Dalteparin – Guideline and Shared Care Protocol for Prescribing in Primary Care

Indication	Traffic Light	Comments
Perioperative anticoagulation Extended thromboprophylaxis Post-partum Intermediate risk in pregnancy	Specialist prescribing only	
Sub-therapeutic INRs	Transfer of prescribing to primary care in line with shared care protocol	3 day supply would be appropriate to be prescribed in the first instance
VTE in patients with cancer		Secondary care will provide the first month of treatment.
IV drug users		
Patients in whom it has not been possible to stabilise on oral anticoagulation therapy		
High risk in pregnancy		Treatment for high risk patients should begin as soon as possible after positive pregnancy test and be continued until the patient attends their first appointment with the specialist at which stage secondary care will assume responsibility in continuing treatment. See pg 9. For high risk patients already on anticoagulation, discuss with the Silver Star service to establish appropriate dose.
Long haul flight prophylaxis	Prescribe only in restricted circumstances	
Presentation of DVT outside of DVT clinic opening hours	Suitable for prescribing in primary care	Initial dose(s) to cover the 24 hour period, if outside DVT clinic hours. First dose to be administered within 4 hours of clinical suspicion
Presentation of PE at any time		First dose to be administered within 1 hour of clinical suspicion
Patients with superficial thrombophlebitis		Intermediate dose of LMWH for 6 weeks

BACKGROUND

LMWH has effectively replaced the routine use of unfractionated heparin in the majority of patients. Use of LMWH has enabled once or twice daily subcutaneous injection, a reduced requirement for monitoring and the potential for patient self administration. Dalteparin is the LMWH of choice within Oxfordshire.

There are divergent professional views on the most appropriate place for the prescribing of LMWH. A general practitioner may rarely encounter such drugs commonly used by a specialist. Lack of familiarity with medication is an important cause of medication errors. It is therefore essential that care is only shared where it is in the best interests of the patient.

An NPSA alert was published in 2010, giving guidance on reducing treatment dose errors with LMWHs.

The following primary care guidance gives information for various indications including:

- Dosage
- Monitoring requirements
- Duration of treatment
- Shared Care arrangements

For several indications dalteparin has been agreed to be suitable for shared care. A shared care agreement outlines ways in which the responsibilities for managing the prescribing of a medicine can be shared between the specialist and a primary care prescriber. It should be noted that primary care prescribers are invited to participate. If they are unable to undertake these roles, then he or she is under no obligation to do so. In such an event, the total clinical responsibility for the patient for that diagnosed condition remains with the specialist.

These shared care agreements will often rely on the patient being able to self-administer and the specialist should ensure this is possible and the patient has been given sufficient advice and information before asking the GP to prescribe. Where this is not possible the GP may not be able to agree to shared care and the responsibility remains with the specialist. Community nursing teams may be able to administer for some patients but this would need to be agreed individually before shared care commences.

Information around specific LMWH indications is given below, Ctrl & click on the following headings for links to each section:

Perioperative anticoagulation 5
LMWH for sub-therapeutic INRs 5
Extended thromboprophylaxis: 5
DVT patients: 6
VTE in patients with cancer 7
VTE in IVDU patients: 8
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Pregnancy & postpartum 9
Long haul flight prophylaxis 11

General LMWH prescribing recommendations

Recommendation 1
Treatment doses of LMWH in the following indications have been identified to be suitable for shared care: • Significantly sub therapeutic INRs within one month of acute VTE, • VTE in patients with cancer or IVDU patients • Post-op mechanical heart valve patients who require "bridging", patients in whom it has not been possible to stabilise on oral anticoagulant therapy • High risk obstetric patients (as per indications specified in 'Pregnancy & Postpartum' section) **already established** on long term anticoagulation.
Recommendation 2
Prophylactic doses of LMWH should normally be prescribed by secondary care except antenatal patients identified as high risk **not on anticoagulation** (as per indications specified in 'Pregnancy & Postpartum' section)**.** Their GP should commence LMWH and this indication is suitable for shared care. The following indications have been agreed as red, specialist prescribing only: peri-operative anti-coagulation, extended thromboprophylaxis & postpartum patients.
Recommendation 3
LMWH may very rarely be used for long haul flight prophylaxis. See guidance on pg 11.

