VTE Thromboprophylaxis in Hospital Patients

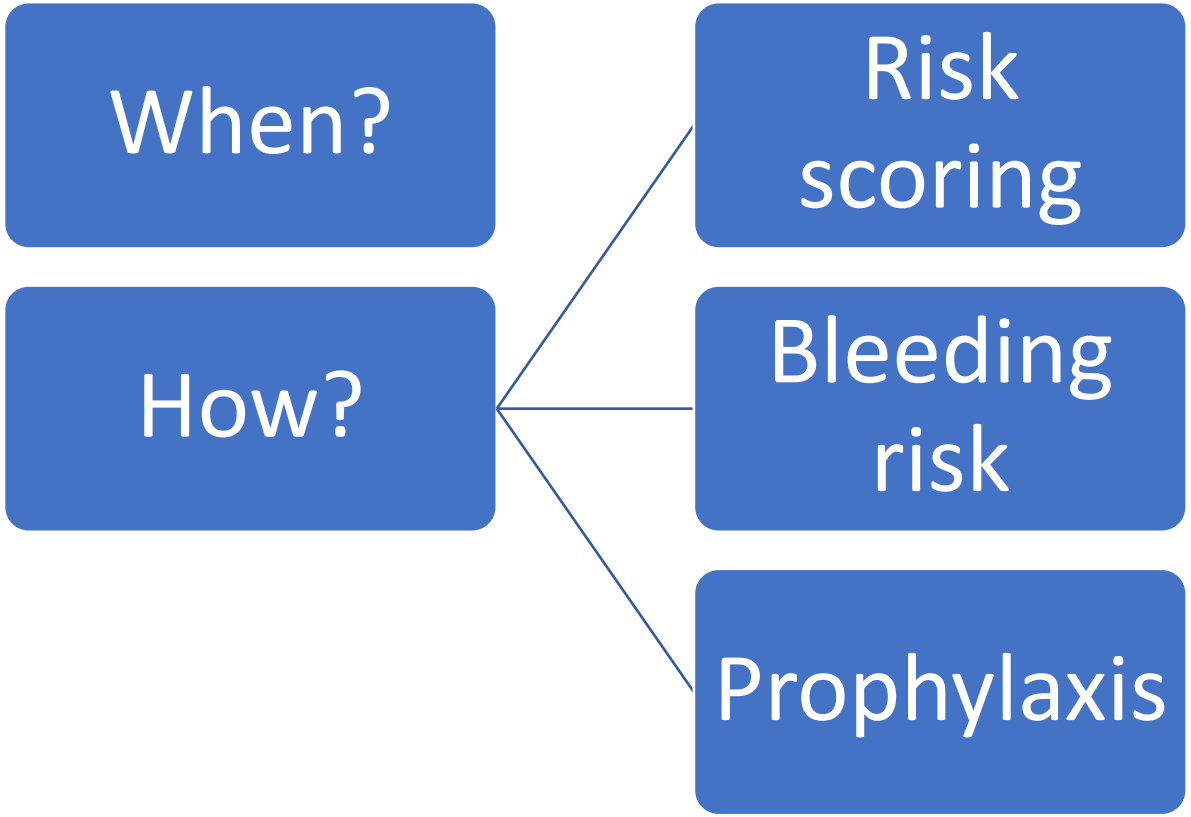
Adel Mohamad Alansary, MD

Why?

- Hospitalized patients are at increased risk of developing DVT (approximately 50%), increasing the risk of PE.
- PE is one of the most common but preventable causes of death in hospitalized patients.
- Only 50% of the hospitalized patients receive DVT prophylaxis.
- Prevention of DVT in hospitalized patients decreases the risk of DVT and PE, decreasing mortality and morbidity.

Medical Background

Medical Background



All patients admitted to hospital should be assessed for their risk of developing VTE and appropriate prophylactic measures should be put in place.

Other Check Points:		
Changing level of Care.	Changing diagnosis or new diagnosis.	Weekly.

Risk Factors

Risk Factors for Predicting VTE in Hospitalized Medical Patients (Padua Score)
Each risk factor represents 1 points
☐ Age ≥ 75 years ☐ Heart &/or respiratory failure ☐ Acute MI or ischemic stroke ☐ Acute infection &/or rheumatologic disorder ☐ Obesity (BMI > 30) ☐ Ongoing hormonal treatment
Each risk factor represents 2 points
☐ Recent (< 1 month) trauma &/or surgery
Each risk factor represents 3 points
☐ Active Cancer ☐ Previous VTE ☐ Reduced mobility ☐ Already known thrombophilic condition
Cumulative score of ≥ 4 points indicates high risk of VTE
Total Risk Factor Score: .....

Risk Factors for Predicting VTE in Hospitalized Surgical Patients (Caprini Score)	
Each risk factor represents 1 points	Each risk factor represents 2 points
☐ Age 41 – 60 years ☐ Minor surgery planned ☐ Obesity (BMI > 25) ☐ Swollen legs (current) ☐ Varicose veins ☐ Pregnancy/Postpartum ☐ History of unexplained/recurrent spontaneous abortion ☐ Oral contraceptives/HRT ☐ History of prior major surgery (<1 month) ☐ Sepsis (< 1 month) ☐ Serious lung disease incl. pneumonia (<1 month) ☐ Abnormal pulmonary function (COPD) ☐ Acute myocardial infarction ☐ Congestive heart failure (< 1 month) ☐ History of inflammatory bowel disease ☐ Medical patient currently at bed rest	☐ Age 61- 74 years ☐ Arthroscopic surgery ☐ Major surgery (> 45 minutes) ☐ Laparoscopic surgery (> 45 minutes) ☐ Malignancy (present previous) ☐ Patient confined to bed (> 72hours) ☐ Immobilizing plaster cast (< 1 month) ☐ Central venous access
Each risk factor represents 3 points	Each risk factor represents 5 points
☐ Age ≥ 75 years ☐ History of VTE ☐ Family history of VTE ☐ Positive factor V Leiden ☐ Positive prothrombin 20210/A ☐ Positive lupus anticoagulant ☐ Elevated serum homocysteine ☐ Elevated anticardiolipin antibodies ☐ Heparin-induced thrombocytopenia (HIT) ☐ Other congenital or acquired thrombophilia	☐ Stroke (< 1 month) ☐ Elective major lower extremity arthroplasty ☐ Acute spinal cord injury (paralysis) (<1 month)

