




Indications



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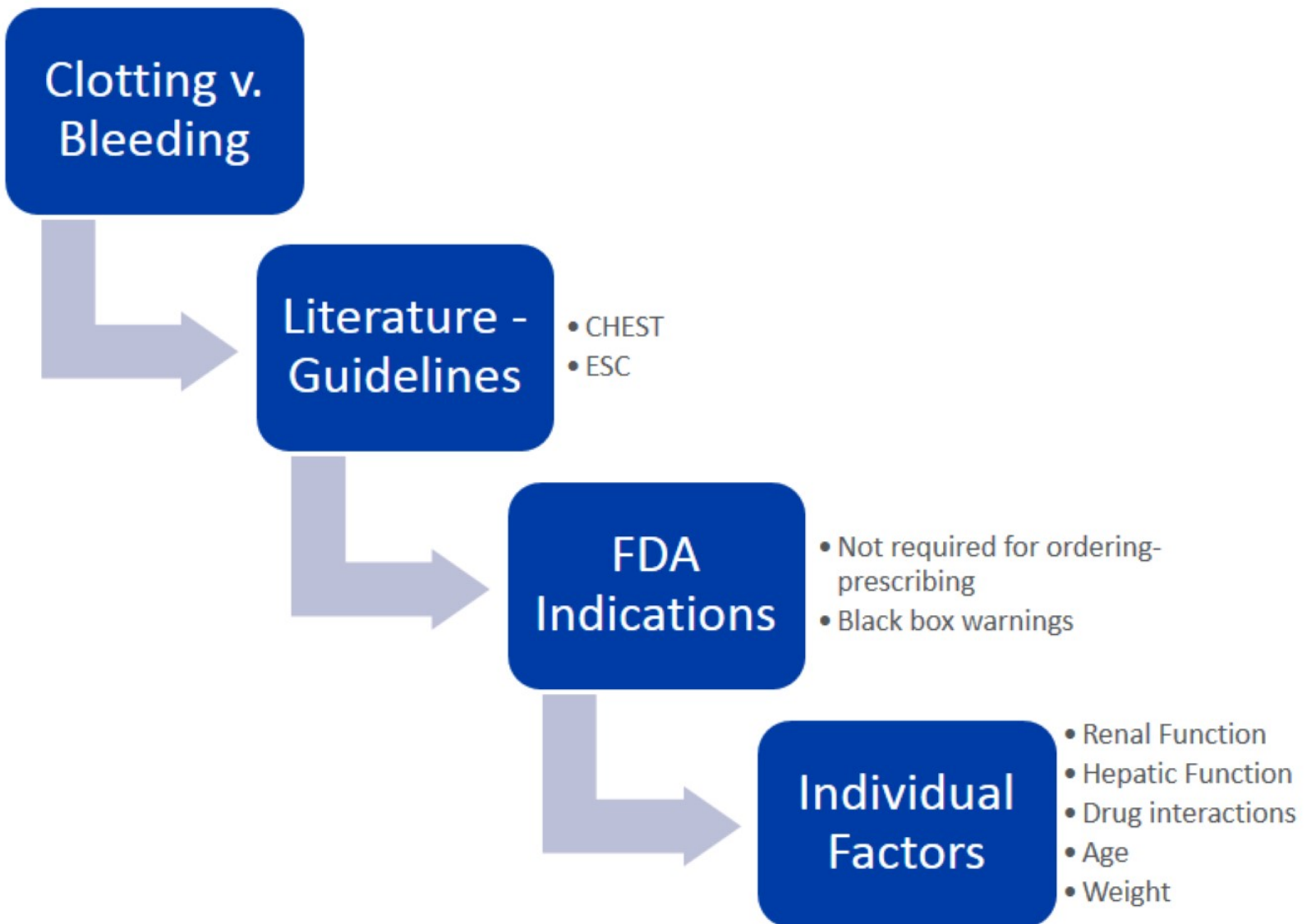