Please note practices that are near to the Royal Berkshire Hospital (RBS) may have patients that have received tinzaparin from RBS instead of dalteparin. Treatment with tinzaparin should reflect the indications and guidance that is within this document. See the Berkshire West formulary for drug specific information for tinzaparin**.**

Dalteparin prescribing information

- **Adverse effects**
  Common side effects with dalteparin are subcutaneous haematomas at injection site, and mild thrombocytopenia, which tends to resolve with continued use. Immunologically mediated thrombocytopenia has also been observed.
  At recommended doses, bleeding occurs rarely. Transient, slight to moderate, elevations of liver transaminases have been observed but no clinical significance has been demonstrated.
  Refer to the SPC and BNF for a full list of adverse effects.

- **Contra-indications**
  Haemophilia and other haemorrhagic disorders, thrombocytopenia (including history of heparin-induced thrombocytopenia), recent cerebral haemorrhage, severe hypertension; peptic ulcer; after major trauma or recent surgery to eye or nervous system; acute bacterial endocarditis. See SPC / BNF for full list

- **Pregnancy & Breastfeeding**
  Does not cross the placenta; maternal osteoporosis reported after prolonged use. Dalteparin is excreted into breast milk in very small amounts. Because the drug would be inactivated in the GI tract, the risk to a nursing infant from ingestion of dalteparin from milk appears to be negligible
- **Drug interactions**
  NSAIDs, SSRIs antiplatelets and oral anticoagulants increase risk of bleeding. See SPC / BNF for complete list.

- **Dose and administration:**
  Treatment doses for therapeutic anticoagulation in acute VTE (excluding pregnancy and the puerperium) are outlined in table 1 and 2. Please note that doses for patients over 98kg (or 112kg in month 2) differ from the BNF.

Table 1: **Standard dalteparin dose recommendations for treatment of VTE for month 1 (excluding pregnancy and the puerperium)**

Body weight (kg)	Dose of dalteparin by subcutaneous injection using a pre-filled syringe (units)
Less than 46	7,500 once daily
46-56	10,000 once daily
57-68	12,500 once daily
69-82	15,000 once daily
83-98	18,000 once daily
99-112	10,000 twice daily*
113-137	12,500 twice daily*
138-165	15,000 twice daily*
More than 166	18,000 twice daily*

Single doses should not exceed 18,000 units

*In patients weighing more than 98 kg, therapeutic dalteparin doses for month 1 of treatment are to be given twice daily and the GP should arrange for the appropriate dosing regimen. Please discuss with the clinical team if this is practically difficult. Doses of dalteparin differ from the BNF in patients over 98kg in line with OUH DVT protocols and ASH guidance

Table 2: **Dalteparin dose recommendation for treatment of VTE from month 2 onwards (excluding pregnancy and the puerperium) *Ensure patient is reweighed***

Body weight (kg)	Dose of dalteparin by subcutaneous injection using a pre-filled syringe (units)
Less than 57	7,500 once daily
57-68	10,000 once daily
69-82	12,500 once daily
83-98	15,000 once daily
99-112	18,000 once daily
113-137	10,000 twice daily*
138-165	12,500 twice daily*
More than 166	15,000 twice daily*

*In patients weighing more than 112kg, therapeutic dalteparin doses for month 2 onwards are to be given twice daily and the GP should arrange for the appropriate dosing regimen. Please discuss with the clinical team if this is practically difficult. Doses of dalteparin differ from the BNF in patients over 112kg in line with OUH DVT protocols and ASH guidance

Renal failure
In the case of significant renal failure, responsibility for treatment should lie with secondary care specialists.

Children
Dalteparin may be used for the prevention and treatment of VTE in children (unlicensed use)

Elderly
Dalteparin has been used safely in elderly patients without the need for dosage adjustment

Administration
The subcutaneous injection should preferably be given into the abdominal subcutaneous tissue anterolaterally or posterolaterally, or into the lateral part of the thigh. It should **not** be administered to the arm due to the risk of haematoma from inadvertent intramuscular administration. The total length of the needle should be introduced vertically, not at an angle, into the thick part of a skin fold, produced by squeezing the skin between the thumb and forefinger; the skin fold should be held throughout the injection

