four joints involved? response: Boolean (Single) responseBinding: Property ("greaterThan4Joints") Condition:elm:IsTrue (elm:Property("greaterThan4Joints" from: elm:ParameterRef (Responses)))</p> <p>◆ prompt: Specific Joints Affected response: String (Multiple) response range: EnumerationConstraint (List) item: Hand joint pain(202472008) item: Wrist joint pain(202482009)</p>
<p><input type="checkbox"/> prompt: Are there signs of joint inflammation (e.g., warmth, soft tissue swelling, or tenderness)? response: Boolean (Single) responseBinding: Property ("signsOfJointInflammation") Condition:elm:IsTrue (elm:Property("signsOfJointInflammation" from: elm:ParameterRef (Responses)))</p> <p><input type="checkbox"/> prompt: Specific Joints Affected response: String (Multiple) <input type="checkbox"/> prompt: Check all signs that are applicable. response: Code (Multiple) response range: EnumerationConstraint (List) item: Warmth(298256005) item: Soft Tissue Swelling(271771009) item: Tenderness(110288007)</p>

Chapter 4. Medication History

Please answer the following questions and provide any required additional details.

<p>prompt: Current or prior use of disease-modifying anti-rheumatic drugs?</p> <p>response: Boolean (Single)</p> <p>responseBinding: Property ("currentOrPriorUseOfDMARD")</p> <p>Condition:elm:IsTrue (elm:Property("currentOrPriorUseOfDMARD" from: elm:ParameterRef (Responses)))</p>	<p>⦿ prompt: DMARDs</p> <p>response: Code (Multiple)</p> <p>response range: ValueSetConstraint (List)</p> <p>response range: EnumerationConstraint (List)</p> <p>item: adalimumab(327361)</p> <p>item: etanercept(214555)</p> <p>item: hydroxychloroquine(5521)</p> <p>item: infliximab(191831)</p> <p>item: leflunomide(27169)</p> <p>item: methotrexate(6851)</p> <p>item: rituximab(121191)</p> <p>item: sulfasalazine(9524)</p> <p>☞ item: Other</p> <p>Please provide details of this medication</p>
<p>prompt: Was there prior use of prednisone or other glucocorticoids?</p> <p>response: Boolean (Single)</p> <p>responseBinding: Property ("priorUseOfSteroids")</p> <p>❖ Condition:elm:IsTrue (elm:Property("priorUseOfSteroids" from: elm:ParameterRef (Responses)))</p>	<p>◆ prompt: Drug name</p> <p>response: String (Single)</p> <p>prompt: Date Initiated</p> <p>response: Timestamp (Single)</p>
<p>prompt: If there are any other medication history details, please include them here</p> <p>response: String (Single)</p>	

Chapter 5. Laboratory Studies

<input type="checkbox"/>	prompt: Obtain Rheumatoid Factor Results and Date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) rheumatoidFactorLab
<input type="checkbox"/>	prompt: Obtain Anti-cyclic Citrullinated Peptide Antibody (ACPA/ Anti-CCP) Result and date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) antiCyclicCitrullinatedPeptideAntibodyLab
<input type="checkbox"/>	prompt: Obtain Hepatitis C Antibody Screen Results and Date
	response: Tuple (Multiple)
initalValue:	hepatitisCAntibodyScreenLab
<input type="checkbox"/>	prompt: Obtain Complete Blood Count Results and Date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) completeBloodCountLab
<input type="checkbox"/>	prompt: Obtain Complete Metabolic Panel Results and Date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) completeMetabolicPanelLab
<input type="checkbox"/>	prompt: Obtain C-Reactive Protein Results and Date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) cReactiveProteinLab
<input type="checkbox"/>	prompt: Obtain Erythrocyte Sedimentation Rate Results and Date
	response: Tuple (Single)
initalValue:	elm:Last (order by: dateTime) erythrocyteSedimentationRateLab
<input type="checkbox"/>	prompt: Obtain Other Test
	response: String (Single)
	response range: EnumerationConstraint (List)
	item: Other
	Obtain Other Test Results Date

Chapter 6. Imaging and Diagnostic Studies

Attach or link Hand Radiograph

prompt: Obtain Hand Radiograph

response: Tuple (Multiple)

initialValue: elm:Last (order by: dateTime) xRayHandsImaging

Attach or link Hand Radiograph Interpretation

prompt: Obtain Hand Radiograph Interpretation

response: Tuple (Multiple)

initialValue: elm:Last (order by: dateTime) xRayHandsImagingInterpretation

Chapter 7. Tabular List

Terminology Service Request (TSR) Mappings

Table 7.1. Terminology References

System	Code	Display Text	References
Generated	85acf077-d744-48bc-b57a-fa3b5ce12d97	Complete metabolic panel	1
RxNorm	121191	rituximab	1
RxNorm	191831	infliximab	1
RxNorm	214555	etanercept	1
RxNorm	27169	leflunomide	1
RxNorm	327361	adalimumab	1
RxNorm	5521	hydroxychloroquine	1
RxNorm	6851	methotrexate	1
RxNorm	9524	sulfasalazine	1
SNOMED CT	110288007	Tenderness	1
SNOMED CT	202472008	Hand joint pain	1
SNOMED CT	202482009	Wrist joint pain	1
SNOMED CT	26604007	Complete blood count	1
SNOMED CT	271771009	Soft Tissue Swelling	1
SNOMED CT	28582-5	XR Hand	1
SNOMED CT	298256005	Warmth	1
SNOMED CT	408200008	Anti-cyclic citrullinated peptide antibody	1
SNOMED CT	413107006	Hepatitis C antibody screen	1
SNOMED CT	416838001	Erythrocyte sedimentation rate	1
SNOMED CT	54921001	Rheumatoid factor	1
SNOMED CT	55235003	C-reactive protein	1
SNOMED CT	85562004	x-ray hands, bilateral	1

Chapter 8. Behavior Symbols

Table 8.1. 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 8.2. 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 8.3. 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 8.4. 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 8.5. 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 8.6. 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.

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*

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])*