

Cardiology: Venous Thromboembolism (VTE) Prophylaxis Order Set

Order Set: Conceptual Structure

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Department of Veterans Affairs (VA)



**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
April 3, 2018	Published
April 3, 2018	Reviewed
August 10, 2017	Created
August 29, 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	78885b6c-569b-5a75-bc75-cef8b2d861dc	O25

Artifact Applicability

Table 4. Applicability Foci, Description and Codes

Focus	Description	Code System Name	Code System	Code	Code System Version	Value Set	Value Set Version
TargetUser	Hospitalist, residents, and other ordering providers involved in managing the patient cohort, and nurses		SNOMED CT	4a0ec59e-7f9a-452e-954c-01efd0b52c4e			
ClinicalVenue	Inpatient		SNOMED CT	416800000 Inpatient (person)			
ClinicalVenue	Medical and/or Surgical Service		SNOMED CT	702860000 General surgery clinic (environment)			
PatientAgeGroup	Adult inpatients without known VTE and not pregnant						
PatientGender	All						

Models

Table 5. Model References

Referenced Model	Description
urn:solor.io:anf-model:0.9	VA Analysis Normal Form Model

Chapter 1. Expression Definitions

Table 1.1. Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

Expression: type=elm:Instance Annotation: Codes: elm:value[elm:Code]: [385644000 Requested (qualifier value)]elm:value[elm:Code]: [[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Ad- ministration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;978733 0.2 ML Dalteparin Sodium 25000 UNT/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]elm:value[elm:Code]: [385218009 Injection (qualifier value)]elm:value[elm:Code]: [50811001 Routine (qualifier value)]elm:val- ue[elm:Code]: [258703001 day (qualifier value)]elm:value[elm:Code]: [258703001 day (qualifier value)]

Table 1.2. Heparin 5000 U solution subcutaneous daily 2 times (routine)

Expression: type=elm:Instance Annotation: Codes: elm:value[elm:Code]: [385644000 Requested (qualifier value)]elm:value[elm:Code]: [[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Ad- ministration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;849699 0.2 ML heparin calcium 25000 UNT/ML Prefilled Syringe] ->(410675002 Route of administration (at- tribute))->[34206005 Subcutaneous route (qualifier value)]elm:value[elm:Code]: [385218009 Injection (qualifier value)]elm:value[elm:Code]: [50811001 Routine (qualifier value)]elm:val- ue[elm:Code]: [258703001 day (qualifier value)]elm:value[elm:Code]: [258703001 day (qualifier value)]
--

Table 1.3. Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

Expression: type=elm:Instance Annotation: Codes: elm:value[elm:Code]: [385644000 Requested (qualifier value)]elm:value[elm:Code]: [[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Ad- ministration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;861360 0.5 ML Fondaparinux sodium 5 MG/ML Prefilled Syringe] ->(410675002 Route of administration (at- tribute))->[34206005 Subcutaneous route (qualifier value)]elm:value[elm:Code]: [385218009 Injection (qualifier value)]elm:value[elm:Code]: [50811001 Routine (qualifier value)]elm:val- ue[elm:Code]: [258703001 day (qualifier value)]elm:value[elm:Code]: [258703001 day (qualifier value)]

Table 1.4. Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

Expression: type=elm:Instance Annotation: Codes: elm:value[elm:Code]: [385644000 Requested (qualifier value)]elm:value[elm:Code]: [[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Ad- ministration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;854235 0.4 ML Enoxaparin sodium 100 MG/ML Prefilled Syringe] ->(410675002 Route of administration (at-

tribute))->[34206005 |Subcutaneous route (qualifier value)]elm:value[elm:Code]: [385218009 | Injection (qualifier value)]elm:value[elm:Code]: [50811001 |Routine (qualifier value)]elm:value[elm:Code]: [258703001 |day (qualifier value)]elm:value[elm:Code]: [258703001 |day (qualifier value)]

Table 1.5. Intermittent pneumatic compression (routine)

