Anticoagulants

Scope: Unless otherwise stated, these items pertain only to warfarin, direct oral anticoagulants (e.g., dabigatran, apixaban, rivaroxaban, edoxaban), unfractionated heparin, and low molecular weight heparin.

Demographic Question

1) Does your organization provide an anticoagulation management service or clinic to assist with dosing, monitoring, and patient education?

☐ Yes

- ☐ **Inpatient?**
  - **Select the type of healthcare providers who staff the service or clinic** (select one or more that apply)
    - ☐ Physician
    - ☐ Pharmacist
    - ☐ Nurse
    - ☐ Physician assistant
    - ☐ Dietician
    - ☐ Laboratory technician
    - ☐ Other: (please specify) _____
- ☐ **Outpatient?**
  - **Select the type of healthcare providers who staff the service or clinic** (select one or more that apply)
    - ☐ Physician
    - ☐ Pharmacist
    - ☐ Nurse
    - ☐ Physician assistant
    - ☐ Dietician
    - ☐ Laboratory technician
    - ☐ Other: (please specify) _____

☐ No

Self-Assessment Items

A	There has been no activity to implement this item.
B	This item has been formally discussed and considered, but it has not been implemented.
C	This item has been partially implemented for some or all patients, orders, drugs, or staff.
D	This item is fully implemented for some patients, orders, drugs, or staff.
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		A	B	C	D	E
General Items						
Patient Monitoring						
1	A baseline hemoglobin, hematocrit, platelet count, aPTT, and INR are obtained within 48 hours prior to initiating anticoagulation therapy (inpatient or outpatient).					

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2	All patient-specific, anticoagulation therapy-related information, including laboratory/**POINT-OF-CARE** testing results and doses administered, is communicated in one designated place in the patient's health record (e.g., an electronic dashboard) and accessible to all staff with patient care responsibilities.					
3	The most recent laboratory value, with the date and time of testing, is automatically displayed on computer order entry system screens when placing and verifying an order for an anticoagulant that typically requires dose adjustments based on laboratory results.					
4	From the order entry screen, when placing or verifying an order for an anticoagulant, healthcare providers can quickly pull up a view of historical laboratory values to determine trends over time.					
Protocols, Guidelines, and Order Sets						
5	Disease-specific protocols for warfarin, direct oral anticoagulants, unfractionated heparin, and low molecular weight heparin exist, are available electronically, and are used when anticoagulants are prescribed, dispensed, and administered; **and** the protocols are clearly titled to ensure proper use.					
FAQ 6	Disease-specific order sets for warfarin, direct oral anticoagulants, unfractionated heparin, and low molecular weight heparin exist and are used when anticoagulants are prescribed; **and** the order sets include all required patient monitoring.					
7	Protocols and order sets identify the specific drugs, interventions, and treatments (e.g., neuraxial procedures, certain vascular access procedures) that should be avoided in patients receiving anticoagulants.					
8	Protocols or guidelines exist to facilitate the transition between different anticoagulants.					
Dosing						
9	The indication and therapeutic goal for anticoagulation is documented in at least one consistent and conspicuous location (e.g., order set, MAR/eMAR) and used to manage the patient's therapy.					
10	As specified by medical staff-approved protocols, pharmacists and/or nurses automatically modify the dose of anticoagulants when laboratory values are below or above the target range; **and/or** pharmacists and/or nurses directly contact the prescriber within a facility-defined timeframe to report these laboratory values and discuss potential dose modifications.					
11	All dosing changes, including those directed by medical staff-approved protocols, are documented in the patient's health record so practitioners can determine the patient's current dose at all times and verify each dosing change.					
12	A facility-approved protocol permits and guides the rounding of doses for certain anticoagulants (e.g., enoxaparin 83 mg could be rounded to 80 mg, a weight-based heparin bolus dose of 2,485 units could be rounded to 2,500 units).					