Anticoagulants

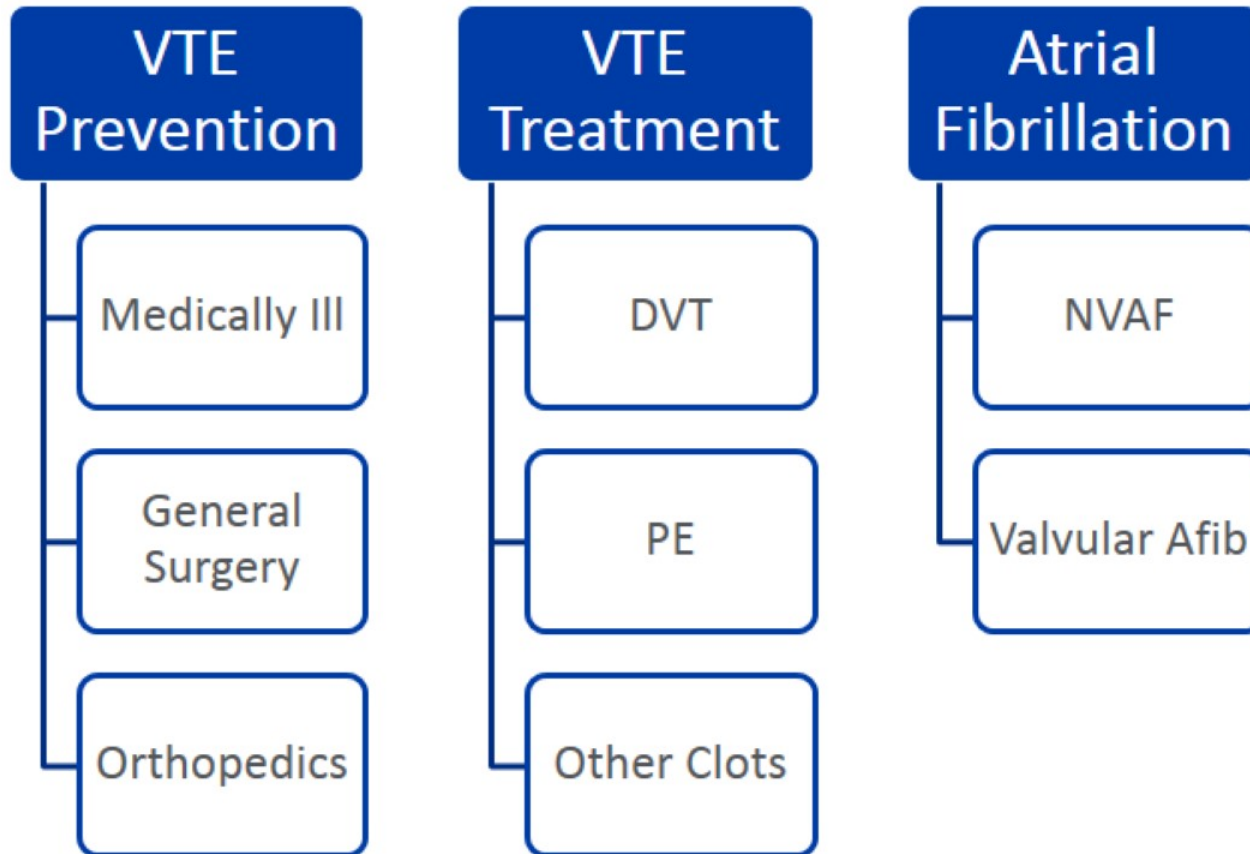
Class		Drug	Brand
Unfractionated Heparin		Low Dose SC	---
		IV Infusion	---
LMWH		Enoxaparin	Lovenox®
		Dalteparin	Fragmin®
		Tinzaparin*	Innohep®*
Pentasaccharide		Fondaparinux	Arixtra®
DOAC	DTI	Dabigatran	Pradaxa®
	Anti Xa	Apixaban	Eliquis®
		Betrixaban	Bevyxxa®
		Edoxaban	Savaysa®
		Rivaroxaban	Xeralto®
VKA		Warfarin	Coumadin®
Antiplatelet		acetylsalicylic acid	Aspirin

*Discontinued

How do you decide?



Populations



VTE Prevention



Question

Which agents would be appropriate for pharmacologic prophylaxis for a medically ill patient based on guidelines or FDA indications?