Expression: type=elm:Instance
 Annotation:
 Codes: elm:value[elm:Code]: [385644000 |Requested (qualifier value)]elm:value[elm:Code]: [443448006 |Application of intermittent pneumatic compression device (procedure)]elm:value[elm:Code]: [50811001 |Routine (qualifier value)]

Table 1.6. Graduated compressed stockings (routine)

Expression: type=elm:Instance
 Annotation:
 Codes: elm:value[elm:Code]: [385644000 |Requested (qualifier value)]elm:value[elm:Code]: [[129425003 |Application - action (qualifier value)] ->(363699004 |Direct device (attribute))->[465885d2-268c-49a8-93e3-c90ed3b6643b |Graduated compression stockings (physical object)]elm:value[elm:Code]: [50811001 |Routine (qualifier value)]

Chapter 2. Resources and Risk Stratification: Medical Patients

This section should be available for all medical patients.

([Padua Padua VTE Risk Calculator link [<https://www.mdcalc.com/padua-prediction-score-risk-vte>]
Risk Cal-
culator])

☐ prompt: Acknowledge?

response: Boolean (Single)

Chapter 3. Medications: Medical Patients

This section should be available for all medical patients requiring pharmacological VTE prophylaxis

Acutely Ill Patients

This subsection should be available for all acutely ill medical patients at increased risk of thrombosis who are not bleeding or at high risk for bleeding

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Heparin 5000 U solution subcutaneous daily 3 times (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 3 , repetition.eventFrequency.upperBound: 3 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))>[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))>[Rx;849699 0.2 ML heparin calcium 25000 UNT/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))>[34206005 |Subcutaneous route (qualifier value)] 385218009 |Injection (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

☐ Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

Critically Ill Patients

This subsection should be available for all critically ill medical patients at increased risk of thrombosis who are not bleeding or at high risk for bleeding

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

Chapter 4. Procedures: Medical Patients

This section should be available for all medical patients requiring mechanical VTE prophylaxis, particularly those who are at increased risk of bleeding events

Acutely Ill Patients

This subsection should be available for all acutely ill medical patients at increased risk of thrombosis who are bleeding or at high risk for major bleeding

☐ Graduated compressed stockings (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Graduated compressed stockings (routine)

☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

Critically Ill Patients

This subsection should be available for all critically ill medical patients at increased risk of thrombosis who are bleeding or at high risk for major bleeding

☐ Graduated compressed stockings routine

actionSentence[type=elm:ExpressionRef, classType=]

Graduated compressed stockings (routine)

☐ Intermittent pneumatic compression routine

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

Chapter 5. Resources and Risk Stratification: Nonorthopedic Surgical Patients

This section should be available for all nonorthopedic surgical patients.

([Padua Risk Calculator] Padua VTE Risk Calculator link [<https://www.mdcalc.com/padua-prediction-score-risk-vte>])

([Caprini Risk Assessment] Caprini Risk Assessment – Online Version – Venous Resource Center link [<https://venous-disease.com/dvt-risk-assessment-online/>])

([Bates 2012]) VTE, Thrombophilia, Antithrombotic Therapy, and Pregnancy: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines link [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3278054/>])

☐ prompt: Acknowledge

response: Boolean (Single)

Chapter 6. Activity: Nonorthopedic Surgical Patients

This section should be available for all nonorthopedic surgery patients requiring VTE prophylaxis

General and Abdominal-Pelvic Surgery Patients at Very Low Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at very low risk for VTE

☐ Ambulate with assistance 1 time per shift (routine)

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

"statementType:Precoordinated Expression topic:Precoordinated Expression , priority:Precoordinated Expression , repetition.eventFrequency.lowerBound: 8 , repetition.eventFrequency.upperBound: 8 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 1111000205107 |Ambulating with assistance (regime/therapy) 50811001 |Routine (qualifier value)| 258702006 |hour (qualifier value)|)

☐ Bed to chair 1 time per shift (routine)

