



**LEICESTER**  
VASCULAR INSTITUTE

**VASCULAR LIMB SALVAGE (VALS) CLINIC**

at

**GLENFIELD HOSPITAL**

**ASSESSMENT AND REVIEW CLINIC PROTOCOLS**

**2018**



## **ABBREVIATIONS**

<b>ABPI</b>	Ankle Brachial Pressure Index
<b>CNS</b>	Clinical nurse specialist
<b>CTa</b>	Computed Tomography Angiography
<b>DFU</b>	Diabetic foot ulceration
<b>DUS</b>	Duplex Doppler ultrasound
<b>IDSA</b>	Infectious Diseases Society of America
<b>LVI</b>	Leicester Vascular Institute
<b>TBPI</b>	Toe brachial pressure index
<b>UHL</b>	University Hospitals Leicester
<b>VALS</b>	Vascular Limb Salvage
<b>VAR</b>	Vascular administrator registrar
<b>VASQOL</b>	Vascular quality of life questionnaire
<b>VS</b>	Vascular scientist
<b>VSU</b>	Vascular studies unit
<b>WiFi</b>	Wound, ischaemia, foot infection score



## 1) INTRODUCTION

This document outlines the assessment protocol for:

- 1) Patients referred through the VaLS clinic referral pathway
- 2) Patients assessed/admitted/treated for critical limb ischaemia (CLI) to the Leicester Vascular Institute, **but** outside of the VaLS clinic referral pathway.



## 2) STRUCTURE OF VALS CLINICAL ASSESSMENT

### 2.1) Referral acceptance protocol

A) Patients referred to VaLS Monday-Friday 9am-4pm will be reviewed in the VaLS clinic within 2 working days\*.

i. Where VaLS clinic capacity has been saturated (no slots within two working days) the patient will be admitted to the Leicester Vascular Institute to be assessed by the on-call vascular surgical team.

a) The VaLS clinical nurse specialist will accept the referral & complete a VaLS acceptance form

b) The VaLS clinical nurse specialist will liaise with the on-call administrator registrar (VAR) and ward clerk to inform them of the patients' admission

c) The VAR will review the patient upon their admission

B) Patients requiring assessment for CLI outside of Monday-Friday 9am-4pm should be referred to the on-call vascular surgical team at the Leicester Vascular Institute.

i. The contact point for these referrals is the VAR.

ii. If appropriate (see Entry Pathways & Referral Guidelines document) the VAR may elect to organise for the patient to attend a VaLS clinic appointment. If this is the outcome of the referral it is the responsibility of the VAR to:

a) Identify an open VaLS clinic appointment slot within 2 working days\* of the referral date.

b) Provide to the referring physician the time, date and location of the VaLS clinic appointment at the time of the index referral

c) Ensure the VaLS clinical nurse specialists (CNS) are aware of the patient addition to the VaLS clinic.

d) Provide a completed VaLS referral sheet to the CNS.

C) Inpatients at University Hospitals Leicester (UHL) NHS trust are not eligible for referral to VaLS

\* for the purpose of this protocol working days refer to Monday-Friday excluding public holidays.



## 2.2) Structure of VaLS clinical assessment

The VaLS assessment pathway will consist of:

- 1) Assessment within the CNS ***VaLS Assessment Clinic*** (see 2.2.1)
  - a. Time: 0900-1230hrs; Monday, Tuesday, Thursday and Friday.
  - b. Location: VaLS Clinic, Ward 23, Leicester Vascular Institute, Glenfield Hospital
- 2) Assessment within the vascular surgical consultant led ***VaLS review clinic*** (see 2.2.2)
  - a. Time: 1330 1530hrs; Monday, Tuesday, Thursday and Friday.
  - b. Location: VaLS Clinic, Ward 23, Leicester Vascular Institute, Glenfield Hospital
  - c. Surgeon: On-call vascular consultant or nominated deputy



## **VaLS Assessment Clinic Assessment Protocol**

### **2.2.1a) Clinical Nurse Specialist Assessment Protocol**

All Patients seen within the VaLS clinic pathway will be initially reviewed by a clinical nurse specialist in the morning VaLS assessment clinic. The following CNS led assessments & investigations will be undertaken and considered standard practice for all patients attending the VaLS assessment clinic:

