Suspected DVT Lower Limb

This guideline provides support for DVT investigation and management within primary care. This is to be used for guidance only and should not replace clinical judgment.

SUSPECTED DVT

- Please do not refer patients with suspected DVT to the Emergency Department at HBDHB. If unsure clinically, then please refer to a colleague ie: at a local A & M Centre for assessment. There will be no claw backs.
- There will be times when an ultrasound scan is not available on the same day (eg: weekends and evenings) and therefore a clinical decision needs to be made to commence enoxaparin prior to scan availability. This is the same process that is followed at the HBDHB Emergency Department.
- For suspected DVT, enoxaparin is available under a Special Authority application, SA0975.

When using Special Authority also include CPO number on prescription and the dispensing fee will be charged back to CPO.

- Patient is discharged from CPO once the patient is commenced on anticoagulant therapy.

DVT SIGNS AND SYMPTOMS
- Unilateral Oedema
- Erythema
- Localised tenderness of deep venous system thigh or calf
- Calf swelling > 3.0cm cf asymptomatic leg

Alternative Conditions:
- Superficial Thrombophlebitis
- Achilles tendon strain/rupture
- Calf muscle injury
- Cellulitis
- Baker's Cyst intact / ruptured
- Cardiac related oedema
- Pelvic obstruction
- Lymphoedema lymphangitis
- Drug induced oedema
- Venous valve insufficiency
- Undiagnosed Malignancy

Risk Factors for DVT
- Surgery in last 12 wks
- Immobilised >2/7 last 4 wks
- # leg, POP, in last 12 wks
- Strong FH or PH DVT/PE
- Cancer
- Post partum
- Lower extremity paralysis or trauma
- Obesity

Indications for Investigation:
- 1st symptomatic ? DVT; - High risk asymptomatic;
- Recurrent symptomatic DVT; - Chronic symptoms,? Diagnosis - Pulmonary Embolism, asymptomatic leg symptoms.

Red Flags/ Refer if:
- Under 18
- Pregnant
- Possible proximal VT
- DVT other than lower limb
- Clotting disorders
- On dialysis

FOLLOW UP SCANS

- There is no indication for repeat scanning of legs following treatment of DVT in the community