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

"statementType:Precoordinated Expression topic:Precoordinated Expression , priority:Precoordinated Expression , repetition.eventFrequency.lowerBound: 8 , repetition.eventFrequency.upperBound: 8 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 445970000 |Moving subject from bed to chair (procedure)| 50811001 |Routine (qualifier value)| 258702006 |hour (qualifier value)|)

☐ Up ad lib now

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

"statementType:Precoordinated Expression topic:Precoordinated Expression , priority:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 423791005 |Ambulation without limitation (regime/therapy)| 49499008 |Stat (qualifier value)|)

Chapter 7. Medications: Nonorthopedic Surgical Patients

This section should be available for all nonorthopedic surgery patients requiring pharmacological VTE prophylaxis

General and Abdominal-Pelvic Surgery Patients at Moderate Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at moderate risk for VTE who are not at high risk for major bleeding complications

- ☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

- ☐ Dalteparin 2500 U solution subcutaneous daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;978725 0.2 ML Dalteparin Sodium 12500 UNT/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))->[34206005 |Subcutaneous route (qualifier value)| 385218009 |Injection (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

- ☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

General and Abdominal-Pelvic Surgery Patients at High Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at high risk for VTE who are not at high risk for major bleeding complications

<input type="checkbox"/> Enoxaparin 40 mg solution subcutaneous daily 1 time (routine) actionSentence[type=elm:ExpressionRef, classType=] <div>Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)</div>
<input type="checkbox"/> Dalteparin 5000 U solution subcutaneous daily 1 time (routine) actionSentence[type=elm:ExpressionRef, classType=] <div>Dalteparin 5000 U solution subcutaneous daily 1 time (routine)</div>
<input type="checkbox"/> Heparin 5000 U solution subcutaneous daily 2 times (routine) actionSentence[type=elm:ExpressionRef, classType=] <div>Heparin 5000 U solution subcutaneous daily 2 times (routine)</div>
<p>General and Abdominal-Pelvic Surgery Patients at High Risk for VTE with Inability to Use Either LMWH or UFH</p> <p>This subsection should be available for all general and abdominal-pelvic surgery patients at high risk for VTE for whom both LMWH and UFH are contraindicated or unavailable and who are not at high risk for major bleeding complications</p>
<input type="checkbox"/> Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine) actionSentence[type=elm:ExpressionRef, classType=] <div>Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)</div>
<input type="checkbox"/> Aspirin 160 mg tablet oral daily 1 time (routine) actionSentence[type=elm:Instance, classType=anf:ClinicalStatement] <div> <p>"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 2 , requestedResult.upperBound: 2 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"</p> <p>(Codes: 385644000 Requested (qualifier value) [416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))>[Rx;243670 Aspirin 81 MG Oral Tablet] ->(410675002 Route of administration (attribute))>[26643006 Oral route (qualifier value) 421026006 Oral tablet (qualifier value) 50811001 Routine (qualifier value) 258703001 day (qualifier value) 258703001 day (qualifier value))</p> </div>
<p>Cardiac Surgery Patients with Nonhemorrhagic Surgical Complications</p>

This subsection should be available for all cardiac surgery patients whose inpatient stay is prolonged by nonhemorrhagic surgical complications

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

Thoracic Surgery Patients at Moderate Risk for VTE

This subsection should be available for all thoracic surgery patients at moderate risk for VTE who are not at high risk for perioperative bleeding

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

Thoracic Surgery Patients at High Risk for VTE

This subsection should be available for all thoracic surgery patients at high risk for VTE who are not at high risk for perioperative bleeding

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

Craniotomy Patients at Very High Risk for VTE

This subsection should be available for all craniotomy patients at very high risk for VTE once adequate hemostasis is established and the risk of bleeding decreases

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

☐ Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

Spinal Surgery Patients at High Risk for VTE

This subsection should be available for all spinal surgery patients at high risk for VTE once adequate hemostasis is established and the risk of bleeding decreases

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

☐ Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)

Major Trauma Patients

This subsection should be available for all major trauma patients without contraindication

☐ Heparin 5000 U solution subcutaneous daily 2 times (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Heparin 5000 U solution subcutaneous daily 2 times (routine)

☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

☐ Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Dalteparin 5000 U solution subcutaneous daily 1 time (routine)

Chapter 8. Procedures: Nonorthopedic Surgical Patients

This section should be available for all nonorthopedic surgical patients requiring mechanical VTE prophylaxis, particularly those who are at increased risk of bleeding events

General and Abdominal-Pelvic Surgery Patients at Low Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at low risk for VTE

-
- ☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

General and Abdominal-Pelvic Surgery Patients at Moderate Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at moderate risk for VTE

-
- ☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

- ☐ Graduated compression stockings (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [129425003 |Application - action (qualifier value)] ->(363699004 |Direct device (attribute))->[465885d2-268c-49a8-93e3-c90ed3b6643b |Graduated compression stockings (physical object)])

General and Abdominal-Pelvic Surgery Patients at High Risk for VTE

This subsection should be available for all general and abdominal-pelvic surgery patients at high risk for VTE

-
- ☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

Cardiac Surgery Patients

This subsection should be available for all cardiac surgery patients

-
- ☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

Thoracic Surgery Patients at High Risk for VTE

This subsection should be available for all thoracic surgery patients at high risk for VTE

-
- ☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

<div>Intermittent pneumatic compression (routine)</div> <div><input type="checkbox"/> Graduated compression stockings (routine)</div> <div>actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]</div> <div>"statementType:Precoordinated Expression topic:Postcoordinated Expression"</div> <div>(Codes: 385644000 Requested (qualifier value) [129425003 Application - action (qualifier value)] ->(363699004 Direct device (attribute))->[465885d2-268c-49a8-93e3-c90ed3b6643b Graduated compression stockings (physical object)])</div>
<div>Craniotomy Patients</div> <div>This subsection should be available for all craniotomy patients</div>
<div><input type="checkbox"/> Intermittent pneumatic compression (routine)</div> <div>actionSentence[type=elm:ExpressionRef, classType=]</div> <div>Intermittent pneumatic compression (routine)</div> <div>Spinal Surgery Patients</div> <div>This subsection should be available for all spinal surgery patients</div>
<div>Intermittent pneumatic compression (routine)</div> <div>actionSentence[type=elm:ExpressionRef, classType=]</div> <div>Intermittent pneumatic compression (routine)</div> <div>Major Trauma Patients</div> <div>This subsection should be available for all major trauma patients without contraindication due to lower-extremity injury</div>
<div><input type="checkbox"/> Intermittent pneumatic compression (routine)</div> <div>actionSentence[type=elm:ExpressionRef, classType=]</div> <div>Intermittent pneumatic compression (routine)</div>

Chapter 9. Activity: Orthopedic Surgical Patients

This section should be available for all orthopedic surgical patients requiring VTE prophylaxis.

This section should be available to clinical providers and should be prompted to consider early mobilization as indicated by postoperative activity orders for the given surgery, context, and objectives related to weightbearing status.
--

prompt: Acknowledge?

response: Boolean (Single)

Chapter 10. Medications: Orthopedic Surgical Patients

This section should be available for all orthopedic surgery patients requiring pharmacological VTE prophylaxis.

Total Hip Arthroplasty, Total Knee Arthroplasty, and Hip Fracture Surgery Patients

This subsection should be available for all total hip arthroplasty, total knee arthroplasty, and hip fracture surgery patients.

-
- ☐ Enoxaparin 30 mg solution subcutaneous every 12 hours (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 12 , repetition.eventFrequency.upperBound: 12 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))>[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))>[Rx;854228 0.3 ML Enoxaparin sodium 100 MG/ML Prefilled Syringe] ->(410675002 |Route of administration (attribute))>[34206005 |Subcutaneous route (qualifier value)] 385218009 |Injection (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

-
- ☐ Enoxaparin 40 mg solution subcutaneous daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression ,