- 1) **VASQOL questionnaire:** All patients attending the VaLS clinic will be asked to complete a VASQOL questionnaire which will be provided to each patient upon registering at the VaLS clinic reception.
- 2) **Clinical history & physical examination:** A detailed history and physical examination will be performed and documented in the 'pink' vascular clerking sheet. The physical examination will include but not limited to:
  - 1) Assessment of patient vital signs and EWS score
  - 2) Clinical assessment of upper limb and lower limb pulses
  - 3) Clinical assessment for the presence of an abdominal aortic aneurysm
  - 4) Clinical assessment of peripheral neuropathy as per neuropathy clinical examination protocol (see appendix 1)
  - 5) Clinical assessment of leg/foot ulceration and gangrene as per ulcer/gangrene clinical examination protocol (see appendix 2)
  - 6) Calculation of the SINBAD score (see appendix 3)
  - 7) Calculation of the SVS WiFI score (see appendix 4) following Vascular Scientist led assessment (see below)
  - 8) Clinical Frailty Scale score (see separate sheet)



### 3) **Photographic documentation:**

- a. All patients with leg/foot ulcers, gangrene or evidence of infection will have a photograph of the affected leg/foot undertaken to aid multidisciplinary team working and clinical decision making.
- b. Photographs will be stored on the VaLS secure shared drive
- c. Patients will be asked to sign a clinical photography consent form

### 4) **Bedside tests**

- a. All patients will undergo a blood analysis to include
  - i. Full blood count (FBC)
  - ii. Renal function and electrolytes (U&E)
  - iii. Clotting profile
  - iv. Lipid profile
  - v. Random blood sugar and HB1aC
- b. All patients requiring intervention will undergo an ECG
- c. All patients will undergo an MRSA screen
- d. All patients with ulceration will have an ulcer swab undertaken for microbiological analysis; (ulcer base curettage may be used dependent on type and location of ulcer)

### 5) **Miscellaneous**

- a. All patients admitted with DFU will require a foot x-ray



### 2.2.1b) Vascular Scientist Assessment Protocol

Following review by CNS all patients will undergo an assessment of the affected leg by a vascular scientist (VS).

The following VS led assessment protocol will be undertaken and considered standard practice for all patients attending the VaLS assessment clinic:

- 1) **Ankle Brachial Pressure Index (ABPI):** All patients will undergo ABPI measurement in both legs
- 2) **Toe Brachial Pressure Index (TBPI):** All patients with diabetes or incompressible crural vessels will undergo TBPI.
- 3) **Duplex Doppler Ultrasound (DUS):** All patients will undergo a DUS of the affected leg/s unless they have a normal ABPI and do not suffer with diabetes. The DUS will consist of a full examination of the affected leg as per the Vascular Studies VaLS Assessment form. (See appendix 5).
- 4) **Documentation:** Documentation will be recorded on the Vascular Studies VaLS Assessment form in both written and diagrammatic representation





### 2.2.1c) Requirement of Computed Tomography (CT) Angiography (a)

- There are two designated VaLS CTa slots during regular working week days (Monday-Friday). (See CTa VaLS pathway)
- A renal function assessment (eGFR, creatinine and K<sup>+</sup>) within the last **3 months** and documented in the 'pink' clerking sheet is required prior to a patient attending for CTa
- The following patients may require CTa and should be discussed with the VAR or on-call vascular consultant prior to booking the patient into a VaLS CTa slot:
  - Poor views on DUS of aorto-iliac arteries
  - Poor views of common femoral and/or profunda femoris arteries
  - DUS has demonstrated aortic or iliac artery occlusion
  - DUS has demonstrated significant aortic and iliac artery stenosis
  - Significant common femoral artery disease with or without inflow and/or outflow disease
  - A popliteal artery or other infra-inguinal arterial aneurysm
  - Where the vascular scientist recommends considering a CTa