Risk score interpretation

Total Risk Score	Risk of VTE	Management
0	Very low	Early ambulation
1 – 2	Low	IPC
3 – 4	Moderate	Pharmacological, IPC
≥ 5	High	Pharmacological + GCS or IPC

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Assessing the Caprini Score for Risk Assessment of Venous Thromboembolism in Hospitalized Medical Patients

Paul J. Grant, MD[#1,2], **M. Todd Greene, PhD, MPH**[#1,2], **Vineet Chopra, MD, MSc**[1,2,3], **Steven J. Bernstein, MD, MPH**[1,2,3], **Timothy P. Hofer, MD, MSc**[1,3], and **Scott A. Flanders, MD**[1,2]

Conclusions—Although a linear association between the Caprini RAM and risk of VTE was noted, an extremely low incidence of VTE events in non-ICU medical patients was observed. The Caprini RAM was unable to identify a subset of medical patients who benefit from pharmacologic prophylaxis.

Zhonghua Yi Xue Za Zhi. 2017 Jun 27;97(24):1875-1877.
doi: 10.3760/cma.j.issn.0376-2491.2017.24.007.

[Validation of the Caprini risk assessment model for venous thromboembolism in Chinese hospitalized patients in a general hospital]

95%CI: 1.59-2.45, $P<0.01$). There was no incidence difference of venous thromboembolism between surgery and medical patients in the same Caprini level of low ($\chi(2)=3.58$, $P>0.05$), moderate($\chi(2)=2.89$, $P>0.05$), high($\chi(2)=0.46$, $P>0.05$), highest risk($\chi(2)=1.61$, $P>0.05$). **Conclusion:** Caprini risk assessment model can effectively predict the occurence of venous thromboembolism in Chinese hospitalized patients with high risk of VTE(Caprini score >2)in a general hospital.

The official journal of the Japan Atherosclerosis Society and
the Asian Pacific Society of Atherosclerosis and Vascular Diseases

Original Article

J Atheroscler Thromb, 2018; 25: 1091-1104. http://doi.org/10.5551/jat.43653

Assessment of the Risk of Venous Thromboembolism in Medical Inpatients using the Padua Prediction Score and Caprini Risk Assessment Model

Haixia Zhou[1], Yuehong Hu[1], Xiaoqian Li[1], Lan Wang[1], Maoyun Wang[1], Jun Xiao[2] and Qun Yi[1]

[1]Department of Respiratory and Critical Medicine, West China Hospital, Sichuan University, Chengdu, Sichuan Province, China.
[2]Intensive Care Unit, West China Hospital, Sichuan University, Chengdu, Sichuan Province, China.

Aim: The optimal risk assessment model (RAM) to stratify the risk of venous thromboembolism (VTE) in medical inpatients is not known. We examined and compared how well the Padua Prediction Score (PPS) and the Caprini RAM stratify VTE risk in medical inpatients.

Results: The VTE risk increased significantly with an increase of the cumulative PPS or Caprini RAM score. A PPS and Caprini RAM "high risk" classification was, respectively, associated with a 5.01-fold and 4.10-fold increased VTE risk. However, the Caprini RAM could identify 84.3% of the VTE cases to receive prophylaxis according to American College of Chest Physicians guidelines, whereas the PPS could only identify 49.1% of the VTE cases. In the medical inpatients studied, five risk factors seen more frequently in VTE cases than in controls in the Caprini RAM were not included in the PPS. The Caprini RAM risk levels were linked almost perfectly to in-hospital and 6-month mortality.

Conclusions: Both the PPS and Caprini RAM can be used to stratify the VTE risk in medical inpatients effectively, but the Caprini RAM may be considered as the first choice in a general hospital because of its incorporation of comprehensive risk factors, higher sensitivity to identify patients who may benefit from prophylaxis, and potential for prediction of mortality.

See editorial vol. 25: 1087-1088

Key words: **Venous thromboembolism, Caprini risk assessment model, Padua Prediction Score, Medical inpatients, Mortality**

Original research

Risk assessment models for venous thromboembolism in hospitalised adult patients: a systematic review

Abdullah Pandor ,[1] Michael Tonkins,[1] Steve Goodacre ,[1] Katie Sworn,[1] Mark Clowes,[1] Xavier L Griffin ,[2] Mark Holland,[3] Beverley J Hunt,[4] Kerstin de Wit ,[5] Daniel Horner [6]

Conclusion Available data suggest that RAMs have generally weak predictive accuracy for VTE. There is insufficient evidence and too much heterogeneity to recommend the use of any particular RAM.

CASE 1

70 year old male

Medical History:

- HTN
- Type 2 diabetes
- BMI: 30 kg/m^2
- Family history of unprovoked DVT

Admitted to:

Surgery ward to undergo rectal resection for cancer rectum

CASE 1

Q1 - How can you assess his risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

Deep Vein Thrombosis (DVT)

Prophylaxis Orders

(For use in Elective General Surgery Patients)

BIRTHDATE

NAME

CPI No.