	<p>repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"</p> <p>(Codes: 385644000 Requested (qualifier value) [416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))>[Rx;854235 0.4 ML Enoxaparin sodium 100 MG/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))>[34206005 Subcutaneous route (qualifier value)] 385218009 Injection (qualifier value) 50811001 Routine (qualifier value) 258703001 day (qualifier value) 258703001 day (qualifier value))</p>
<input type="checkbox"/>	<p>Dalteparin 5000 U solution subcutaneous daily 1 time (routine)</p> <p>actionSentence[type=elm:ExpressionRef, classType=]</p> <p>Dalteparin 5000 U solution subcutaneous daily 1 time (routine)</p>
<input type="checkbox"/>	<p>Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)</p> <p>actionSentence[type=elm:ExpressionRef, classType=]</p> <p>Fondaparinux 2.5 mg solution subcutaneous daily 1 time (routine)</p>
<input type="checkbox"/>	<p>Warfarin tablet oral per protocol (routine)</p> <p>actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]</p> <p>"statementType:Precoordinated Expression topic:Postcoordinated Expression , unstructured[0]: per protocol"</p> <p>(Codes: 385644000 Requested (qualifier value) [416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))>[Rx;1161791 Warfarin Pill] ->(410675002 Route of administration (attribute))>[26643006 Oral route (qualifier value))</p>
<input type="checkbox"/>	<p>Apixaban 2.5 mg tablet oral daily 2 times (routine)</p> <p>actionSentence[type=elm:Instance, classType=anf:ClinicalStatement]</p> <p>"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.resolution: 1 , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 2 , repetition.eventFrequency.upperBound: 2 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repeti-</p>

tion.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))>[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))>[Rx;1364435 apixaban 2.5 MG Oral Tablet] ->(410675002 |Route of administration (attribute))>[26643006 |Oral route (qualifier value)] 421026006 |Oral tablet (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

☐ Rivaroxaban 10 mg tablet oral daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 1 , requestedResult.upperBound: 1 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.resolution: 1 , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))>[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))>[Rx;1114198 rivaroxaban 10 MG Oral Tablet] ->(410675002 |Route of administration (attribute))>[26643006 |Oral route (qualifier value)] 421026006 |Oral tablet (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

☐ Aspirin 81 mg tablet oral daily 1 time with intermittent pneumatic compression device begun intraoperatively and continued postoperatively through duration of hospital stay (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , requestedResult.lowerBound: 2 , requestedResult.upperBound: 2 , requestedResult.includeLowerBound: TRUE , requestedResult.includeUpperBound: TRUE , requestedResult.measureSemantic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression ,

repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| [416118004 |Administration (procedure)] ->(260686004 |Method (attribute))->[129445006 |Administration - action (qualifier value)] ->(363701004 |Direct substance (attribute))->[Rx;243670 Aspirin 81 MG Oral Tablet] ->(410675002 |Route of administration (attribute))->[26643006 |Oral route (qualifier value)] 421026006 |Oral tablet (qualifier value)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

Chapter 11. Procedures: Orthopedic Surgical Patients

This section should be available for all orthopedic surgical patients requiring mechanical VTE prophylaxis, particularly those who are at increased risk of bleeding events.

Total Hip Arthroplasty, Total Knee Arthroplasty, and Hip Fracture Surgery Patients

This subsection should be available for all acutely ill medical patients at increased risk of thrombosis who are bleeding or at high risk for major bleeding

☐ Intermittent pneumatic compression (routine)

actionSentence[type=elm:ExpressionRef, classType=]

Intermittent pneumatic compression (routine)

Chapter 12. Laboratory Tests

The following laboratory studies should be considered for patients who will receive warfarin. These laboratory studies may also be indicated for patients on other medications for VTE prophylaxis if clinically indicated per clinician judgment.