ASSESSMENT

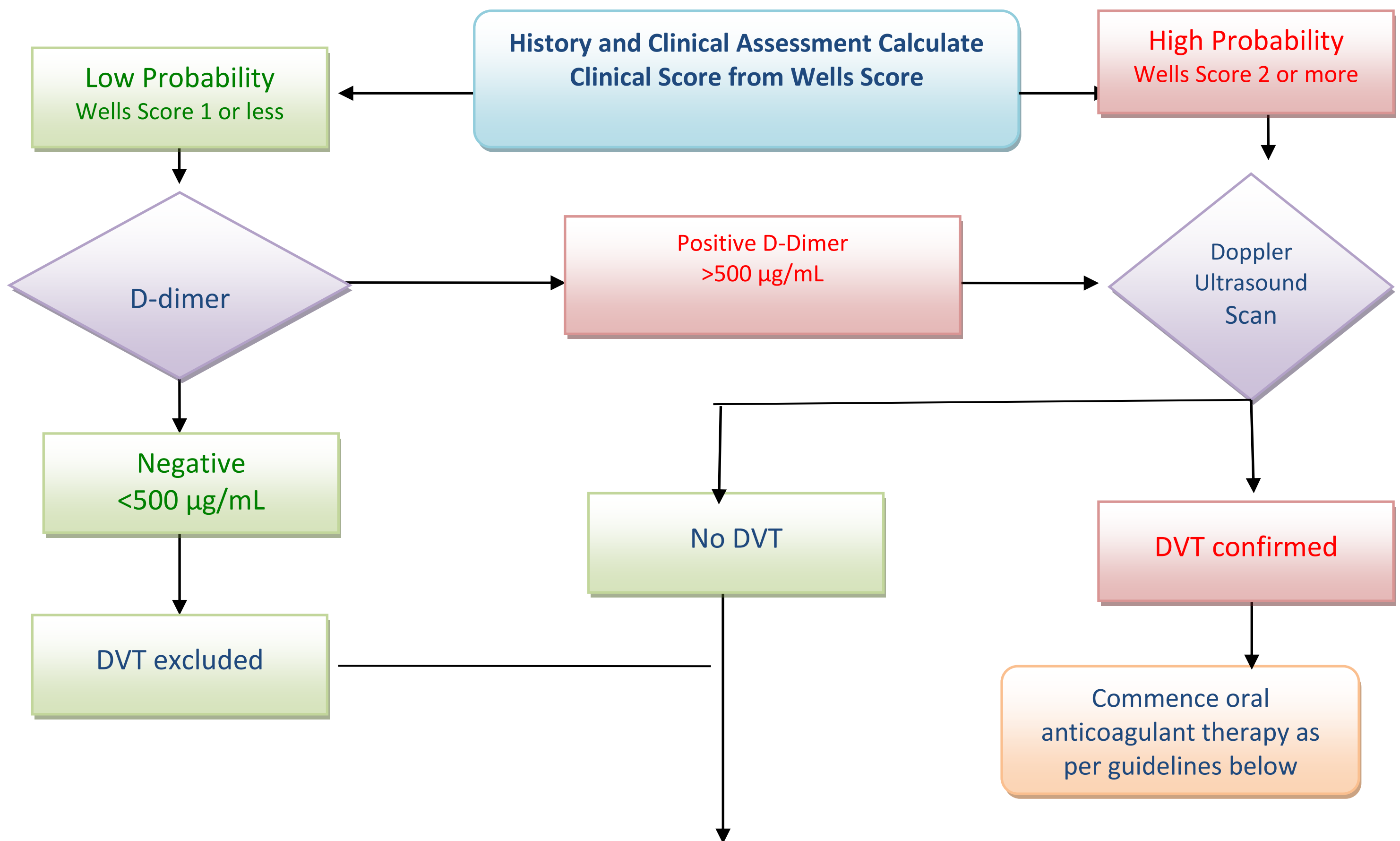
Clinically examine and score the patient using the Wells Score below. Follow the algorithm according to low probability (1 or less) or High probability (2 or more).

WELLS SCORE

CLINICAL FEATURE (WELLS)	SCORE
Active cancer (treatment ongoing or within previous six months or palliative)	1
Paralysis, paresis or recent plaster immobilization of lower extremities	1
Recently bedridden >3 days or major surgery within 4 weeks	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling 3cm > asymptomatic side	
(measured 10cm below Tibial Tuberosity)	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (not Varicose)	1
Alternative diagnosis as likely as or greater than that of DVT	-2

Risk score interpretation (probability of DVT):

- >/=3 points: high risk (75%);
- 1 to 2 points: moderate risk (17%);
- <1 point: low risk (3%).



Recommended follow up procedure:

If a clear alternative diagnosis

- (Bakers cyst, cellulitis, muscle strain, oedema) No active follow up required.

If no clear alternative diagnosis

- Consider review one week depending on symptoms. If no change or increased symptoms, consider a repeat ultrasound. If symptoms resolved, no further follow up is required. Further advice can be obtained from the Duty Medical registrar on call or AAU Physician on call 06 873 4812

ULTRASOUND

Ultrasound Scanning can be arranged through

- TRG Imaging ph: 06 873 1166 (Hastings)
  06 835 3306 (Greenmedows)
  06 8670736 (Gisborne)
- Onsite Ultrasound ph: 0800 991 119.
- Unity Specialists and Ultrasound ph: 06 2812797

MEDICATIONS

1. CPO will fund the prescription fee for patients for the specified medications prescribed under this pathway. Medication for this pathway is Enoxaparin.