SEX M F VISIT No. _____

Thrombosis Risk Factor Assessment (Choose all that apply)

Each Risk Factor Represents 1 Point

- ❑ Age 41-60 years
- ❑ Swollen legs (current)
- ❑ Varicose veins
- ❑ Obesity (BMI >25)
- ❑ Minor surgery planned
- ❑ Sepsis (<1 month)
- ❑ Acute myocardial infarction
- ❑ Congestive heart failure (<1 month)
- ❑ Medical patient currently at bed rest
- ❑ History of inflammatory bowel disease
- ❑ History of prior major surgery (<1 month)
- ❑ Abnormal pulmonary function (COPD)
- ❑ Serious Lung disease including pneumonia (<1 month)
- ❑ Oral contraceptives or hormone replacement therapy
- ❑ Pregnancy or postpartum (<1 month)
- ❑ History of unexplained stillborn infant, recurrent spontaneous abortion (≥ 3), premature birth with toxemia or growth-restricted infant
- ❑ Other risk factors_____

Subtotal:

Each Risk Factor Represents 2 Points

- ❑ Age 61-74 years
- ❑ Arthroscopic surgery
- ❑ Malignancy (present or previous)
- ❑ Laparoscopic surgery (>45 minutes)
- ❑ Patient confined to bed (>72 hours)
- ❑ Immobilizing plaster cast (<1 month)
- ❑ Central venous access
- ❑ Major surgery (>45 minutes)

Subtotal:

Each Risk Factor Represents 3 Points

- ❑ Age 75 years or older
- ❑ History of DVT/PE
- ❑ Positive Factor V Leiden
- ❑ Elevated serum homocysteine
- ❑ Heparin-induced thrombocytopenia (HIT)
  (Do not use heparin or any low molecular weight heparin)
- ❑ Elevated anticardiolipin antibodies
- ❑ Other congenital or acquired thrombophilia

If yes: Type_____

*** most frequently missed risk factor**

- ❑ **Family History of thrombosis***
- ❑ Positive Prothrombin 20210A
- ❑ Positive Lupus anticoagulant

Subtotal:

Each Risk Factor Represents 5 Points

- ❑ Stroke (<1 month)
- ❑ Elective major lower extremity arthroplasty
- ❑ Hip, pelvis or leg fracture (<1 month)
- ❑ Acute spinal cord injury (paralysis) (<1 month)
- ❑ Multiple trauma (<1 month)

Subtotal:

TOTAL RISK FACTOR SCORE:

Total risk factor score	0	1-2	3-4	5 or more
Risk level	Very low	Low	Moderate	High

CASE 1

Q1 - How can you assess his risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

CASE 1

Q2- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

Recommendation 9.

Thromboprophylaxis	
For patients with cancer undergoing a surgical procedure	• LMWH or fondaparinux over UFH • Using postoperative thromboprophylaxis over preoperative thromboprophylaxis • Continuing pharmacological thromboprophylaxis post discharge rather than discontinuing at the time of hospital discharge

Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

Recommendation 10.

Thromboprophylaxis	
For patients with cancer undergoing a surgical procedure	• No recommendation on the use of VKA or DOAC for thromboprophylaxis, because there were no studies available

Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

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High risk for VTE (Caprini score: 5)

- **LMWH (Grade 1B)**
- **LDUH (Grade 1B) over no prophylaxis.**

- **We suggest that mechanical prophylaxis with elastic stockings or IPC should be added to pharmacologic prophylaxis (Grade 2C) .**

Guyatt GH, et al. Exe. Chest. 2012 Feb;141(2 Suppl):7S-47S.

CASE 1

Q2- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

CASE 1

Q3- For how long pharmacologic prophylaxis will be given?

A. 2 weeks

B. 3 weeks

C. 4 weeks

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- For **high-VTE-risk patients** undergoing **abdominal or pelvic surgery for cancer** who are not otherwise at high risk for major bleeding complications, **we recommend extended-duration pharmacologic prophylaxis (4 weeks) with LMWH** over limited-duration prophylaxis (Grade 1B) .

Gould K et al. 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 2012. e227S-e277S

ASH CLINICAL PRACTICE GUIDELINES
VENOUS THROMBOEMBOLISM (VTE)

Recommendation 7.

Thromboprophylaxis	
For patients undergoing major surgery	• Using extended antithrombotic prophylaxis over short-term antithrombotic prophylaxis (conditional recommendation based on very low certainty in the evidence of effects). • **Extended prophylaxis was generally considered as beyond 3 weeks (range: 19-42 days),** and short-term prophylaxis was considered as up to 2 weeks (range: 4-14 days).

Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

Prophylaxis of Venous Thromboembolic Disease In High Risk Surgeries

- In patients at **high risk of thromboembolism**, the recommended dose of enoxaparin sodium is 4,000 IU (40 mg) once daily given by SC injection preferably started 12 hours before surgery

- For patients with a high venous thromboembolism (VTE) risk who undergo **abdominal or pelvic surgery for cancer** an extended thromboprophylaxis up to **4 weeks** is recommended

CASE 1

Q3- For how long pharmacologic prophylaxis will be given?

A. 2 weeks

B. 3 weeks

C. 4 weeks

CASE 2

30 year old female

Medical History:

- History of leg fracture less than 1 month
- History of Inflammatory Bowel Disease
- BMI: 20 kg/m^2

Admitted to:

Surgery Ward to undergo laparoscopic oophorectomy for Ovarian Cancer

CASE 2

Q1 - How can you assess her risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

Deep Vein Thrombosis (DVT)

Prophylaxis Orders

(For use in Elective General Surgery Patients)

BIRTHDATE

NAME

CPI No.

