

# Recommendations for improving offloading for the foot in diabetes

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## Key words

- Diabetic foot
- Offloading

## Article points

1. Evidence-based guidelines are essential for effective offloading.
2. Clinical pathways can support practice development.
3. Podiatry needs to be proactive in promoting best practice for offloading the foot of individuals with diabetes who have foot ulceration.

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Author details can be found on p27

**Offloading of the foot of individuals living with diabetes is a high priority when managing complications such as ulceration. Guidelines for offloading have been produced by the International Working Group for the Diabetic Foot (Bus et al, 2020), but these are not always followed in practice for a range of reasons. This was discussed by a national expert panel, who recommend that these guidelines should be adopted and integrated into local care pathways. These documents can then be used to underpin any action that is required to remove barriers which prevent the podiatrist being able to implement evidenced-based practice in offloading.**

People living with diabetes are a high-risk group within the population of the UK, with foot health being an important part of their management. Poor foot care can lead to a “cascade of negative complications”, which can result in amputation and ultimately the death of the patient (Botros et al, 2017). Offloading is one of the most important aspects of care when preventing and managing ulceration of the foot the individual living with diabetes (Bus et al, 2020). Although there are international guidelines available which clearly recommend how to provide ‘best practice’ for offloading the foot, in practice this may not be undertaken or implemented effectively.

A series of online discussion groups were organised where key healthcare professionals who manage foot complications in individuals living with diabetes could discuss and share ‘best practice’ when offloading the foot and identify the challenges that were regularly being experienced in clinical practice. The outcome of these discussions was that a range of barriers were identified (*Figure 1*), which

were then published (Chadwick, 2021). The next stage was that key clinicians who routinely managed foot complications and were experts in offloading, discussed these issues at a further meeting sponsored by OPED UK. The aim was to take forward these challenges and by sharing skills and experience, offer solutions and make recommendations to improve effective offloading in the UK.

## The Importance of clinical guidelines

Clinical excellence is dependent on having current, strong evidence on which to base practice. The International Working Group for the Diabetic Foot (IWGDF; Bus et al 2020), reviewed the evidence for offloading the foot in diabetes and published guidelines to support clinicians to deliver evidence-based practice. These are the most recent reviews and give guidance for offloading where there are different complications within the foot. However, many clinicians in the UK still use the recommendations made by NICE (2015), which only makes specific recommendations for “plantar neuropathic, non-



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<sup>\*1</sup> Biomechanics Study by BASIS Biomechanics Institute at Munich University J. Mitternacht et.al. 08/09 1994

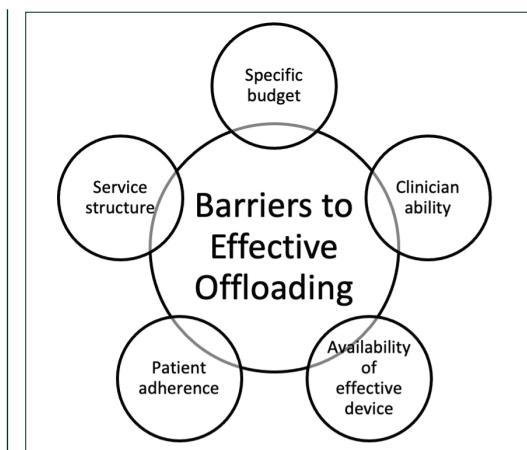
<sup>\*2</sup> Offloading strategies in diabetic foot syndrome – evaluation of different devices J. Götz F. Köck et.al. International Orthopedics (SICOT) (2017) 41:p239-246

<sup>\*3</sup> Evaluating a removable knee high cast walker within the diabetic foot pathway G. Bowen. P. Spruce 2019 Diabetic Foot Journal 22(3): 52-9

<sup>\*4</sup> Offloading Diabetic Foot Ulcers with the next Generation of Pressure Relief W. Cole Todays Wound Clinic, Feb 2020

<sup>\*5</sup> Vacuum cushioned removable cast walkers reducing foot loading in patients with diabetes mellitus A. Nagel D. Rosenbaum; Gait & Posture Volume 30, Issue 1, July 2009, p11-15.

Figure 1: Barriers that were identified to effective offloading.



ischaemic, uninfected forefront and mid-foot diabetic ulcers". *Table 1* compares the information in the two documents, which suggest that a review by NICE is required to include evidence to support the more complex conditions that are often present in the foot in the person with diabetes.