- **Dalteparin preparations available**
  2,500 units in 0.2mL fixed-dose syringe
  5,000 units in 0.2mL fixed-dose syringe
  7,500 units in 0.3mL fixed-dose syringe
  10,000 units in 0.4mL fixed-dose syringe
  12,500 units in 0.5mL fixed-dose syringe
  15,000 units in 0.6mL fixed-dose syringe
  18,000 units in 0.72mL fixed-dose syringe
  10,000 units in 1 ml graduated syringe

- **Monitoring**
  No monitoring of dalteparin in primary care is required in these cases. As the patient's weight is used as the basis for calculating the required treatment dose of LMWH however, the weight must be accurately recorded in kilograms (kg) in the clinical record. Patients should be weighed at the start of therapy, at month 2, and where clinically applicable during treatment e.g. reported weight loss.

Perioperative anticoagulation

LMWH is required in some patients as peri-operative bridging when warfarin is stopped for an operation or invasive procedure. If LMWH is recommended, responsibility for advising the patient, informing the GP and prescribing should normally be undertaken by the hospital team performing the procedure.

This aims to ensure that patients are provided with consistent timely advice and treatment by professionals familiar with perioperative anticoagulation. Patients will be attending a preoperative assessment clinic and those prescribed warfarin may be advised to switch to LMWH during the perioperative period. The duration of alternative therapy is usually less than a week but advice will be dependent on the complexity of the surgery and underlying thromboembolic risk.

Dalteparin for this indication should be arranged and provided by the team carrying out the procedure or operation and therefore remains classified as **red -specialist prescribing only** on the Oxfordshire Prescribing Traffic Lights.
On discharge patients may be given a supply of dalteparin. However if the INR continues to remain sub-therapeutic a small supply from the GP may be needed. Information on dosage will be included on the TTO and only a very short term supply would be necessary until this is achieved. This is believed to be exceptional and should be very occasional.

LMWH for sub-therapeutic INRs

Patients on warfarin who are at high risk of thromboembolism (e.g. VTE within the previous month) may require LMWH if the International Normalised Ratio (INR) becomes significantly sub-therapeutic, this would be continued until their INR returns to target range.

Dalteparin for this indication is classified on the Oxfordshire prescribing traffic lights as **amber-suitable for shared care**. Prescribing may be carried out in primary care in line with the shared care guidance & information below:

Three doses would be appropriate to be prescribed in first instance, as most patients should reach therapeutic levels within this time.

- **Shared Care Responsibilities**
  Shared care assumes communication between the Anticoagulation Service, GP and patient.
  Anticoagulation Service
  Identify to the GP a patient with sub-therapeutic INR who requires therapy with dalteparin
  Telephone the GP requesting shared care. Outline shared care protocol criteria.
  Liaise with GP regarding dose of dalteparin and likely duration of therapy.
  Ensure clinical and laboratory supervision of the patient is done.
  Ensure the patients understand the nature and complications of drug therapy and their role in reporting adverse effects promptly.
  Notify the GP and patient when therapy with dalteparin can cease
  Be available to give advice to GP and patient at all times.
  GP
  Prescribe dalteparin at the dose and frequency advised by the Anticoagulation Service.
  Advise the Anticoagulation Service of any clinical deteriorations and monitor for adverse effects as appropriate
  Patient
  Report any adverse effects to their GP and/or to the Anticoagulation Service
  Have regular blood tests as outlined above

Extended thromboprophylaxis:

In some patients extended thromboprophylaxis (i.e hip replacement, hip fracture, trauma patients, major cancer surgery in the abdomen or pelvis) with LMWH is recommended after discharge. This indication is classified as **'red - for specialist prescribing only'** and the supply should be arranged and provided by the surgical team.