SEX M F VISIT No. _____

Thrombosis Risk Factor Assessment (Choose all that apply)

Each Risk Factor Represents 1 Point

- ❑ Age 41-60 years
- ❑ Swollen legs (current)
- ❑ Varicose veins
- ❑ Obesity (BMI >25)
- ❑ Minor surgery planned
- ❑ Sepsis (<1 month)
- ❑ Acute myocardial infarction
- ❑ Congestive heart failure (<1 month)
- ❑ Medical patient currently at bed rest
- ❑ History of inflammatory bowel disease
- ❑ History of prior major surgery (<1 month)
- ❑ Abnormal pulmonary function (COPD)
- ❑ Serious Lung disease including pneumonia (<1 month)
- ❑ Oral contraceptives or hormone replacement therapy
- ❑ Pregnancy or postpartum (<1 month)
- ❑ History of unexplained stillborn infant, recurrent spontaneous abortion (≥ 3), premature birth with toxemia or growth-restricted infant
- ❑ Other risk factors_____

Subtotal:

Each Risk Factor Represents 2 Points

- ❑ Age 61-74 years
- ❑ Arthroscopic surgery
- ❑ Malignancy (present or previous)
- ❑ Laparoscopic surgery (>45 minutes
- ❑ Patient confined to bed (>72 hours)
- ❑ Immobilizing plaster cast (<1 month)
- ❑ Central venous access
- ❑ Major surgery (>45 minutes)

Subtotal:

Each Risk Factor Represents 3 Points

- ❑ Age 75 years or older
- ❑ History of DVT/PE
- ❑ Positive Factor V Leiden
- ❑ Elevated serum homocysteine
- ❑ Heparin-induced thrombocytopenia (HIT)
  (Do not use heparin or any low molecular weight heparin)
- ❑ Elevated anticardiolipin antibodies
- ❑ Other congenital or acquired thrombophilia

If yes: Type_____

* **most frequently missed risk factor**

- ❑ **Family History of thrombosis***
- ❑ Positive Prothrombin 20210A
- ❑ Positive Lupus anticoagulant

Subtotal:

Each Risk Factor Represents 5 Points

- ❑ Stroke (<1 month)
- ❑ Elective major lower extremity arthroplasty
- ❑ Hip, pelvis or leg fracture (<1 month)
- ❑ Acute spinal cord injury (paralysis) (<1 month)
- ❑ Multiple trauma (<1 month)

Subtotal:

TOTAL RISK FACTOR SCORE:

Total risk factor score	0	1-2	3-4	5 or more
Risk level	Very low	Low	Moderate	High

CASE 2

Q1 - How can you assess her risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

CASE 2

Q2- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

Recommendation 9.

Thromboprophylaxis	
For patients with cancer undergoing a surgical procedure	• LMWH or fondaparinux over UFH • Using postoperative thromboprophylaxis over preoperative thromboprophylaxis • Continuing pharmacological thromboprophylaxis post discharge rather than discontinuing at the time of hospital discharge

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Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

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High risk for VTE (Caprini score: 5)

- LMWH (Grade 1B)
- LDUH (Grade 1B) over no prophylaxis.

- We suggest that mechanical prophylaxis with elastic stockings or IPC should be added to pharmacologic prophylaxis (Grade 2C) .

Guyatt GH, et al. Exe. Chest. 2012 Feb;141(2 Suppl):7S-47S.

Prophylaxis of Venous Thromboembolic Disease In Moderate And High Risk Surgical Patients

In patients at **high risk of thromboembolism**, the recommended dose of enoxaparin sodium is 4,000 IU (40 mg) once daily given by SC injection preferably started 12 hours before surgery

Enoxaparin EMA PI 2017

CASE 2

Q2- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

CASE 2

Q3- For how long pharmacologic prophylaxis will be given?

A. 2 weeks

B. 3 weeks

C. 4 weeks

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- For **high-VTE-risk patients** undergoing **abdominal or pelvic surgery for cancer** who are not otherwise at high risk for major bleeding complications, **we recommend extended-duration pharmacologic prophylaxis (4 weeks) with LMWH** over limited-duration prophylaxis (Grade 1B) .

Gould K et al. 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 2012. e227S-e277S

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VENOUS THROMBOEMBOLISM (VTE)

Recommendation 7.

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Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

Prophylaxis of Venous Thromboembolic Disease In High Risk Surgeries

- In patients at **high risk of thromboembolism**, the recommended dose of enoxaparin sodium is 4,000 IU (40 mg) once daily given by SC injection preferably started 12 hours before surgery

- For patients with a high venous thromboembolism (VTE) risk who undergo **abdominal or pelvic surgery for cancer** an extended thromboprophylaxis up to **4 weeks** is recommended

CASE 2

Q3- For how long pharmacologic prophylaxis will be given?

A. 2 weeks

B. 3 weeks

C. 4 weeks

CASE 3

67 year old female

Medical History:

- BMI: 42 kg/m^2
- DVT following a 6 h flight from 1 year (treated by UFH then Warfarin for 3 months)

Admitted to:

- Surgery ward to undergo exploratory laparotomy, sigmoid colectomy and extensive lysis of adhesions for cancer sigmoid colon.
- She required a transfusion of three units of blood during the operation.

Current Situation:

- Day 3 post-operative
- DVT prophylaxis for the perioperative period included graded knee-high compressive stockings and intermittent pneumatic compression (IPC).

CASE 3

Q1 - How can you assess her risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

Deep Vein Thrombosis (DVT)

Prophylaxis Orders

(For use in Elective General Surgery Patients)

BIRTHDATE

NAME

CPI No.

SEX M F VISIT No. _____

Thrombosis Risk Factor Assessment (Choose all that apply)

Each Risk Factor Represents 1 Point

- ❑ Age 41-60 years
- ❑ Swollen legs (current)
- ❑ Varicose veins
- ❑ Obesity (BMI >25)
- ❑ Minor surgery planned
- ❑ Sepsis (<1 month)
- ❑ Acute myocardial infarction
- ❑ Congestive heart failure (<1 month)
- ❑ Medical patient currently at bed rest
- ❑ History of inflammatory bowel disease
- ❑ History of prior major surgery (<1 month)
- ❑ Abnormal pulmonary function (COPD)
- ❑ Serious Lung disease including pneumonia (<1 month)
- ❑ Oral contraceptives or hormone replacement therapy
- ❑ Pregnancy or postpartum (<1 month)
- ❑ History of unexplained stillborn infant, recurrent spontaneous abortion (≥ 3), premature birth with toxemia or growth-restricted infant
- ❑ Other risk factors_____

Subtotal:

Each Risk Factor Represents 2 Points

- ❑ Age 61-74 years
- ❑ Arthroscopic surgery
- ❑ Malignancy (present or previous)
- ❑ Laparoscopic surgery (>45 minutes)
- ❑ Patient confined to bed (>72 hours)
- ❑ Immobilizing plaster cast (<1 month)
- ❑ Central venous access
- ❑ Major surgery (>45 minutes)

Subtotal:

Each Risk Factor Represents 3 Points

- ❑ Age 75 years or older
- ❑ History of DVT/PE
- ❑ Positive Factor V Leiden
- ❑ Elevated serum homocysteine
- ❑ Heparin-induced thrombocytopenia (HIT)
  (Do not use heparin or any low molecular weight heparin)
- ❑ Elevated anticardiolipin antibodies
- ❑ Other congenital or acquired thrombophilia

If yes: Type_____

- ❑ **Family History of thrombosis***
- ❑ Positive Prothrombin 20210A
- ❑ Positive Lupus anticoagulant

*** most frequently missed risk factor**

Subtotal:

Each Risk Factor Represents 5 Points

- ❑ Stroke (<1 month)
- ❑ Elective major lower extremity arthroplasty
- ❑ Hip, pelvis or leg fracture (<1 month)
- ❑ Acute spinal cord injury (paralysis) (<1 month)
- ❑ Multiple trauma (<1 month)

Subtotal:

TOTAL RISK FACTOR SCORE:

Total risk factor score	0	1-2	3-4	5 or more
Risk level	Very low	Low	Moderate	High

CASE 3

Q1 - How can you assess her risk for VTE?

A. Low risk

B. Moderate risk

C. High risk

CASE 3

Q2 - How can you assess her risk for Bleeding?

A. Low risk

B. Moderate risk

C. High risk

RIETE Score

Predictive variables for major bleeding events in patients presenting with documented acute venous thromboembolism Findings from the RIETE Registry

Table 3: Multivariate analysis for major bleeding in the derivation sample.

	β	Odds ratio (95% CI)	P-value	Points
Recent major bleeding	0.996	2.7 (1.6–4.6)	<0.001	2
Creatinine levels >1.2 mg/dl	0.761	2.1 (1.7–2.8)	<0.001	1.5
Anemia	0.739	2.1 (1.7–2.7)	<0.001	1.5
Cancer	0.553	1.7 (1.4–2.2)	<0.001	1
Clinically overt PE	0.545	1.7 (1.4–2.2)	<0.001	1
Age >75 years	0.504	1.7 (1.3–2.1)	<0.001	1

PE, pulmonary embolism; CI, confidence intervals.

Low risk (0)

Intermediate risk (1–4)

High risk (>4)

http://williams.medicine.wisc.edu/bleeding_risk_after_vte.pdf

CASE 3

Q2 - How can you assess her risk for Bleeding?

A. Low risk

B. Moderate risk

C. High risk

CASE 3

Q3- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

Recommendation 9.

Thromboprophylaxis	
For patients with cancer undergoing a surgical procedure	• LMWH or fondaparinux over UFH • Using postoperative thromboprophylaxis over preoperative thromboprophylaxis • Continuing pharmacological thromboprophylaxis post discharge rather than discontinuing at the time of hospital discharge

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Thromboprophylaxis	
For patients with cancer undergoing a surgical procedure	• No recommendation on the use of VKA or DOAC for thromboprophylaxis, because there were no studies available

Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

CASE 3

Q3- What is your choice for VTE prophylaxis?

A. LDUFH

B. LMWH

C. NOACs

CASE 3

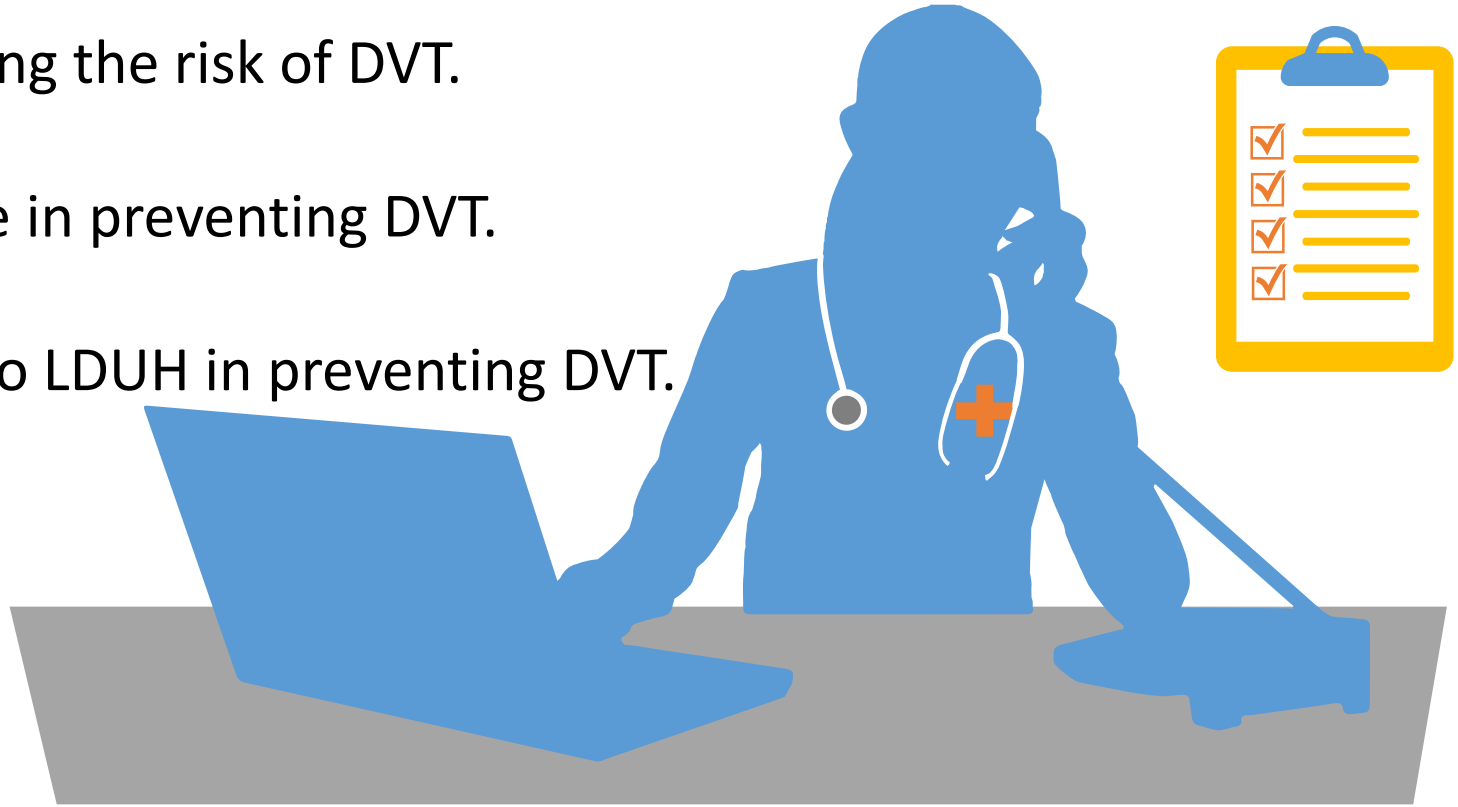
Q4- Which of the following statements are <u>true</u> concerning prophylaxis for DVT?

