

LEG ULCER MANAGEMENT and PREVENTION GUIDELINES

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1.0	Clinical Practice Guide first implemented	Sarah Kiernan, Tissue Viability Nurse Consultant	2000
2.0	Changes were made to all sections to take into account more recent national recommendations and research.	Sarah Kiernan, Tissue Viability Nurse Consultant	Sept 2005; implemented January 2006
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CONTENTS

1.0	INTRODUCTION	Page 4
2.0	PURPOSE	4
3.0	SCOPE	4
4.0	DEFINATIONS OF A LEG ULCER	5
5.0	DUTIES AND RESPONSIBILITIES	5
6.0	CONSENT	6
7.0	POLICY SPECIFIC CONTENT	6
	ASSESSMENT	6
	ABPI	7
	OTHER INVESTIGATIONS	8
	EXERCISE	8
	PAIN	9
	PATIENT EDUCATION	9
	VENOUS ULCERS & SILVER STANDARD PATHWAY	9
	COMPRESSION BANDAGING	11
	INFECTION	12
	ARTERIAL AETIOLOGY ULCERS	13
	MIXED AETIOLOGY ULCERS	13
	ULCERATION AND PATIENTS WITH DIABETES MELLITUS	14
	MALIGNANT ULCERS	15
	VASCULITIC /RHEUMATOID ULCERS	16
	REFERRAL FOR SPECIALIST ADVICE	16
	WOUND AND SKIN CARE	17
	PREVENTION OF RECURRENCE	18
	COMPRESSION HOSIERY AND AIDS	20
0.8	TRAINING & MONITORING	22
9.0	REFERENCES	22
10.0	LIST OF APPENDICES	23
12.0	EQUALITY IMPACT ANALYSIS	60

1.0 INTRODUCTION

Leg ulcers are a debilitating and painful condition that has been estimated to affect approximately 1% of the population of Britain and cost the NHS a minimum of £300-600 million ⁽¹⁾.

Chronic venous leg ulcers are a prevalence estimated at 1-3 per 1000 of the UK population ⁽²⁾ and this prevalence increases with age, rising to 20 per 1000 in people over 80 years of age ⁽³⁾

Incidence is spread evenly across different socioeconomic groups but ulcers take longer to heal and recurrence rates are higher in lower social economic groups. ⁽²⁾

The prevalence of venous leg ulcers increases markedly with age, particularly for people over 80 years old. The recommended Gold Standard treatment for venous leg ulcers is an holistic assessment and compression therapy which can be applied in a variety of methods but an assessment of the arterial supply of the lower leg is essential before compression therapy can be considered particularly as the prevalence of peripheral arterial disease also increases with age, therefore, older patients with predominantly venous ulcers may also have arterial insufficiency. These ulcers are termed “mixed aetiology”.

This document has been written by the Tissue Viability Service (TVS) and contains guidance for clinical staff on the assessment and management of patients with leg ulceration. The guidelines and policy are based on current best practice statements, position documents, expert opinion, national guidelines and research evidence where it exists, predominantly the information is obtained from the Scottish Intercollegiate Guidelines Network ⁽²⁾ the Royal College of Nurses ⁽³⁾ and National Institute of Clinical Excellence ⁽⁴⁾.

2.0 PURPOSE

- To provide a reference guide to the basic assessment and management criteria for common causes of lower leg ulceration for staff within Whittington Health
- To identify possible arterial insufficiency that requires assessment and treatment in secondary care
- To ensure standardised, evidence based approach is taken to the management and prevention of recurrence of venous leg ulcers.
- To provide a framework to ensure that the quality of care for patients in this area can be monitored and improved in line with the clinical governance agenda

3.0 SCOPE

The purpose of this policy is for all individuals across Whittington health regardless of ethnicity, age or sex

4.0 DEFINITIONS

A leg ulcer is defined as “The loss of skin below the knee on the leg or foot which takes more than 6 weeks to heal” ⁽⁴⁾

What causes leg ulcers?

A leg ulcer is simply a break in the skin of the leg, which allows air and bacteria to get into the underlying tissue. This is usually caused by an injury, often a minor one that breaks the skin. In most people such an injury will heal up without difficulty within a week or two. However, when there is an underlying problem the skin does not heal and the area of breakdown can increase in size. This is a chronic leg ulcer.

The most common underlying problem causing chronic leg ulcers is disease of the blood vessels of the leg. Venous disease is the main reason for over two thirds of all leg ulcers

- Venous Disease (caused by veins not working) – about 80% of leg ulcers
- Arterial Disease (caused by the arteries not working) – about 15% of leg ulcers
- Other causes (includes diabetes and rheumatoid arthritis as well as some rare conditions) – about 5% of leg ulcers
- In some cases two or more conditions may be causing damage at the same time. ⁽⁵⁾

5.0 DUTIES (Roles and Responsibilities)

The Chief Executive

The chief executive has overall responsibility for the safety of patients in the organisation ensuring we meet all the statutory requirements.

The Director of Nursing

Has a responsibility to ensure leg ulcer prevention and management strategies maintain a high profile at board and senior nursing level

The Tissue Viability Service

The Tissue Viability Team is responsible for the provision of an effective Tissue Viability Service across Whittington Health by developing and implementing policies and guidelines which are evidence based and reflect best practice to support leg ulcer management and prevention.

Heads of Nursing

Have a responsibility to ensure leg ulcer management maintains a high profile within the clinical division.

Address local issues to assist in reduction of the management of leg ulcers across Whittington Health.

Matrons and Service manager leads

Have a responsibility to support staff training needs in the management and prevention of leg ulceration

Ward Managers/ Team leaders:

Have a responsibility to ensure all staff to attend training

Ensure all staff to follow the management and prevention policy

Nominate a Link nurse for Tissue Viability and ensure support to enable them to fulfil the role.

Tissue Viability Link Nurses:

Have a responsibility to assist with the implementation of the leg ulcer prevention and management policy

Participate in audit as requested by Tissue Viability team

Attend meetings and study days

Ensure all resources are available within the clinical area

Provide local induction and training for their colleagues

Medical staff:

Have a responsibility to be familiar and adhere to the leg ulcer prevention and prevention policy

To adhere to the policy

All clinical staff - nurses, midwives, student nurses, health care assistants

Have a responsibility to be aware of the policy

Ensure patients are assessed and appropriate plan of care is developed and implemented

Ensure any leg ulcer identified is reported and appropriately assessed.

Ensure any competencies within this area are maintained and updated in accordance with the NMC.

6.0 CONSENT

Consent should be obtained in accordance with the Whittington Health Consent Policy for examination and treatment and /or The Whittington Health Capacity and Consent Policy

7.0 POLICY SPECIFIC CONTENT**7.1 ASSESSMENT**

- Assessment, clinical investigation and treatment plan must be undertaken by a healthcare professional trained in leg ulcer management.
- The assessment process is ongoing and involves an initial assessment and regular reviews which are to be documented

- The assessment must be holistic and include information regarding lifestyle in its approach and encourage patient involvement in the decision making process.
- A holistic assessment incorporates physical, emotional, social and environmental factors. The physical assessment should include full clinical history, physical examination, haemodynamic assessment, Doppler ultrasound of foot pulses and an ankle/brachial pressure reading (ABPI) and any other relevant investigations (appendix 1).
- The assessment must be documented using the Trust leg ulcer assessment tool with photographs at regular intervals.
- All patients must have an initial Leg ulcer and Doppler assessment which is documented and repeated at 6 monthly intervals for management of venous hypertension. Reassessment should be undertaken more frequently if ulcer deteriorates.
- A new episode of ulceration requires a new holistic Leg Ulcer Assessment and Doppler assessment Investigations (ABPI).
- If the clinician is not competent to undertake the holistic leg ulcer assessment including Doppler it is recommended that they complete the Silver Standard Leg Ulcer Management Pathway (Appendix 7) until such time as the clinician becomes competent or a competent colleague can undertake the assessment.
- At the completion of the assessment including use of Doppler to obtain ABPI result the clinician should be able to identify if the aetiology of the ulcer is arterial, venous or mixed.

7.2 INVESTIGATIONS (ABPI)

Measurement of Ankle/Brachial Pressure Index (ABPI) using a hand held Doppler ultrasound should be taken during the initial assessment. ABPI readings indicate strength of arterial blood flow to the foot. A common misunderstanding among inexperienced staff is that ABPI readings between 0.8 and 1 indicate the ulcer is venous in origin. This is incorrect. The range represents the arterial strength required to apply compression therapy if clinically indicated.

The patient should have rested, as flat as possible, for at least 20 minutes. Inaccurate readings will occur if the patient sits up or the legs are dependent or very oedematous. The Doppler probe can be changed from a 8 MHz to 5MHz probe for very oedematous legs.

- Ankle systolic pressure:- locate, obtain and document pressure readings from all foot pulses - Dorsalis Pedis, Anterior Tibial, Posterior Tibial and Peroneal
- Brachial systolic pressure using the Doppler should be taken from both arms.

- To calculate the ABPI use the highest brachial reading of the arms and the highest pedal pulse reading for that limb
- As well as calculating the ABPI the wave signal- tri-phasic, bi-phasic and mono-phasic needs to be heard and documented.
- Any signals not found also needs to be documented

7.3 Other Investigations

- **Full blood count (FBC)**; as anaemia may effect healing, check for infection and platelet levels.
- **Erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP)**; markers for inflammation and infectious causes of ulceration.
- **Urea, electrolytes and creatinine (U&E)**; high urea can impede healing
- **Albumin**: protein loss delays healing
- **Glucose**: diabetes mellitus
- **Auto-antibodies**: for detection of connective tissue disorders.
- **Clotting screen, cryoglobulins and haemoglobinopathy screen**: haematological disease, sickle cell anaemia, thalassaemia.
- **HIV status** : Kaposi sarcoma.
- **Wound swab for Microbiology, Culture & Sensitivity (MC&S)**; only if clinical signs of infection are present or the patient is a diabetic with a foot wound. Always clean the wound bed before taking a wound swab and ensure that the results of the wound swab are followed up.

Nutritional assessment

Weight, height and body mass index (BMI) should be recorded at initial assessment and then weekly for inpatients and monthly for patients in the community who are or are at risk of malnutrition. Patients considered as 'malnourished', or 'at risk' of malnutrition should be managed according to local and national guidance ⁽⁶⁾.

7.4 EXERCISE

Poor mobility and fear of falling are common problems for older patients with leg ulceration. An assessment of the patient's ability to walk should be performed and documented. The problems may be due to oedema, pain, joint stiffness and obesity etc.

It is important that a patient's mobility is maintained and improved, as this will aid venous return, by moving the calf muscle pump, in addition to reducing the risk of developing other problems associated with immobility (12). Patients should be

advised to walk, where possible and, if able, perform ankle and foot exercises while sitting and standing.

A referral to the physiotherapist may be indicated. When resting, those patients with venous disease and/or oedema should be advised to elevate their legs, with ankles slightly above hip level, rather than sitting with their legs hanging down. This may be more easily achieved by resting on a bed or sofa with pillows/cushions underneath the lower section of the leg. Foot stools are not recommended as they are generally not high enough to reverse venous hypertension and reduce oedema and they can also increase pressure at the heel, which may increase the risk of pressure ulceration in this area for 'At Risk' patients.

7.5 PAIN

Often leg ulcers are painful for the individual. This can result non-concordance with recommended evidence based practice, particularly in the management for venous leg ulcers where compression treatment is recommended. A pain assessment is part of the holistic assessment (appendix 1) and this area may need to be addressed, with input from other health care professionals and patient education, before leg ulcer management can be effective.

7.6 PATIENT EDUCATION and INFORMATION

All patients are entitled to and should be offered accessible and appropriate health promotion information on their condition and documented in the patient record.

An information leaflet should be given to each patient describing clearly and simply the rationale for treatment and self-help strategies. (Appendix 13)

The patient should be made aware they should contact a health care professional if they have a recurrence of symptoms or have concerns.