- ☐ Complete blood count daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 26604007 |Complete blood count (procedure)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

-
- ☐ Basic metabolic panel daily 1 time (routine)

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

"statementType: Request topic:Precoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 1421000205106 |Basic metabolic panel (procedure) 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

-
- ☐ Activated partial thromboplastin time daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDuration.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE , repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Precoordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFrequency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repetition.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 , repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 42525009 |Partial thromboplastin time, activated (procedure)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifier value)| 258703001 |day (qualifier value)|)

-
- ☐ Complete International normalized ratio daily 1 time (routine)

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

"statementType:Precoordinated Expression topic:Postcoordinated Expression , priority:Precoordinated Expression , repetition.periodDuration.lowerBound: 1 , repetition.periodDura-

tion.includeLowerBound: TRUE , repetition.periodDuration.includeUpperBound: FALSE ,
repetition.periodDuration.resolution: 1 , repetition.periodDuration.measureSemantic:Pre-
coordinated Expression , repetition.eventFrequency.lowerBound: 1 , repetition.eventFre-
quency.upperBound: 1 , repetition.eventFrequency.includeLowerBound: TRUE , repeti-
tion.eventFrequency.includeUpperBound: TRUE , repetition.eventFrequency.resolution: 1 ,
repetition.eventFrequency.measureSemantic:Precoordinated Expression"

(Codes: 385644000 |Requested (qualifier value)| 440685005 |Calculation of international
normalized ratio (procedure)| 50811001 |Routine (qualifier value)| 258703001 |day (qualifi-
er value)| 258703001 |day (qualifier value)|)

Chapter 13. Tabular List

Terminology Service Request (TSR) Mappings

Table 13.1. Terminology References

System	Code	Display Text	References
SNOMED CT	1111000205107 Am- bulating with assistance (regime/therapy)	Precoordinated Expression	1
SNOMED CT	1421000205106 Basic metabolic panel (proce- dure)	Precoordinated Expression	1
SNOMED CT	258702006 hour (qualifier value)	Precoordinated Expression	2
SNOMED CT	258703001 day (qualifier value)	Precoordinated Expression	32
SNOMED CT	26604007 Complete blood count (procedure)	Precoordinated Expression	1
SNOMED CT	385218009 Injection (qualifier value)	Precoordinated Expression	8
SNOMED CT	385644000 Requested (qualifier value)	Precoordinated Expression	23
SNOMED CT	416800000 Inpatient (per- son)	Inpatient	1
SNOMED CT	421026006 Oral tablet (qualifier value)	Precoordinated Expression	4
SNOMED CT	423791005 Ambulation without limitation (regime/ therapy)	Precoordinated Expression	1
SNOMED CT	42525009 Partial throm- boplastin time, activated (procedure)	Postcoordinated Expression	1
SNOMED CT	440685005 Calculation of international normalized ratio (procedure)	Postcoordinated Expression	1
SNOMED CT	443448006 Application of intermittent pneumatic compression device (pro- cedure)	Postcoordinated Expression	1
SNOMED CT	445970000 Moving sub- ject from bed to chair (pro- cedure)	Precoordinated Expression	1
SNOMED CT	49499008 Stat (qualifier value)	Precoordinated Expression	1

System	Code	Display Text	References
SNOMED CT	4a0ec59e-7f9a-452e-954c-01630f51e4 Hospitalist physician (occupation)	Hospitalists, residents, and other ordering providers involved in managing the patient cohort, and nurses	1
SNOMED CT	50811001 Routine (qualifier value)	Precoordinated Expression	20
SNOMED CT	702860000 General surgery clinic (environment)	Medical and/or Surgical Service	1
SNOMED CT	[129425003 Application - action (qualifier value)] ->(363699004 Direct device (attribute))>[465885d2-268c-49a8-93e3-c90ed3b6643b Graduated compression stockings (physical object)]	Postcoordinated Expression	3
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))>[Rx;1114198 rivaroxaban 10 MG Oral Tablet] ->(410675002 Route of administration (attribute))>[26643006 Oral route (qualifier value)]	Postcoordinated Expression	1
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))>[Rx;1161791 Warfarin Pill] ->(410675002 Route of administration (attribute))>[26643006 Oral route (qualifier value)]	Postcoordinated Expression	1
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))>[129445006 Administration - ac-	Postcoordinated Expression	1