### 2.2.2) VaLS Review Clinic Protocol

- All patients seen in the **VaLS Assessment Clinic** will be reviewed on the same day in the **VaLS Review Clinic**
- The **VaLS Review Clinic** will be led by the on-call consultant vascular surgeon or a nominated deputy.
  - In the unlikely situation where neither the on-call consultant vascular surgeon nor a nominated deputy is available the patients will be admitted to ward 23 as a standard emergency admission.
- It is the responsibility of the VaLS CNS/administrator to ensure all notes and results from the morning assessment are available for the **VaLS Review Clinic**.
- The aims of the **VaLS Review Clinic** are:
  1. To correctly identify those patients with CLI/DFU
  2. Correctly identify the cause for their CLI/DFU
  3. Correctly identify those patients who require revascularisation or conservative treatment
  4. Assess the patients' suitability for the differing types of revascularisation (open surgery, hybrid surgery, endovascular surgery)
  5. Identify and undertake any additional investigations required prior to intervention e.g. cardiac echo, MRA
  6. Identify a date within 7 working days of index review for the patient to undergo their revascularisation if required
  7. Decide whether the patient can be discharged home to come back for their intervention or whether or they should be admitted as an emergency to LVI

# WEEKDAY VASCULAR LIMB SALVAGE (VALS) CLINIC REFERRAL FORM

Department of Vascular Surgery, Leicester Glenfield Hospital

Please Fax to 0116-2502386 or Email E-mail: <a href="mailto:VascularValSreferral@uhl-tr.Nhs.Uk">VascularValSreferral@uhl-tr.Nhs.Uk</a>	Clinic Coordinator will contact patient directly
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Patient name	GP Name
Address	Address
Postcode	
DOB	
Hospital/NHS No.	
Preferred Contact No (Mobile preferably)	Contact No

1. This form is reviewed and updated regularly on the UHL website.
2. Admit patient as emergency if:
  - a. Clinical evidence of acute limb ischaemia (acute pain, pallor, pulseless, perishingly cold, paraesthesia/acute sensory change, paralysis/acute motor dysfunction for  $\leq 2$  weeks)
  - b. Patient has a IDSA moderate/severe diabetic foot ulcer infection (see below for classification)
3. If not on an antiplatelet or anticoagulation administer 300mg of aspirin PO STAT (if no contraindications) & 75mg aspirin ODS as an ongoing prescription until clinic review
4. Prescribe Simvastatin 40mg OD if not on a statin and no contraindication

### CLINICAL FEATURES

Brief Description of Symptoms			
Provisional Diagnosis:		Leg affected: <b>RIGHT / LEFT / BOTH</b>	
Foot/leg Gangrene	YES / NO	ABPI	Right =      Left =
Foot/Leg Ulceration	YES / NO	Renal Failure:	YES / NO      eGFR =
Rest/Night Pain	YES / NO	Metformin:	YES / NO
Risk factors (please circle)	Diabetes	Hypertension	Ischaemic Heart disease
	Smoker/Ex-smoker	Dyslipidaemia	Stroke/TIA

### REFERRER DETAILS

Name:.....	Job Title.....
Date:.....	Source of Referral: .....

Patient or carer to call 0116-2588508 or 2588506 if no contact by midday next weekday (Mon-Fri)