VTE Prevention:

At Risk Medical Patients

		Guidelines	FDA Indication
Unfractionated Heparin		Low Dose SC	
		IV Infusion	
LMWH		Enoxaparin	
		Dalteparin	
Pentasaccharide		Fondaparinux	
DOAC	DTI	Dabigatran	
	Anti Xa	Apixaban	
		Betrixaban	
		Edoxaban	
		Rivaroxaban	
VKA		Warfarin	

VTE Prevention:

At Risk Medical Patients

		Guidelines	FDA Indication	
Unfractionated Heparin	Low Dose SC	✓	✓	
	IV Infusion			
LMWH	Enoxaparin	✓	✓	
	Dalteparin	✓	✓	
Pentasaccharide	Fondaparinux	✓		
DOAC	DTI	Dabigatran		
	Anti Xa	Apixaban		
		Betrixaban		✓
		Edoxaban		
		Rivaroxaban		
VKA	Warfarin			

Prevention of VTE in Nonsurgical Patients
 CHEST 2012; 141(2)(Suppl):e195S–e226S

Betrixaban

Indicated for the prophylaxis of VTE in adult patients hospitalized for an acute medical illness who are at risk for thromboembolic complications due to moderate or severe restricted mobility and other risk factors for VTE.

APEX Trial

Randomized double blind double dummy clinical trial	
In Hospital	Post Discharge
Betrixaban + Placebo injection	Betrixaban 35-42 days
VS	
Placebo pill + enoxaparin injection	Placebo pill

Population: A high VTE risk group

1. Medical illness (CHF, Stroke, resp failure, infection, rheumatic disease)
2. At least 24 hour immobility
3. LOS 3 or more days
4. **Age ≥ 75, age 60-74 d dimer >2x ULN, age 40-59 D Dimer AND Hx VTE or cancer**

Extended Thromboprophylaxis with Betrixaban in Acutely Ill Medical Patients. N Engl J Med 2016; 375:534-544

	Cohort 1	Cohort 2	Cohort 3
RR (95% CI)	0.81 (0.65-1.0)	0.80 (0.66-0.98)	0.76 (0.63-0.92)
P value	0.054	0.03	0.006
	All patients had to have elevated D dimer	Elevated D Dimer or age ≥ 75	Overall population

VTE Prevention:

At Risk General Surgery Patients

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC	✓	✓*
	IV Infusion		
LMWH	Enoxaparin	✓	✓*
	Dalteparin	✓	✓*
Pentasaccharide	Fondaparinux		✓*
DOAC	DTI	Dabigatran	
	Anti Xa	Apixaban	
		Betrixaban	
		Edoxaban	
		Rivaroxaban	
VKA	Warfarin		

*Indication limited to abdominal surgery

Prevention of VTE in Nonorthopedic Surgical Patients
 CHEST 2012; 141(2)(Suppl):e227S–e277S

VTE Prevention:

Orthopedic Surgery– Joint Replacement (hip/knee)

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC	✓	
	IV Infusion		
LMWH	Enoxaparin	✓*	✓
	Dalteparin	✓*	✓ Hip only
Pentasaccharide	Fondaparinux	✓	✓
DOAC	DTI	Dabigatran	✓ Hip only
	Anti Xa	Apixaban	✓
		Betrixaban	
		Edoxaban	
		Rivaroxaban	✓
VKA	Warfarin	✓	
Antiplatelet	Aspirin	✓	

* CHEST 2012 :
LMWH
recommended
over other
options

Prevention of VTE in Orthopedic Surgery Patients.
CHEST 2012; 141(2)(Suppl):e278S–e325S

Preventing Venous Thromboembolic Disease In
Patients Undergoing Elective Hip And Knee
Arthroplasty . Published 2011 by the AAOS.
https://www.aaos.org/research/guidelines/vte/vte_full_guideline.pdf



VTE Prevention:

Want to Know
More?

Join the Next
webinar

July

VTE Prophylaxis

Who

What

When

Where

VTE Treatment



Question

Which choice best represents first line therapy for long term anticoagulation for a DVT or PE?