7.7 DIFFERENTIAL AETIOLOGY & MANAGEMENT

Venous Ulcer Aetiology

Venous leg ulceration is due to sustained venous hypertension, which results from chronic venous insufficiency and/or an impaired calf muscle pump. In the normal venous system, venous pressure decreases with exercise as a result of the calf muscle pump and the valves in the perforating veins (between the superficial venous system and deep venous system) preventing reflux of blood. If these veins are incompetent, and /or the muscle pump is impaired, the venous pressure remains high and ulceration may result. Common predisposing factors for venous incompetence include: DVT, lower leg fractures, previous vein surgery, thrombophlebitis and constant high pressure on the venous system possibly caused by damaged perforator veins, multiple pregnancies, obesity or standing for long periods.

Look for signs of venous insufficiency:

- Pitting oedema
- Varicose veins
- Hyperpigmentation /haemosiderin deposition (brown staining of the skin due to leakage from red blood cells)
- Venous eczema –wet or dry
- Lipodermatosclerosis; dermatitis followed by induration and dermal fibrosis, causing a “woody” texture to the skin and may cause the leg to appear as an “inverted champagne bottle. “
- Atrophe blanche - smooth white plaques with small red dots, caused by infarction and dilatation of the capillaries.
- Venous ulcers are usually situated within the gaitor area of the leg and are more prevalent over the malleoli (ankle bones).

Treatment for venous ulcers

- The first line treatments for uncomplicated venous ulcers are graduated multi-layer high compression systems usually garments, hosiery or bandaging; Most are based on the underlying principles of La Places Law.
- Holistic assessment and compression therapy is the recommended “Gold Standard Treatment “for venous leg ulcers.

Silver Standard Leg Ulcer Pathway

This pathway is designed for clinicians who have yet to be trained in National Gold Standard Leg Ulcer management, to prevent and halt the development of chronic leg ulcers. It does not replace GOLD standards but is an interim pathway to be used until Gold standard practice is achieved.

The Silver standard is to be used in such cases where a leg ulcer patient maybe awaiting a holistic assessment at a specialist clinic and in the interim, the clinician providing care can complete the Silver Standard Leg Ulcer Assessment Form (Appendix 7) and decide if patient is suitable to commence Silver Standard Leg Ulcer Pathway while awaiting specialist review.

Or in such cases as a community patient receiving compression therapy at home but on being an acute patient finds there are no clinicians competent to apply compression. Therefore the Silver Standard Pathway maybe implemented until the ward clinicians are deemed competent or the patient returns home, whichever is the sooner. The Silver Standard Leg Ulcer Pathway consists of good skin care, basic wound care management and simple bandaging from base of the toes to just below the knee with a wool bandage in a spiral; then K-lite in a spiral from toe to knee and then a second layer of K-lite in a spiral from toe to just below knee.

- Ankle, Brachial Pressure Index readings should be taken on all patients prior to the application of compression therapy. The ABPI should be between 0.8 and 1.2 and the limb should be adequately padded to prevent pressure damage. (appendix 6)
- Choose compression bandages or hosiery capable of sustaining compression for at least a week. For example, four-layer, short stretch systems. More frequent application may be required if the ulcer is exuding heavily. Graduated, multi-layer, high compression systems aim to provide 40 mmHg pressure at the ankle decreasing gradually to 20 mmHg at the knee if applied according to manufacturer's instructions on a leg with a normal sized ankle (18-24cm).
- If the ABPI is less than (<) 0.8 but greater than (>) 0.7 reduced compression may be indicated. This should be used with caution by experienced practitioners.
- If the ABPI is less than (<) 0.7 and the patient shows signs or symptoms of venous disease and intermittent claudication the ulcer should be treated as a 'mixed aetiology ulcer' (see section 5.5)
- Patients/carers/practitioners are advised to observe for loss of colour, movement, sensation or increasing pain levels in compressed limbs. If observed the patient should be advised to remove the compression layer(s) and call for assistance from the nursing team.
- If no improvement is seen in the ulcer within six weeks of treatment consider discussion with Tissue Viability Service
- Compression therapy resolves the issues of venous hypertension but does not cure venous hypertension – people need to know from the initial assessment that even once healed compression therapy needs to continue to prevent recurrence. There are many different types of compression - **Hosiery, bandaging and garments.**
- Competencies for compression are in the appendices

7.8 COMPRESSION BANDAGING

There are different types of compression bandaging; some work by actively applying pressure (elastic bandages) , some by making the calf muscle pump more active and effecting the interstatic pressure (inelastic bandage) and others by a combination of both.

4-layer bandage system	Bandage 1: Wool Layer in spiral 2: Crepe in spiral 3: Light Compression (3a) in figure of eight 4: Cohesive Layer (3b) in spiral	Purpose 1: Padding 2: Secure wool layer, further padding 3: Approx 17mmHg 4: Approx 23mmHg
Short stretch bandage system (Actico)	1. Wool Layer 2. Short Stretch Bandage	Inelastic cotton bandage Applied 90-100% stretch
K-TWO	1: is short stretch with low resting pressure (30mmhg) 2: is a compression bandage (10mmhg)	Combination of traditional compression and short stretch. Comes in Kits - defined by patient ankle circumference

Garments

Garments other than hosiery are being used in the management of venous ulceration.

Juxta Cures is an adjustable wrap around compression system. Once initial fitting is done by trained clinician patient, carer or clinician can apply and adjust the garment to the individual’s needs. Compression therapy levels can be adjusted from 20mmHg to 50mmHg.

7.9 COMPRESSION TREATMENT and INFECTED ULCER

If the ulcer should become infected during treatment with compression therapy then the compression therapy should cease, due to increased pain, and once the symptoms of the infection resolve the compression can be reapplied

Flucloxacillin (or Erythromycin or Clarithromycin if the person is allergic to Penicillin) for seven days is advised whilst awaiting swab results. The organisms most likely to be involved in cellulitis include staphylococcus aureus, MRSA (meticillin-resistant staphylococcus aureus) and Group a beta-haemolytic streptococci. Anaerobes may sometimes be involved. For further information on cellulites please see Whittington Health cellulites guidelines available on the intranet.

There is little value in using antibiotics to treat organisms that have **colonised** a wound if they are not causing clinical signs or symptoms of infection as bacterial contamination is not considered to adversely affect healing.

If signs of infection increase, spreading redness or increased pain and systemically unwell consider osteomyelitis or septicaemia and admission to hospital for intravenous antibiotics.

7.10 ARTERIAL ULCER AETIOLOGY

About 10 per cent of leg ulcers are caused by arterial occlusion, which causes deprivation of oxygen and essential nutrients to the skin. The prevalence of peripheral arterial disease increases with age and smoking exacerbates the condition; therefore, patients should be encouraged to stop smoking.

Arterial ulcers can be found on the foot or the lower leg. The ulcers are usually small (but may be larger) and are described as having a 'punched out' appearance and may contain sloughy or necrotic tissue.

- The leg may be cold and pale or deep red, blanching when elevated to approximately 45 degrees from level and slowly recovering its colour when lowered.
- Capillary refill time is more than three seconds when a toe is lightly squeezed.
- Pale or blue, mottled, shiny, cold skin
- Nail dystrophy, the toenails may have become thickened owing to lack of nutrient diffusion from poor blood supply.
- reduced hair growth
- calf muscle wasting of the limb

The patient may complain of pain when walking, which subsides with rest (intermittent claudication). Also, the patient may complain of pain when the limb is elevated, which resolves when lowered. Arterial ulcers are often more painful on elevation, and as a result these patients often sleep in a chair or get up frequently in the night to walk about. A referral to a vascular surgeon is required to establish the location and extent of the occlusion or the presence of small vessel disease and the possible need for surgical intervention.

If ABPI is less than 0.6 and the patient shows signs and symptoms of claudication ask for an "URGENT" referral. (Appendix 4)

If the ulcer is on the plantar aspect of the foot or the toes, with known or suspected to be arterial/diabetic aetiology keep the wound dry; Do not moisten or attempt to moisten the wound bed until advised by specialist clinician. Do not bathe the foot in water.

7.11 MIXED AETIOLOGY ULCERATION

A percentage of leg ulcers show signs and symptoms of both arterial and venous disease and are termed "mixed aetiology". For example: signs of venous

hypertension may be present but the arterial blood supply may not be strong enough to sustain compression therapy.

If ABPI is below (<) 0.8 but greater than (>) 0.7 and the patient does not show signs or symptoms of claudication then reduced compression may be used cautiously. This should only be applied by clinicians experienced in compression application and leg ulcer management, and with close observation for compromised circulation.

If ABPI is less than (<) 0.7 and the ulcer is not healing, this indicates significant arterial disease and a referral to a vascular surgeon for assessment is indicated.

If ABPI less than (<) 0.6 and the patient show signs and symptoms of arterial disease the referral should be marked as "URGENT". (Appendix 3)

7.12 ULCERATION IN PATIENTS WITH DIABETES MELLITUS

Patients with diabetes mellitus may have leg ulcers due to any cause. However, there may be difficulty in establishing the underlying aetiology due to the diabetic disease process. In addition, at some time in their life 15 per cent of people with diabetes develop foot ulceration associated with peripheral neuropathy and/or ischaemia and there is a high incidence of limb amputation in this group.(6) As a general rule all patients should have their blood glucose level and blood pressure monitored and controlled, be advised to stop smoking, and receive dietary, exercise and foot care advice.

There are 2 main types of diabetic foot ulceration:

- **Neuropathic ulcers** - Damage to the nerves supplying the lower limbs can lead to physiological changes and loss of sensation in the feet, which increases the risk of developing foot ulcers. It is often associated with callus formation and occurs on the plantar surface of the foot, on bony pressure points. The skin is usually warm and dry, pulses are palpable but sensation is impaired. The ulcer is generally painless and can penetrate to deep tissue. Problems associated with neuropathy can be reduced if those affected are identified and offered foot care, education, podiatry and, where required protective footwear. Clinicians should test for the presence of neuropathy using a 10g monofilament and patients should be referred to a Podiatrist for ongoing sharp debridement of the callus, toe nail cutting and for foot wear assessment
- **Ischaemic ulcers** - The skin may be cold, pulses may be absent and ulcers may be seen on the tips of toes. Sensation is often impaired and there may be evidence of claudication. The patient should be referred urgently to a vascular surgeon for assessment. These ulcers are highly susceptible to infection and often result in lower extremity amputation and medical advice should be sought immediately if infection is suspected. In addition, the normal signs of infection may be absent or diminished in this group of patients, therefore wound swabs, for MC&S, may be taken without other clinical signs of infection being present.

- All diabetic patients and their carers should be taught how to inspect their feet daily for trauma and signs of infection. If the patient's sight is also affected by diabetic retinopathy, a suitable supervision plan should be worked out with the patient.

Management of Ulcers in Patients with Diabetes Mellitus

Management depends on the underlying aetiology. For example, if venous hypertension is the cause then treat as venous ulcer, if arterial occlusion is suspected treat as arterial ulcer

If the wound is on the foot it is important to inspect the wound daily to detect early any signs of infection. .

Patients at risk of foot ulceration should be identified early and referred to foot clinics, which offer education, podiatry and footwear advice.

Referral to a Diabetic team, Diabetic Specialist Nurse or Dietician may be indicated if the diabetes is poorly controlled. Specialist assessment is essential, as the reliability of ABPI readings may be limited due to the presence of calcification of the medial artery wall.(appendix 5)

A referral for a vascular surgeon's assessment is indicated if:

- the patient has rest pain in the legs
- the ulcers show no signs of healing after four - six weeks
- the ulcers are on the foot, or dry or wet gangrene is apparent.

