Should I Take a Blood Thinner For One (1) Month Following my Major Abdominal Surgery or not?

This decision aid is for you if:

- You just had major surgery on your abdomen.
- You are age 18 or older.

What is a blood clot?

- A blood clot can form when your blood changes from a liquid to a gel-like state inside of your blood vessels.
- Blood clots can start in the veins in your legs (deep vein thrombosis, DVT) and can travel to your lungs (pulmonary embolism, PE).
- Blood clots are more common after major surgery and in people with cancer.
- Blood clots may cause pain and discomfort, and require treatment from your doctor. A blood clot
 can also have no symptoms, which means you will not notice it unless your doctor is using
 specific tests to find it. These tests are not routinely done to check for blood clots in patients
 without symptoms.
- Blood clots can be dangerous or life-threatening if they travel to your lungs (PE) and prevent blood flow from your heart to your lungs.

Am I at risk of getting a blood clot?

- We have a scale that helps find who is at risk for developing blood clots. This scale is called the Caprini risk score.
- Patients with a higher Caprini risk score are more likely to develop blood clots.

What is a blood thinner?

- A blood thinner is a medicine taken to prevent blood clots. The blood thinner is given by a nurse
 as an injection in the hospital, and if you continue for 1 month after surgery, you will get syringes
 already filled with the medicine to inject yourself at home. This may also be done by a caregiver.
- Patients typically receive an injection of a blood thinner (low molecular weight heparin) one time
 a day in hospital after surgery. Some studies show fewer blood clots when blood thinners are
 continued for one month after surgery. But other studies have shown that using a blood thinner
 for one month will not prevent blood clots that cause symptoms, or reduce the chance of dying.
- Side effects of taking a blood thinner mainly include bleeding (bleeding from your incision), bruising, or a reaction where you inject the medication.
- You might be familiar with other blood thinners such as aspirin, but these are currently not recommended for preventing blood clots after surgery.

What are your options?



1. Take a blood thinner by self-injection for one month following your major abdominal surgery



2. Decline a blood thinner and discuss other options with your doctor

How to proceed with this Decision Aid

With the help of your doctor, nurse, or another member of your healthcare team, please use the following table to calculate your risk for developing blood clots using the Caprini score. Then, use your total score to go to the correct page to guide you in your decision based on your Caprini score.

Caprini Score Risk Calculation

Please work with your doctor, nurse, or another member of your healthcare team to calculate your risk score. Your doctor, nurse or another member of your healthcare team will check off the boxes that apply to you, add the points together to get a total score, and then direct you to the correct page to help you in making this decision.

Each Risk Factor Represents 1 Point:

I am 41-60 years old

Within the last month, I have had surgery under general or local anesthesia for MORE THAN 45 minutes

Within the last month, I have had or currently have varicose veins

Within the last month, I have had or currently have swollen legs

Within the last month, I have had a heart attack Within the last month, I have had or currently have a serious infection for example, pneumonia, cellulitis, etc.

I have a history of Inflammatory bowel disease (includes Crohn's or ulcerative colitis)

I have or have had congestive heart failure I have a chronic lung disease (for example COPD, emphysema) NOT including asthma

I have a scheduled surgery under general or regional anesthesia for LESS THAN 45 minutes BMI >25 kg/m²

Each Risk Factor Represents 2 Points:

I am 61-74 years old

My doctor told me I have cancer, leukemia, lymphoma, or melanoma

In the last month, I have had or currently have a PICC line, Port, or central venous access catheter in my neck or chest that delivers blood or medicine directly into my heart.

I have a scheduled surgery under general or local anesthesia for MORE THAN 45, minutes including laparoscopic surgery

SUBTOTAL:

Risk Factor Represents 5 Points:

Within the past month, I have had a stroke (clot or hemorrhage in the brain, transient ischemic attack).

SUBTOTAL:

SUBTOTAL:

Each Risk Factor Represents 3 Points:

I am 75 or older

I have had a blood clot in my legs, arms, abdomen, or lungs

There is someone in my family (parents, grandparents, aunts, uncles, siblings, cousins) that has suffered from a blood clot

I have been told that I have an abnormal blood test indicating an increased risk for blood clotting

SUBTOTAL:

For Women Only: (Each Represents 1 Point)

I currently use birth control (oral contraceptives, skin implantable devices, hormonal patches, IUD with hormones, depo shot) or hormone replacement therapy. Not including condoms or barrier devices.