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Holding or Discontinuing Anticoagulants						
FAQ 13	A standard, reliable process is in place for screening patients for recent anticoagulant use before invasive procedures; **and** if therapy must be discontinued, protocols or guidelines define when anticoagulants should be stopped and restarted, and when alternative agents to bridge the patient should be considered.					
14	The patient's active orders, MAR/eMAR, and/or pertinent laboratory values are checked immediately prior to surgery to verify that any anticoagulants were stopped or administered as prescribed and that the patient has reached the desired level of anticoagulation. ***Scoring guideline:*** *Choose Not Applicable only if your facility does not provide surgical services.*					
		NOT APPLICABLE				
15	Orders for anticoagulants that are governed by an **AUTOMATIC STOP ORDER** policy are not discontinued without the specific approval of the prescriber. ***Scoring guideline:*** *Choose Not Applicable only if anticoagulants are not governed by an* ***AUTOMATIC STOP ORDER*** *policy in your facility.*					
		NOT APPLICABLE				
Duplicate or Repetitive Doses						
16	When orders for antithrombotics are entered, the computer order entry system alerts practitioners if the patient has received an antithrombotic (including anticoagulants), even a one-time dose, within the prior 24 hours in any location in the organization (e.g., emergency department, cardiac catheterization laboratory, interventional radiology), to ensure that adequate time has elapsed between doses of the same or different antithrombotics.					
Reversal Agents						
17	Protocols and order sets exist and are used to direct the reversal of anticoagulation, taking into consideration the absence or presence of clinically significant bleeding, and other factors that influence the necessity and urgency of reversal.					
18	Appropriate reversal agents or antidotes for anticoagulants (e.g., protamine, vitamin K_1, idaru**CIZU**mab, prothrombin complex concentrates) are readily accessible and accompanied by a clear indication for when they should be used and directions for administration near the point of use.					
Patient Education (Includes Caregiver Education When Appropriate)						
19	Patients taking anticoagulants receive verbal and up-to-date written information at an appropriate reading level and in their preferred language about the drug; monitoring and follow-up; potential adverse drug reactions; signs of bleeding/thrombosis; situations that require contacting the prescriber or visiting an emergency department; examples of over-the-counter medications, nutritional supplements, and herbal medications to avoid; and how to operate any **POINT-OF-CARE** testing devices, if applicable.					
20	Patients previously taking an anticoagulant at home and subsequently prescribed a different anticoagulant are specifically told which anticoagulants they should continue to take or discontinue.					
21	When patients taking an anticoagulant are discharged or leaving an outpatient facility, a practitioner verifies that the patient has a scheduled appointment for clinician reassessment of anticoagulation and laboratory testing if required.					

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Direct Oral Anticoagulants (e.g., dabigatran, apixaban, rivaroxaban, edoxaban)						
Patient Monitoring						
22	A serum creatinine and the patient's measured metric weight are obtained, and an estimated creatinine clearance is calculated, within 48 hours prior to initiating therapy with a direct oral anticoagulant (in addition to laboratory tests outlined in assessment item # 1).					
Expression of Drug Names						
23	The abbreviation NoAC, NOAC, or No-AC (intended to mean novel or new oral anticoagulant, or non-vitamin K_1 oral anticoagulant) is not used when referring to direct oral anticoagulants to avoid misunderstanding as "No anticoagulant."					
Staff Competency and Education						
24	Practitioners who prescribe, dispense, and/or administer dabigatran are instructed that the capsules are not to be opened and that the contents must not be mixed with food or tube feeding solutions.					
Patient Education (Includes Caregiver Education When Appropriate)						
25	Patients taking rivaroxaban or apixaban for the treatment of deep vein thrombosis or pulmonary embolism are instructed that the dose will be reduced after 21 days or 7 days respectively.					
26	Patients taking dabigatran are educated about the following: (score each item individually)					
a	Proper storage and handling of their medication (e.g., keep in its original container or blister packs; remove only one capsule at the time of use and immediately close the bottle tightly; once the bottle is opened, the product is only stable for 4 months)					
b	Take the medication with a full glass of water and do not break, crush, chew, or empty the contents of the capsules					
Unfractionated and Low Molecular Weight Heparin						
Patient Monitoring						
27	After initiating and/or changing the dose of an unfractionated heparin infusion, an aPTT or anti-factor Xa test is obtained no sooner than 6 hours after the start of the infusion (unless bleeding occurs sooner), and repeated at least every 24 hours thereafter once it is stable.					
28	A serum creatinine and the patient's measured metric weight are obtained, and an estimated creatinine clearance is calculated, within 48 hours prior to initiating therapy with low molecular weight heparin (in addition to laboratory tests outlined in assessment item # 1).					
Protocol and Order Set						
29	When IV unfractionated heparin is prescribed, a standardized weight-based protocol and order set are used to prescribe and direct dosing and dose adjustments based on aPTT or anti-factor Xa results.					