System	Code	Display Text	References
	tion (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;1364435 apixaban 2.5 MG Oral Tablet] ->(410675002 Route of administration (attribute))->[26643006 Oral route (qualifier value)]		
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;243670 Aspirin 81 MG Oral Tablet] ->(410675002 Route of administration (attribute))->[26643006 Oral route (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;849699 0.2 ML heparin calcium 25000 UNT/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;854228 0.3 ML Enoxaparin sodium 100 MG/ML Prefilled	Postcoordinated Expression	1

System	Code	Display Text	References
	Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]		
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;854235 0.4 ML Enoxaparin sodium 100 MG/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]	Postcoordinated Expression	2
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;861360 0.5 ML Fondaparinux sodium 5 MG/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]	Postcoordinated Expression	1
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;978725 0.2 ML Dalteparin Sodium 12500 UNT/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005	Postcoordinated Expression	1

System	Code	Display Text	References
	Subcutaneous route (qualifier value)]		
SNOMED CT	[416118004 Administration (procedure)] ->(260686004 Method (attribute))->[129445006 Administration - action (qualifier value)] ->(363701004 Direct substance (attribute))->[Rx;978733 0.2 ML Dalteparin Sodium 25000 UNT/ML Prefilled Syringe] ->(410675002 Route of administration (attribute))->[34206005 Subcutaneous route (qualifier value)]	Postcoordinated Expression	1

Chapter 14. Behavior Symbols

Table 14.1. 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 14.2. 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 14.3. 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 14.4. 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 14.5. 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 14.6. 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.

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] *Cardiology: Venous Thromboembolism (VTE) Prophylaxis Clinical Content White Paper*

[CSD] *Cardiology: Venous Thromboembolism (VTE) Prophylaxis Conceptual Structure Document*

[KVRpt] *Cardiology: Venous Thromboembolism (VTE) Prophylaxis KNART Validation Report*

[Padua Risk Calculator] *Padua VTE Risk Calculator* (link [<https://www.mdcalc.com/padua-prediction-score-risk-vte>])

[Caprini Risk Assessment] *Caprini Risk Assessment – Online Version – Venous Resource Center* (link [<https://venous-disease.com/dvt-risk-assessment-online/>])

Supporting Evidence

[Jacobs 2012] Jacobs, Joshua J., Michael A. Mont, Kevin John Bozic, Craig J. Della Valle, Stuart Barry Goodman, Courtland G. Lewis, Adolph Chick J. Yates, et al. 2012. “American Academy of Orthopaedic Surgeons Clinical Practice Guideline on: Preventing Venous Thromboembolic Disease in Patients Undergoing Elective Hip and Knee Arthroplasty.” *The Journal of Bone and Joint Surgery. American Volume* 94 (8): 746–47. doi:10.2106/JBJS.9408.ebo746. (link [<https://doi.org/10.2106/JBJS.9408.ebo746>])

[Bates 2012] Bates, Shannon M., Ian A. Greer, Saskia Middeldorp, David L. Veenstra, Anne-Marie Prabalos, and Per Olav Vandvik. 2012. “VTE, Thrombophilia, Antithrombotic Therapy, and Pregnancy: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.” *Chest* 141 (2 Suppl): e691S–e736S. doi:10.1378/chest.11-2300 (link [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3278054/>])

[Douketis 2012] Douketis, James D, Alex C Spyropoulos, Frederick A Spencer, Michael Mayr, Amir K Jaffer, Mark H Eckman, Andrew S Dunn, and Regina Kunz. 2012. “Perioperative Management of Antithrombotic Therapy: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.” *Chest* 141 (2 Suppl): e326S–e350S. doi:10.1378/chest.11-2298 (link [<https://doi.org/10.1378/chest.11-2296>])

[Gould 2012] Gould, Michael K., David A. Garcia, Sherry M. Wren, Paul J. Karanicolas, Juan I. Arcelus, John A. Heit, and Charles M. Samama. 2012. “Prevention of VTE in Nonorthopedic Surgical Patients: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.” *Chest* 141 (2 Suppl): e227S–e277S. doi:10.1378/chest.11-2297. (link [<https://doi.org/10.2106/JBJS.9408.ebo746>])