7.13 MALIGNANT ULCERATION

- Malignancy is a rare cause of ulceration and more rarely a consequence of chronic ulceration but the possibility should not be overlooked.
- Malignancies may include:- squamous cell carcinoma, basal cell carcinoma, malignant melanoma, Kaposi's sarcoma, Marjolin's ulcer.
- Refer urgently to dermatologist for biopsy and diagnosis

Characteristics of carcinoma are

Basal Cell Carcinoma - common, slow growing, locally invasive, red/brown, dome shaped nodule, central ulceration, raised rolled border, translucent pearly appearance,

Squamous Cell Carcinoma - aggressive, malignant tumour, rapid deterioration, opaque, skin coloured, fleshy papules, nodules or plaques, scaly, may have friable surface

Malignant Melanoma - malignant growth of pigmented cells, change in appearance of existing mole, inflamed border, may bleed or discharge fluid

7.14 RHEUMATOID/VASCULITIC ULCERS

Leg ulceration is common among people with rheumatoid arthritis. The underlying aetiology in this group is thought to be a combination of:

- local vasculitis
- poor venous return due to immobility of the ankle joint
- debilitating effect of prolonged steroid therapy on the skin..

The ulcers appear deep, well demarcated, punched out, very slow to heal, often situated on the calf or dorsum of the foot.

NB: Patients with rheumatoid arthritis may also develop ulcers associated with other diseases ⁽⁷⁾, so a full holistic assessment is required prior to diagnosis.

Vasculitic Ulcers

- Ulcers caused by vasculitis tend to appear suddenly and deteriorate rapidly and are slow to heal. They may present as multiple, small, 'punched out', painful ulcers.
- Vasculitic ulcers are also associated with other, less common, inflammatory connective tissue disorders or rarely may be caused by reactions to medications.
- The treatment is usually systemic steroid therapy, bandaging and bed rest. If vasculitis is suspected, the patient should have a medical assessment, blood screen and wound biopsy.

7.15 REFERRAL for SPECIALIST ADVICE to Leg Ulcer/Tissue Viability Service

- Tissue Viability Link Nurses, where available, should be used as the first point of contact.
- All patients referred by a Health Professional will have completed a leg ulcer referral/ assessment form including arterial screening (Doppler) attempted if not completed
- All Venous or mixed aetiology leg ulceration with deterioration or no significant healing, or deterioration after 4 weeks from initial assessment and commencement of compression therapy.
- All staff must liaise with and refer to the appropriate health care professional to aim to meet all individual patient health care needs.

7.16 WOUND & SKIN CARE

Wound Cleansing

Aim is to remove slough, necrotic, fibrous or excess granulation tissue by gentle washing.

Clean the ulcer, where necessary, with warmed (body temperature) tap water or sterile 0.9% sodium chloride. Consider: patient comfort, quality of tap water, environment, equipment available, the need to cleanse surrounding skin, volume needed, moving and handling of loads. In some cases UCS wipes can be used in place of water but discuss with senior colleague or TVN first.

Use the No Touch Wound Dressing Technique to prevent cross infection. Universal precautions should be maintained. Hands should be washed before and after using gloves and between patients.

All chronic wounds are colonised with bacteria, therefore, swabbing a wound for MC&S should only be undertaken if the patient shows clinical signs of infection i.e. increases in pain, swelling, redness, warmth, exudate or malodour.

In cases where chronic bacteria load is found then Prontosan wound irrigation solution can be used.

Consider using a potassium permanganate 0.01% soak if the ulcer is malodourous

Care of the Surrounding Skin

Aim is to clean and moisturise the skin and remove any build-up of dry skin or "scaling"

- Use of a soap substitute to clean surrounding skin, as soap can affect the natural Ph of the skin
- Dry skin should be moisturised with bland emollients.
- If flaky skin does not improve with emollient application, consideration should be given to the potential presence of a fungal skin infection and a skin scraping sent for microscopy.

Varicose eczema may benefit from the topical application of steroid ointment or cream, which may reduce inflammation and limit the spread of skin breakdown. It should be noted that topical steroid therapy should only be applied to eczematous skin and not the ulcer. Use a cream for wet eczema and an ointment for dry eczema. Apply amount according to size of surface area in following ratio: 1 fingertip unit to cover the surface area equivalent to that of the palm of two hands.

Contact Sensitivity

Patients can become sensitised to elements of their treatment at any time. Common sensitizers include lanolin, perfumes, preservatives, natural rubber latex and topical antibiotics (which should not be used on any patient). Patients with suspected sensitivity reactions should be referred to a dermatology specialist to identify the

allergen. After patch testing, identified allergens must be documented, avoided and medical advice on treatment should be sought.

Debridement

Wounds may be covered by a combination of sloughy or necrotic tissue, fibrin, exudate and dressing residue, which can harbour bacteria, increase the risk of infection and can delay healing by prolonging the inflammatory response. Therefore, it is important to remove devitalised tissue and excess exudate to promote healing. This may be achieved through autolytic, chemical or enzymatic or mechanical debridement – *mechanical debridement must only be performed by trained professional.*

Dressings

There is little evidence to support anyone individual dressing is more effective in healing leg ulcers. The underlying cause must be addressed. For example: venous hypertension, arterial insufficiency. However, the following principles should be considered when choosing a dressing:

- easy to apply and remove without causing trauma or pain
- able to cope with various amounts of exudate
- able to mask or minimise odour
- does not contain known allergens
- low adherent. Avoid adhesive dressings or tape on patients with venous ulcers or fragile skin. Tubular bandages (e.g. comifast, Tubifast) or cotton bandages may be used to retain non-adhesive dressings in place without the need for adhesive tape.
- cost effective
- acceptable to the patient

7.17 PREVENTION OF VENOUS ULCER RECURRENCE

Venous ulceration is associated with a high rate of recurrence, unless the underlying venous disease can be improved surgically. Therefore, all patients whose venous ulcer has healed should have an individualised prevention of recurrence programme. Programmes should include:

Compression Hosiery - usually for the patient's lifetime. Compression bandaging should remain in place four weeks post healing to allow underlying tissues to mature and then bandaging should be converted into hosiery. Long term bandaging is not recommended as it can result in reduction of ankle movement over time.

Regular ABPI readings to exclude arterial insufficiency:

- Three monthly for patients with: diabetes, immobility, previous ABPI of less than 0.9 and for those who develop symptoms of claudication.
- 6-12 monthly for mobile patients with no signs or symptoms of arterial disease.

- As a general rule the ABPI should be repeated when the patient is measured for new hosiery (usually every six months but see each manufacturer's instructions for details).
- Limb measurements - use a disposable tape measure for each patient to prevent cross infection. Record limb measurements in centimetres and document in the patient's notes. See manufacturer's instructions for specific details but as a general rule:
 - *Ankle circumference* - taken just above the malleolus at the narrowest point while the patient is standing or has their foot flat on the floor.
 - *Calf circumference* - taken at the widest point while the patient is standing or has their foot flat on the floor.
 - *Foot length* - taken from tip of great toe to heel, for closed toe hosiery and from the base of the toes to the heel for open toe hosiery. Measure while the patient is standing or has their foot flat on the floor. Open toed hosiery is recommended when the patient: requests them, wants to wear a sock on top, has arthritic or misshapen toes, needs to use certain application aids, (for example, a Chinese slipper), requires podiatrist care or has a fungal infection.
 - *Below knee length* - taken from just below the back of the knee to the base of the heel, while the patient is standing or has their foot flat on the floor.
 - *Thigh circumference* - taken at the widest point while the patient is standing.
 - *Length of the leg* (for thigh length hosiery) - taken while the patient is standing. Thigh length hosiery is usually advised where varicose veins extend above the knee, or when oedema accumulates above the knee joint or arthritic changes to the knee increase discomfort from below knee hosiery.

All leg measurements should be taken after a period of elevation, directly on removal of compression bandaging and preferably just as the patient gets out of bed, before oedema can develop.

- Measure legs separately if compression hosiery is required for both legs.
- Patients should be advised to apply the hosiery before they put their feet to the floor in the mornings, before oedema can develop.
- If not already in use, patients with oedema may require treatment with compression bandages prior to measurement and fitting of compression hosiery.
- Condition of feet - a podiatrist or orthotics may be required if specialist footwear or nail care is indicated.
- Allergies or contact sensitivities - ask the patient about allergies to products such as natural rubber latex, nylon, Lycra, perfumes, emollients etc.

- As compression hosiery must be worn every day to be effective it is important to involve the patient in the decision making process, this includes which stocking, style and colour they prefer. This may increase compliance.
- Depending on the patient/carers abilities the hosiery may be removed at night and reapplied in the morning or worn for a period of up to 7 days.
- Patient education - including skin care, how to apply and when to remove hosiery, how to launder hosiery, leg and foot exercises, mobility, leg elevation when not mobilising, when and who to contact at the first sign of ulcer recurrence and when the hosiery is damaged or due for replacement.
- Vascular referral - for investigations such as colour venous duplex studies and surgery if appropriate. If the patient is adamant they do not want venous surgery, whatever the results of duplex scans, then this referral can be omitted. However, it should be documented in their records that this has been discussed as an option. If the patient changes their mind at any time then a referral should be made.

7.18 COMPRESSION HOSIERY

Readymade hosiery is available on FP10, however, for patients with limb sizes outside the ranges, hosiery can be made to measure and is also available on FP10. Measurements should be taken according to manufacturer's instructions. It can take a number of weeks for made to measure hosiery to be delivered and during this time it is important that the existing form of compression is maintained.

Classification of Compression Hosiery

There are currently two classification systems for compression hosiery used in the United Kingdom, British Standard and European Standard –see table below

	British Standard	
Class Support	Provides ankle pressure	Clinical Indications
Class 1	Light 14 - 17 mmHg	Mild oedema, Superficial or early varices
Class 2	Medium 18-24 mmHg	Varices of medium severity, ulcer treatment and prevention of mild oedema
Class 3	Strong 25 - 35 mmHg	Gross varices, post thrombotic syndrome, gross oedema, ulcer treatment, prevention.

	European Standard		
Class 1	Light	18.4 - 21.1 mmHg	Mild varices, venous hypertension in pregnancy, heaviness and fatigue in leg
Class 2	Medium	25 - 32.3 mmHg	Pronounced varices, moderate oedema, inflammation of superficial veins after resolution of mild ulceration
Class 3	Strong	36.5 - 46.6 mmHg	Gross varices, post thrombotic syndrome, gross oedema, ulcer treatment, prevention.
Class 4	Heavy	Over 59 mmHg	Lymphoedema, elephantiasis

Advice on Selecting Compression Hosiery

- Remember any compression is better than no compression
- When choosing which class to use both clinical implications and the patient's ability to tolerate that class must be taken into account.
- Compression stockings may be worn together and one can be applied over another to minimise dexterity issues.

Advice on Fitting Compression Hosiery

Compression hosiery is not put on like ordinary socks, stockings or tights. If the compression stocking is gathered together in the typical 'doughnut' fashion, the effect of the elastic material is multiplied and it becomes hard to apply.

To apply correctly:

- Insert a hand down the shaft of the stocking to the heel pocket only and turn stocking inside out.
- Position stocking over foot up to heel pocket position, pulling the garment as far along the foot as possible.
- Gradually unfold/peel the stocking up the leg from the top opening. The last piece of material to be fitted should be just below the knee or thigh.
- Hosiery should be applied with care to prevent skin trauma and damage to the hosiery.
- The patient's ability to apply and remove the stockings should be assessed and application aids considered. Examples are Actiglide applicator (available from Activa on FP10), rubber gloves or plastic bag.