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Products and Storage						
30	The variety of different unfractionated heparin vial concentrations and sizes is limited to only those needed in the facility.					
31	Only commercially prepared, premixed IV solutions of unfractionated heparin are used in the facility unless unavailable.					
32	Therapeutic infusions of unfractionated heparin are standardized to a single concentration for adults and pediatric patients (for neonates, see next item). ***Scoring guideline:*** *If your facility provides care to only pediatric patients or only adults, score this item as it relates to the patient population your facility treats.*					
33	Infusions that contain unfractionated heparin are standardized to no more than two concentrations for neonates based on weight (e.g., less than 1 kg and 1 kg and greater). ***Exception****: Infusions used during extracorporeal membrane oxygenation.* ***Scoring guideline:*** *Choose Not Applicable only if your facility does not provide care to neonates with IV or arterial infusions.*					NOT APPLICABLE
34	For adults, commercially prepared, unit-dose syringes of heparin flush or lock solutions, or single-use vials of heparin (100 units/mL, volume not greater than 5 mL) are stocked in clinical areas wherever they are needed (when saline flushes will not suffice). ***Scoring guideline:*** *Choose Not Applicable only if your facility does not provide care to adults.*					NOT APPLICABLE
35	For neonates, pharmacy prepares and dispenses a single concentration of diluted heparin flush solution (when saline flushes will not suffice) in unit-dose syringes or patient-specific vials, which are clearly labeled as a diluted heparin flush preparation. ***Scoring guideline:*** *Choose Not Applicable only if your facility does not provide care to neonates with IV or arterial infusions.*					NOT APPLICABLE
Heparin-Induced Thrombocytopenia (HIT)						
36	Prior to ordering unfractionated heparin or low molecular weight heparin, initiating the use of unfractionated heparin for catheter flushes, or using heparin-coated catheters or instruments, a history of heparin-induced thrombocytopenia (HIT) and/or allergy to heparin is determined by reviewing the medical record and by asking the patient; **and** a positive history is documented in a manner that would generate an electronic alert if any form of heparin is prescribed.					
37	If HIT is suspected or diagnosed during current therapy, there is a mechanism in place to ensure the following: (score each item individually)					
a	All sources of unfractionated heparin and low molecular weight heparin (including use for arterial lines or catheter flushes) are discontinued					
b	A prominent entry is placed in the patient's medical record to alert staff to avoid the administration of, or exposure to, heparin in any form (including use for arterial lines or catheter flushes, heparin-coated catheters or instruments)					

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Patient Education (Includes Caregiver Education When Appropriate)						
38	Patients who will be administering subcutaneous unfractionated or low molecular weight heparin at home are instructed about the methods of dose measurement and drug administration, including proper disposal of syringes and/or needles; **and** patients demonstrate proficiency with these techniques prior to discharge or leaving the facility.					
Warfarin						
Patient Monitoring						
39	An INR is obtained prior to initiating warfarin therapy and upon admission or presentation of patients who have been receiving warfarin previously, unless an INR was obtained within the prior 48 hours and the result is available.					
40	A reliable system is in place to manage possible interactions in patients receiving warfarin and enteral feedings (e.g., holding continuous or intermittent feedings for at least 1 hour before and after warfarin doses, specified monitoring of anticoagulation effect after starting and discontinuing enteral feedings).					
Prescribing						
41	For hospitalized patients, new orders for warfarin doses are required every day (or per the prescribed frequency of administration). ***Scoring guideline:*** *Choose Not Applicable only if your facility is not a hospital.*					NOT APPLICABLE
Administration						
42	Warfarin administration for inpatients is scheduled for the same time each day, after INR results are available (e.g., afternoon, early evening). ***Scoring guideline:*** *Choose Not Applicable only if your facility treats outpatients exclusively.*					NOT APPLICABLE
Patient Education (Includes Caregiver Education When Appropriate)						
43	Patients taking warfarin are educated about the following: (score each item individually)					
a	Proper dietary measures and their effect on overall therapy goals (e.g., foods high in vitamin K_1 should be eaten consistently)					
b	How to manage dose changes safely when their existing tablet strength differs from a newly prescribed dose					
c	That Coumadin, Jantoven, and warfarin contain the same active ingredient, and to avoid taking them together if the drug is prescribed using various brand and generic names					