I am currently pregnant or gave birth in the last month

I have a history of unexplained stillborn infant, MORE THAN 3 spontaneous abortions, premature birth with preeclampsia, or baby born smaller than appropriate (low weight at birth).

SUBTOTAL:

TOTAL SCORE: (add subtotals together):

If you scored 3 or 4: Proceed to page 3

If you scored **5 or 6**: Proceed to page **5**

If you scored **7 or 8**: Proceed to page **7**

If you scored 9 or more: Proceed to page 9

Working through the 4 steps of this decision aid may help you consider the options.

CAPRINI SCORE: 3 OR 4

Step 1: What are the **benefits** and **harms** of each option? **What does the research show?**

The numbers below describe a 'best estimate' of what happens to **1000 people** who take a blood thinner for one month following major abdominal surgery. The shaded numbers show the number of people affected. There is no way of knowing in advance if you will be affected.

Benefits	Take blood thinner	Decline
If 1000 people with a Caprini score of 3-4 take a blood thinner for one month following surgery, 4 more people will avoid a blood clot compared to those who do not take a blood thinner. A blood clot may cause pain and discomfort, and require treatment from your doctor. A blood clot can also have no symptoms – which means you will not notice it unless your doctor is using specific tests to find it (these tests are not normally done).	997 avoid a blood clot, ~3 will get one	993 avoid a blood clot, 7 will get one
If 1000 people with a Caprini score of 3-4 take a blood thinner for one month following surgery, <1 will avoid dying from a blood clot, which is the same for people who decline a blood thinner.	∼1,000 avoid dying, <1 will die	~1,000 avoid dying, <1 will die

Minor Harms If 1000 people take a blood thinner, 5 more may		
develop bothersome minor bleeding. Clinically relevant minor bleeding is any amount of bleeding that impacts your ability to perform daily activities, makes you seek medical attention, or causes you to stop taking blood thinners. For example, minor bleeding from your surgical site.	17 will bleed, 983 will avoid this	12 will bleed, 988 will avoid this
Serious Harms If 1000 people take a blood thinner, ~4 more people may develop major bleeding compared to those who decline a blood thinner. Major bleeding may require a blood transfusion, repeat surgery or may result in death	∼14 will bleed, 986 will avoid this	~10 will bleed, 990 will avoid this

Step 2. What matters most to you?

Reasons to take a blood thinner	Not Important			Ver <u>y</u> Importan			
How important is it for you to avoid 1 month of treatment for a blood clot?	0	1	2	3	4	(5)	
How important is it for you to avoid a blood clot that could result in death? Other reasons:	0	1	2	3	4	(5)	

Reasons to decline a blood thinner			Not Imp	ortan	t	In	\ npor	Ver tan
How important is it to you to avoid minor bleeding that	affects your	daily life?	0	1	2	3	4	(5)
How important is it to you to avoid major bleeding that	could result	in death?	0	1	2	3	4	(5)
Other reasons:		_						
Considering the options and what reasons are in Check ✓ one.	nportant to	you, whic	h op	tion c	do yo	u pr	efer	?
 □ take a blood thinner injection at home for a decline taking blood thinner injections at h □ I am unsure 		• •		ırgery	,			
Step 3: : Check Your Understanding Check ☑ the best answer.	Take blood thinner	decline blood thinner		Both same			n't ow	
 Which option has the <u>highest</u> chance of avoiding a blood clot?]	
2. Which option has the <u>lowest</u> chance of dying from a blood clot?]	
 Which option has the <u>lowest</u> chance of minor relevant bleeding? 								
4. Which option has the <u>highest</u> chance of major bleeding?								
		heck your an	swers					ge.
Find out how comfortable you feel about decided Do you know the benefits and harms of each option	_			Ye	_	_	o	
Are you clear about which benefits and risks matter		ou?]			
Do you have enough support and advice to make	a choice?]			
Do you feel sure about the best choice for you?]			
If you answered 'No' to any of these, discuss with (The SURE Test © O'Connor & Légaré, 2008)	your surgeo	n.						
Step 4: What are your next steps?								
Check ☑ what you want to do next.								
 □ I have decided to take a blood thinner at hom □ I have decided not to take a blood thinner □ I need to discuss the options with my doctor/s □ I need to learn more about my options. 			ing m	ny sur	gery			

This information is not intended to replace the advice of a health care provider.

Answers for the key facts: 1. [A], 2. [C], 3. [B], 4. [A].