- Patients unable to apply stockings independently will need assistance from a relative, friend or other carer who should be trained to apply the hosiery correctly.
- The patient/carers should be advised about how to care for the stockings and the information should be given verbally from the manufacturer's instructions as well as leaving the instructions for them to read.
- Once the patient has been fitted with hosiery they should be followed up one week later to check comfort, fit, skin condition and their ability to manage and level of compliance. It is also important to check that the hosiery is having the desired therapeutic effect.
- Patients should be advised to contact a named healthcare professional immediately if they have problems or concerns about the skin on their leg. Early intervention might prevent ulcer recurrence or deterioration.
- As a general guide, patients should be re-measured, re-Doppler and stockings replaced every 6-12 months (see manufacturer's instructions for details).
- Patients/carers should be supplied with an educational leaflet to reinforce any advice given verbally.

Potential Hazards of Compression Hosiery

- Pressure damage due to undiagnosed arterial disease or badly fitting hosiery.
- Friction or pressure damage due to ill-fitting hosiery. Usually seen over the tips and joints of toes, medial and lateral malleoli, tibial crest or the anterior bend in the ankle
- Tourniquet effect caused by badly applied hosiery.

8.0 TRAINING and MONITORING

- Staff education and training will include epidemiology, aetiology, predisposing, presenting and perpetuating factors, ulcer management options, bandaging and Doppler skills.
- Leg ulcer assessment and management training content will be planned and delivered by specialist practitioners and this will be advertised on the intranet.
- Core competencies are to be completed and assessed in clinical practice and are the responsibilities of the HCP and their line manager to complete.(see appendices)
- All health care workers should have completed training and competencies within the clinical workplace.
- Record of training to be entered on to ESR/learning and development team. With line manager at 1-1 and personal CDP records.

- All practitioners to maintain their training as part of their professional development in accordance with NMC and Trust policies.
- Audit of monitoring regular Doppler assessments to be part of the annual documentation audit run by learning and development team.

For training dates on leg ulcer management, Arterial ulcer management including Doppler assessment and wound management please see the intranet or email:

whh-tr.TissueViability@nhs.net

9.0 REFERENCES

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2. Scottish Intercollegiate Guidelines Network (2010) Management of Chronic venous leg ulcers.
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Additional reading

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Wounds International (2013) Principles of Compression in Venous Disease: a practitioners guide to treatment and prevention of venous leg ulcers. www.woundsinternational.com

Wounds UK Best Practice Statement 2015. Compression hosiery (2nd edition). www.wounds-uk.com

10.0 Appendices

Appendix	Document	Page
One	Leg ulcer assessment form	24
Two	Photograph consent form	32
Three	Mixed aetiology pathway	33
Four	Arterial pathway	34
Five	Diabetic pathway	35
Six	Venous pathway	36
Seven	Silver Standard Pathway	37
Eight	Doppler competency	39
Nine	4 layer competency	42
Ten	Short stretch competency	45
Eleven	K-two competency	48
Twelve	Juxta cures competency	51
Thirteen	Aid memoire for nurses	53
Fourteen	Patient information sheet	56
Fifteen	Leg ulcer audit tool	57

VENOUS RELATED RISK FACTORS			ARTERIAL RELATED RISK FACTORS		
	RIGHT	LEFT		RIGHT	LEFT
Deep Vein Thrombosis (DVT)	YES/NO	YES/NO	Peripheral Vascular Disease	YES/NO	YES/NO
Past venous surgery	YES/NO	YES/NO	Arterial surgery	YES/NO	YES/NO
Lower leg fractures	YES/NO	YES/NO	Rheumatoid Arthritis	YES/NO	YES/NO
Orthopaedic surgery	YES/NO	YES/NO	Intermittent claudication	YES/NO	YES/NO
Thrombophlebitis	YES/NO	YES/NO	Diabetes Mellitus	YES/NO	
Varicose veins	YES/NO	YES/NO	Angina	YES/NO	
Prior venous ulceration	YES/NO	YES/NO	Ischaemic Heart Disease	YES/NO	
Multiple pregnancies	YES/NO	YES/NO	Myocardial Infarction	YES/NO	
Any prolonged periods of bed rest (↑ 4 Days)	YES/NO		Trans Ischaemic Attack	YES/NO	
			CVA (Stroke)	YES/NO	
			Smoker	YES/NO	
			(Amount & duration).....		
VENOUS RELATED SIGNS / SYMPTOMS			ARTERIAL RELATED SIGNS / SYMPTOMS		
	RIGHT	LEFT		RIGHT	LEFT
Varicose Veins	YES/NO	YES/NO	Capillary refill time ↑ 3 seconds	YES/NO	YES/NO
Pigmentation (Brown Staining)	YES/NO	YES/NO	Dusky skin colour on foot	YES/NO	YES/NO
Induration (Hard Feeling In Skin)	YES/NO	YES/NO	Foot/Toes blanche when raised		
Varicose Eczema	YES/NO	YES/NO	above hip level	YES/NO	YES/NO
Atrophe Blanche	YES/NO	YES/NO	Cold foot	YES/NO	YES/NO
Ankle Flare	YES/NO	YES/NO	Loss of hair on leg	YES/NO	YES/NO
Oedema	YES/NO	YES/NO	Atrophic, shiny skin on shin	YES/NO	YES/NO
Ulcer over malleolus	YES/NO	YES/NO	Muscle wasting in calf / thigh	YES/NO	YES/NO
Ulcer within gaiter area	YES/NO	YES/NO	Thickened toe nails	YES/NO	YES/NO
			Ulcers on toes	YES/NO	YES/NO
			Gangrene on toes	YES/NO	YES/NO
			Loss of Pedal Pulses	YES/NO	YES/NO
			Pain in lower legs / foot when raised	YES/NO	YES/NO
Is there any family history of the above? Yes /no					
MOBILITY:					
FULLY MOBILE / PARTIALLY MOBILE / MOBILE WITH AIDS / IMMOBILE* (please circle)					
Does the patient walk heel to toe? YES / NO					
Ankle movement:: LEFT: MOBILE / REDUCED / FIXED RIGHT: MOBILE / REDUCED / FIXED					
Is patient able to <u>elevate</u> legs? YES / NO Does patient sleep in bed? YES / NO					
If NO, why not?					
if mobility is affected consider referral to physiotherapist.					
CONDITION OF FEET					
Condition of feet/toes/nails (include number of toes, skin condition, deformities etc.)			Is there any neuropathy?		
Right foot:			Does patient receive podiatry treatment? YES / NO (If yes, give details where)		
Left foot:			Does patient need podiatry care?		
			YES / NO (If yes, give details of referral)		

PAIN ASSESSMENT

Does the patient have pain? At night? At rest? On movement? Is sleep disturbed? Has the pain become worse during the last 2 weeks? Does the patient experience night pain in the lower limbs? Does hanging leg(s) down help relieve the pain? Has the pain affected the patient's activities of daily living? (if yes explain how)	YES / NO YES / NO	Patient's own description of pain:
What helps to relieve pain?	Note: If appropriate use the Trust's "Patient/Carer/Professional Pain Monitoring Form"	What makes the pain worse?

PAIN ANALOGUE SCALE

0 – No pain 1 –Mild pain 2 –Moderate 3 –Severe 4 –very severe 5 –“Worst ever”

(Tick appropriate box)	0	1	2	3	4	5	CONSTANT	INTERMITTENT
DAY								
NIGHT								
AT DRESSING CHANGE								

NUTRITION

Does the patient eat a <u>well balanced</u> diet? Does the patient have a reduced appetite? Does patient appear - Frail/ underweight/ normal/ overweight (circle answer) - <u>well</u> hydrated? (test skin turgor, moist tongue, colour & concentration of urine) Has there been weight loss in the last 3 months? Is this significant for the patient? <i>If weight loss is significant notify GP and do full nutritional assessment (MUST) and refer to dietician. Note: overweight patients may also benefit from dietician referral for weight reducing advice. Dietician referral indicated?</i>	YES / NO YES / NO YES / NO YES / NO YES / NO YES / NO	Comments
---	--	----------

PSYCHOLOGICAL ASSESSMENT

Include details of the following in this section: How living with the ulcer has affected activities of living and the quality of life. Also Motivation, embarrassment, anxiety level, indifference, depression, coping strategies and any psychological impairment that may affect compliance with treatment e.g. dementia, learning difficulties. Also detail any behavioural problems that may impact on treatment and drug/alcohol dependency.
Does the patient indicate by appropriate questions and answers that they full mental capacity regarding their current <u>condition</u> ? indicate below YES – full capacity NO – does not have capacity UNCERTAIN –complete FACE mental capacity assessment
SUPPORT & SOCIAL NETWORK i.e. Family structure, carers, ability to assist with patient care, hobbies, interests, Social Services. Detail attitudes and any avoidance of social activities due to leg ulcer.

WHAT ARE THE PATIENT'S PRIORITIES FOR CARE?

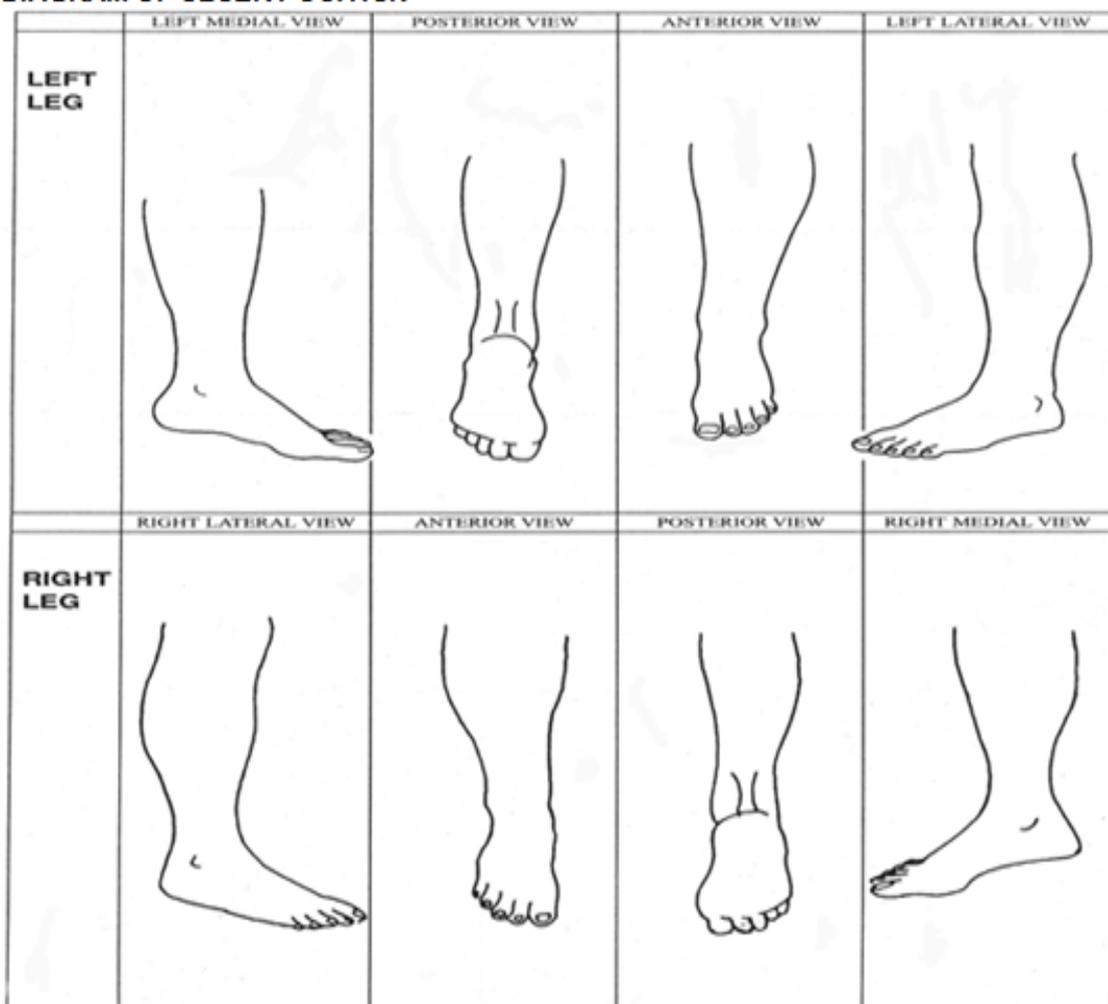
ULCER HISTORY

RIGHT LEG / FOOT

LEFT LEG / FOOT

How did the ulcer start and when?		
Previous treatments successful and unsuccessful:		
Time free from ulcers:		
How long did previous ulcer(s) take to heal?		
Who is treating present ulcer?		
Current dressing regime:		