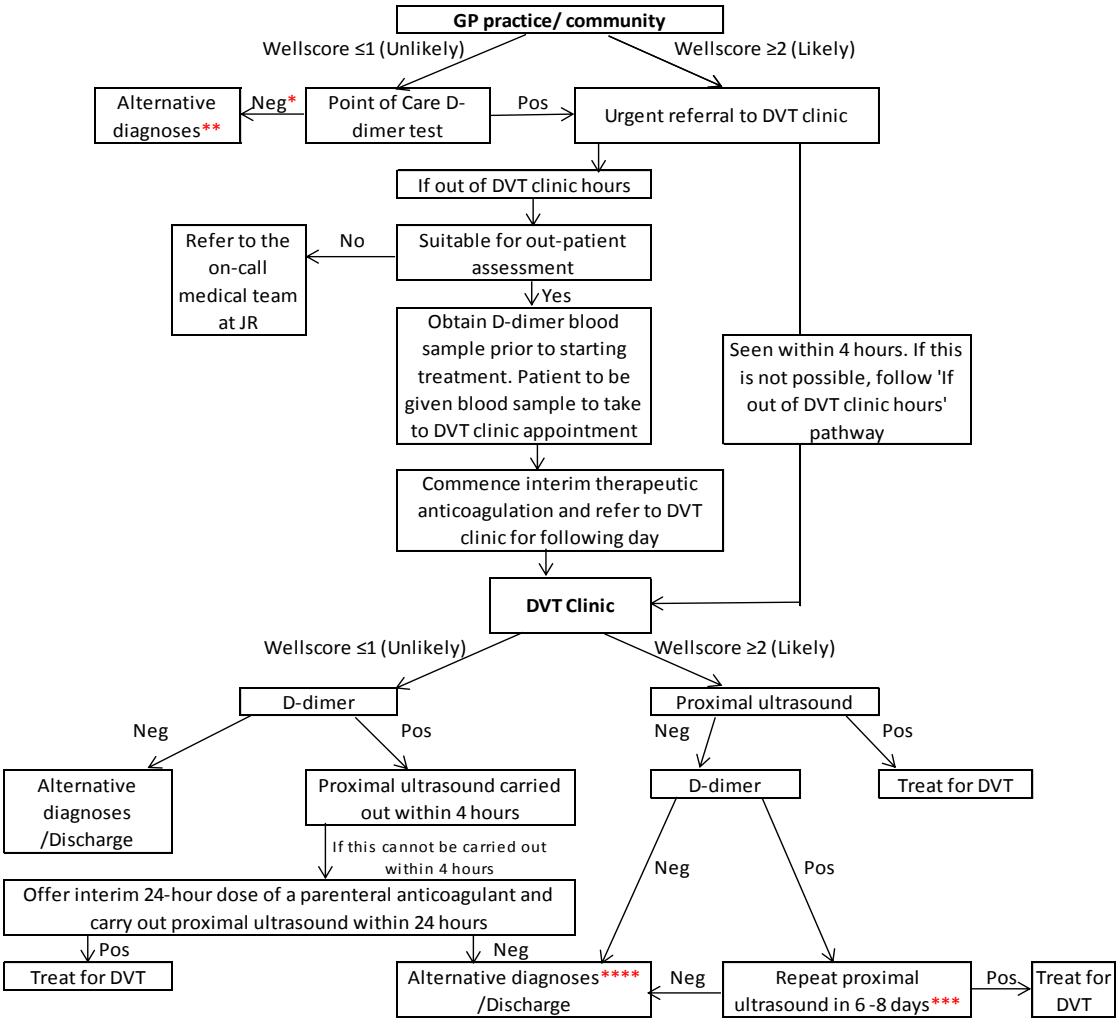
DVT patients:

Practices signed up to the DVT Testing primary care service specification provide a triage service by undertaking initial clinical assessment and referring those identified to be at risk of a DVT to the DVT clinic. Where a patient with a suspected DVT is seen in primary care outside opening hours of the DVT clinic, a venous D-dimer blood test must be taken (and given to the patient to bring into the DVT clinic the next day). The sample is stable at room temperature for 24 hours. Treatment dose interim anticoagulation in the form of LMWH or a DOAC should be given and a voicemail left on the DVT service answering machine (01865 225629) with the patient details so that they may be booked to attend the DVT clinic the following day.

NICE Quality Standard (QS29) states that people with suspected deep vein thrombosis are offered an interim therapeutic dose of anticoagulation therapy if diagnostic investigations are expected to take longer than 4 hours from the time of first clinical suspicion. Dalteparin for the first dose for DVT patients when outside DVT clinic hours has been classified as **green - suitable for primary care prescribing**, on the Oxfordshire Formulary.

A venous blood sample for D-dimer testing MUST be taken before anticoagulation is given. This should be given to the patient to bring in to their DVT appointment. Note: D-dimers cannot be used as part of the diagnostic algorithm once patients have received a dose of anticoagulant, and this sample is therefore critical for effective diagnosis and use of resources.