The recommendations for offloading included in the IWGDF guidelines can be effectively translated into local pathways for care, which can support an evidence-based service. This is demonstrated below where the IWGDF guidelines (*Figure 2*) have been adopted and adapted to meet the needs of the diabetic foot service in two different Trusts in England (*Figure 3* and *Figure 4*). To do this, local podiatry services need to decide which devices

are available and appropriate and to their local practice needs. The work undertaken by the Scottish Intercollegiate Group resulted in the production of the consensus document *Redefining and Demystifying Offloading for Diabetes Footcare* (Munro et al, 2021), which is an excellent resource to support this process. All aspects of offloading are clearly and concisely presented in this document, which provides the clinician with the information to review their current practice and make informed decisions to make changes to improve the service.

Alternatively, clinicians can share and adopt from other areas. It is an opportunity to identify and discourage the use of less effective devices and to look where services can be improved across both hospital and community settings with more effective care and better access to evidence-based practice.

The process of developing local, evidence-based care pathways can be used to identify where the service fails to meet the standard required to support evidence-based practice. Once these are in place, they can be used proactively to support service development (*Figure 5*).

### First step: accessing effective offloading devices

Many podiatrists become frustrated because they want to deliver best practice in offloading but fail to do so because they do not have access to

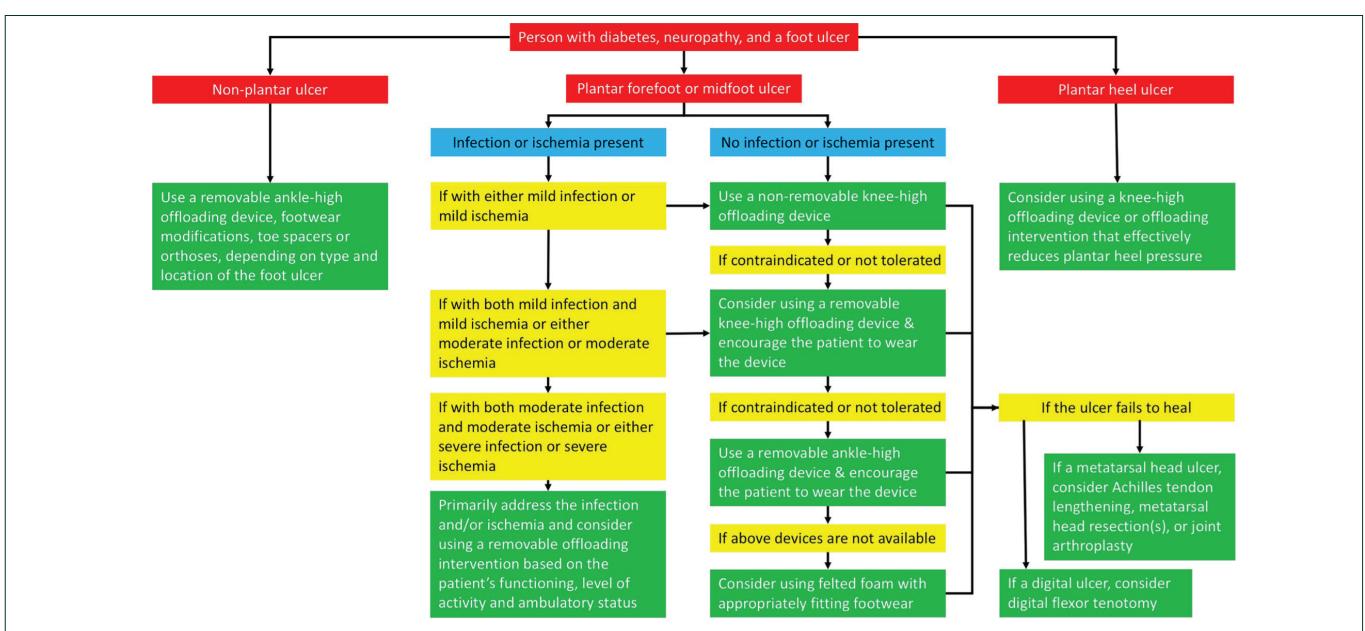


Figure 2: The IWGDF Guidelines (Bus et al, 2020).

