

Primary Care: Failed Visits Rule

Rule: Conceptual Structure

**Contract: VA118-16-D-1008, Task Order
(TO): VA-118-16-F-1008-0007, CLIN0007BA**

Department of Veterans Affairs (VA)



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

Publication date 06/12/2018

Version: 1.0

Primary Care: Failed Visits Rule: Rule: Conceptual Structure

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

Publication date 06/12/2018

Copyright © 2018 B3 Group, Inc.

Copyright © 2018 Cognitive Medical Systems, Inc.

B3 Group, Inc.

NOTICE OF GOVERNMENT COPYRIGHT LICENSE AND UNLIMITED RIGHTS LICENSE

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License.

You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Portions of this content are derivative works from content produced by Cognitive Medical Systems, Inc. licensed under the Apache License, Version 2.0.

Additional portions of this content are derivative works from content contributed by Motive Medical Intelligence Inc., under Creative Commons Attribution-ShareAlike 4.0.

Contributions from 2013-2018 were performed either by US Government employees, or under US Veterans Health Administration contracts.

US Veterans Health Administration contributions by government employees are work of the U.S. Government and are not subject to copyright protection in the United States. Portions contributed by government employees are USGovWork (17USC §105). Not subject to copyright.

See: <https://www.usa.gov/government-works>

Contribution by contractors to the US Veterans Health Administration during this period are contractually contributed under the Apache License, Version 2.0 and US Government sponsorship is acknowledged under Contract VA118-16-D-1008, Task Order VA11817F10080007.

Cognitive Medical Systems, Inc.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License.

You may obtain a copy of the License at <http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

This and related content produced by Cognitive Medical Systems, Inc. licensed under the Apache License, Version 2.0 is available at: <https://bitbucket.org/cogmedsys/hl7-kas-examples>

Additional portions of this content are derivative works from content contributed by Motive Medical Intelligence Inc., under Creative Commons Attribution-ShareAlike 4.0. <https://bitbucket.org/cogmedsys/kas-source-material>

Contributions from 2013-2018 were performed either by US Government employees, or under US Veterans Health Administration contracts.

US Veterans Health Administration contributions by government employees are work of the U.S. Government and are not subject to copyright protection in the United States. Portions contributed by government employees are USGovWork (17USC §105). Not subject to copyright. See: <https://www.usa.gov/government-works>

Contribution by contractors to the US Veterans Health Administration during this period are contractually contributed under the Apache License, Version 2.0 and US Government sponsorship is acknowledged under Contract VA118-16-D-1008-0007.

Table of Contents

Preface	v
Artifact Applicability	vi
Models	vii
1. External Data Definitions	1
Definitions	1
Triggers	1
2. Expression Definitions	2
3. Actions	3
4. Tabular List	4
5. Behavior Symbols	5
A. References	7

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
1.1. appointmentCalendarAccessEvent	1
2.1. appointmentScheduled	2
2.2. appointmentDatePassed	2
2.3. appointmentMissed	2
2.4. missedAppointmentNotRescheduled	2
4.1. Terminology Versions	4
4.2. Terminology References	4
5.1. Group Organizational Behavior	5
5.2. Group Selection Behavior	5
5.3. Required Behavior	5
5.4. Precheck Behavior	6
5.5. Cardinality Behavior	6
5.6. Item Flags	6
5.7. Read Only Behavior	6

Preface

Table 1. Revision History

Date	Life Cycle Event
June 12, 2018	Published
April 24, 2018	Published
April 16, 2018	Reviewed
January 5, 2018	Pre-published
September 18, 2017	Created

Table 2. Clinical White Paper Contributors

Name	Role	Affiliation
Angela Denietolis, MD	Author	Primary Care Physician, James A. Haley Veterans Hospital, Tampa VA Medical Center (VAMC), Tampa, FL 33612
Pat Dumas, RN	Author	Clinical Program Director, VA Central Office (VACO), 810 Vermont Ave NW, Washington, DL 20420
Manish Merchant, MD	Author	Health Informatician, Albany VAMC, 113 Holland Ave, Albany, NY 12208
Timothy Dresselhaus, MD	Author	San Diego VAMC - MEDS, 3350 La Jolla Village Dr, San Diego, CA 92161

Table 3. Artifact Identifier

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:r1	29b2e627-cf23-5347-b90d-8c5d28a4cf49	O6

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
PatientAgeGroup	All patients			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

No externalData expression definitions are present.