A. There are many prospective randomized studies supporting the efficacy of graded compression stockings in preventing DVT in patients with malignancy.

B. IPC is as effective as LDUH in reducing the risk of DVT.

C. LDUH and LMWH are most effective in preventing DVT.

D. Dextran is an excellent alternative to LDUH in preventing DVT.



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High risk for VTE (Caprini score: 5)

- LMWH (Grade 1B)
- LDUH (Grade 1B) over no prophylaxis.

- We suggest that mechanical prophylaxis with elastic stockings or IPC should be added to pharmacologic prophylaxis (Grade 2C) .

Guyatt GH, et al. Exe. Chest. 2012 Feb;141(2 Suppl):7S-47S.

Caprini Score Interpretation

Total Risk Factor Score	Risk Level	Prophylaxis Regimen
0	VERY LOW	❑ Early ambulation
1-2	LOW	❑ Sequential Compression Device (SCD)
3-4	MODERATE	Choose ONE of the following medications +/- compression devices: ❑ Sequential Compression Device (SCD) - Optional ❑ Heparin 5000 units SQ TID ❑ Enoxaparin/Lovenox: ❑ 40mg SQ daily (WT < 150kg, CrCl > 30mL/min) ❑ 30mg SQ daily (WT < 150kg, CrCl = 10-29mL/min) ❑ 30mg SQ BID (WT > 150kg, CrCl > 30mL/min) (Please refer to Dosing Guidelines on the back of this form)
5 or more	HIGH	Choose ONE of the following medications PLUS compression devices: ❑ Sequential Compression Device (SCD) ❑ Heparin 5000 units SQ TID (Preferred with Epidurals) ❑ Enoxaparin/Lovenox (Preferred): ❑ 40mg SQ daily (WT < 150kg, CrCl > 30mL/min) ❑ 30mg SQ daily (WT < 150kg, CrCl = 10-29mL/min) ❑ 30mg SQ BID (WT > 150kg, CrCl > 30mL/min) (Please refer to Dosing Guidelines on the back of this form)

CASE 3

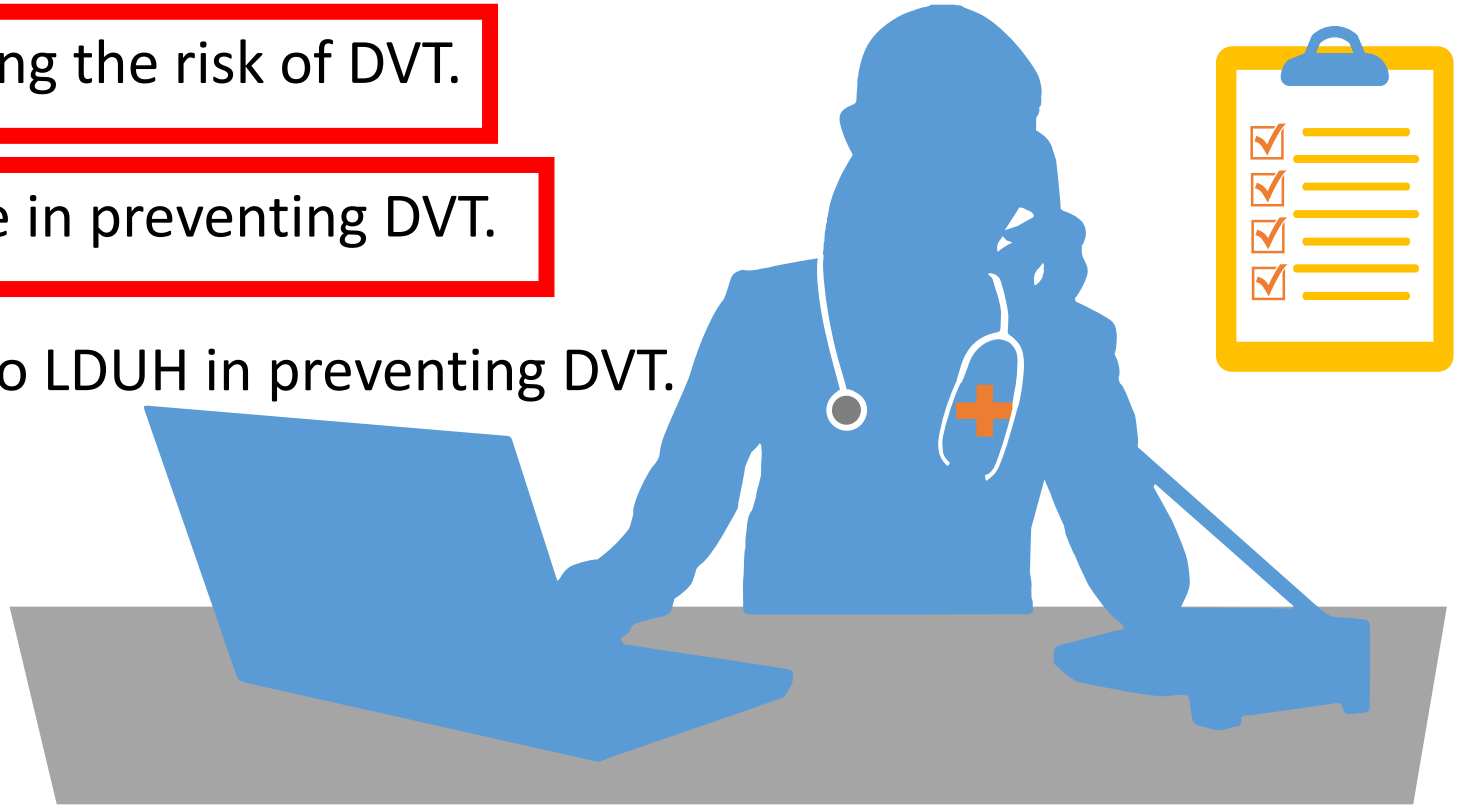
Q4- Which of the following statements are <u>true</u> concerning prophylaxis for DVT?

