

Surgical patients

RECOMMENDATIONS BY CLINICAL PROCEDURE	GRADE	EVIDENCE IN SECTION
Total hip replacement		
1. Use thromboprophylaxis for all patients admitted to hospital for total hip replacement.	GPP	5.1.1
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to 35 days following total hip replacement surgery. Use one of the following: <ul style="list-style-type: none"> • low molecular weight heparin • fondaparinux • rivaroxaban • dabigatran etexilate. <i>Note: Refer to Section 5.1.1 for further information on use of these agents.</i>	A B B B	5.1.1 5.1.1 5.1.1 5.1.1
3. Use graduated compression stockings, intermittent pneumatic compression or a foot pump following total hip replacement until the patient is fully mobile, whether or not pharmacological thromboprophylaxis is used. If possible, use graduated compression stockings with a foot pump where pharmacological thromboprophylaxis is not used.	B B	5.1.1 5.1.1
4. Unfractionated heparin is not recommended for thromboprophylaxis following total hip replacement. Only use unfractionated heparin if recommended thromboprophylactic options are not available.	B	5.1.1
5. Aspirin is not recommended as the sole pharmacological agent for thromboprophylaxis following total hip replacement.	C	5.1.1
6. Warfarin is not recommended for thromboprophylaxis following total hip replacement except where used for therapeutic reasons. In these cases, use adjusted therapeutic doses.	C C	5.1.1 5.1.1
Hip fracture surgery		
1. Use thromboprophylaxis for all patients admitted to hospital for hip fracture surgery.	GPP	5.1.2
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to 35 days for hip fracture surgery. Use one of the following: <ul style="list-style-type: none"> • fondaparinux • low molecular weight heparin. <i>Note: Refer to Section 5.1.2 for further information on use of these agents.</i>	B B	5.1.2 5.1.2
3. If low molecular weight heparin is used, consider the addition of low dose aspirin.	B	5.1.2
4. Aspirin is not recommended as the sole pharmacological agent for thromboprophylaxis following hip fracture surgery.	B	5.1.2
5. Unfractionated heparin is not recommended for thromboprophylaxis following hip fracture surgery.	B	5.1.2
6. Warfarin is not recommended for thromboprophylaxis following hip fracture surgery.	B	5.1.2
7. If pharmacological thromboprophylaxis is contraindicated or not available, use one of the following mechanical methods of thromboprophylaxis until the patient is fully mobile: <ul style="list-style-type: none"> • foot pump • intermittent pneumatic compression. 	C C	5.1.2 5.1.2

RECOMMENDATIONS BY CLINICAL PROCEDURE	GRADE	EVIDENCE IN SECTION
Total knee replacement		
1. Use thromboprophylaxis for all patients admitted to hospital for total knee replacement.	GPP	5.1.3
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to 14 days following total knee replacement surgery. Use one of the following: <ul style="list-style-type: none"> • low molecular weight heparin • fondaparinux • rivaroxaban • dabigatran etexilate. <i>Note: Refer to Section 5.1.3 for further information on use of these agents.</i>	A B B B	5.1.3 5.1.3 5.1.3 5.1.3
3. Use one of the following whether or not pharmacological thromboprophylaxis is used, until the patient is fully mobile: <ul style="list-style-type: none"> • foot pump • intermittent pneumatic compression. 	C C	5.1.3 5.1.3
4. Aspirin is not recommended as the sole pharmacological agent for thromboprophylaxis following total knee replacement.	C	5.1.3
5. Warfarin is not recommended for thromboprophylaxis following total knee replacement.	B	5.1.3
Knee arthroscopy		
1. Routine thromboprophylaxis is not recommended following knee arthroscopy. Consider thromboprophylaxis for knee arthroscopy patients with additional VTE risk factors, in the absence of contraindications.	C GPP	5.1.4 5.1.4
Lower leg fractures and injuries with immobilisation		
1. Use low molecular weight heparin for all patients admitted to hospital with a lower leg fracture or injury with immobilisation in a brace or a plaster cast. Pharmacological thromboprophylaxis should be continued for the entire period of immobilisation.	A	5.1.5
General surgery		
1. Use thromboprophylaxis in all patients admitted to hospital for general surgery.	GPP	5.1.7
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to one week or until the patient is fully mobile following major general surgery. Use one of the following: <ul style="list-style-type: none"> • low molecular weight heparin • unfractionated heparin. 	B B	5.1.7 5.1.7
3. Use graduated compression stockings for all general surgical patients, whether or not pharmacological thromboprophylaxis is used, until the patient is fully mobile.	B	5.1.7
4. If recommended thromboprophylaxis is contraindicated or not available, use a foot pump following general surgery, until the patient is fully mobile.	C	5.1.7

