Primary Care: Anaphylaxis Treatment Protocol Order Set

Order Set: Conceptual Structure

Contract: VA118-16-D-1008, Task Order (TO): VA-118-16-F-1008-0007, CLIN0008BA

Department of Veterans Affairs (VA)

Primary Care: Anaphylaxis Treatment Protocol 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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Preface

Table 1. Revision History

Date	Life Cycle Event
June 20, 2018	Published
April 4, 2018	Published
April 4, 2018	Created
December 6, 2017	Created
December 6, 2017	Pre-published

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	53e4c891-786c-5d47-8998-d72439fd8731	O16

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System	Code	Value Set	Value Set Version
PatientAgeGroup	Adult Patient			N/A	N/A
WorkflowSetting	Emergency Medicine	SNOMED CT	225728007 |Accident and Emergency department (environment)|	N/A	N/A
ClinicalVenue	Outpatient			N/A	N/A
TargetUser	Provider to include Emergency Medicine			N/A	N/A
WorkflowTask	Routine	SNOMED CT	50811001 |Routine (qualifier value)|	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. Medications

✪ epinephrine auto-injector 0.3 mg solution intramuscular 1 time inject into anterolateral thigh as needed; repeat once if needed; seek medical care immediately upon use. Quantity 2 auto-injectors with 2 refills (routine)

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

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

> topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;1989112 0.3 ML EPINEPHrine 1 MG/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))->[78421000 |Intramuscular route (qualifier value)] ->(405813007 |Procedure site - Direct (attribute))->[68367000 | Thigh structure (body structure)]

> unstructured[0]: seek medical care immediately upon use

> unstructured[1]: Quantity 2 auto-injectors with 2 refills

> requestedResult.lowerBound: 1

> requestedResult.upperBound: 2

> requestedResult.includeLowerBound: true

> requestedResult.includeUpperBound: true

> requestedResult.measureSemantic: Precoordinated Expression 385218009 |Injection (qualifier value)|

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

✪ epinephrine auto-injector 0.3 mg solution subcutaneous 1 time inject into anterolateral thigh as needed; repeat once if needed; seek medical care immediately upon use. Quantity 2 auto-injectors with 2 refills (routine)

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

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

> topic: Postcoordinated Expression [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;1989112 0.3 ML EPINEPHrine 1 MG/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))->[34206005 |Subcutaneous route (qualifier value))] ->(405813007 |Procedure site - Direct (attribute))->[68367000 | Thigh structure (body structure)]

> unstructured[0]: seek medical care immediately upon use

> unstructured[1]: Quantity 2 auto-injectors with 2 refills

> requestedResult.lowerBound: 1

> requestedResult.upperBound: 2

> requestedResult.includeLowerBound: true

> requestedResult.includeUpperBound: true

> requestedResult.measureSemantic: Precoordinated Expression 385218009 |Injection (qualifier value)|

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

Chapter 4. Consults and Referrals

\# consult Allergy Service to evaluate patient following episode of anaphylaxis (routine)

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

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

> topic: Precoordinated Expression 1351000205108 |Allergy service consultation and report (procedure)

> purpose[0]: Postcoordinated Expression [386053000 |Evaluation procedure (procedure)] ->(363702006 |Has focus (attribute))->[39579001 |Anaphylaxis (disorder)]

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

\# consult Immunology Service to evaluate patient following episode of anaphylaxis (routine)

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

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

> topic: Precoordinated Expression 1361000205106 |Immunology service consultation and report (procedure)

> purpose[0]: Postcoordinated Expression [386053000 |Evaluation procedure (procedure)] ->(363702006 |Has focus (attribute))->[39579001 |Anaphylaxis (disorder)]

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

Chapter 5. Patient and Caregiver Education

Use of epinephrine autoinjector education (routine)

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

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

    topic: Precoordinated Expression 1251000205104 |Education about epinephrine autoinjector use (procedure)

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

Anaphylaxis action plan education (routine)

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

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

    topic: Postcoordinated Expression [409073007 |Education (procedure)] ->(363702006 |Has focus (attribute))->[386512002 |Anaphylaxis management (regime/therapy)]

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

Medications that can interfere with anaphylaxis treatment education (routine)

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

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

    topic: Postcoordinated Expression [428391000124104 |Medication interaction with medication education (procedure)] ->(363702006 |Has focus (attribute))->[737855007 |Anaphylaxis care (regime/therapy)]

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

Avoidance of potential triggers education (routine)

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

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

    topic: Precoordinated Expression 1381000205101 |Allergy trigger education (procedure)