2. **All prescriptions MUST have the CPO reference number included from the CPO Advanced Form e.g. HB1234.**

Enoxaparin

Enoxaparin (Clexane)

- Enoxaparin is available in both 100 mg/1 mL and 150 mg/ 1mL (maximum syringe size) on prescription from The Pharmacy at the Hastings Health Centre, Radius Care Pharmacy- Napier or Taradale Medical Pharmacy at the Taradale Medical Centre.
- INR to be 2.0 before discontinuing enoxaparin
- For renal impaired patients be aware of low molecular weight heparin alert

Enoxaparin Dosing

- Weigh patient
- Calculate Creatinine Clearance (CrCl) using the Cockcroft Gault method.

	Weight < 100kg	Weight 100-150kg	Weight > 150kg
CrCl > 30ml/min	1.5mg/kg total daily dose	1mg/kg bd	1mg/kg bd
CrCl < 30ml/min	1mg/kg total daily dose	1mg/kg total daily dose	0.66mg/kg bd

- If total daily dosage is higher than 150mg then dosage should be recalculated to 1mg/kg bd

ANTICOAGULANT THERAPY

There are 3 options for treating a DVT: Rivaroxaban, Dabigatran or Warfarin

- Each medication has advantage and disadvantages. They have different side- effect profiles, therefore it is reasonable to try an alternative if the patients experiences side-effects with one medication
- Large multicenter trials suggest that Rivaroxaban and Dabigatran have a lower incidence intracranial bleeding than Warfarin, so consider one of the newer anticoagulants as first choice. However these drugs should be used with caution in patients with renal impairment (especially Dabigatran) as they can accumulate and cause bleeding.
- Warfarin and Dabigatran can be reversed rapidly. **There is no reversal agent for Rivaroxaban.**
- **The frail elderly at high risk of falls need special consideration and recommend specialist consultation for this group**
- Consider all medications a patient is currently taking including over the counter herbals etc - to assist patient's to make an informed choice

Rivaroxaban
Consider as first option.
NB: should not be used in a patient with previous gastric bypass surgery.
Advantages:

- can be used from diagnosis (does not require initial treatment with Enoxaparin)
- once daily medication (treatment is given twice daily for 3 weeks for the acute management of DVT and Pulmonary Embolism (PE), followed by once daily treatment)
- no regular anticoagulant monitoring required
- low incidence of side-effects
- could be used at dose of 15mg bd as an alternative to Enoxaparin while waiting for a definitive scan result if there is a preference to avoid injectable drugs

Disadvantages:

- No reversal agent available
- Cannot be used in moderate-severe renal impairment (CrCl <30ml/min):
- Menorrhagia reported more frequently than with other anticoagulants
- Cannot be used in patients with mechanical heart valves

Rivaroxaban

- Commence Rivaroxaban once DVT confirmed. Enoxaparin treatment is not required
- Commence Rivaroxaban at **15mg oral twice daily for the first 3 weeks, then reduce dose to**
    - **Rivaroxaban 20mg oral once daily**
- **Exclude patients with moderate-severe renal impairment (i.e. CrCl <30 ml/min)- recommend discussion with Haematology in this group**

Precautions

NB: There is no reversal agent available for Rivaroxaban

- A recent creatinine and CrCl should be obtained prior to commencing Rivaroxaban
    - If CrCl <50ml/min, Rivaroxaban should not be used- consult Haemotologist
- Use with caution in people with abnormal liver function (recent test required)- raised transaminases have been reported with Rivaoxaban
- Assess other risk factors such as falls risk

Dabigatran

Consider as first option in patients where rapid reversal of anticoagulation is important, for example in a patient with a history of a prior bleed. May be a better option in women with a history of menorrhagia. NB: should not be used in a patient with weight >120kg or with previous gastric bypass surgery.