**Table 1. A comparison of the information in NICE (2015) and International Working Group on the Diabetic Foot (IWGDF, 2020) guidelines.**

| NICE, 2015  | IWGDF, 2020  |
|---|--|
| Plantar neuropathic, non ischaemic, uninfected forefoot and midfoot diabetic ulcers:<br>• Non-removable casting<br>• Offer an alternative offloading device until casting can be provided | Neuropathic plantar forefoot or midfoot ulcer:<br>• Non-removable knee-high offloading device with an appropriate foot-device interface (total contact cast or non-removable knee-high walker).<br>• Encourage patient to consistently wear              |
| Neuropathic plantar forefoot or midfoot ulcer:<br>No recommendations  | Neuropathic plantar forefoot or midfoot ulcer where non-removable knee-high device is contraindicated or not tolerated:<br>• Removable knee-high offloading device with an appropriate foot-device interface<br>• Encourage patient to consistently wear |
| Neuropathic plantar forefoot or midfoot ulcer:<br>No recommendations  | Neuropathic plantar forefoot or midfoot ulcer where removable knee-high device is contraindicated or not tolerated:<br>• Removable ankle-high offloading device<br>• Encourage patient to consistently wear  |

clinically effective equipment. As non-removable and removable knee-high devices are not available, less effective methods may be used, one of which is felt. This is still often used because it is cheap and widely available its effectiveness is limited in comparison to non-removable knee-high devices. It requires frequently replacing as any initial pressure relief rapidly decreases as it becomes worn.

A local care pathway for offloading can be used to secure funding for effective offloading systems as part of a business case, which can be submitted to commissioners. It is important that podiatrists contribute to this process so that it is supported by current evidence, to demonstrate shortfalls in care and identify the outcome of an improved service. The budget should be managed by the podiatry service, which can be used to purchase equipment which is most appropriate to the service. A formulary for offloading would facilitate this process and indicate to clinicians what systems were available. This would be beneficial in that:

- Each device listed on the formulary would have evidence to demonstrate efficacy, and be appropriate to local requirements, the skills within the department and patient need
- Effective offloading solutions should be accessible to both hospital and community. Patients should not be given less effective devices in community and must wait for a secondary care referral to have better quality care. This delay can increase ulcer severity, increase the risk of infection and make healing ultimately more difficult, increasing the risk of amputation

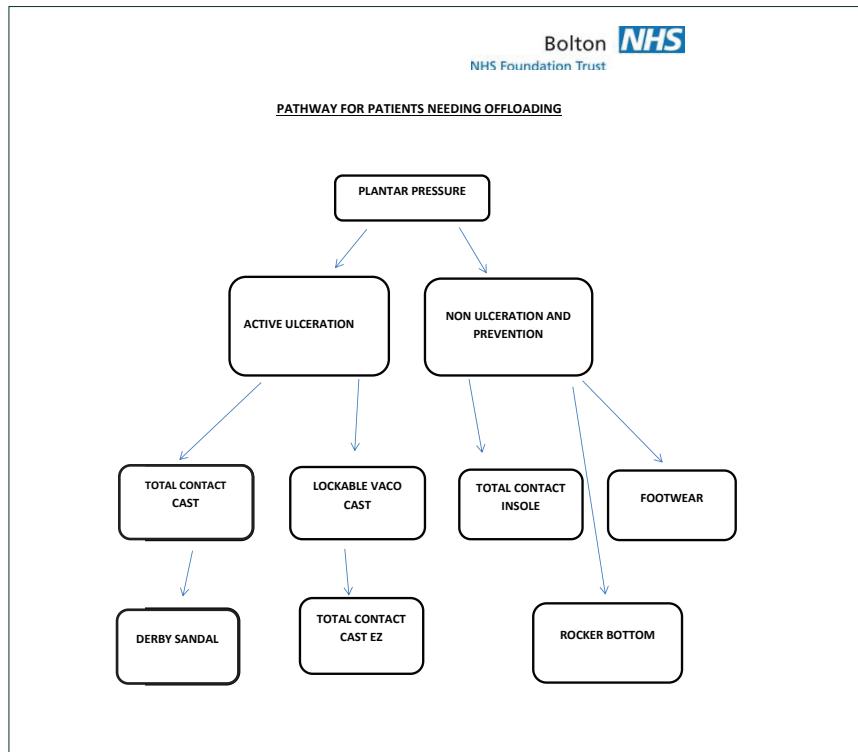


Figure 3: Bolton NHS Foundation Trust: 'Pathway for Patients Needing Offloading'.

- Podiatrists should be able to access the most clinically effective offloading device at the first patient visit.

