

Gastroenterology: Colorectal Cancer Risk – Fecal Immunochemical Test (FIT) Order Set

Order Set: Conceptual Structure

**Contract: VA118-16-D-1008, Task Order
(TO): VA-118-16-F-1008-0007, CLIN0004AE**

Department of Veterans Affairs (VA)



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

Publication date 06/18/2018

Version: 1.0

Gastroenterology: Colorectal Cancer Risk – Fecal Immunochemical Test (FIT) Order Set: Order Set: Conceptual Structure

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

Publication date 06/18/2018

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
2. Expression Definitions	2
3. Laboratory Tests	3
4. Consults and Referrals	4
5. Patient and Caregiver Education	5
6. Tabular List	6
7. Behavior Symbols	8
A. References	10

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
6.1. Terminology Versions	6
6.2. Terminology References	6
7.1. Group Organizational Behavior	8
7.2. Group Selection Behavior	8
7.3. Required Behavior	8
7.4. Precheck Behavior	9
7.5. Cardinality Behavior	9
7.6. Item Flags	9
7.7. Read Only Behavior	9

Preface

Table 1. Revision History

Date	Life Cycle Event
June 18, 2018	Published
May 18, 2018	Published
May 16, 2018	Reviewed
April 24, 2018	Created
April 24, 2018	Pre-published

Table 2. Clinical White Paper Contributors

Name	Role	Affiliation
Jason Dominitz, MD MHS	Author	National Gastroenterology Program Director Department of Veteran Affairs (VA) Puget Sound Health Care System Seattle, WA
Lyn Sue Kahng, MD	Author	Section Chief, GI Jesse Brown VA Medical Center (VAMC) Chicago, IL 60612
David Kaplan, MD MSc	Author	GI Staff Physician Philadelphia, PA 19104
Brian Hertz, MD	Author	Senior Medical Advisor Office of Veterans Access to Care Hines VAMC Hines, IL

Table 3. Artifact Identifier

Domain	Artifact ID	Name
urn:va.gov:kbs:knart:artifact:r1	c0ec00f7-ceb0-5f72-ba14-10a7e0042b89	B27

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
TargetUser	Primary Care Provider	SNOMED CT	453231000124104 Primary care provider (occupation)	N/A	N/A
PatientAgeGroup	Adult	SNOMED CT	133936004 Adult (person)	N/A	N/A
ClinicalFocus	Primary Care			N/A	N/A
ClinicalVenue	Outpatient	SNOMED CT	33022008 Hospital-based outpatient department (environment)	N/A	N/A
WorkflowTask	Colorectal Cancer Screening, Diagnostic Evaluation, or Surveillance			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 Tests

Fecal immunochemical test 1 time (routine)

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

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

topic: Precoordinated Expression 104435004 |Screening for occult blood in feces (procedure)|

priority: Precoordinated Expression 50811001 |Routine (qualifier value)|

Chapter 4. Consults and Referrals

Referral to gastroenterology to evaluate colorectal cancer risk (routine)

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

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

topic: Precoordinated Expression 183523005 |Referral to gastroenterology service (procedure)|

purpose[0]: Postcoordinated Expression [435561000124107 |Assessment for risk of cancer (procedure)] ->(363702006 |Has focus (attribute))->[363510005 |Malignant tumor of large intestine (disorder)]

priority: Precoordinated Expression 50811001 |Routine (qualifier value)|

Chapter 5. Patient and Caregiver Education

Colorectal cancer screening education (routine)

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

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

topic: Postcoordinated Expression [223464006 |Procedure education (procedure)] -
>(363702006 |Has focus (attribute))->[268548003 |Screening for malignant neoplasm of
large intestine (procedure)]

priority: Precoordinated Expression 50811001 |Routine (qualifier value)|

Bowel prep for colonoscopy education (routine)

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

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

topic: Precoordinated Expression f165e620-5c1d-4289-b327-d41b4cf3eaac |Education
about bowel preparation for colonoscopy (procedure)

priority: Precoordinated Expression 50811001 |Routine (qualifier value)|

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

Table 6.2. Terminology References

System	Code	Display Text ^a	References ^b
SNOMED CT	104435004 Screening for occult blood in feces (procedure)	Precoordinated Expression	1
SNOMED CT	133936004 Adult (person)	Adult	1
SNOMED CT	183523005 Referral to gastroenterology service (procedure)	Precoordinated Expression	1
SNOMED CT	33022008 Hospital-based outpatient department (environment)	Outpatient	1
SNOMED CT	385644000 Requested (qualifier value)	Precoordinated Expression	4
SNOMED CT	453231000124104 Primary care provider (occupation)	Primary Care Provider	1
SNOMED CT	50811001 Routine (qualifier value)	Precoordinated Expression	4
SNOMED CT	[223464006 Procedure education (procedure)] - >(363702006 Has focus (attribute))->[268548003 Screening for malignant neoplasm of large intestine (procedure)]	Postcoordinated Expression	1
SNOMED CT	[435561000124107 Assessment for risk of cancer (procedure)] - >(363702006 Has focus (attribute))->[363510005 Malignant tumor of large intestine (disorder)]	Postcoordinated Expression	1
SNOMED CT	f165e620-5c1d-4289-b327-d41b4cf3eaac Education about	Precoordinated Expression	1

Tabular List

System	Code	Display Text ^a	References ^b
	bowel preparation for colonoscopy (procedure)		

^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

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 7.2. 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 7.3. 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 7.4. 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 7.5. 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 7.6. 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.