Primary Care overview of DVT diagnosis, referral and follow-up



* A negative D-dimer results is defined as < 500µg/l FEU.

* Alternative diagnoses should be considered and patients should be advised that they are not likely to have DVT. Discuss and symptoms of DVT and when and where to seek medical help.

*** "Likely" patients who have a positive D-dimer need a repeat scan of the proximal veins in 6 to 8 days time. They remain off anticoagulation whilst awaiting this. An alternative strategy for these patients would be to extend the initial scan to the whole leg i.e. to also scan the calf veins. However please note this is not that this is generally not standard practice at OUH, but can be performed in exceptional circumstances to prevent a patient having to return at 6-8 days.

**** If a patient has a negative scan but has whole leg swelling a pelvic DVT should be considered and a CT venogram can be requested.

If a GP practice conducts D-dimer assays as point of care, it is the responsibility of the GP practice to ensure accuracy and to participate in quality assurance processes.

VTE in patients with cancer

Dalteparin is more effective than warfarin in reducing the risk of recurrent thromboembolism in patients with cancer, without increasing the risk of bleeding, according to the results of the CLOT study *Lee AYY et al. N Engl J Med 2003; 349: 146-153 and Bick RL. Cancer-associated thrombosis. N. Engl. J. Med 2003 349; 109-111.*

For this indication, dalteparin has been classified as **amber-suitable for shared care**, within the Oxfordshire Prescribing Traffic Lights.

Patients are referred to the DVT clinic, usually from general practice. If a DVT is diagnosed in a patient with an underlying malignancy, current OUHFT protocol recommends the patient is considered for continuing LMWH rather than warfarin. Full dose LMWH is given for the first month (see table 1) and then the dose is reduced thereafter (see table 2) to approx 75-80% of full dose. This is dependent on either the patient or a relative being able to administer.. The OUHFT will provide the first 28 days' supply of dalteparin and refer to the GP to suggest a shared care protocol is agreed for further treatment.

The licensed total duration of treatment is 6 months. This is based on Lee et al (2003) who performed their trial when six months was standard for all acute VTE. However, VTE patients are now usually reviewed at three months to decide on subsequent management. The appropriateness of continuing anticoagulation beyond this period will be evaluated by the secondary care specialist according to individual risk/benefit ratio, taking into account particularly the progression of cancer. Where the patient is not under the care of an oncologist, the VTE service will carry out this review. If the cancer persists, some form of continuing anticoagulation is usually recommended.

Alternatively, an oral anticoagulant may be initiated. As of the time of writing (2019) data are emerging from clinical trials around the use of DOACs (in particular rivaroxaban and edoxaban) as treatment for cancer related VTE. At present LMWH remains the standard of care although there are advantages of using oral medications. The current DOAC trial data suggest that clinically relevant bleeding is more likely with a DOAC, particularly for patients with gastrointestinal and uroendothelial cancer, and VTE recurrence is less likely with a DOAC when compared to LMWH. Possible interactions with chemotherapy agents must be assessed. Risks and benefits should be considered on an individual patient basis. Please contact haematology (see below) to discuss if considering using a DOAC.

In the case of significant chemotherapy-induced thrombocytopenia (platelet counts less than 50 x 10^9/l), advice should be sought from haematology (coagulation and haemostasis SpR bleep 5529 or 01865 225316).

Patients with cancer often experience dramatic shifts in weight; therefore this should be monitored to ensure dose adjustment is carried out where necessary.

- **Shared Care Responsibilities:**

Shared care assumes communication between the oncologist (or VTE service where the patient is not under the care of an oncologist), the GP and the patient.

DVT Service/OUHFT

Initiate treatment and prescribe first 4 weeks of therapy.
Send a letter to the GP setting out the planned therapy for the patient.. For patients not receiving active management by the oncologist, the shared care is requested between the GP & DVT service/OUHFT.