A pyramid diagram (Figure 6) can be used as a simple method to demonstrate which is the most clinically effective and, therefore, first choice in treatment. The traffic-light system reflects the degree of effectiveness with the better systems listed in the

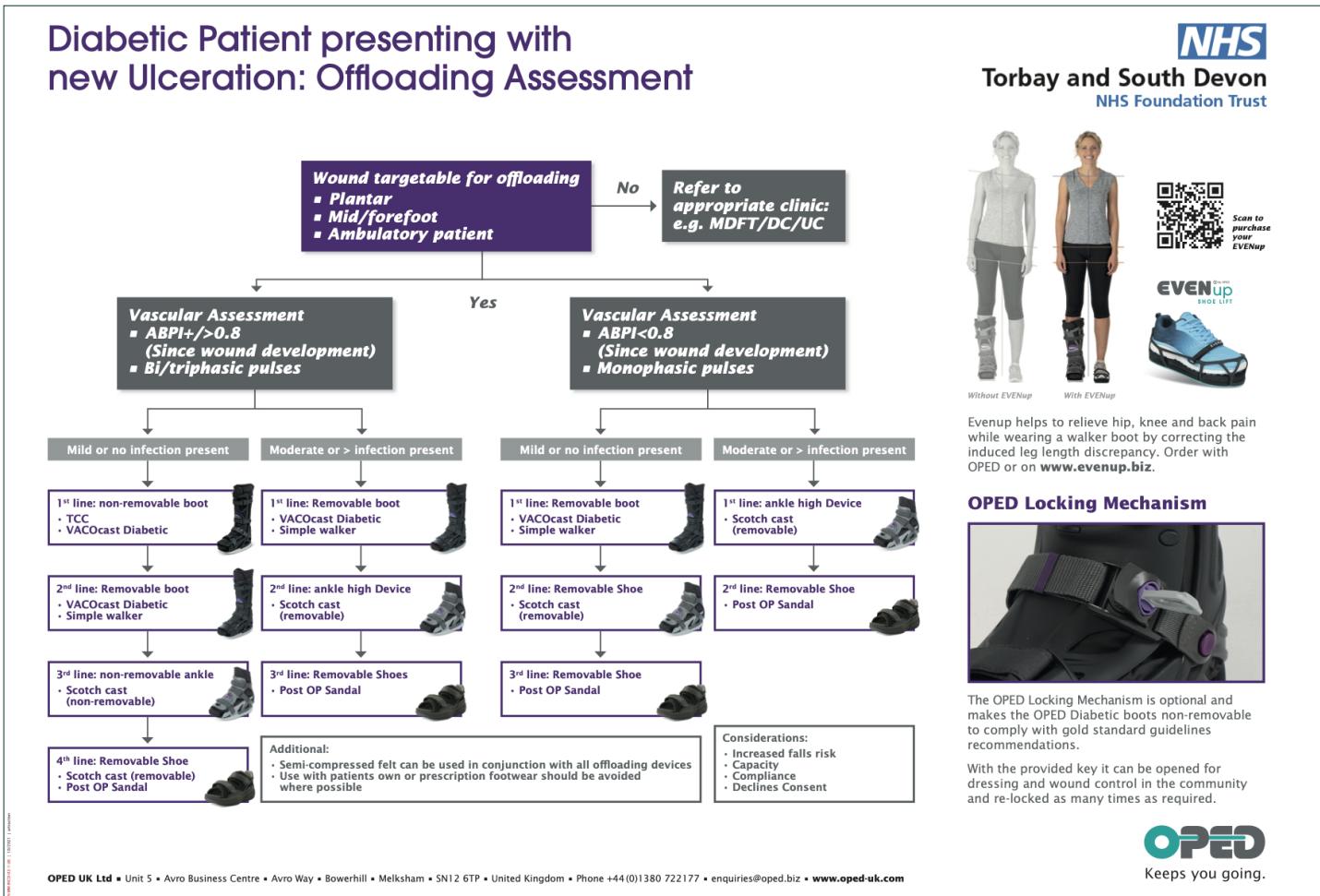


Figure 4: Example from Torbay and South Devon. Pathway for Patient Living with Diabetes presenting with new ulceration: Offloading Assessment.