RECOMMENDATIONS BY CLINICAL PROCEDURE	GRADE	EVIDENCE IN SECTION
Urological surgery		
1. Consider thromboprophylaxis for patients admitted to hospital for urological surgery based on an assessment of the patient's risk of VTE and bleeding.	GPP	5.1.8
Gynaecological surgery		
1. Use thromboprophylaxis for all patients admitted to hospital for major gynaecological surgery.	GPP	5.1.9
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to one week or until the patient is fully mobile following major gynaecological surgery. Use one of the following: <ul style="list-style-type: none"> • low molecular weight heparin • unfractionated heparin. 	B B	5.1.9 5.1.9
3. Consider the additional use of graduated compression stockings or other mechanical thromboprophylaxis following major gynaecological surgery, especially if pharmacological thromboprophylaxis is contraindicated.	GPP	5.1.9
4. Warfarin is not recommended for thromboprophylaxis following major gynaecological surgery.	C	5.1.9
Abdominal surgery		
1. Use thromboprophylaxis for all patients admitted to hospital for major abdominal surgery.	GPP	5.1.10
2. In the absence of contraindications, use pharmacological thromboprophylaxis for major abdominal surgery patients and continue for at least five to nine days with low molecular weight heparin.	B	5.1.10
3. Fondaparinux is not recommended for thromboprophylaxis following major abdominal surgery.	C	5.1.10
4. Use graduated compression stockings for all patients following abdominal surgery, whether or not pharmacological thromboprophylaxis is used, until the patient is fully mobile.	B	5.1.10
Cardiac, thoracic and vascular surgery		
1. Use thromboprophylaxis for all patients following cardiac, thoracic or vascular surgery.	GPP	5.1.11
2. In the absence of contraindications, use pharmacological thromboprophylaxis and continue for up to one week or until the patient is fully mobile following cardiac, thoracic, or vascular surgery. Use one of the following: <ul style="list-style-type: none"> • low molecular weight heparin • unfractionated heparin. 	B B	5.1.11 5.1.11
3. Use one of the following mechanical methods of thromboprophylaxis for all patients following cardiac, thoracic, or vascular surgery, whether or not pharmacological thromboprophylaxis is used, until the patient is fully mobile: <ul style="list-style-type: none"> • graduated compression stockings • intermittent pneumatic compression. 	C C	5.1.11 5.1.11

RECOMMENDATIONS BY CLINICAL PROCEDURE	GRADE	EVIDENCE IN SECTION
Neurosurgery		
1. Use intermittent pneumatic compression following neurosurgery, until the patient is fully mobile.	A	5.1.12
2. Use pharmacological thromboprophylaxis with extreme caution in patients following neurosurgery, due to the high risk of bleeding.	GPP	5.1.12
3. Where pharmacological thromboprophylaxis is appropriate and not contraindicated, use low molecular weight heparin or unfractionated heparin.	B	5.1.12
4. Consider the use of graduated compression stockings following neurosurgery (alone or in combination with pharmacological thromboprophylaxis).	C	5.1.12
Trauma and spinal surgery		
1. Use thromboprophylaxis for all patients admitted to hospital for trauma surgery or spinal surgery. Thromboprophylaxis should not start until primary haemostasis has been established.	GPP	5.1.13
2. In the absence of contraindications, consider the use of a foot pump from hospital admission, with the addition of low molecular weight heparin five days after admission for trauma patients undergoing surgery.	C	5.1.13

Anaesthesia

RECOMMENDATION	GRADE	EVIDENCE IN SECTION
1. Consider central neural blockade as an alternative to general anaesthesia if feasible.	A	5.2
If central neural blockade is used, there is a risk of developing an epidural haematoma. To minimise this risk, timing of pharmacological thromboprophylaxis should be carefully planned and discussed in advance with the anaesthetist.	GPP	5.2