VTE Treatment

ACUTE TREATMENT
(Immediate acting
anticoagulation)

**LONG TERM
TREATMENT**
First 3 months

**EXTENDED
TREATMENT**
After initial 3
months

VTE Treatment:

Acute

		Guidelines	FDA Indication	
Unfractionated Heparin	Low Dose SC			
	IV Infusion	✓	✓	
LMWH	Enoxaparin	✓	✓	
	Dalteparin	✓	✓ In cancer	
Pentasaccharide	Fondaparinux	✓	✓	
DOAC	DTI	Dabigatran		
	Anti Xa	Apixaban	✓	✓
		Betrixaban		
		Edoxaban		
		Rivaroxaban	✓	✓
VKA	Warfarin			

Antithrombotic Therapy for VTE Disease CHEST Guideline and Expert Panel Report CHEST 2016; 149(2):315-352

Diagnosis and management of acute deep vein thrombosis: a joint consensus document from the ESC. European Heart Journal (2017) 00, 1–14

VTE Treatment:

Acute

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC		
	IV Infusion		
LMWH	Enoxaparin		
	Dalteparin		
Pentasaccharide	Fondaparinux		
DOAC	DTI	Dabigatran	
	Anti Xa	Apixaban	
		Betrixaban	
		Edoxaban	
		Rivaroxaban	
VKA	Warfarin		

Require unfractionated or LMW for 5 days prior to starting

VTE Treatment:

Long Term

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC		
	IV Infusion		
LMWH	Enoxaparin	For active cancer	✓
	Dalteparin		✓ For cancer
Pentasaccharide	Fondaparinux		
DOAC	DTI	Dabigatran	✓
		Apixaban	✓
	Anti Xa	Betrixaban	
		Edoxaban	✓
		Rivaroxaban	✓
VKA	Warfarin	✓ Second line	✓

Antithrombotic Therapy for VTE Disease CHEST Guideline and Expert Panel Report CHEST 2016; 149(2):315-352

Diagnosis and management of acute deep vein thrombosis: a joint consensus document from the ESC. European Heart Journal (2017) 00, 1–14

VTE Treatment:

Extended (beyond 3-6 months)

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC		
	IV Infusion		
LMWH	Enoxaparin	In cancer preferred over other Rx	
	Dalteparin		✓ 6 months for cancer
Pentasaccharide		Fondaparinux	
DOAC	DTI	Dabigatran	✓*
	Anti Xa	Apixaban	✓*, **
		Betrixaban	
		Edoxaban	✓*
		Rivaroxaban	✓*, **
VKA	Warfarin	Second line*	✓
Antiplatelet		Aspirin	***

* CHEST: there is no need to change the choice of anticoagulant after the first 3 months

** ESC: DOACs first line, reduced dose apixaban or rivaroxaban

*** Aspirin is beneficial only after a decision is made to stop anticoagulation

Antithrombotic Therapy for VTE Disease CHEST Guideline and Expert Panel Report CHEST 2016; 149(2):315-352

Diagnosis and management of acute deep vein thrombosis: a joint consensus document from the ESC. European Heart Journal (2017) 00, 1–14

VTE Treatment

Learn more about
VTE Treatment

Whole Day
Program on AC

NYC
May 15

Syracuse
May 24

Webcast
May 24

Atrial Fibrillation: Preventing Stroke and Systemic Embolization



Question

In which scenario would warfarin be the best option for stroke prevention in atrial fibrillation?

Atrial Fibrillation

		Guidelines	FDA Indication
Unfractionated Heparin	Low Dose SC		
	IV Infusion		
LMWH	Enoxaparin		
	Dalteparin		
Pentasaccharide	Fondaparinux		
DOAC	DTI	Dabigatran	✓
		Apixaban	✓
	Anti Xa	Betrixaban	
		Edoxaban	✓
		Rivaroxaban	✓
VKA	Warfarin	2 nd line	✓
Antiplatelet	Aspirin	x	

2016 ESC Guidelines for the management of atrial Fibrillation....European Heart Journal (2016) 37, 2893–2962

Stroke Prevention in Atrial Fibrillation

Learn more about
stroke prevention in
A fib

Whole Day
Program on AC

NYC
May 15

Syracuse
May 24

Webcast
May 24



Thanks You