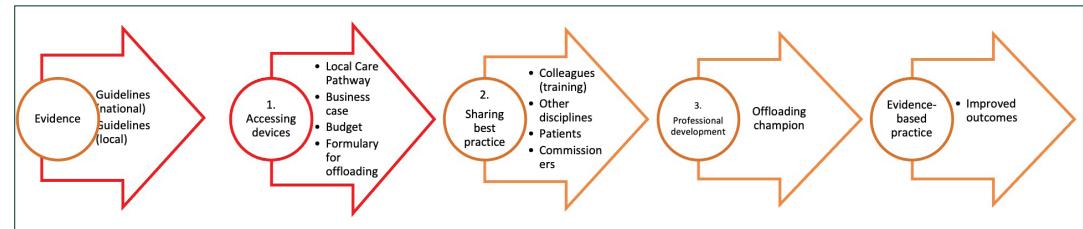


Figure 5: Steps required to transform guideline recommendations into evidence-based practice.

green area graduating to those not recommended as first in the red area. Clinicians should document the reason for the choice of device, whether this is clinical judgement, patient preference or availability.

This can be used by clinicians to support their decision to use the most effective method of offloading as first choice. It can be used with the patients to increase confidence and acceptance of why this is important. Access to larger devices, such as boots, may be limited because of storage capacity

either within the clinic or pharmacies. This should not be a barrier to use, so opportunities for delivery or replacement stock need to be discussed with manufacturers. In addition, knee-high boots are now available through the Drug Tariff and can be accessed by patient prescription.

### Second step: sharing best practice

Local care pathways for offloading are an excellent resource to support an education programme

to ensure that all members of the podiatry team are confident and have the skills to initiate and maintain effective offloading. They can demonstrate the standard of care which is required to provide a quality service for people with diabetes with foot ulcers, and the expectations of podiatrists to deliver this. Less effective treatments, such as felt, may be used because appropriate training to use a more effective method of offloading has not been given, however, a knee-high boot which can be used as removable or unremovable can be just as quick and easy to apply, while delivering improved pressure reduction.

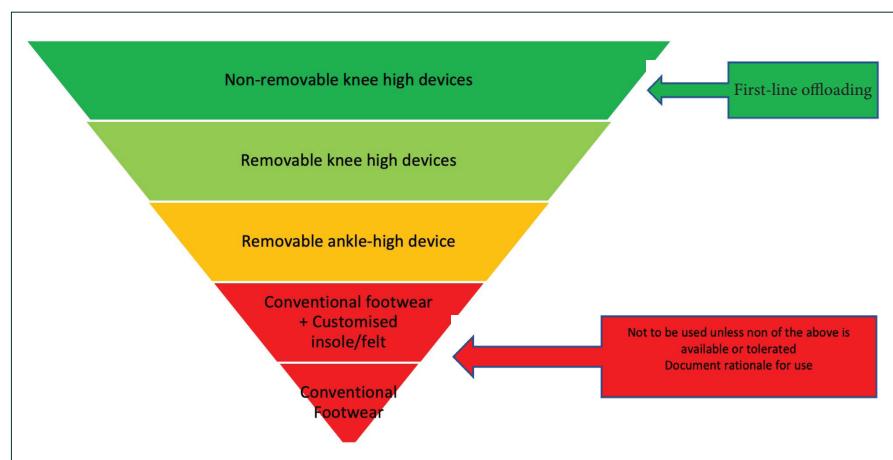
Other healthcare professionals are also involved in the management of the person living with diabetes and need to be aware of the importance of effective offloading and the pathways used in delivering this. Nurses are a member of the extended team who regularly undertake dressing changes between foot health appointments. The concept of offloading is integrated into their practice as they are often experienced in managing pressure ulcers. With this knowledge they can actively participate in shared care, and while podiatry remains the lead service in managing these patients with complex foot ulcers, they can support and promote effective clinical interventions.

Care pathways and effective systems for offloading are useless unless the person with diabetes with the foot ulcer is engaged and understands the importance of this in his plan of care.

Patient adherence to treatment has been a key barrier to effective offloading. Non-removable systems are effective not only because they deliver the best pressure reduction, but they also ensure compliance. Removable devices may be more acceptable to the patient but become less effective depending on the wear time.

It may be necessary to change the culture of clinical interactions at podiatry appointments. The dialogue with the patient should always reinforce their co-operation in their care. It is recommended that clinicians:

- Be realistic with the patient with regards to the seriousness of the ulcer and inform them of what their care involves
- Stipulate to patients what they require — involve them in care and get them to set goals for what they want to achieve



- Give the patient the best solution rather than an easy option. For example, explain the best treatment is a knee-high device and not just a dressing on the wound
- Encourage self help — using educational resources including technology such as online education and devices such as apps on their phones for reminders.