## APPENDICES



### 1) NEUROPATHY ASSESSMENT

#### a. Semmes-Weinstein Monofilament test



Indicate the level of sensation in the circles on the foot diagram

+ = Can feel 10g monofilament

- = Cannot feel 10g monofilament

#### b. Vibration test (128Khz)

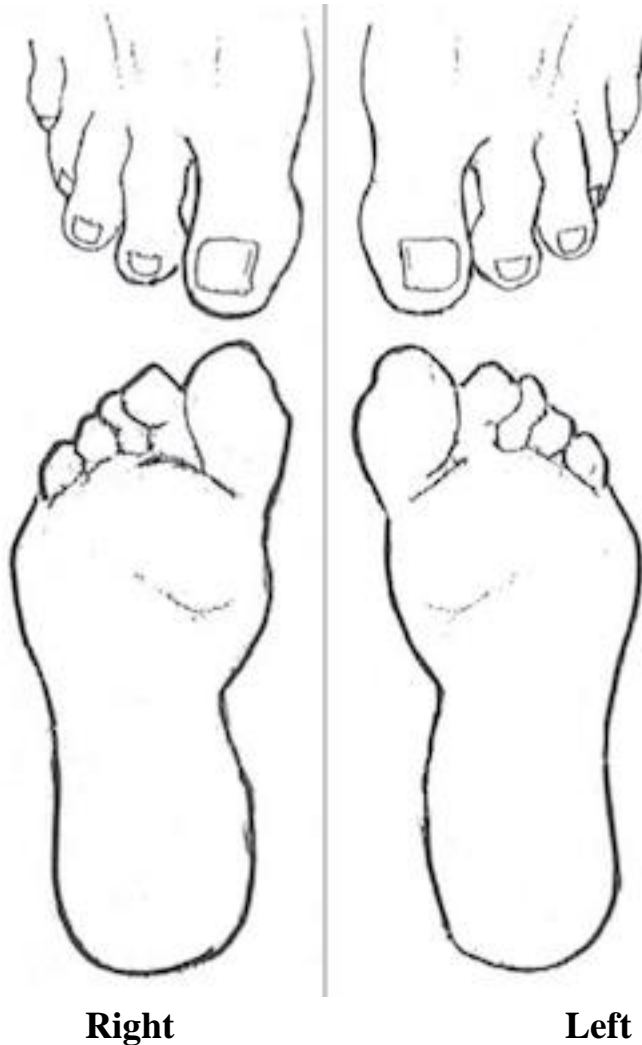
Location	Right	Left
Great Toe	Yes / No	Yes / No
1 <sup>st</sup> MTPJ	Yes / No	Yes / No
Medial/Lateral Malleolus	Yes / No	Yes / No
Tibial tuberosity	Yes / No	Yes / No



## 2) ULCER/GANGRENE ASSESSMENT

On the Foot diagram:

- a. Draw location of any ulcer and indicate:
  - i. note size of ulcer in cm
  - ii. note depth of ulcer
  - iii. Indicate if the ulcer is draining pus
  - iv. Does ulcer probe to bone
- b. Draw location of any cellulitis and indicate if spreading less or more than 2cm in length
- c. Draw location of any gangrene



### 3) SINBAD SCORE



Category	Definition	SINBAD Score
Site	Forefoot	0
	Midfoot and Hindfoot	1
Ischaemia	Pedal blood flow intact: at least one pulse palpable	0
	Clinical evidence of reduced pedal blood flow	1
Neuropath	Protective sensation intact	0
	Protective sensation lost	1
Bacterial Infection	None	0
	Present	1
Area	Ulcer <1cm <sup>2</sup>	0
	Ulcer ≥1cm <sup>2</sup>	1
Depth	Ulcer confined to skin and subcutaneous tissue	0
	Ulcer reaching muscle, tendon, or deeper	1
<b>Total possible score</b>		<b>6</b>

#### 4) Society for Vascular Surgery Lower Extremity Threatened Limb (SVS Wifl) classification system

1) **Wound:** Degree of tissue loss and anticipated level of intervention/amputation required for healing.

**Grade 0:** No ulcer, no gangrene. Ischemic rest pain.

**Grade 1:** Small, shallow ulcer(s) on distal leg or foot; no exposed bone, unless limited to distal phalanx  
No gangrene.

Clinical Description: Minor tissue loss.

Salvageable with simple digital amputation (1 or 2 digits) or skin coverage.

**Grade 2:** Shallow heel ulcer, without calcaneal involvement

Deeper ulcer with exposed bone, joint or tendon but not involving the heel

Gangrenous changes limited to digits

Clinical Description: Major tissue loss

Salvageable with multiple ( $\geq 3$ ) digital amputations or standard TMA +/- skin coverage.

**Grade 3:** Extensive, deep ulcer involving forefoot and/or midfoot;

Deep, full thickness heel ulcer +/- calcaneal involvement

Gangrene to forefoot, midfoot and hindfoot

Clinical Description: Extensive tissue loss Intervention

Requires more than a transmetatarsal amputation and/or complex soft tissue rearrangement.