A. There are many prospective randomized studies supporting the efficacy of graded compression stockings in preventing DVT in patients with malignancy.

B. IPC is as effective as LDUH in reducing the risk of DVT.

C. LDUH and LMWH are most effective in preventing DVT.

D. Dextran is an excellent alternative to LDUH in preventing DVT.



CASE 3

Q5- For how long pharmacologic prophylaxis will be given?

A. 2 weeks

B. 3 weeks

C. 4 weeks

CHEST
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- For **high-VTE-risk patients** undergoing **abdominal or pelvic surgery for cancer** who are not otherwise at high risk for major bleeding complications, **we recommend extended-duration pharmacologic prophylaxis (4 weeks) with LMWH** over limited-duration prophylaxis (Grade 1B) .

Gould K et al. 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 2012. e227S-e277S

ASH CLINICAL PRACTICE GUIDELINES
VENOUS THROMBOEMBOLISM (VTE)

Recommendation 7.

Thromboprophylaxis	
For patients undergoing major surgery	• Using extended antithrombotic prophylaxis over short-term antithrombotic prophylaxis (conditional recommendation based on very low certainty in the evidence of effects). • **Extended prophylaxis was generally considered as beyond 3 weeks (range: 19-42 days),** and short-term prophylaxis was considered as up to 2 weeks (range: 4-14 days).

Lyman GH et al. *Blood Adv.* 2021;5 (4): 927–974

Prophylaxis of Venous Thromboembolic Disease In High Risk Surgeries

- In patients at **high risk of thromboembolism**, the recommended dose of enoxaparin sodium is 4,000 IU (40 mg) once daily given by SC injection preferably started 12 hours before surgery

- For patients with a high venous thromboembolism (VTE) risk who undergo **abdominal or pelvic surgery for cancer** an extended thromboprophylaxis up to **4 weeks** is recommended

CASE 3

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C. 4 weeks

CASE 3

On the fifth postoperative day:

The patient began complaining of mild left calf pain and swelling

On physical examination:

- Her lower extremities were warm with normal pulses.
- The left calf was mildly swollen with slight tenderness

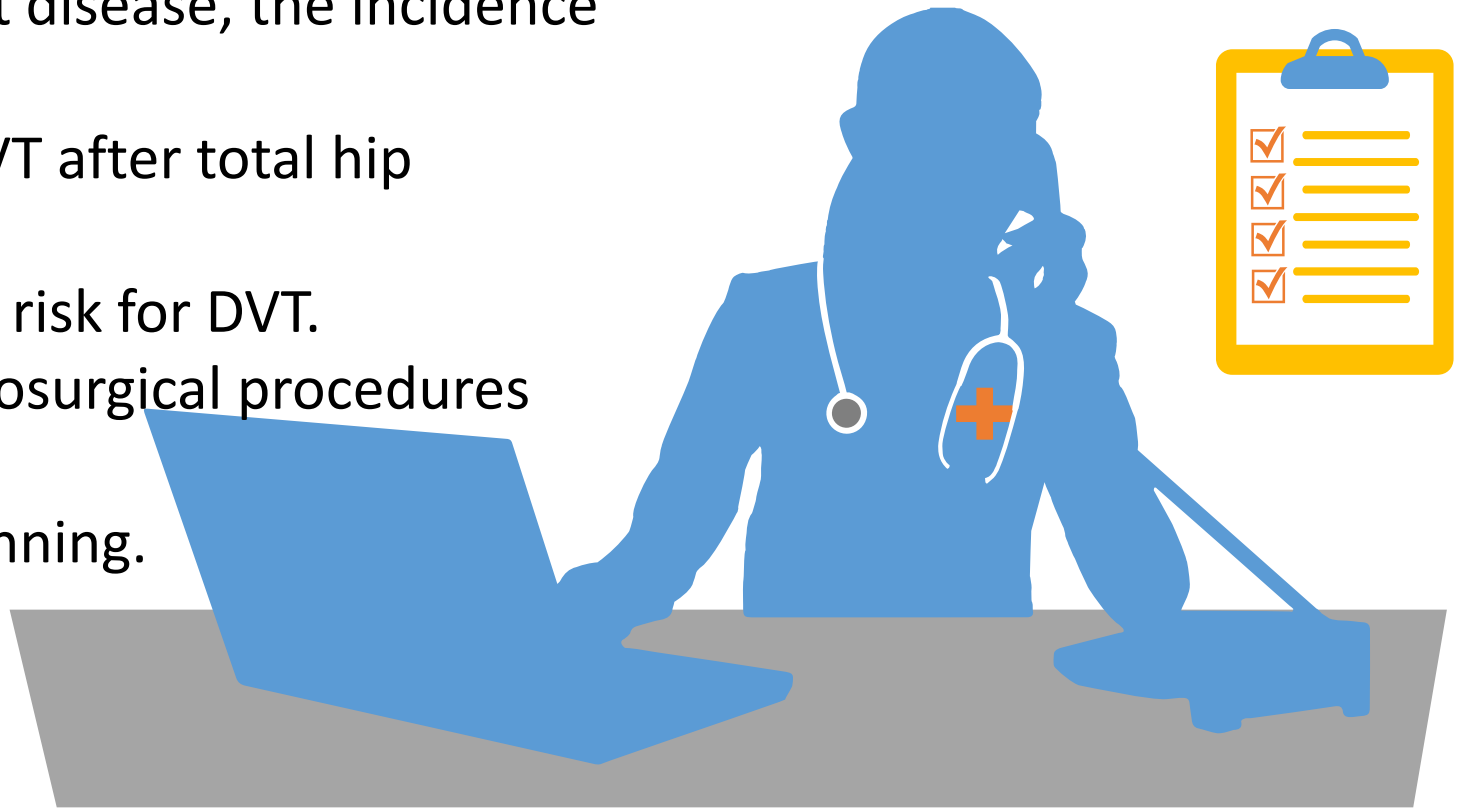
A venous duplex :