Hospital team/VTE service

Liaise with GP regarding changes in disease management, drug dose, and missed clinic appointments.
Ensure the patients understand the nature and complications of drug therapy and their role in reporting adverse effects promptly.
Be available to give advice to GP and patient at all times.
DVT clinic is available during working hours and 08:00-13:00 Saturdays, Sundays and Bank holidays (apart from Christmas & New Year) via 01865 225629.
The Anticoagulation Optimisation Support Service is available during working hours via email doacsupport.ox@nhs.net.
The haemostasis registrar can be contacted via bleep 5529 (01865-225316) within working hours and via switchboard out of hours (0300 304 7777).
Decide on management after three months of dalteparin is completed.

GP

Prescribe dalteparin from months 2 onwards according to dosing schedule outlined in table 2.
Advise the hospital consultant of any clinical deteriorations and monitor for adverse effects as appropriate.
Monitor weight regularly and adjust dose accordingly where necessary

Patient

Report any adverse effects to their GP and/or specialist
Have regular blood tests as requested by the GP/specialist

VTE in IVDU patients:

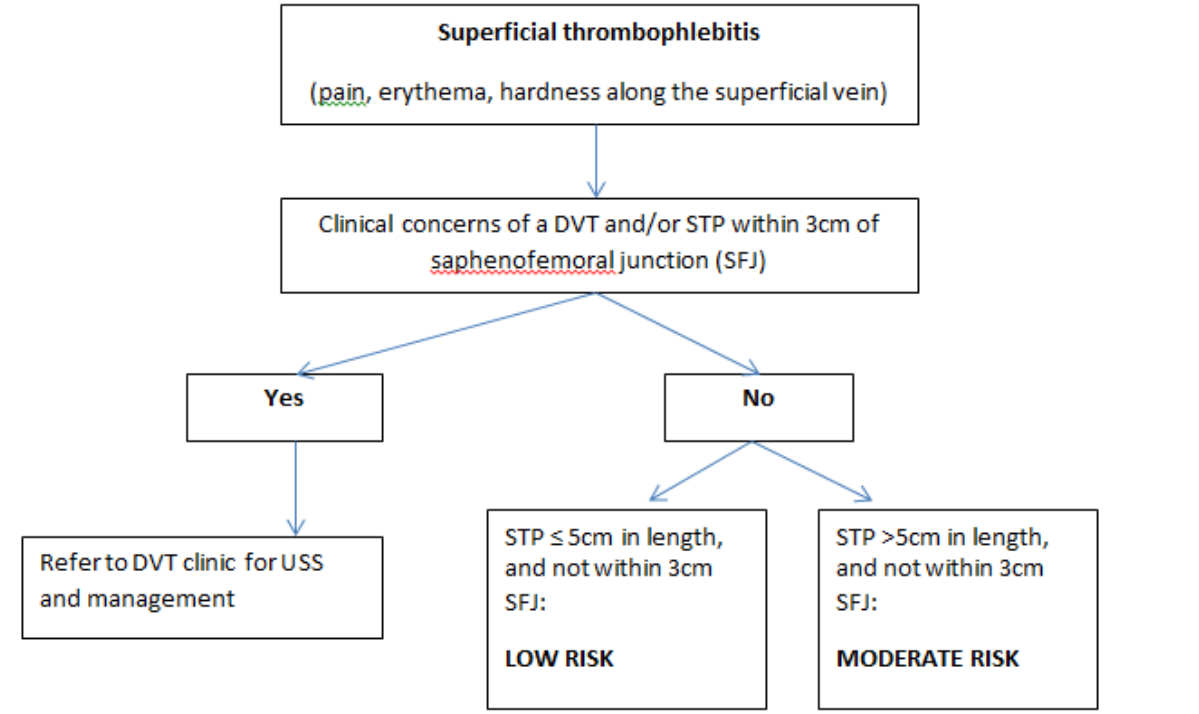
LMWH, apixaban or rivaroxaban may be more appropriate for intravenous drug abusers who may have difficult venous access and who often comply poorly with warfarin treatment. Intravenous drug users requiring dalteparin would normally be supplied 7-14 days on the TTO (quantity being dependent on safety considerations), with the remainder of the course being supplied by the GP. A discharge letter containing sufficient written info should be provided alongside the TTO specifying details around the dose, duration, reviews etc.