DIAGRAM OF ULCER POSITION



Measurements of legs in cm

Left Ankle		Right ankle	
Left calf		Right calf	
Left below knee		Right below knee	
Left length of foot left		Right length of foot	
Heel to base of toes		Heel to base of toes	

ULCER DESCRIPTION (record details of additional ulcers and subsequent wound assessments on a wound chart and attach to this Leg Ulcer Assessment Form)

	ULCER 1	ULCER 2	ULCER 3	ULCER 4
DATE				
SITE OF ULCER				
MEASUREMENTS IN CMS (width and length)	W=	W=	W=	W=
	L=	L=	L=	L=
DEPTH (superficial, dermal, deep dermal, tendon exposed, bone exposed etc.)				
EDGES OF ULCER (shallow, rolled, punched out., regular or irregular)				
TYPE OF TISSUE IN ULCER BED (necrotic, sloughy, granulating, epithelialising, Infected. Calculate in % of total wound)				
APPEARANCE OF ULCER BED (black, yellow, red, pink, green)				
EXUDATE (slight, moderate, copious. Indicate strike through how many layers of dressing)				
COLOUR OF EXUDATE				
MALODOUROUS	YES / NO	YES / NO	YES / NO	YES / NO
SIGNS OF INFECTION (redness, inflammation, purulent discharge, pyrexia, patient unwell)				
MICROBIOLOGY SWAB TAKEN (Include date)	YES / NO	YES / NO	YES / NO	YES / NO
ULCER PHOTOGRAPHED	YES / NO	YES / NO	YES / NO	YES / NO

CONDITION OF SURROUNDING SKIN

	ULCER 1	ULCER 2	ULCER 3	ULCER 4
Skin Intact	YES / NO	YES / NO	YES / NO	YES / NO
Dry Eczema	YES / NO	YES / NO	YES / NO	YES / NO
Wet Eczema	YES / NO	YES / NO	YES / NO	YES / NO
Cellulitis (red, swollen, hot, painful)	YES / NO	YES / NO	YES / NO	YES / NO
Induration	YES / NO	YES / NO	YES / NO	YES / NO
Skin excoriated	YES / NO	YES / NO	YES / NO	YES / NO
Dry and flaky skin	YES / NO	YES / NO	YES / NO	YES / NO
Macerated, White, Wet Skin	YES / NO	YES / NO	YES / NO	YES / NO
Brown Staining	YES / NO	YES / NO	YES / NO	YES / NO

DOPPLER ASSESSMENT

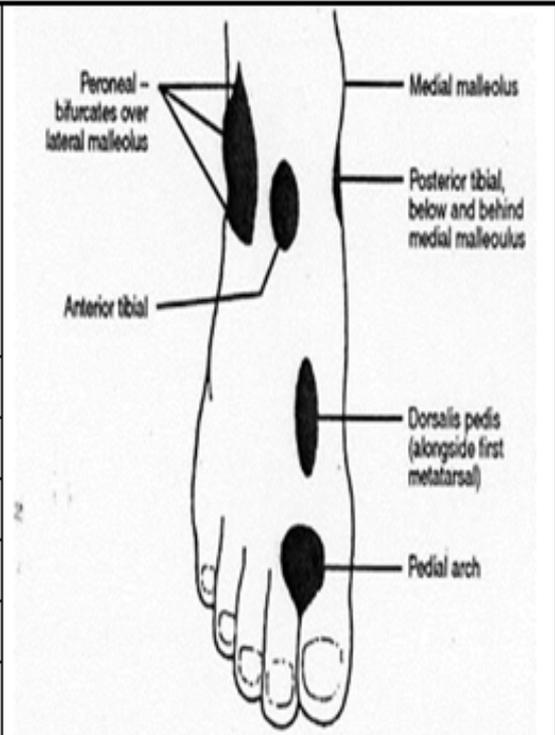
Record the position of the patient during the procedure: lying flat / reclining at (insert approximate degree) sitting upright with legs raised / sitting with legs at downward angle (circle appropriate).

Do not doppler if seated

Ideally patient should be lying supine for 20 minutes prior to commencing assessment. If patient cannot lie flat, record how far they can recline. Unreliable readings may occur if the patient is upright or legs are lowered.

Take the systolic brachial pressure in both arms and at least 3 of the following points:

Use Doppler for all pulses including brachial	RIGHT	LEFT	Record sounds (e.g. tri-phasic bi-phasic / mono phasic)	Record sounds (e.g. tri-phasic bi-phasic / mono phasic)
			RIGHT	LEFT
BRACHIAL				
DORSALIS PEDIS				
ANTERIOR TIBIAL				
POSTERIOR TIBIAL				
PERONEAL				
A.B.P. I * Ankle brachial pressure index				



ABPI calculation = take the highest reading for each leg (left / right) and divide by the highest reading of the arms (regardless if it is the left or right arm)

REFERRALS

⊕ Please note: Referrals should be discussed & agreed with GP / Consultant and patient

Referral To Specialist Indicated? (tick type of referral and record date referred)	Please tick	Reason For Referral	Please tick
Tissue Viability Service Referral		Vascular Referral	
Dermatology Referral		Diabetic Referral	
Plastic Surgery Referral		Podiatry Referral	
Leg Ulcer Clinic Referral		Physiotherapy Referral	
Other (specify)			

Appendix two: Consent for photograph

Consent form for Clinical Photography for Adults

I hereby give my consent to the Whittington Health service to photograph the whole or part of my body.

I understand the photographs/video recordings will form part of my confidential treatment records. I also understand they may be used for the purpose of medical teaching, but not for research purposes. In view of the explanation given to me, I agree that the illustration may be shown to appropriate professional staff. If any illustration revealing my face or identity is required for reproduction in a journal, textbook or any other form of publication, I understand my consent for this will be sought specifically.

I acknowledge that consent is given voluntarily and without undue influence. I understand that if I change my mind and no longer wish to have photographs and/or video recordings taken, or used for teaching purposes, I may withdraw this consent by informing my healthcare practitioner at any time.

Patient's Name	
Address	
Telephone	
Signature of Witness	
Date	

Healthcare Practitioner Section of Form

I confirm that I have explained the relevance of photography/video recordings to the patient in terms which s/he understands.

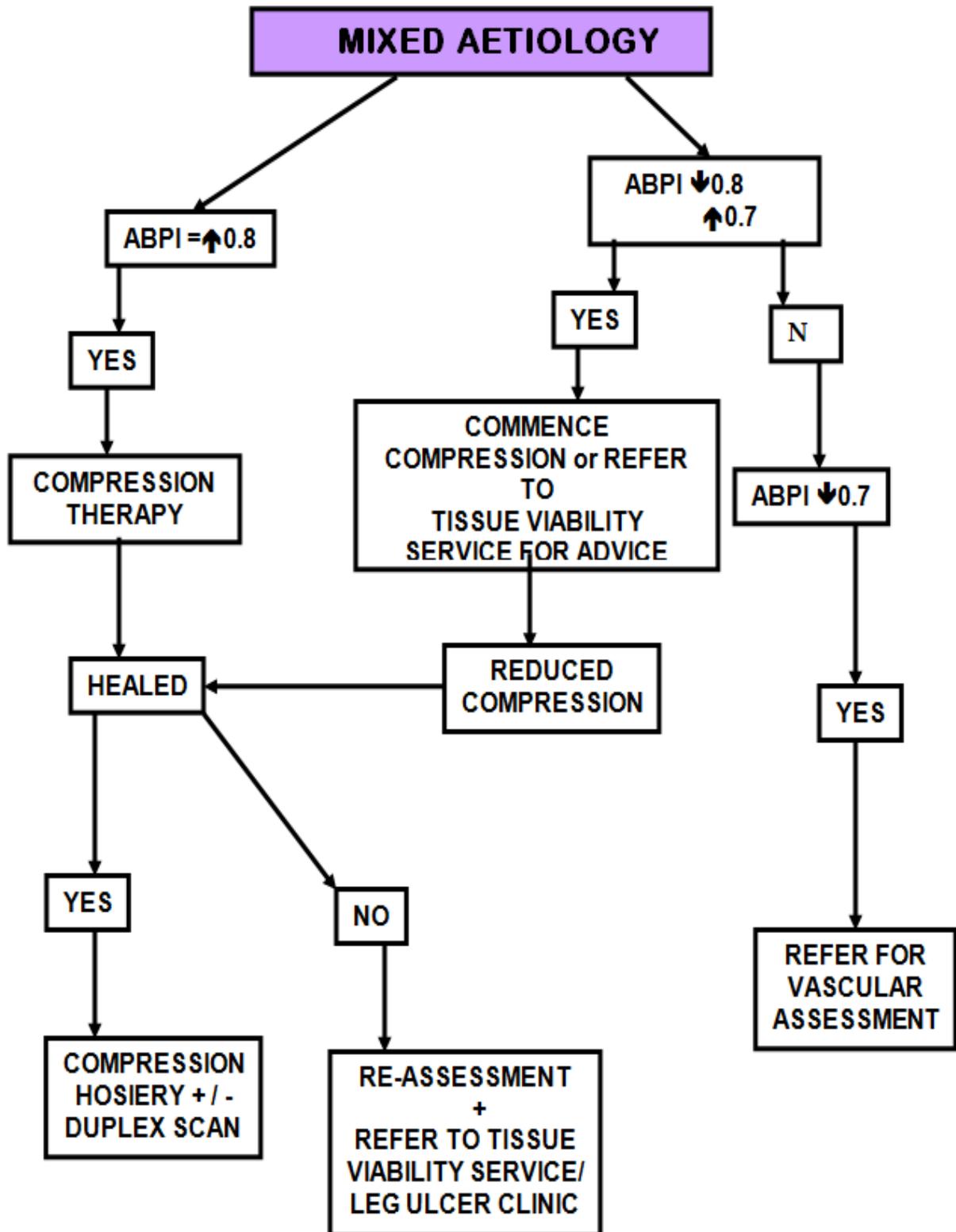
Practitioner's Name	
Work Location	
Practitioner's signature	
Date	

If the individual is unable to sign but gives verbal consent this should be witnessed and the boxes below completed