2) **Ischemia:** Haemodynamics/perfusion: Measure TP or TcPO<sub>2</sub> if ABI incompressible ( $>1.3$ )

**Grade 0:** No ischemia. ABI  $\geq 0.80$ ; toe pressure  $\geq 60$  mmHg.

**Grade 1:** Mild ischemia. ABI  $\geq 0.6-0.79$ ; toe pressure 40-59 mmHg.

**Grade 2:** Moderate ischemia. ABI  $\geq 0.4-0.59$ ; toe pressure 30-39 mmHg.

**Grade 3:** Severe ischemia. ABI  $\leq 0.39$ ; toe pressure  $<30$  mmHg.

3) **Foot Infection.**

**Grade 0:** No infection.

**Grade 1:** Superficial infection\*. Localized cellulitis  $\leq 2$  cm.

No systemic inflammatory response syndrome (SIRS\*\*).

**Grade 2:** Moderate (deep) infection: Erythema  $> 2$  cm, abscess present or infection extends to joint or bone.

No systemic inflammatory response syndrome (SIRS\*\*).

**Grade 3:** Severe infection. Local infection (as described above) with SIRS\*\*

\***Infection =  $\geq 2$  of following:** Local swelling or induration, Erythema  $>0.5$  to  $\#2$  cm around the ulcer, Local tenderness or pain, Local warmth, Purulent discharge (thick, opaque to white, or sanguineous secretion)

\*\***SIRS =  $\geq 2$  of following:** Temperature  $>38^{\circ}\text{C}$  or  $<36^{\circ}\text{C}$ , Heart rate  $>90$  beats/min, Respiratory rate  $>20$  breaths/min or PaCO<sub>2</sub>  $<32$  mm Hg, White blood cell count  $>12,000$  or  $<4000$  cu/mm (SIRS =  $\geq 2$  of these)

**After calculating the Wifl score:**

- 1) one will use the classification system to assess the clinical stage 1–5 (with stage 5 being an unsalvageable foot) and estimate the risk of major amputation at one year.

Stage 1: Amputation risk: very low

Stage 2: Amputation risk: low

Stage 3: Amputation risk: moderate

Stage 4: Amputation risk: high

Stage 5: Unsalvageable foot

- 2) one will use the classification system to assess the benefit of revascularisation (stage 1–4)

Stage 1: very low

Stage 2: low

Stage 3: moderate

Stage 4: high



## Vascular Studies VaLS Assessment

ABPI	DP	PT	BR	Index
<b>Right</b>				
<b>Left</b>				
TBPI	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	BR	Index
<b>Right</b>				
<b>Left</b>				

Patient Information
Surname:
Forename:
Date of Birth:
ID Number:
(or use patient sticker)

Leg Duplex	Right Leg	Left Leg						
Abdominal Aorta	Not Seen / Occluded / >2x / <2x / No Disease / AAA							
CIA & EIA	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
CFA	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
SFA	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
Pop A	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
AT / PT / Per	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
Foot Vessels	Not Seen / Occluded / >2x / <2x / No Disease	Not Seen / Occluded / >2x / <2x / No Disease						
Flow Data	Right Leg	Left Leg						
	Waveform shape	PSV (cm/s)	Calibre (mm)	SRT (ms)	Waveform shape	PSV (cm/s)	Calibre (mm)	SRT (ms)
CFA	Tri / Bi / Mono				Tri / Bi / Mono			
Distal Pop A	Tri / Bi / Mono				Tri / Bi / Mono			
Distal AT	Tri / Bi / Mono				Tri / Bi / Mono			
Distal PT	Tri / Bi / Mono				Tri / Bi / Mono			
Distal Per	Tri / Bi / Mono				Tri / Bi / Mono			
DP	Tri / Bi / Mono				Tri / Bi / Mono			
Plantar	Tri / Bi / Mono				Tri / Bi / Mono			
Results	Right Leg	Left Leg						
Duplex Findings	Image Quality: Good [ ] [ ] [ ] Poor [ ] Scan diagnostic [ ] May need additional imaging / CTA	Image Quality: Good [ ] [ ] [ ] Poor [ ] Scan diagnostic [ ] May need additional imaging / CTA						
Additional Information & comments								