Advantages:

- No regular anticoagulant monitoring required
- Reversal agent available for acute bleeding

Disadvantages:

- Requires a 5 days course of Enoxaparin for acute management of DVT prior to commencing Dabigatran
- Twice daily medication
- Cannot be used in moderate-severe renal impairment (CrCl <30ml/min)
- Gastro-intestinal side-effects common
- Cannot be used in patients with mechanical heart valves

Dabigatran

Commence Enoxaparin as per information above - **never use Dabigatran and Enoxaparin at the same time.**

- It is important that the person receives 5 doses of therapeutic Enoxaparin (adjust for renal impairment) for 5 days prior to commencing Dabigatran. Dabigatran to start on day 6
- Dabigatran 150mg bd
- Dabigatran should not be used in women who are pregnant or breastfeeding, patients with CrCl < 30mL/min or patients with active cancer.
- If the CrCL is <30mL/min patients should be treated with warfarin

NB: Dabigatran 110mg is not indicated for the treatment of DVT

Warfarin

Advantages:

- Allows closer monitoring and adjustment of the level of anticoagulation
- Reversal agent available for acute bleeding
- Can be used in severe renal failure
- Standard therapy for anticoagulant prophylaxis for mechanical heart valves
- Can be used to manage antiphospholipid syndrome
- Can be used to manage thrombosis at unusual sites

Disadvantages:

- Requires at least 5 days of Enoxaparin for acute management of DVT and PE, during Warfarin loading
- Requires regular INR monitoring
- Multiple drug interactions

Warfarin

- Commence warfarin once DVT confirmed
- Provide patient with “red book” to record monitoring
- Recommended to prescribe 1 mg tablets only to elderly patients for ongoing management

Patients aged ≤ 70 years and/or require a fast loading regimen (e.g. DVT/PE)		
Day	**INR**	**Warfarin dose (mg)**
Day 1	< 1.4 Do no measure	10
Day 2	< 1.8	5
	1.8 – 2.0	1
	> 2.0	Nil
Day 3	< 2.0	5
	2.0 – 2.5	4
	2.6 – 2.9	3
	3.0 – 3.2	2
	3.3 – 3.5	1
	> 3.5	Nil
Day 4	< 1.4	> 8
	1.4 – 1.5	7
	1.6 – 1.7	6
	1.8 – 1.9	5
	2.0 – 2.3	4
	2.4 – 3.0	3
	3.1 – 3.2	2
	3.3 – 3.5	1
	3.6– 4.0	Omit next dose then 1mg
	> 4.0	Omit next two doses then 1mg

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Switching Anticoagulants

Switching from:	Switching to: Warfarin	Rivaroxaban	Dabigatran
Warfarin	–	Stop warfarin, measure INR daily, initiate rivaroxaban when INR is ≤ 3.0 if taking for stroke/ systemic embolism prevention or when INR is ≤ 2.5 if taking for treatment or prevention of DVT and PE	Stop warfarin, measure INR daily, initiate dabigatran when INR < 2.0
Rivaroxaban	Initiate warfarin while still taking rivaroxaban, withdraw rivaroxaban when INR is ≥ 2.0. Start warfarin at a standard dose and adjust dose based on INR after two days.	–	Take first dose of dabigatran 24 hours after last dose of rivaroxaban
Dabigatran	If CrCl ≥ 50 mL/min, start warfarin three days before stopping dabigatran. If CrCl 30–49 mL/min, start warfarin two days before stopping dabigatran.	Take first dose of rivaroxaban 12 hours after last dose of dabigatran	–

Patient Unsuitable for Anticoagulation

Refer to on-call AAU specialist (Mon-Fri, 9-5, 06 8734812) if:

- Heparin induced thrombocytopenia
- Contraindications to anti-coagulation therapy include:
  - haemophilia or any other known bleeding disorders
  - active bleeding
  - platelets <75
- Pregnancy

If outside these hours, call the medical registrar through the hospital switchboard.

Ongoing Management

- For trauma or surgical patients presenting with a DVT, three months treatment should be sufficient, with GP review at the end of this period to determine discontinuation
- For below knee DVTs, treat for three months and review before discontinuation

Refer to Haematologist

Refer to Haematologist for advice/assessment if:

- Above knee DVT
- Second event
- Large, spontaneous clots