### Third step: professional development

The recommendations made by the IWGDF have had a major impact on the practice of offloading when managing foot complications in individuals living with diabetes. The importance of offloading and the subsequent challenge of translating evidence into practice along with the associated training and communication requirements, suggest that there is a role for an advanced practitioner within podiatry to develop this practice.

As an ‘offloading champion’, the podiatrist would work in clinical practice to train and mentor staff and manage the budget and formulary. An important aspect of this role would also be to collate clinical outcomes through audit and patient surveys, and use this information to improve service provision and support further funding applications.

### Discussion

The outcome of the meeting identified that while there were barriers to implementing effective offloading when managing foot ulceration in individuals living with diabetes, there were solutions to improving the service:

- Local care pathways based on the IWGDF guidelines were an important resource to underpin funding submissions, training and

Figure 6: Pyramid for offloading devices.

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education and multidisciplinary care

- The use of a formulary for offloading, which extends across primary and secondary care, can facilitate patients accessing effective devices at the first point of contact with podiatry to prevent wound deterioration. Any difficulties in achieving this should be documented
- Podiatrists should be able to demonstrate that they can practice evidence-based practice when offloading the foot. This should be taught on under-graduate programmes and supported when in practice on clinical placements
- The time spent with patients should be used to encourage patients to become proactively engaged with their care by getting them to understand the severity of their condition and the importance of effective offloading in managing this.

The barriers to effective offloading the foot in individuals living with diabetes were also explored by Lazzarini and Jarl in 2021 and were very similar to those identified by Chadwick (2021). They suggested that the clinicians were reluctant to prescribe knee-high devices because they still hold historical beliefs that the TCC is the only ‘gold standard’ treatment for offloading. As a result, the limitations of skill, cost, time and patient contra-indications associated with using this device prevent the evidence-based practice being used. Their solution was to educate clinicians with the evidence to show that alternative knee-high devices were as effective as the TCC, and required the “same or less knowledge, expertise, time and costs to apply than nearly all other offloading treatments”.

Lazzarini and Jarl (2021) also considered the problem of patient adherence to wearing offloading devices and made the following recommendations:

- A removable knee-high device worn for all weightbearing activities can achieve the same results as non-removable systems. However, some patients misconceive that the wearing of device for weightbearing is only required when

outside the home, or for hygiene reasons remove their device with their footwear when inside. Therefore, the importance of total adherence for all weight-bearing activities both inside and outside the home should be explained and documented

- Patients can report feeling unstable or at risk of falling. Using a contralateral shoe and possibly walking aids can reduce this
- Educating patients that the ulcer is a severe condition and that adhering to offloading will improve the chance of healing. Explaining that the peripheral neuropathy prevents them from feeling the wound
- Stipulate to patients that it is important to engage in their care, using patient-centred education and motivational interviewing. Using simple techniques, such as maps and photographs to showing them how the wound is healing when offloading is adhered to.

While these recommendations can be implemented at local level, the incidence and impact of foot ulceration in the person living with diabetes is a major concern to the NHS. It has already been suggested that a review by NICE is needed, but other measures should be considered to raise the profile at a national level. One of which would be to align with the ‘Stop the Pressure’ campaign or to host a similar campaign.

Pressure ulcers became a Key Quality Indicator in 1993, when the cost and impact of chronic wounds on the NHS was recognised. Pressure ulcers were considered an indicator of quality of care, and a number of initiatives were launched to reduce the development and severity of these wounds. The ‘Stop the Pressure’ programme which was launched in 2011 as a regional initiative to eliminate all avoidable category II, III and IV pressure ulcers resulted in a significant reduction in prevalence (Fletcher et al, 2021).

This programme has developed into an international event with an annual ‘Stop the Pressure’ day. While clinicians can access, share and promote educational initiatives to raise awareness, it is also an opportunity to engage with the public and policymakers and keep pressure ulcer prevention a high-profile issue.

## Conclusion

Effective offloading is not an option when managing foot complications in individuals living with diabetes, but essential to achieve the optimum clinical outcomes. This involves adopting the recommendations made by the IWGDF and translating these into practice to provide equity in service across both primary and secondary care. While it is recognised that there are challenges in doing this, the development of a local care pathways can be used to initiate and support key actions which are necessary to support practice development in this area.

Podiatry is the lead profession in managing these patients and, therefore, have a professional responsibility to ensure that both clinical expertise and effective offloading can be delivered to meet the standard required for evidence -based

practice. This means having a proactive approach to recognising the barriers which prevent this and taking steps to challenge them. ■

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## Declaration

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