Revealed thrombosis of the left popliteal, posterior tibial and peroneal veins

CASE 3

Q6- Which of the following statements regarding perioperative DVT is/are correct?

A. In general surgery, the overall incidence of DVT as assessed by labelled fibrinogen uptake (FUT) is 25%.
B. In surgical patients with malignant disease, the incidence of postoperative DVT is 60%.
C. The incidence of postoperative DVT after total hip replacement is 45–55%.
D. Major trauma patients have a low risk for DVT.
E. Patients undergoing elective neurosurgical procedures have a 20–25% incidence of DVT documented by radio-isotopic scanning.



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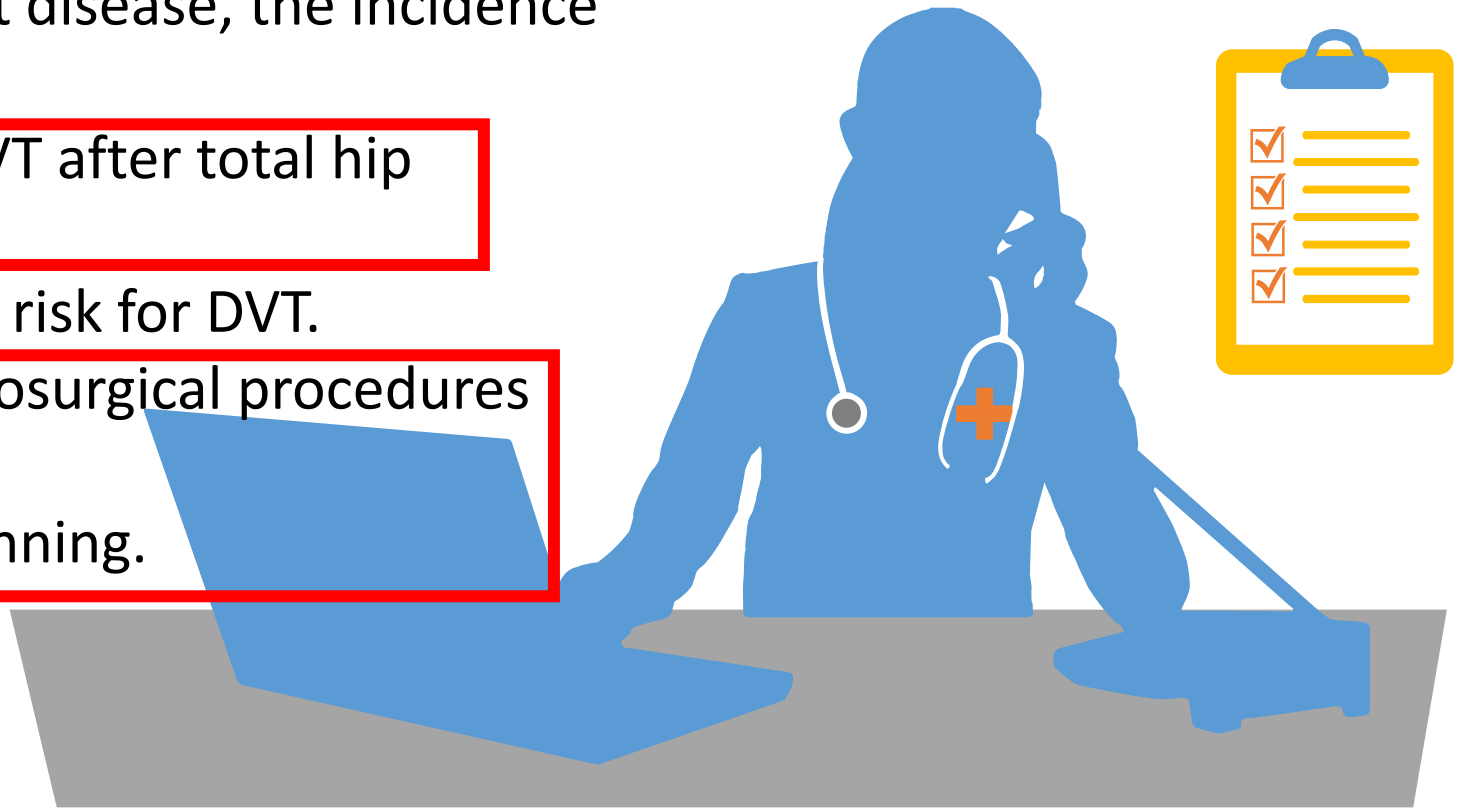

THANK YOU