Table 7.7. Read Only Behavior

Symbol	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] *Gastroenterology: Colorectal Cancer Risk Clinical Content White Paper*

[CSD] *Gastroenterology: Colorectal Cancer Risk – Fecal Immunochemical Test (FIT) Order Set Conceptual Structure Document*

[KVRpt] *Gastroenterology: Colorectal Cancer Risk – Fecal Immunochemical Test (FIT) Order Set KNART Validation Report*

Supporting Evidence

[Giardiello 2014] Giardiello FM, Allen JJ, Axilbund JE, et al. Guidelines on genetic evaluation and management of Lynch syndrome: a consensus statement by the US Multi-Society Task Force on colorectal cancer. *Am J Gastroenterol*. 2014 Aug;109(8):1159-79. (link [<https://doi.org/10.1038/ajg.2014.186>])

[Johnson 2014] Johnson DA, Barkun AN, Cohen LB, et al; US Multi-Society Task Force on Colorectal Cancer. Optimizing adequacy of bowel cleansing for colonoscopy: recommendations from the US multi-society task force on colorectal cancer. *Gastroenterology*. 2014;147(4):903-924. (link [<https://doi.org/10.1053/j.gastro.2014.07.002>])

[Levin 2008] Levin B, Lieberman DA, McFarland B, et al; American Cancer Society Colorectal Cancer Advisory Group; US Multi-Society Task Force; American College of Radiology Colon Cancer Committee. Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, 2008: a joint guideline from the American Cancer Society, the US Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology. *CA Cancer J Clin*. 2008;58(3):130-160. (link [<https://doi.org/10.3322/CA.2007.0018>])

[Lieberman 2012] Lieberman DA, Rex DK, Winawer SJ, Giardiello FM, Johnson DA, Levin TR. Guidelines for colonoscopy surveillance after screening and polypectomy: a consensus update by the US Multi-Society Task Force on Colorectal Cancer. *Gastroenterology*. 2012;143(3):844-857. (link [<https://doi.org/10.1053/j.gastro.2012.06.001>])

[NCHPCP 2017a] National Center for Health Promotion and Disease Prevention. Get Recommended Screening Tests and Immunizations for Men. National Center for Health Promotion and Disease Prevention website. https://www.prevention.va.gov/Healthy_Living/Get_Recommended_Screening_Tests_and_Immunizations_for_Men.asp. Accessed August 25, 2017. (link [https://www.prevention.va.gov/Healthy_Living/Get_Recommended_Screening_Tests_and_Immunizations_for_Men.asp])

[NCHPDP 2017b] National Center for Health Promotion and Disease Prevention. Get Recommended Screening Tests and Immunizations for Women. National Center for Health Promotion and Disease Prevention website. https://www.prevention.va.gov/Healthy_Living/Get_Recommended_Screening_Tests_and_Immunizations_for_Women.asp. Accessed August 25,

2017. (link [https://www.prevention.va.gov/Healthy_Living/Get_Recommended_Screening_Tests_and_Immunizations_for_Women.asp])
- [Rex 2017] Rex DK, Boland CR, Dominitz JA, et al. Colorectal cancer screening: recommendations for physicians and patients from the U.S. Multi-Society Task Force on Colorectal Cancer. *Gastroenterology*. 2017;153(1):307-323. (link [https://doi.org/10.1053/j.gastro.2017.05.013])
- [Shaukat 2013] Shaukat A, Mongin SJ, Geisser MS, et al. Long-term mortality after screening for colorectal cancer. *N Engl J Med*. 2013;369(12):1106-1114. (link [https://doi.org/10.1056/NEJMoa1300720])
- [VA 2017] U.S. Department of Veterans Affairs. Colorectal cancer screening/surveillance (CRCS/S): reminder system. CRCS-S CR F2F 20171018 KGALPIN.pptx. PowerPoint (Jason Dominitz, MD, email communication, November 2, 2017). (link [Email Communication])
- [USPSTF 2016] U.S. Preventive Services Task Force. Final Recommendation Statement: Colorectal Cancer: Screening. U.S. Preventive Services Task Force website. <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2>. Reviewed June 2016. (link [https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2])