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

Medical identification jewelry education (routine)

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

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

    topic: Precoordinated Expression 1391000205104 |Education about medical identification jewelry (procedure)

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

Medication cross-reactivity education (routine)

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

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

    topic: Precoordinated Expression 428391000124104 |Medication interaction with medication education (procedure)

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

Food cross-reactivity education (routine)

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

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

        topic: Precoordinated Expression 1401000205101 |Food interaction with food education (procedure)

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

Chapter 6. Tabular List

Terminology Service Request (TSR) Mappings

Table 6.1. Terminology Versions

Name	Identifer	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
LOINC	2.16.840.1.113883.6.1	2.61

Table 6.2. Terminology References

System	Code	Display Text[a]	References[b]
SNOMED CT	1251000205104 |Education about epinephrine autoinjector use (procedure)	Precoordinated Expression	1
SNOMED CT	1351000205108 |Allergy service consultation and report (procedure)	Precoordinated Expression	1
SNOMED CT	1361000205106 |Immunology service consultation and report (procedure)	Precoordinated Expression	1
SNOMED CT	1381000205101 |Allergy trigger education (procedure)	Precoordinated Expression	1
SNOMED CT	1391000205104 |Education about medical identification jewelry (procedure)	Precoordinated Expression	1
SNOMED CT	1401000205101 |Food interaction with food education (procedure)	Precoordinated Expression	1
SNOMED CT	225728007 |Accident and Emergency department (environment)|	Emergency Medicine	1
SNOMED CT	385218009 |Injection (qualifier value)|	Precoordinated Expression	2
SNOMED CT	385644000 |Requested (qualifier value)|	Precoordinated Expression	11
SNOMED CT	428391000124104 |Medication interaction with medication education (procedure)	Precoordinated Expression	1
SNOMED CT	50811001 |Routine (qualifier value)|	Precoordinated Expression	12
SNOMED CT	[386053000 |Evaluation procedure (procedure)] -	Postcoordinated Expression	2

System	Code	Display Text[a]	References[b]
	>(363702006 |Has focus (attribute))->[39579001 | Anaphylaxis (disorder)]		
SNOMED CT	[409073007 |Education (procedure)] ->(363702006 |Has focus (attribute))->[386512002 | Anaphylaxis management (regime/therapy)]	Postcoordinated Expression	1
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;1989112 0.3 ML EPINEPHrine 1 MG/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))->[34206005 |Subcutaneous route (qualifier value)] ->(405813007 |Procedure site - Direct (attribute))->[68367000 |Thigh structure (body structure)]	Postcoordinated Expression	1
SNOMED CT	[416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 | Direct substance (attribute))->[Rx;1989112 0.3 ML EPINEPHrine 1 MG/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))->[78421000 |Intramuscular route (qualifier value)] ->(405813007 |Procedure site - Direct (attribute))->[68367000 |Thigh structure (body structure)]	Postcoordinated Expression	1
SNOMED CT	[428391000124104 | Medication interaction	Postcoordinated Expression	1

System	Code	Display Text[a]	References[b]
	with medication education (procedure)] ->(363702006 |Has focus (attribute))->[737855007 | Anaphylaxis care (regime/therapy)]		

[a]If a code is used multiple times in the KNART, only the display text of the first instance is shown.

[b]Count 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.

Symbol	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

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] *Primary Care: Anaphylaxis Treatment Protocol Clinical Content White Paper*

[CSD] *Primary Care: Anaphylaxis Treatment Protocol Order Set Conceptual Structure Document*

[KVRpt] *Primary Care: Anaphylaxis Treatment Protocol Order Set KNART Validation Report*

Supporting Evidence

[NLM 2017a] *LABEL: EPIPEN - epinephrine injection; EPIPEN JR- epinephrine injection [Internet].: National Library of Medicine; 2017. Available from: https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=7560c201-9246-487c-a13b-6295db04274a.* (link [https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=7560c201-9246-487c-a13b-6295db04274a])

[Lieberman 2015] *Lieberman, Phillip, et al. 'Anaphylaxis--a practice parameter update 2015.' Annals of Allergy, Asthma & Immunology 115.5 (2015): 341-384.* (link [http://www.annallergy.org/article/S1081-1206(15)00515-3/abstract])

[Campbell 2014] *Campbell, Ronna L., et al. 'Emergency department diagnosis and treatment of anaphylaxis: a practice parameter.' Annals of Allergy, Asthma & Immunology 113.6 (2014): 599-608.* (link [http://www.annallergy.org/article/S1081-1206(14)00743-1/abstract])