Medical patients

RECOMMENDATIONS BY MEDICAL CONDITION	GRADE	EVIDENCE IN SECTION
Stroke		
1. Consider the use of thromboprophylaxis for all patients admitted to hospital with ischemic stroke based on an assessment of the patient's degree of immobility and risk of bleeding.	B	5.3.1
2. Pharmacological thromboprophylaxis is not recommended for haemorrhagic stroke patients due to the risk of intracranial bleeding.	GPP	5.3.1
3. Where pharmacological thromboprophylaxis is appropriate and not contraindicated, use low molecular weight heparin for patients with ischemic stroke.	B	5.3.1
If low molecular weight heparin is contraindicated or not available, use unfractionated heparin.	B	5.3.1

RECOMMENDATIONS BY MEDICAL CONDITION	GRADE	EVIDENCE IN SECTION
Myocardial infarction (MI)		
1. Use thromboprophylaxis for patients admitted to hospital for myocardial infarction, where full anticoagulation is not in use.	C	5.3.2
2. In the absence of contraindications, use unfractionated heparin for thromboprophylaxis following myocardial infarction.	C	5.3.2
General medical		
1. Consider the use of thromboprophylaxis for patients admitted to hospital for medical conditions based on an assessment of the patient's risk of VTE and bleeding.	GPP	5.3.3
2. Where pharmacological thromboprophylaxis is appropriate and not contraindicated, use one of the following: <ul style="list-style-type: none"> low molecular weight heparin unfractionated heparin. 	B B	5.3.3 5.3.3

Cancer patients

RECOMMENDATIONS FOR CANCER PATIENTS (SURGICAL AND NON-SURGICAL)	GRADE	EVIDENCE IN SECTION
1. Use thromboprophylaxis for all cancer patients undergoing general surgical procedures including abdominal or pelvic surgery or neurosurgery, provided there are no contraindications. Where pharmacological thromboprophylaxis is appropriate and not contraindicated, use one of the following and continue for at least seven to 10 days following major general surgery for cancer: <ul style="list-style-type: none"> low molecular weight heparin unfractionated heparin. 	GPP GPP GPP	5.4 5.4 5.4
2. Consider using extended thromboprophylaxis with low molecular weight heparin for up to 28 days after major abdominal or pelvic surgery for cancer, especially in patients who are obese, slow to mobilise or have a past history of VTE.	GPP	5.4
3. In the absence of other significant risk factors, thromboprophylaxis is not recommended for cancer patients undergoing head and neck surgery.	GPP	5.4
4. In non-surgical cancer patients in the absence of contraindications, commence pharmacological thromboprophylaxis on admission and continue until discharge. Use one of the following: <ul style="list-style-type: none"> low molecular weight heparin unfractionated heparin. 	GPP GPP	5.4 5.4
5. For both surgical and non-surgical cancer patients, use graduated compression stockings if pharmacological thromboprophylaxis is contraindicated.	GPP	5.4

Pregnancy and childbirth

RECOMMENDATIONS FOR PREGNANT WOMEN	GRADE	EVIDENCE IN SECTION
1. Minimise immobilisation of women during pregnancy, labour and the puerperium and ensure adequate hydration at all times.	GPP	5.5
2. All women who deliver by caesarean section are at increased risk of VTE and should be mobilised promptly after surgery.	GPP	5.5
3. Where pharmacological thromboprophylaxis is appropriate and not contraindicated, use low molecular weight heparin after caesarean delivery for five to seven days or until the patient is fully mobile.	GPP	5.5
4. Extend pharmacological thromboprophylaxis with low molecular weight heparin or adjusted therapeutic dose warfarin for six weeks for high-risk women, after caesarean or vaginal delivery.	GPP	5.5
5. Consider the use of graduated compression stockings if pharmacological thromboprophylaxis is contraindicated or not used.	GPP	5.5
6. Consider the use of intermittent pneumatic compression during caesarean and in the postoperative period for up to 24 hours.	GPP	5.5

Heparin-induced thrombocytopenia (HIT) patients

RECOMMENDATIONS FOR PATIENTS WITH HEPARIN-INDUCED THROMBOCYTOPENIA	GRADE	EVIDENCE IN SECTION
1. In patients with heparin-induced thrombocytopenia, use heparinoids such as danaparoid as an alternative antithrombotic drug. Specialist advice from a haematologist is recommended in patients with clinically suspected heparin-induced thrombocytopenia.	B	5.6