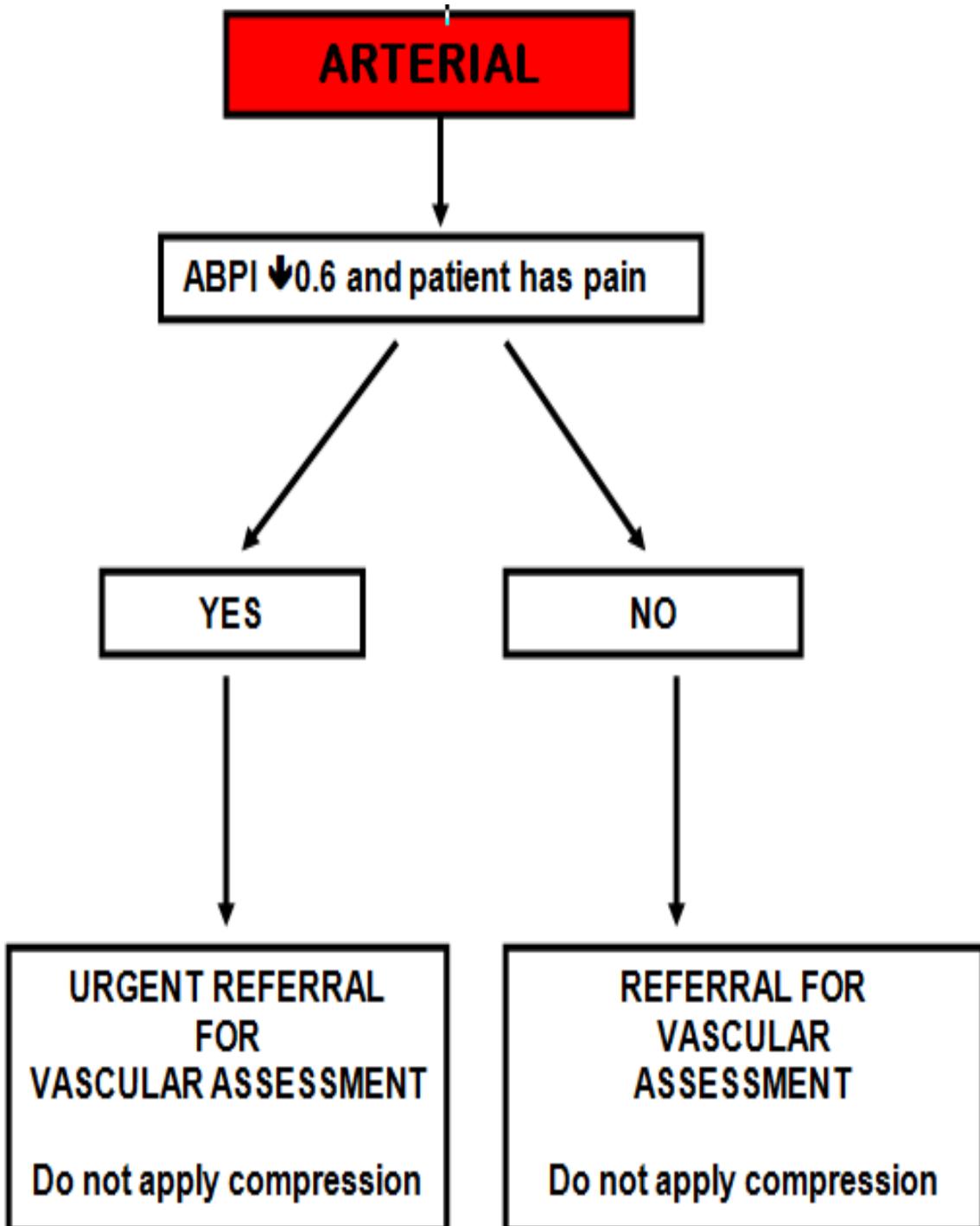
Verbal Consent obtained? Yes No
 Witness present? Yes No

Name of Witness	
Position of Witness e.g. carer, family, nurse	
Address	
Telephone	
Signature of Witness	

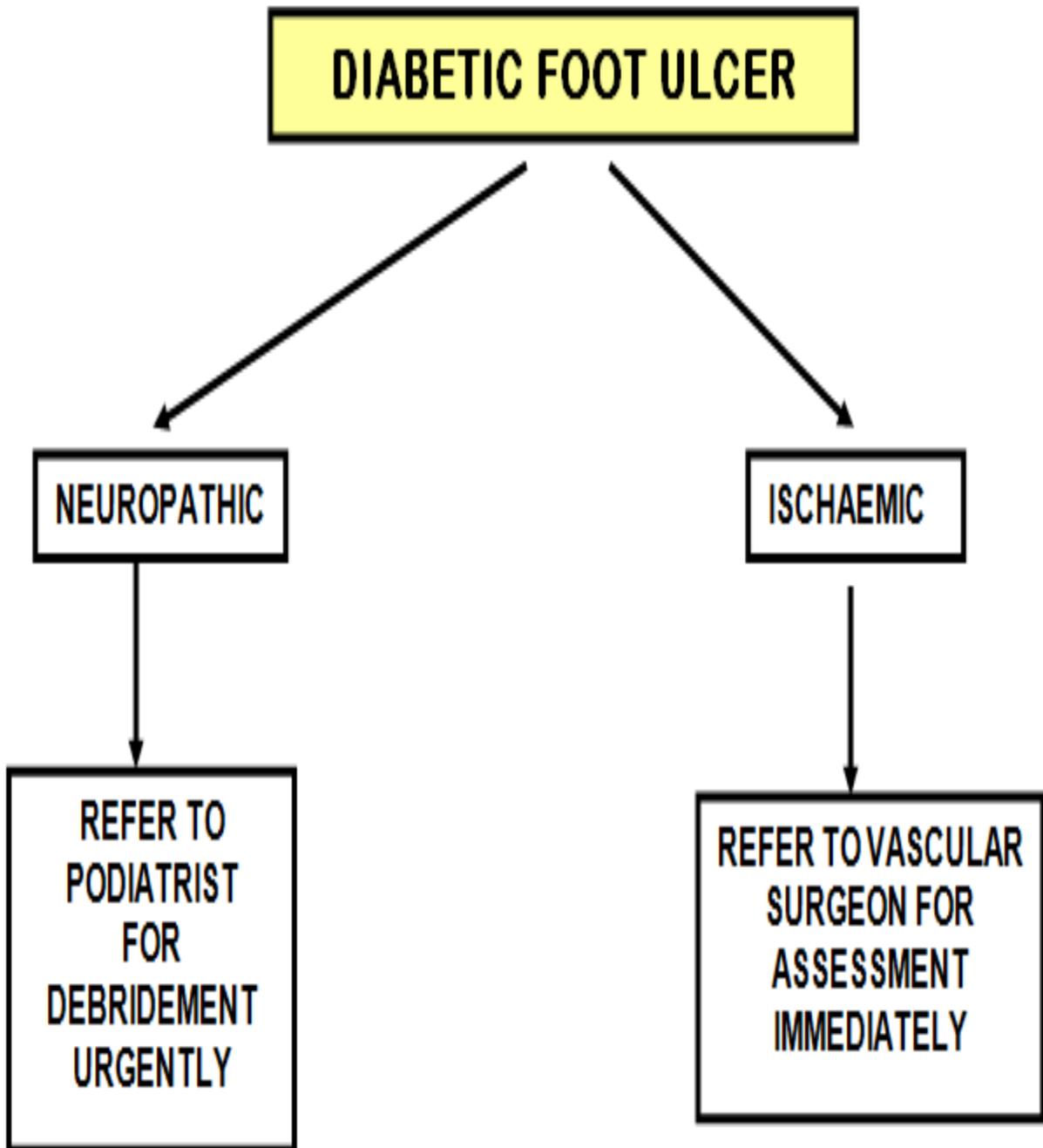
Appendix 3: MANAGEMENT OF MIXED AETIOLOGY



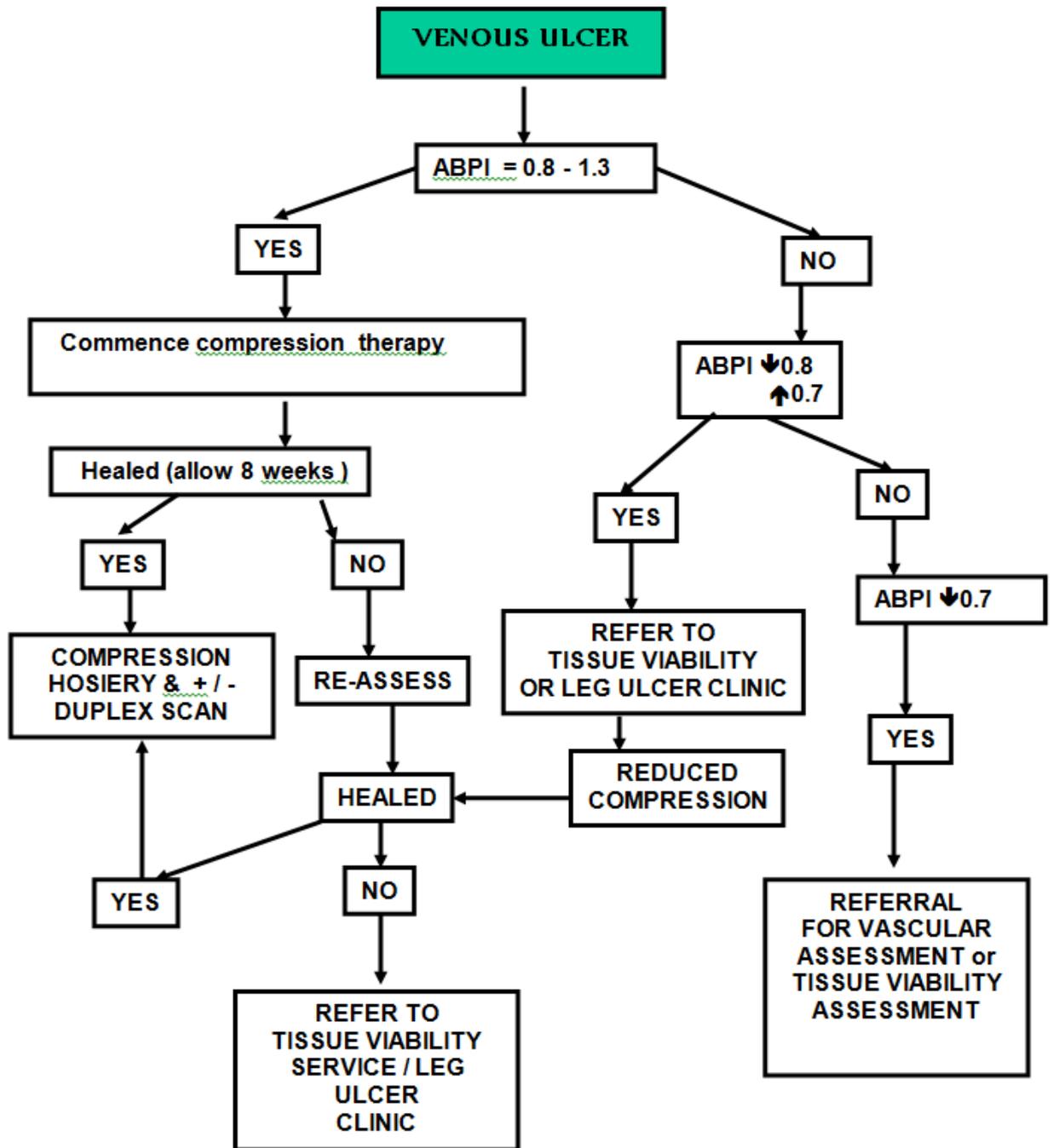
Appendix Four MANAGEMENT OF ARTERIAL ULCERS



Appendix five : MANAGEMENT OF DIABETIC FOOT ULCERS



Appendix Six: Management of Venous Leg Ulcer



Appendix Seven: Sliver Standard Pathway

Silver Standard Pathway

Complete Silver standard assessment form overleaf

Whittington Health 

LEG ULCER WITH VENOUS SIGNS AND SYMPTOMS

- Wash legs with warm water and a soap substitute to hydrate skin and reduce hyperkeratosis.
- Apply emollient cream to legs. Apply a skin protection to peri wound skin.
- Refer to wound formulary for recommended dressing for wound bed presentation.
- Measure the ankle and calf and record.
- Calf should be larger than the ankle by at least 10cms for bandaging to be most effective.
- If calf is smaller then apply padding to increase calf size.
- Apply wool bandage from base of toes to just below knee in a spiral with 50% overlap.
- Apply 2 layers of K-Lite over wool bandage from base of toes to just below knee. (Double layer of K-Lite)
- Stretch K- Lite until resistance is felt and apply evenly and firmly with 50% overlap.
- Change the bandages once or twice weekly depending on levels of exudate.
- Monitor weekly and complete wound assessment form and take photograph.
- If no signs of healing within 4 weeks, send a completed referral form to the Tissue Viability Nurse Specialist., if not already completed.
- If the wound is healing, continue.