Patients with superficial thrombophlebitis (STP)

The most commonly affected superficial veins are the long (great) and short saphenous veins of the leg. Referral for investigation at the DVT clinic should not normally be necessary for a short segment of below knee STP unless concomitant DVT is suspected. Patients who are referred with suspected concomitant DVT are assessed for DVT. If during this investigation it is found that STP is adjacent to (within 3 cm of) the sapheno-femoral junction (SFJ) the DVT clinic will treat with therapeutic anticoagulation for three months (as for DVT) as there is a high risk of progression to DVT (Tait, et al 2012). A three month review is not required.

Otherwise STP has been considered to be a benign and self-limiting condition and in the past was treated exclusively with non-steroidal anti-inflammatory drugs (NSAIDs). Although this is reasonable for mild cases it has become recognised that more severe cases have a better symptomatic response to anticoagulation. Patients with mild STP (e.g. less than 5 cm in length) can be treated with NSAIDs but patients with more severe disease (e.g. more than 5 cm in length) may be better treated with an intermediate dose of LMWH for six weeks (Cosmi, et al 2012, Scott, et al 2015) as this has been shown to provide better symptomatic relief. The suggested dosing is dalteparin at approximately 125 units/kg daily (rounding to the nearest syringe). Prophylactic dose of fondaparinux (2.5 mg daily) is an alternative (Decousus, et al 2010). Although DOACs are not licenced for this indication a recent study (Beyer-Westendorf*, et al* 2017) suggested prophylactic dose rivaroxaban (10 mg od) was non-inferior to prophylactic dose fondaparinux (2.5 mg od). *See flow diagram below.*

Dalteparin is traffic lighted within the Oxfordshire CCG formulary as green for this indication, meaning it may be initiated and prescribed in primary care.



Management of STP:

LOW RISK: these cases may be managed with topical or systemic NSAIDs, or other appropriate analgesia alone

MODERATE RISK: there is evidence that symptomatic relief is better if an intermediate dose of anticoagulation is administered, such as:

- Intermediate dose LMWH (we might suggest dalteparin 125 units/kg o.d. for 6 weeks – rounding to the nearest syringe)[1,2]
- Off license: rivaroxaban 10mg o.d. for 6 week (non-inferior to fondaparinux)[3]

HIGH RISK: it is recognised now that these patients are at higher risk than previously recognised of developing a DVT and it is routine practice for these patients to receive 3 months full anticoagulation

Moderate and low risk patients should seek treatment from their GP, high risk patients are treated by the DVT clinic.

- Cosmi, B. et al (2012) A randomized double-blind study of low-molecular-weight heparin (parnaparin) for superficial vein thrombosis: STEFLUX (Superficial ThromboEmbolism and Fluxum). *J Thromb Haemost,* **10,** 1026-1035.
- Decousus, H et al (2010) Fondaparinux for the treatment of superficial-vein thrombosis in the legs. *N Engl J Med,* **363,** 1222-1232.
- Scott, G (2015) Superficial vein thrombosis: a current approach to management. *Br J Haematol,* **168,** 639-645
- Tait, C. et al (2012) Guidelines on the investigation and management of venous thrombosis at unusual sites. *Br J Haematol,* **159,** 28-38Beyer-Westendorf et al (2017) Prevention of thromboembolic complications in patients with superficial-vein thrombosis given rivaroxaban or fondaparinux: the open-label, randomised, non-inferiority SURPRISE phase 3b trial. *Lancet Haematol*. 4, 105-113

Pregnancy & postpartum

It is essential that patients with a high risk of thromboembolism receive preconception counselling. Therefore family planning needs to form part of any conversation for a woman on long-term anticoagulation or classed as high risk of thromboembolism. Referral for expert advice may be via Silver Star Obstetric Physician (silver.star@nhs.net) or the Obstetric Haematologists.

Royal College of Obstetrics and Gynaecology (RCOG) states;
'Individuals with recurrent VTE are at increased risk of further recurrence and many will be on long-term warfarin. Although data are lacking, it would be expected that they would have a high risk of recurrence in pregnancy. Advice should be sought from a clinician with expertise in haemostasis and pregnancy. Women should be counselled about the risks of warfarin to the fetus and advised to stop warfarin and change to LMWH as soon as pregnancy is confirmed, ideally within two weeks of the missed period and before the sixth week of

pregnancy. Women not on warfarin should be advised to start LMWH as soon as they have a positive pregnancy test.'