CAPRINI SCORE: 5 OR 6

Step 1: What are the benefits and harms of each option?

What does the research show?

The numbers below describe a 'best estimate' of what happens to **1000 people** who take a blood thinner for one month following major abdominal surgery. The shaded numbers show the number of people affected. There is no way of knowing in advance if you will be affected.

Benefits	Take blood thinner	Decline
If 1000 people with a Caprini score of 5-6 take a blood thinner for one month following surgery, 10 more will avoid a blood clot compared to those who decline a blood thinner. A blood clot may cause pain and discomfort, and require treatment from your doctor. A blood clot can also have no symptoms – which means you will not notice it unless your doctor is using specific tests to find it (these tests are not normally done).	992 avoid a blood clot, ~8 will get one	982 avoid a blood clot, 18 will get one
If 1000 people with a Caprini score of 5-6 take a blood thinner for one month following surgery, <1 will avoid dying from a blood clot, which is the same for people who decline a blood thinner.	∼1000 avoid dying, <mark><1 will die</mark>	∼1000 avoid dying, <mark><1 will die</mark>

Minor Harms

If **1000** people take a blood thinner, **5** more may

develop bothersome minor bleeding

compared to those who decline a blood thinner. Clinically relevant minor bleeding is any amount of bleeding that impacts your ability to perform daily activities, seek medical attention, or causes you to stop taking blood thinners. For example, minor bleeding from your surgical site.

17 will bleed, 983 will avoid this 12 will bleed, 988 will avoid this

Serious Harms

If **1000** people take a blood thinner, ~4 more people may develop major bleeding compared to those who decline a blood thinner. Major bleeding may require a blood transfusion, repeat surgery or may result in death.

~14 will bleed, 986 will avoid this

~10 will bleed, 990 will avoid this

Step 2. What matters most to you?

Reasons to take a blood thinner	Not Important						\ npor	/ery tant
How important is it for you to avoid 1 month of treatment for a blood clot?	0	1	2	3	4	(5)		
How important is it to you to avoid a blood clot that could result in death? Other reasons:	0	1	2	3	4	\$		
Reasons to decline a blood thinner	Not				\	/ery		

			Imp	ortan	t	lm	port	ant
How important is it to you to avoid minor bleeding that	affects you	r daily life?	0	1	2	3	4	(5)
How important is it to you to avoid major bleeding that	could resul	t in death?	0	1	2	3	4	(5)
Other reasons:	1-1							
Considering the options and what reasons are important to the control of the con	one month fo	ollowing yo	ur su		_	ou pre	efer'i	?
Step 3: Check Your Understanding	☐ I am unsure 3: Check Your Understanding Check ☑ the best answer Take decline							
Check ✓ the best answer.	Take blood thinner	decline blood thinner		Both same			n't ow	
 Which option has the <u>highest</u> chance of avoiding a blood clot? 								
Which option has the <u>lowest</u> chance of dying from a blood clot?						С		
Which option has the <u>lowest</u> chance of minor relevant bleeding?						С		
 Which option has the <u>highest</u> chance of major bleeding? 								
		heck your an	swers					ge.
Find out how comfortable you feel about decid	•			Ye		_	lo T	
Do you know the benefits and harms of each option						_		
Are you clear about which benefits and risks matte	er most to yo	ou?						
Do you have enough support and advice to make	a choice?				l			
Do you feel sure about the best choice for you?					I			
If you answered 'No' to any of these, discuss with (The SURE Test © O'Connor & Légaré, 2008)	your surgeo	n.						
Step 4: What are your next steps?								
Check ✓ what you want to do next.	•							
 □ I have decided to take a blood thinner at home □ I have decided not to take a blood thinner □ I need to discuss the options with my doctor/s □ I need to learn more about my options. 			ng m	y sur(gery			

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Answers for the key facts: 1. [A], 2. [C], 3. [B], 4. [A].

CAPRINI SCORE: 7 OR 8

Step 1: What are the **benefits** and **harms** of each option?

What does the research show?

The numbers below describe a 'best estimate' of what happens to **1000 people** who take a blood thinner for one month following major abdominal surgery. The shaded numbers show the number of people affected. There is no way of knowing in advance if you will be affected.