LEG OEDEMA – No Wounds

If oedema present in the lower leg examine for oedema in thigh, sacrum and waist.

If oedema present in thigh, sacrum or waist refer to GP for an urgent medical review and investigation.

If the oedema is present in lower leg only and the cause is dependent / gravitational, measure the calf and ankle and record these measurements.

If patient reports oedema is not reduced overnight with bed rest consider other causes e.g lymphoedema

Wash, moisturise and protect as in venous signs and symptoms.

if oedema reduces overnight, plan to manage oedema by applying wool bandage from base of toes to just below knee in a spiral with 50% overlap .

Apply 2 layers of K-Lite over wool bandage from base of toes to just below knee. (Double layer of K-Lite). Stretch K- Lite until resistance is felt, apply firmly and evenly with 50% overlap.

Re-apply daily, early morning where possible, to reduce and control oedema during the day.

If arterial signs and symptoms occur stop bandaging immediately and see relevant pathway.

Once oedema reduced and managed reassess for signs and symptoms of venous and/or arterial disease ; consider need for holistic assessment including ABPI and compression garments/hosiery

ARTERIAL SIGNS AND SYMPTOMS

If any patient presents with arterial signs and symptoms i.e pain on elevation or at night on bed rest, intermittent claudication , cold pale limbs with “punched out” wounds or wounds to toes or absent pedal pulses

Refer to vascular URGENTLY

Do **NOT** apply bandaging

MIXED AETIOLOGY ULCER

(arterial and venous)

Combined signs and symptoms of arterial and venous can be present in the same leg. If signs and symptoms of arterial disease are present as in the box above then refer to vascular team URGENTLY .

If asymptomatic send completed referral form to tissue viability nurse service.

Do not bandage without advice

The Silver Standard Pathway is only designed for clinicians who have yet to be trained in the National Gold Standard Leg Ulcer Management, to prevent and halt the development of chronic leg wounds. It does not replace the Gold Standard but is an interim to be used until the Gold Standard Practice is achieved.

This pathway has been adapted from the Caterham Dene Hospital Silver Standard Pathway by Carol Hedger TVN

Appendix Eight: Compression Therapy & Doppler Competency Framework (developed by the Tissue Viability Team at the University of Hertfordshire). *Assessment of Practice Competency for: **Doppler ultrasound recording of ABPI***

Domain	Competency	Competency Indicator	Assessment 1 Pass/needs Improvement (Comment) (Signature Required)	Assessment 2 Pass/needs Improvement (Comment) (Signature Required)	Final outcome Pass/needs Improvement (Comment) (Signature Required)
Patient	Preparation of the patient	<p>Demonstrates ability to explain procedure to the patient and take steps to address fears/anxieties.</p> <p>Knowledge of appropriate position and rest time for the patient.</p> <p>Appropriate management of ulcer site during the procedure.</p>			
Equipment	Selection and maintenance of equipment	<p>Assemble correct equipment with appropriate probe.</p> <p>Correct gel for procedure</p> <p>Demonstrates understanding of need to check and maintain equipment.</p> <p>Demonstrate effect of the immediate</p>			

		environment on the procedure.			
Procedure	<p>Explain theory of Doppler assessment and demonstrate knowledge of the procedure.</p> <p>Explain variables which may affect results.</p>	<p>Locate and identify appropriate pulses.</p> <p>Demonstrate correct procedure to determine accurate readings.</p> <p>Hold probe at correct angle.</p> <p>Use gel appropriately.</p> <p>Distinguish arterial and venous blood supply.</p> <p>Distinguish normal and abnormal sounds.</p> <p>Select correct reading to calculate ABPI.</p> <p>Demonstrate ability to minimise/cope with background noise.</p>			
Result	<p>Calculate ABPI</p> <p>Explain possible reasons for unexpected results.</p> <p>Explain the significance of reading and any remedial action.</p>	<p>Perform calculation appropriately and reaches correct answer.</p> <p>Interpret the results and explain the significance of the findings.</p>			

Documentation	Record findings appropriately Document date for future assessment.	Record correct ABPI. Document management plans based on assessment. Demonstrate knowledge of recommendations for timing of future assessment. Demonstrate knowledge of factors necessitating earlier assessment.			
COMPONENT	OUTCOME: PASS/REFER	SIGN & PRINT NAME	TITLE		
Name of Practice Assessor					
Competence Framework					
Final Outcome					

Appendix Nine: Compression Therapy & Doppler Competency Framework (developed by the Tissue Viability Team at the University of Hertfordshire)

*Assessment of practice competency for: **4 layer compression bandaging of the lower limb***

Domain	Competency	Competency Indicator	Assessment 1 Pass/needs Improvement (Comment) (Signature Required)	Assessment 2 Pass/needs Improvement (Comment) (Signature Required)	Final outcome Pass/needs Improvement (Comment) (Signature Required)
Equipment	Assembly of appropriate materials in order to apply compression therapy.	Appropriate bandage(s) and padding material.			
Patient	Ability to communicate to the patient the reason for compression and demonstration of an understanding of the impact on the patient	Appropriate explanation of compression theory and communication of the principles of compression to the patient in an appropriate manner.			
Assessment	Appreciation of limb shape and methods	Evidence of holistic assessment. Correct ABPI and implications of the result. Demonstrate			

	for correction. Assessment of known sensitivities	awareness of the limb shape and the possible effect on graduated compression.			
Bandage selection	Selection of appropriate bandage.	Explain reason for bandage choice and discuss other options. Selection of appropriate size of bandage and demonstrate importance of ankle size.			
Bandage application	Correct and safe application of bandage	Demonstrate awareness of manufacturers instructions for selected bandage. Appropriate application of padding. Identify and explain strategy for protection of vulnerable areas. Correct position of foot. Accurate placement of bandage. Correct extension and overlap of bandage layers according to manufacturers instructions. Consistent extension of bandage throughout application. Checks for accuracy after fixing bandage.			
Compression theory	Awareness of compression theory and factors which may affect graduated	Demonstrate awareness of addition or subtraction of layers. Explain possible implications of the effect of non graduated tubular bandages. Implications for			

	compression	compression of oedema reduction.			
Instructions to patient	Appropriate instructions to patient to ensure their comfort and safety.	Check patient is comfortable. Demonstrate anticipation of possibility of bandage being dislodged by clothing/footwear. Check sensation of toes. Explain to patient what to expect and demonstrate awareness of danger signs that would necessitate the patient seeking help without delay.			
COMPONENT	OUTCOME: PASS/REFER	SIGN & PRINT NAME	TITLE		
Name of Practice Assessor					
Competence Framework					
Final Outcome					

Appendix Ten: Compression Therapy & Doppler Competency Framework

(developed by the Tissue Viability Team at the University of Hertfordshire)

Assessment of practice competency for: **short stretch compression bandaging of the lower limb**

Domain	Competency	Competency Indicator	Assessment 1 Pass/needs Improvement (Comment) (Signature Required)	Assessment 2 Pass/needs Improvement (Comment) (Signature Required)	Final outcome Pass/needs Improvement (Comment) (Signature Required)
Equipment	Assembly of appropriate materials in order to apply compression therapy.	Appropriate bandage(s) and padding material.			
Patient	Ability to communicate to the patient the reason for compression	Appropriate explanation of compression theory and communication of the principles of compression to the patient in an appropriate manner.			
Assessment	Appreciation of limb shape and methods for correction. Assessment of	Evidence of holistic assessment. Correct ABPI and implications of the result. Demonstrate awareness of the limb shape and the possible effect on graduated compression.			

	known sensitivities				
Bandage selection	Selection of appropriate bandage.	Explain reason for bandage choice and discuss other options. Selection of appropriate size of bandage and demonstrate importance of ankle size.			
Bandage application	Correct and safe application of bandage	Demonstrate awareness of manufacturer's instructions for selected bandage. Appropriate application of padding. Identify and explain strategy for protection of vulnerable areas. Correct position of foot. Accurate placement of bandage. Correct extension and overlap of bandage layers according to manufacturer's instructions. Consistent extension of bandage throughout application. Checks for accuracy after fixing bandage.			
Compression theory	Awareness of compression theory and factors which may affect graduated compression	Demonstrate awareness of addition or subtraction of layers. Explain possible implications of the effect of non-graduated tubular bandages. Implications for compression of oedema reduction.			
Instructions to patient	Appropriate instructions to patient to ensure their comfort and safety.	Check patient is comfortable. Demonstrate anticipation of possibility of bandage being dislodged by clothing/footwear. Check sensation of toes. Explain to patient what to expect and demonstrate awareness of danger signs that would necessitate the patient seeking help without delay.			

COMPONENT	OUTCOME: PASS/REFER	SIGN & PRINT NAME	TITLE
Name of Practice Assessor			
Competence Framework			
Final Outcome			

Appendix Eleven: Compression Therapy & Doppler Competency Framework

(developed by the Tissue Viability Team at the University of Hertfordshire)

Assessment of practice competency for: ***K-TWO compression bandaging of the lower limb***

Domain	Competency	Competency Indicator	Assessment 1 Pass/needs Improvement (Comment) (Signature Required)	Assessment 2 Pass/needs Improvement (Comment) (Signature Required)	Final outcome Pass/needs Improvement (Comment) (Signature Required)
Equipment	Assembly of appropriate materials in order to apply compression therapy.	Appropriate bandage(s) and padding material.			
Patient	Ability to communicate to the patient the reason for compression	Appropriate explanation of compression theory and communication of the principles of compression to the patient in an appropriate manner.			
Assessment	Appreciation of limb shape and methods for correction. Assessment of	Evidence of holistic assessment. Correct ABPI and implications of the result. Demonstrate awareness of the limb shape and the possible effect on graduated compression.			

	known sensitivities				
Bandage selection	Selection of appropriate bandage.	Explain reason for bandage choice and discuss other options. Selection of appropriate size of bandage and demonstrate importance of ankle size.			
Bandage application	Correct and safe application of bandage	Demonstrate awareness of manufacturer's instructions for selected bandage. Appropriate application of padding. Identify and explain strategy for protection of vulnerable areas. Correct position of foot. Accurate placement of bandage. Correct extension and overlap of bandage layers according to manufacturer's instructions. Consistent extension of bandage throughout application. Checks for accuracy after fixing bandage.			
Compression theory	Awareness of compression theory and factors which may affect graduated compression	Demonstrate awareness of addition or subtraction of layers. Explain possible implications of the effect of non-graduated tubular bandages. Implications for compression of oedema reduction.			
Instructions to patient	Appropriate instructions to patient to ensure their comfort and safety.	Check patient is comfortable. Demonstrate anticipation of possibility of bandage being dislodged by clothing/footwear. Check sensation of toes. Explain to patient what to expect and demonstrate awareness of danger signs that would necessitate the patient seeking help without delay.			

COMPONENT	OUTCOME: PASS/REFER	SIGN & PRINT NAME	TITLE
Name of Practice Assessor			
Practice Test			
Competence Framework			
Final Outcome			

Appendix Twelve: Compression Therapy & Doppler Competency Framework

Assessment of practice competency for: **JUXTA CURES application to the lower limb**

Domain	Competency	Competency Indicator	Assessment 1 Pass/needs Improvement (Comment) (Signature Required)	Assessment 2 Pass/needs Improvement (Comment) (Signature Required)	Final outcome Pass/needs Improvement (Comment) (Signature Required)
Equipment	Assembly of appropriate materials in order to apply compression therapy.	Able to measure patient leg and determine current size of garment			
Patient	Ability to communicate to the patient the reason for compression	Appropriate explanation of compression theory and communication of the principles of compression to the patient in an appropriate manner.			
Assessment	Appreciation of limb shape and methods for correction.	Evidence of holistic assessment. Correct ABPI and implications of the result.			
	Correct and safe application of juxta	Demonstrate awareness of manufacturer's instructions for product .			

	cure	Appropriate measurements to check correct adjustment are made or rationale for no adjustments. Correctly assess amount of compression applied.			
Compression theory	Awareness of compression theory and factors which may affect graduated compression	Implications for compression of oedema reduction. Implications of infection /cellulitis and application .			
Instructions to patient	Appropriate instructions to patient to ensure their comfort and safety.	Check patient is comfortable. Check sensation of toes. Explain to patient what to expect and demonstrate awareness of danger signs that would necessitate the patient seeking help without delay. Demonstrate and encourage patient to apply own Juxta cures			

COMPONENT	OUTCOME: PASS/REFER	SIGN & PRINT NAME	TITLE
Name of Practice Assessor			
Competence Framework			
Final Outcome			

Appendix Thirteen

LEG ULCERS aide memoire for nurses

To Be Read In Conjunction With The Whittington Health Leg Ulcer Guidelines

The most common underlying problem causing chronic leg ulcers is disease of the veins of the leg. Venous disease is the main reason for over two thirds of all leg ulcers.

