Introducing FDUK's Lower Limb Amputation Prevention Guidance V 2.0

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As we all reflect on the first year of the COVID-19 pandemic and are starting to see many lower-limb clinical services, leg ulcer, foot protection and multidisciplinary diabetes and vascular teams regroup and fully open up again, we felt it was time to revisit the FDUK Lower Limb Amputation Prevention Guidance. This guidance was first mooted, drafted, consulted and collaborated on, then released, within a month, in March–April 2020, by the FDUK committee and our key networks of contributors (FDUK, 2020). It was delivered at an unprecedented speed, in unprecedented times.

The aim was to help support all lower-limb clinicians who were working in a range of rapidly changing healthcare settings, to try and protect people at highest risk of amputations, and in particular, if timely access to effective limb-protecting clinicians, teams, treatments and interventions was reduced for such people.

Amputation trends for 2020 are now starting to emerge. While individual units have shown increases in amputations (Caruso et al, 2020; Schuivens et al, 2020), a whole population study in England has shown these were significant reductions in the rates of major and minor amputations in people with diabetes, during the first wave of the COVID-19 pandemic (Valabhji et al, 2021). It has been suggested that the competing end point of COVID-related mortality may have contributed to this trend. It is yet to be seen whether amputation rates will return to normal or whether there will be a 'tsunami' rebound, as people with high-risk limbs return to more active lives. They will be presenting themselves again to frontline clinicians, after a pandemic and lockdowns where healthcare access has been difficult in the last 15 months and fear of contracting COVID-19 has kept people away.

It is clear that while many frontline non-urgent healthcare services were initially closed and many clinicians were diverted into a range of other roles, many high-risk lower-limb podiatry, diabetes and vascular services maintained a vital skeleton service, with hospital 'hot' clinics and community podiatry and nursing services providing a lifeline to limb-protection (Miskell and Thurman, 2021). Collaborations between community nursing, podiatry teams and telemedicine access to local hospital multidisciplinary team clinicians sprang up and virtual MDT consultations between community podiatrists in patient's home and the hospital specialists became the new norm, helping to triage those people who could be managed at home or identify those that needed hospital admissions for life- and limb-saving treatments.

It is now vital that we preserve the best aspects of these collaborations to help face the inevitable challenge of likely backlogs and demand surges in all lower-limb healthcare services, looking forward through to the end of 2021 and beyond. The key principles of the initial FDUK Amputation Prevention Guidance are just as important now as they have been during the initial pandemic. The main drivers behind avoidable amputations still tend to be:

- Lack of timely access to specialist podiatry nursing, foot protection and hospital multidisciplinary teams with expertise in leg and foot amputation prevention
- Lack of recognition and effective treatment/ urgent referral of limb-threatening infection

and ischaemia, by the people with these 'red flags' or their clinicians.

The FDUK committee have now revised the 2020 guidance, retaining the key principles around recognition and timely action to be taken around infection and ischaemia, in all people presenting with leg or foot wounds, Charcot Foot or ischaemic rest pain. They apply in particular to those people with diabetes, those who are immunosuppressed and the older population.

We release the second version of the guidance with this introduction to all clinicians, educators and managers at the local regional and national level, who are responsible for lower-limb healthcare. We hope that you continue to find it useful, to help support your local healthcare prioritisation and provision, and to help eliminate avoidable amputations and associated early deaths, at every opportunity. ■

Caruso P, Longo M, Signoriello S et al (2020) Diabetic foot problems during the COVID-19 pandemic in a tertiary care center: the emergency among the emergencies. *Diabetes Care* 43(10): e123–e4

Foot in Diabetes UK (2020) COVID-19 SITUATION v1.3 Lower Limb Amputation Prevention Guidance. *The Diabetic Foot Journal* 23(1): 2

Miskell M, Thurman M (2021) The podiatric approach to chronic limb-threatening ischaemia during the pandemic. *The Podiatrist* 24(4): 2–17

Schuivens P, Buijs M, Boonman-de Winter L et al (2020) Impact of the COVID-19 lockdown strategy on vascular surgery practice: more major amputations than usual. *Ann Vasc Surg* 69: 74–9

Valabhji J, Barron E, Vamos E et al (2021) Temporal trends in lower-limb major and minor amputation and revascularization procedures in people with diabetes in England during the COVID-19 pandemic. *Diabetes Care* 44(6): e133–e5