Benefits	Take blood thinner	Decline
If 1000 people with a Caprini score of 7-8 take a blood thinner for one month following surgery, 21 more will avoid a blood clot compared to those who decline a blood thinner. A blood clot may cause pain and discomfort, and require treatment from your doctor. A blood clot can also have no symptoms – which means you will not notice it unless your doctor is using specific tests to find it (these tests are not normally done).	981 avoid a blood clot, ~19 will get one	960 avoid a blood clot, 40 will get one
If 1000 people with a Caprini score of 7-8 take a blood thinner for one month following surgery, <1 will avoid dying from a blood clot, which is the same for people who decline a blood thinner.	∼1000 avoid dying, <mark><1 will die</mark>	~1000 avoid dying, <mark><1 will die</mark>

Minor Harms

If **1000** people take a blood thinner, **5** more may develop bothersome minor bleeding.

Compared to those who decline a blood thinner. Clinically relevant minor bleeding is any amount of bleeding that impacts your ability to perform daily activities, seek medical attention, or causes you to stop taking blood thinners. For example, minor bleeding from your surgical site.

17 will bleed, 983 will avoid this 12 will bleed, 988 will avoid this

Serious Harms

If **1000** people take a blood thinner, ~4 more people may develop major bleeding compared to those who decline a blood thinner. Major bleeding may require a blood transfusion, repeat surgery or may result in death.

~14 will bleed, 986 will avoid this

~10 will bleed, 990 will avoid this

Step 2. What matters most to you?

Reasons to take a blood thinner	Not Important		In		/ery tant	
How important is it for you to avoid 1 month of treatment for a blood clot?	0	1	2	3	4	(5)
How important is it to you to avoid a blood clot that could result in death? Other reasons:	0	1	2	3	4	\$

Reasons to decline a blood thinner			Not Impo	ortan	t	lm	V	ery tant
How important is it to you to avoid minor bleeding that	t affects you	r daily life?	0	1	2	3	4	(5)
How important is it to you to avoid major bleeding that	t could resul	t in death?	0	1	2	3	4	(5)
Other reasons:								
Considering the options and what reasons are in Check ✓ one. □ take a blood thinner injection at home for one decline taking blood thinner injections at home I am unsure	one month fo	ollowing you	ır suı		o yo	u pre	efer'	?
Step 3: Check Your Understanding								
Check ☑ the best answer.	Take blood thinner	decline blood thinner		Both same		Do kn	n't ow	
 Which option has the <u>highest</u> chance of avoiding a blood clot?]	
2. Which option has the <u>lowest</u> chance of dying from a blood clot?								
3. Which option has the <u>lowest</u> chance of minor relevant bleeding?								
4. Which option has the <u>highest</u> chance of major bleeding?								
		heck your an	swers					ige.
Find out how comfortable you feel about decid Do you know the benefits and harms of each optic	•			Ye			lo]	
Are you clear about which benefits and risks matter		ou?						
Do you have enough support and advice to make	a choice?					[
Do you feel sure about the best choice for you?								
If you answered 'No' to any of these, discuss with (The SURE Test © O'Connor & Légaré, 2008)	your surgeo	n.						
Step 4: What are your next steps?								
Check ☑ what you want to do next.								
 □ I have decided to take a blood thinner at home □ I have decided not to take a blood thinner □ I need to discuss the options with my doctor/s □ I need to learn more about my options. 			ng my	y surg	jery			

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Answers for the key facts: 1. [A], 2. [C], 3. [B], 4. [A].

CAPRINI SCORE: 9 OR MORE

Step 1: What are the **benefits** and **harms** of each option?

What does the research show?

The numbers below describe a 'best estimate' of what happens to **1000 people** who take a blood thinner for one month following major abdominal surgery. The shaded numbers show the number of people affected. There is no way of knowing in advance if you will be affected.

Benefits	Take blood thinner	Decline
If 1000 people with a Caprini score of 9 or more take a blood thinner for 1 month following surgery, 57 more will avoid a blood clot compared to those who decline a blood thinner. A blood clot may cause pain and discomfort, and require treatment from your doctor. A blood clot can also have no symptoms – which means you will not notice it unless your doctor is using specific tests to find it (these tests are not normally done.	950 avoid a blood clot, ~50 will get one	893 avoid a blood clot, 107 will get one
If 1000 people with a Caprini score of 9 or more take a blood thinner for 1 month following surgery, ~ 0.28 more will avoid dying from a blood clot compared to those who decline a blood thinner.	~1000 avoid dying, <1 will die	~1000 avoid dying, 1 will die

Minor Harms

If **1000** people take a blood thinner, **5** more may **develop** <u>clinically relevant bleeding</u> compared to those who decline a blood thinner. Clinically relevant minor bleeding is any amount of bleeding that impacts your ability to perform daily activities, seek medical attention, or causes you to stop taking blood thinners. For example, minor bleeding from your surgical site.