[Kahn 2012] Kahn, Susan R., Wendy Lim, Andrew S. Dunn, Mary Cushman, Francesco Dentali, Elie A. Akl, Deborah J. Cook, et al. 2012. “Prevention of VTE in Nonsurgical Patients: Antithrombotic Therapy and Prevention of Thrombosis, 9th Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.” *Chest* 141 (2 Suppl): e195S–e226S. doi:10.1378x/chest.11-2296. (link [<https://doi.org/10.1378/chest.11-2296>])

- [IOM 2013] *Medicine, Institute of, and Engineering National Academies of Sciences and Medicine. 2013. Improving Diagnosis in Health Care. Washington, DC: The National Academies Press. <https://www.nap.edu/catalog/21794/improving-diagnosis-in-health-care>. doi:10.17226/21794 (link [<https://doi.org/10.17226/21794>])*
- [Rogers 2007] Rogers, Selwyn O., Ravi K. Kilaru, Patrick Hosokawa, William G. Henderson, Michael J. Zinner, and Shukri F. Khuri. 2007. "Multivariable Predictors of Postoperative Venous Thromboembolic Events after General and Vascular Surgery: Results from the Patient Safety in Surgery Study." *Journal of the American College of Surgeons* 204 (6): 1211–21. doi:10.1016/j.jamcollsurg.2007.02.072 (link [<https://doi.org/10.1016/j.jamcollsurg.2007.02.072>])
- [Rogers 2016] Shehab, Nadine, Maribeth C. Lovegrove, Andrew I. Geller, Kathleen O. Rose, Nina J. Weidle, and Daniel S. Budnitz. 2016. "US Emergency Department Visits for Outpatient Adverse Drug Events, 2013-2014." *JAMA* 316 (20): 2115–25. doi:10.1001/jama.2016.16201 (link [<https://doi.org/10.1001/jama.2016.16201>])
- [NLM 2017a] LABEL: ARIXTRA- fondaparinux sodium injection, solution [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=d3b30c68-cf45-4b46-8ba6-72090f7ba01a>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=d3b30c68-cf45-4b46-8ba6-72090f7ba01a>])
- [NLM 2017b] LABEL: ASPIRIN 81 MG- aspirin tablet, coated [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=b4064039-2345-4227-b83d-54d-c13a838d3>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=b4064039-2345-4227-b83d-54d-c13a838d3>])
- [NLM 2017c] LABEL: ELIQUIS- apixaban tablet, film coated [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=a454cd24-0c6d-46e8-b1e4-197388606175>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=a454cd24-0c6d-46e8-b1e4-197388606175>])
- [NLM 2017d] LABEL: FRAGMIN- dalteparin sodium injection, solution [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=529711c6-6029-4e50-8ece-c0e59b06ff38>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=529711c6-6029-4e50-8ece-c0e59b06ff38>])
- [NLM 2017e] LABEL: HEPARIN SODIUM- heparin sodium injection [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=56dc3074-f1c5-45a3-b923-f1d14858e06d>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=56dc3074-f1c5-45a3-b923-f1d14858e06d>])
- [NLM 2017f] LABEL: PRADAXA- dabigatran etexilate mesylate capsule [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=5db7f199-8752-4d24-85f7-e34ca8f4d02e>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=5db7f199-8752-4d24-85f7-e34ca8f4d02e>])
- [NLM 2017g] WARFARIN SODIUM- warfarin tablet [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c0cc4511-e656-4b6d-96cd-e02e76173b9d>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c0cc4511-e656-4b6d-96cd-e02e76173b9d>])
- [NLM 2017h] LABEL: XARELTO- rivaroxaban tablet, film coated [Internet].: National Library of Medicine; 2017. Available from: <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1166231a-b23a-4c86-8cda-45d41b724e57>. (link [<https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=1166231a-b23a-4c86-8cda-45d41b724e57>])