In line with this guidance, antenatal patients identified as **high risk** (as per indications specified below) should begin treatment with dalteparin as soon as a pregnancy is confirmed with a positive pregnancy test. In order to avoid delay, it would therefore be appropriate for GPs to provide this therapy whilst waiting for a referral to the Silver Star maternal medicine team to be processed. Further guidance on dalteparin treatment will then be provided by the specialist.

High risk patients on long term anticoagulation:
These patients should be discussed urgently with the Silver Star Obstetric Physician, as many of these patients will require therapeutic doses of anticoagulation. The appropriate dose of LMWH will be decided on an individual basis.

High risk patients not on long term anticoagulation:

- Single unprovoked/oestrogen related VTE
- More than 1 previous VTE
- Single previous provoked VTE + any other antenatal risk factor listed in RCOG

Referrals should be marked as urgent for high risk patients.

Table 3: Dose of dalteparin for VTE prophylaxis in high risk pregnancy (see table 1 or 2 for other indications):

Body weight (kg)	Dose of dalteparin by subcutaneous injection using a pre-filled syringe (units)
Less than 50	2500 once daily
50 – 90	5000 once daily
91 – 130	7500 once daily
131 – 170	10,000 once daily
More than 170	75 units / kg/ day

Intermediate risk patients:
Intermediate risk patients should be referred to the obstetric team for consideration of whether antenatal prophylaxis is required. Further guidance on dalteparin thromboprophylaxis will then be provided by the specialist.

- Single previous provoked VTE , with no other risk factors
- Thrombophilia but no history of VTE
- Medical co-morbidities e.g. heart/lung disease, SLE, cancer, inflammatory conditions, nephritic syndrome, sickle cell disease, IVDU
- Surgical procedure in pregnancy e.g. appendectomy
- Ovarian Hyperstimulation Syndrome
- 4 or more risk factors (as per RCOG antenatal risk factors)

Dalteparin is classified on the Oxfordshire Prescribing Traffic Lights as **amber- suitable for shared care** for high risk pregnancy patients to allow for initial doses to be given as soon as a pregnancy is confirmed. For intermediate risk patients dalteparin is classified as red-specialist prescribing.

PostPartum:
Women with 2 or 3 risk factors (as per RCOG postnatal risk factors) are recommended to have postnatal LMWH for 10 days. Women with 4 or more risk factors require 6 weeks postnatal LMWH.

LMWH is appropriate for postpartum thromboprophylaxis although, if women are receiving long term anticoagulation with warfarin, this can be started when the risk of haemorrhage is low, usually 7-14 days after delivery. DOACs should not be started in women who wish to breastfeed.

Women delivering at the John Radcliffe or Horton with VTE risk factors will have the full 10 days (or where appropriate 6 weeks) course of dalteparin supplied at discharge it is therefore classified as **red- specialist prescribing only** for this indication. Note this excludes women delivering at home and in midwifery led units.

Long haul flight prophylaxis

LMWH is only rarely recommended for this indication. Tables 4 and 5 shows a summary from British Committee for Standards in Haematology Guidelines on Travel-related Venous Thrombosis:

Table 4

Duration of travel Risk Group	**< 3 hours**	**3-8 hours**	**> 8 hours**
Low	Nil	Nil	Nil
Intermediate	Nil	Nil or stockings	Stockings
High	**Nil**	**Stockings**	**Stockings+/- Anticoagulant**

Table 5: Travel Risk

Risk Group	**Examples of risk factors for VTE**
Low	None
Intermediate	All others e.g. Up to 6 weeks post-partum. Previous unprovoked VTE no longer on anticoagulants. Previous travel-related VTE Combinations of risk factors.
High	**Major surgery in previous 4 weeks** **Active cancer undergoing chemo-radiotherapy in the previous 6 months, awaiting surgery or chemo-radiotherapy or in palliative phase**

For high risk patients stockings with or without anti-coagulant is recommended, dalteparin use for flight prophylaxis should therefore be exceptional in patients identified as very high risk only. If uncertain, advice may be sought from haematology.
A prophylactic dose should be prescribed where dalteparin is considered appropriate for this indication.
Dalteparin is therefore classified on the Oxfordshire Prescribing Traffic Lights as **brown- restricted prescribing** for this indication. A prophylactic dose of a DOAC may also be given i.e. apixaban 2.5mg twice a day.