COVID-19 SITUATION
Lower-Limb Amputation Prevention Guidance V2.0

This pathway guidance has been developed by a collaborative group of expert clinicians in FDUK, to support all lower-limb clinicians during the ongoing COVID-19 situation, in line with current best practice. The guidance is designed to assist the identification and management of people with limb & life-threatening ischaemia or infection, with or without diabetes. The aim is to focus initial clinical assessments/reviews and clinical decisions on the need for urgent triage, referrals & access to multidisciplinary high-risk lower-limb teams, depending on local availability, for potential life-and limb-saving treatments.

- **With new onset severe foot pain or leg/foot ulcer, in any clinical setting**
- **Follow the local COVID-19 protocol prior to patient assessment**
- **Include assessment for critical or limb-threatening ischaemia/infection**

Ischaemia: Cardiovascular risks + foot pulses + leg or foot symptoms + Doppler signals + ankle/toe systolic pressures

Infection: Ulcer + depth + signs of infection + pulse rate + respiration rate + symptoms

Non limb-threatening problems

- Leg or foot pain that is not due to severe infection or ischaemia
- Superficial leg/foot ulcers that show evidence of healing
- Asymptomatic peripheral arterial disease or intermittent claudication (no wounds)
- Foot pulses non-palpable or monophasic on Doppler (no wounds & asymptomatic*)
- Mild foot or leg infections, with shallow ulcers & local erythema <2cm from edge, + no signs of tracking or sepsis*
- Stable Charcot (under MDT) or high-risk foot, without wounds or infection

To be treated, monitored or advised by appropriately skilled lower-limb clinicians or GPs, using local infection, wound care and pain management guidelines or protocols where available
Seek specialist advice/guidance for any non-healing or deteriorating wounds or acute/unstable Charcot Foot

If the person deteriorates and develops key indications of limb-threating infection or sepsis or ischaemia, **take timely action**

Limb-threatening infection* or sepsis*

- Deteriorating/tracking infection, especially with ulcer depth to bone or present in Charcot Foot or chronic limb-threatening or critical limb ischaemia
- Spreading cellulitis in foot or leg e.g. redness, swelling, pus heat, pain or black discolouration **without sepsis, or**
  with sepsis indicated by:
  - Pulse rate <50 or >90 BPM
  - Respiration rate <11 or >20
  - Flu-like symptoms
  - Confused / unresponsive / drowsy

(These clinical features could also be caused by COVID-19 infection)

Critical limb ischaemia

- Foot pulses not palpable/absent
- Doppler signals monophasic/absent
- Buerger's sign – foot goes pale on elevation + goes red when hung down
- Ankle systolic <50mmHg
- Toe systolic <30 mmHg

PLUS any of the following

- Ischaemic rest pain in toes/feet*
- New wound, gangrene or necrosis

Acute limb ischaemia

Sudden onset cold, pale, pulseless, painful limb, especially if also developing paresthesia or paralysis

Discuss these limb-threatening emergencies urgently with Multi-Disciplinary Teams, according to local availability, e.g.: High Risk Foot Podiatry, Hospital Vascular, Diabetes Foot, Infectious Diseases/Microbiology or Orthopaedic/Podiatric Surgeon

If the clinical situation appears acutely life or limb-threatening with ischaemia, contact the local on-call Vascular/Surgical Team immediately to discuss

If sepsis is suspected, send patient immediately to local hospital emergency department (sepsis could be foot-related, but alternatively be due to COVID-19)

Symptoms or signs may be subdued or absent, if the person has diabetes, is immune-supressed or elderly

Important local multi-disciplinary team contact details, for support with triage and amputation prevention

- High-Risk Foot Podiatry:
- Vascular Surgery:
- Diabetes Foot:
- Infectious Diseases/Microbiology:
- Orthopaedic/Podiatric Surgery:

Published Lower Limb Guideline sources:
NICE CG 147 - Peripheral Arterial Disease: Diagnosis and Management, NICE NG 19 - Diabetic Foot Problems: Prevention and Management, SIGN 116 - Management of Diabetes, IWGDF Guidelines - International Working Group on the Diabetic Foot

V2.0 revised by FDUK Committee Working Group. July 2021