Triggers

Table 1.1. appointmentCalendarAccessEvent

Trigger: type=DataEventTrigger, DataElementAccessed
Expression: type=elm:Instance
Annotation: Any access of the patient appointment calendar for clinical or health related services
Codes: elm:value[elm:Code]: [385644000 Requested (qualifier value)]elm:value[elm:Code]: [TSR-NoCode]

Chapter 2. Expression Definitions

Table 2.1. appointmentScheduled

Expression: type=elm:Query
Annotation: An appointment has been scheduled
Codes: elm:value[elm:Code]: [398166005 Performed (qualifier value)]elm:value[elm:Code]: [TSR-NoCode]elm:value[elm:Code]: [416151008 Scheduled - procedure status (qualifier value)]

Table 2.2. appointmentDatePassed

Expression: type=elm:Query
Annotation: The date and time of the scheduled appointment occurred in the past
Codes:

Table 2.3. appointmentMissed

Expression: type=elm:Query
Annotation: The patient did not attend the scheduled appointment
Codes: elm:operand[elm:Code]: [410543007 Did not attend (qualifier value)]

Table 2.4. missedAppointmentNotRescheduled

Expression: type=elm:Query
Annotation: The missed appointment has not been rescheduled for a future date and time
Codes:

Chapter 3. Actions

◆ Notify the scheduler that the patient should be contacted and the appointment should be rescheduled.

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

statementType: Precoordinated Expression TSR-NoCode

topic: Precoordinated Expression TSR-NoCode

Chapter 4. Tabular List

Terminology Service Request (TSR) Mappings

Table 4.1. 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 4.2. Terminology References

System	Code	Display Text ^a	References ^b
SNOMED CT	385644000 Requested (qualifier value)	Precoordinated Expression	1
SNOMED CT	398166005 Performed (qualifier value)	Precoordinated Expression	1
SNOMED CT	410543007 Did not attend (qualifier value)	Precoordinated Expression	1
SNOMED CT	416151008 Scheduled - procedure status (qualifier value)	Precoordinated Expression	1
SNOMED CT	TSR-NoCode ^c	Precoordinated Expression	4

^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 5. Behavior Symbols

Table 5.1. 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 5.2. 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 5.3. 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 5.4. 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 5.5. 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 5.6. 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 5.7. 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] *Failed Visits and Failed or Delayed Consults Clinical Content White Paper*

[CSD] *Primary Care: Failed Visits Rule Conceptual Structure Document*

[KVRpt] *Primary Care: Failed Visits Rule KNART Validation Report*

Supporting Evidence

[Kaplan-Lewis 2013] *Kaplan-Lewis E, Percac-Lima S. No-show to primary care appointments: why patients do not come. J Prim Care Community Health. 2013;4:251-255*

[Rose 2011] *Rose KD, Ross JS, Horowitz LI. Advanced access scheduling outcomes: a systematic review. Arch Intern Med. 2011;171(13):1150-1159*

[VHA 1232(1)] *U.S. Department of Veterans Affairs, Veterans Health Administration (VHA). Consult Processes and Procedures, VHA Directive 1232(1). VHA Publications website. Published August 24, 2016 Accessed from: https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3230, October 12, 2017 (link [https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3230])*

[VHA 1230] *U.S. Department of Veterans Affairs, Veterans Health Administration (VHA). Outpatient Scheduling Processes and Procedures, VHA Directive 1230. Published July 15, 2016 Accessed from: https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3218 October 12, 2017 (link [https://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=3218])*

[VAIQ 7798804] *U.S. Department of Veterans Affairs. Memorandum: Scheduling and consult policy updates (VAIQ# 7798804), June 5, 2017 (link [https://www.va.gov/VHAPublications/ViewPublication.asp?pub_ID=5922])*