17 will bleed, 983 will avoid this 12 will bleed, 988 will avoid this

Serious Harms

If **1000** people take a blood thinner, **~4** more people may develop **major bleeding** compared to those who decline a blood thinner. *Major bleeding may require a blood transfusion, repeat surgery or may result in death.*

~14 will bleed, 986 will avoid this

~10 will bleed, 990 will avoid this

Step 2. What matters most to you?

		-						
Reasons to take a blood thinner	Not Important						\ npor	/ery tant
How important is it for you to avoid 1 month of treatment for a blood clot?	0	1	2	3	4	(5)		
How important is it to you to avoid a blood clot that could result in death? Other reasons:	0	1	2	3	4	\$		
Reasons to decline a blood thinner	Not				\	/ery		

					Important			Important		
How important is it to you to avoid minor bleeding that affects your daily life?						1	2	3	4	(5)
How important is it to you to avoid major bleeding that could result in death?						1	2	3	4	(5)
O [.]	ther rea	sons:								
Considering the options and what reasons are important to you, which option do you prefer? Check ☑ one. □ take a blood thinner injection at home for one month following your surgery □ decline taking blood thinner injections at home following your surgery □ I am unsure										
St	ep 3: C	heck Your Understanding Check ☑ the best answer.	Take blood thinner	Decline blood thinner		Both same			on't ow	
	1.	Which option has the <u>highest</u> chance of avoiding a blood clot?						[
	2.	Which option has the <u>lowest</u> chance of dying from a blood clot?						[
	3.	minor relevant bleeding?						[
	4.	Which option has the <u>highest</u> chance of major bleeding?								
				heck your an	swers	at the	botto			ge.
	Find out how comfortable you feel about deciding.					Ye	S	N	Ю	
	Do you know the benefits and harms of each option?]	[
	Are you clear about which benefits and risks matter most to you?									
	Do you have enough support and advice to make a choice?									
	Do yo	u feel sure about the best choice for you?]	[
		answered 'No' to any of these, discuss with y RE Test © O'Connor & Légaré, 2008)	your surgeo	n.						
	_	/hat are your next steps? I what you want to do next.								
	 	nave decided to take a blood thinner at home nave decided not to take a blood thinner need to discuss the options with my doctor/so need to learn more about my options.			ng m	y sur	gery			

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Answers for the key facts: 1. [A], 2. [A], 3. [B], 4. [A]

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This patient decision aid has been peer-reviewed. The patient decision aid will be updated in an ongoing fashion by authors based on changes in studies published and feedback provided by users.

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REFERENCES FOR BENEFITS & HARMS DATA:

Pannucci, C. J., Swistun, L., MacDonald, J. K., Henke, P. K., & Brooke, B. S. (2017). Individualized venous thromboembolism risk stratification using the 2005 Caprini score to identify the benefits and harms of chemoprophylaxis in surgical patients: a meta-analysis. *Annals of surgery*, 265(6), 1094-1103.

Rausa, E., Kelly, M. E., Asti, E., Aiolfi, A., Bonitta, G., Winter, D. C., & Bonavina, L. (2018). Extended versus conventional thromboprophylaxis after major abdominal and pelvic surgery: Systematic review and meta-analysis of randomized clinical trials. *Surgery*, *164*(6), 1234-1240.

Collins, R. (1988). Scrimgeour A, Yusuf S, Peto R. Reduction in fatal pulmonary embolism and venous thrombosis by perioperative administration of subcutaneous heparin. Overview of results of randomized trials in general, orthopedic, and urologic surgery. *N Engl J Med*, *318*, 1162-1173.

Douketis JD, Gu CS, Schulman S, Ghirarduzzi A, Pengo V, Prandoni P. The risk for fatal pulmonary embolism after discontinuing anticoagulant therapy for venous thromboembolism. *Ann Intern Med.* Published online 2007. doi:10.7326/0003-4819-147-11-200712040-00007

Lyman GH, Carrier M, Ay C, et al. American Society of Hematology 2021 guidelines for management of venous thromboembolism: Prevention and treatment in patients with cancer. *Blood Adv*. Published online 2021. doi:10.1182/bloodadvances.2020003442