- Venous Disease (caused by veins not working) – about 80% of leg ulcers
- Arterial Disease (caused by the arteries not working) – about 15% of leg ulcers
- Other causes (includes diabetes and rheumatoid arthritis as well as some rare conditions) – about 5% of leg ulcers

In some cases two or more conditions may be causing damage at the same time. If your patient has a leg ulcer or wound to the foot check the medical history for any -

Cardiac issues, arterial history, diabetes, pain on leg elevation, reduced capillary refill, smoker

- Manage the wound with simple dressing and /or Crepe bandage/comifast
- Arrange for holistic leg ulcer assessment including Doppler

If your patient has a lower leg wound, oedema to the leg and leaking serous fluid then you can

- Apply appropriate primary dressing
- Apply appropriate secondary dressing
- Bandage from base of toes to just below knee with orthopaedic wadding bandaging in spiral
- Bandage with crepe bandage, over the orthopaedic wadding bandage, in a figure of eight
- Arrange for holistic leg ulcer assessment with doppler
-

Compression bandaging is used to treat venous hypertension and heal venous leg ulcers. Compression therapy can be bandaging, hosiery or Juxta cures .

Compression therapy can remain in place for one week – depending on amount of exudate from the ulcers and concerns of bandages slipping and causing damage.

Compression does heal ulcers is does not heal damaged veins and once the ulcer is healed Juxta cures or hosiery is needed to prevent recurrence.

Compression should not be applied without the patient having had an recent ABPI or by an untrained practitioner.

Whittington Health recommends the following compression bandaging systems

K-two compression bandaging for full compression

Actico short stretch for lower compression

K-TWO comes in two sizes depending on ankle size of patient

18.25cm and 25-32cm

It is important to use the correct size –be careful to measure the ankle at each visit as changes to oedema may affect ankle size.

K-two is two layers of bandage

First layer - White bandage gives 30MmHG of pressure

It is applied from base of toes to just below the knee; applied in spiral .

The oval shape on the bandage is stretched to a circular shape and each layer should just cover the shape on the layer below

Second layer is the brown bandage which gives 10mmHg as this is applied in the same manner as the first layer.

ACTICO short stretch

You need to apply a layer of orthopaedic wadding (wool bandage) before this is applied.

This should be applied from base of toes to just below the knee in a spiral with 50/50 overlap .

Actico is applied over the orthopaedic wadding/wool bandage, from base of toes to just below knee, in a spiral with 50/50 overlap of the layer below and applied firmly to the leg.

Actico does not apply external pressure to the leg, it encases the limb in a firm unyielding bandage which forces the calf pump to be more effective.

You can also use Juxta Cures and Hosiery to heal a venous leg ulcer

Hosiery

If your patient prefer to have hosiery and the exudate is not severe then bandaging may be substituted for hosiery but often hosiery application causes problems due to patient dexterity

JUXTA CURES

Juxta cures come in 3 leg lengths ; Small, standard and long and the measurement to decide this is taken from just below the knee to the ankle (malleolus) .

Prior to each application of the Juxta Cure the calf and the ankle of the patient must be measured to ensure that the garment is adjusted as necessary by adjusting the two Juxta Cure pieces and velcroing together again.

Once the Juxta cure has been reapplied – check the amount of pressure that has been applied using the measuring card -See photo below



The measuring card is designed so depending on the ankle circumference of that leg the amount of compression applied by the practitioner (or the patient) can be verified

Compression bandaging should not be applied if

- The patient is in active heart failure
- There are signs of cellulitis
- There is sacral oedema
- There is no ABPI or duplex scan within the last six months
- The practitioner is not trained to apply compression therapy
- **The patient does not have the mental capacity or dexterity OR have a carer/ family member to remove the compression therapy should the patient experience**
- Increased pain in the compressed leg
- Experiences numbness or loss of sensation with the leg that is compressed
- Experiences loss of colour to the toes of the compressed leg

Whittington Health August 2015

Appendix Fourteen

Patient information sheet – VENOUS LEG ULCERS

The most common underlying problem causing chronic leg ulcers is disease of the veins of the leg.

In order to heal your venous leg ulcer and prevent recurrence your practitioner will

Complete a holistic leg ulcer assessment which takes into account

- your mobility and ankle movement
- your other medical conditions and medication
- your diet and weight
- your day to day activities
- where you sleep

The practitioner will also perform a non-invasive test called a Doppler test. This involves listening to the blood flow in your legs and arms with an ultrasound machine to decide which type of compression is most appropriate for you. Compression therapy can be bandages, hosiery or juxta cures. It will be discussed and decided with you will manage your wound dressings and compression.

Once you have begun having compression therapy if you experience any

- increased pain
- numbness or pins and needles
- loss of colour to the toes

to the leg that has had compression applied you need to either remove the compression or contact the practitioner to have it removed.

Compression therapy will aid heal and so will

- Walking
- Ankle exercises
- A good healthy diet
- Sleeping in a bed at night
-

Compression therapy enables the damaged veins to work better but it does not repair the damage to the veins. Once the ulcer has healed you will need to continue with compression therapy as either hosiery or juxta cures to prevent the ulcers happening again. This will be for life and you will need regular reviews with a repeated Doppler test, this usually occurs every 6 months.

Appendix Fifteen

LEG ULCER AUDIT TOOL

How to complete this audit tool:

- a) Place a tick (✓) in the box if the item asked for is detailed in the patient's notes/records.
- b) If the item is not recorded in the patient's notes then place (X) in the corresponding box.
- c) Do not leave any sections blank
- d) Use one audit form for each patient.
- e) Audit the most recent episode of leg ulceration.
- f) When the audit is complete please return the forms to:

This leg ulcer audit tool has four sections:

1. Nursing history & assessment
2. Wound history & assessment
3. Nursing action, Health Advice & Education
4. Clinical observations

SECTION 1: NURSING HISTORY & ASSESSMENT

Please put a tick (✓) in the corresponding box if the item is detailed in the notes. Put (X) in the box if it is not.

Q1. Has a LEG ULCER ASSESSMENT FORM been used?

YES NO

Q2. Are the following PERSONAL details present?

Patient's name Age Sex Medical history Drug history Family History Occupation Date of assessment

Q3. Are the following LIFESTYLE details present?

Diet Weight Height BMI Mobility

Q4. Have the following VENOUS RELATED RISK FACTORS been documented in the notes? *If yes please tick the box, if no please put an X in the box.*

Deep Vein Thrombosis Past venous surgery Varicose Veins
Prior venous ulceration

Q5. Have the following ARTERIAL RELATED RISK FACTORS been documented in the notes? *If yes please tick the box, if no please put an X in the box.*

Peripheral vascular disease Arterial surgery Rheumatoid Arthritis Angina
Diabetes Mellitus Myocardial Infarction CVA

Q6. Has the patient's SMOKING history been documented in the notes?

YES NO

Q7. Are the following SUPPORT & SOCIAL details present?

Environment Living Conditions Family structure Carers Social

Services

Q8. Are the following PSYCHOLOGICAL details present?

Understanding of condition Motivational level Anxiety level Coping strategies

Q9. Has a PAIN ASSESSMENT been documented?

YES NO

Q10. Has a NUTRITIONAL ASSESSMENT been documented?

YES NO

Q11. Are details of the LEGS mentioned?

Presence of oedema Pigmentation of skin Texture of skin Ankle flare
Prominent veins

Q12. Are details of the FOOT PULSES mentioned?

Can foot pulse(s) be palpated Doppler ultrasound used to determine
Ankle/Brachial Pressure Index (ABPI) ABPI taken at time of assessment

SECTION 2: WOUND HISTORY & ASSESSMENT

Please put a tick (✓) in the corresponding box if the item is detailed in the notes. Put (X) in the box if it is not.

Q13. Are the following details of the ULCER HISTORY mentioned?

Past history of ulceration Cause Duration of present ulcer
Current dressing regime

Q14. Is the SITE of the ulcer documented?

YES NO

Q15. Is the SIZE of the ulcer documented?

Depth Width Length Tracing taken

Q16. Is there a description of the APPEARANCE of the wound bed?

YES NO

Q17. Is there a description of the TYPE OF TISSUE in the wound bed?

YES NO

Q18. Is there a description of the AMOUNT of EXUDATE from the wound?

YES NO

Q19. Is there a description of the COLOUR of EXUDATE?

YES NO

Q20. Is the condition of the SURROUNDING SKIN described?

YES NO

SECTION 3: NURSING ACTIONS, HEALTH ADVICE & EDUCATION

Please put a tick (✓) in the corresponding box if the item is detailed in the notes. Put (X) in the box if it is not.

Q21. Is the wound CLEANSING SOLUTION mentioned?

YES NO

Q22. Is the DRESSING REGIME mentioned (including name and frequency of dressing)?

YES NO

Q23. Is the use of COMPRESSION mentioned (including contra-indications for use)?

YES NO

Q24. Is the patient's COMFORT with the chosen dressing regime mentioned?

YES NO

Q25. Is there any documentation of ADVICE to the patient on the following?

Exercise Diet Resting position Care of bandages/hosiery Wound care

Skin care Leg elevation Pain control Stop Smoking

Prevention of recurrence

SECTION 4: CLINICAL OBSERVATIONS

Please put a tick (✓) in the corresponding box if the item is detailed in the notes. Put (X) in the box if it is not.

Q26. Has a MEDICAL ASSESSMENT been documented?

YES NO

Q27. Have the following been recorded?

Blood pressure Pulse Temperature Urinalysis Blood glucose level

Blood results Weight Height Body Mass Index Initial ABPI

Q28. Is there documentation that the GP has been informed of the results of the assessment?

YES NO

Q29. Who performed the leg ulcer assessment?

District Nurse Community Nurse Practice Nurse Hospital Nurse Leg Ulcer Clinic Nurse Specialist Nurse Doctor Not identified

12.0 EQUALITY IMPACT ANALYSIS:

Whittington Health – Equality Impact Analysis Form

1. Name of Policy or Service

Leg Ulcer Policy

2. Assessment Officer

Jonathan Rowe, Regulatory Compliance Analyst

3. Officer responsible for policy implementation

Samantha Grantham: Lead for Community Tissue Viability Service

4. Completion Date of Equality Analysis *December 2015*

5. Description and aims of policy/service

This document has been written by the Tissue Viability Service (TVS) and contains guidance for clinical staff on the assessment and management of patients with leg ulceration.

6. Initial Screening

An initial analysis has been carried out to explore whether the Policy is likely to have a detrimental impact in terms of people included in one or more of the following equality categories:

- Race
- Disability
- Gender
- Age
- Sexual orientation
- Religion and belief
- Gender Reassignment
- Marriage and civil partnership

- Pregnancy and maternity

7. Outcome of initial screening

This policy does not privilege or discriminate against any of the equality groups providing reasonable adjustments are made to meet the access and other needs of patients with physical disabilities or communication difficulties.

8. Monitoring and review/evaluation

See section 8

9. Publication of document: Intranet