

Diabetes Update programme (ABCD) January 2026

Foot disease in diabetes workshop

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Diabetic foot ulceration (DFU) occurs as a result of the combination of neuropathy, peripheral arterial disease (PAD) and unrecognised trauma. A study conducted in the Northwest of England showed an annual incidence of DFU of 2.2% (C. Abbott et al., 2002), and the lifetime incidence has been estimated between 15-20% (Singh et al., 2005). Around 40% of people with DFUs will experience an early recurrence within one year of healing, and a further 25% will get a late recurrence (within 5 years) (Armstrong et al., 2017). One of the strongest predictors of DFU recurrence is a previous foot ulcer (Crawford et al., 2020).

In the UK the costs of managing diabetic foot disease represent 0.6-0.7% of total NHS expenditure, which equates to £ 1 billion or £1 out of every £140 (Kerr et al., 2019).

DFUs place great financial and psychological burden on people with diabetes (Fejfarová et al., 2014), their families, and the healthcare sector (Kerr et al., 2019). They are associated with increased levels of morbidity (Lazzarini *et al.*, 2018). DFUs are the main cause of all non-traumatic lower limb amputations. People with diabetes are 23 times more likely to undergo an amputation compared to those without diabetes (Holman et al., 2012). Such amputations have been shown to be potentially life shortening or even life threatening (Moulik et al., 2003). DFUs have a similar or higher five-year mortality rate than many cancers (Armstrong et al., 2020).

Data from the National Diabetic Foot Audit on 108,450 ulcer episodes shows that faster referral to specialist foot care services is associated with fewer severe ulcers and better 12-week outcomes (NHS Digital 2025).

Charcot neuroarthropathy is a relatively rare but serious complication that can affect people with peripheral neuropathy and is most common found in people with diabetes. It is a progressive degenerative condition that affects the bones, joints, and soft tissues. There is uncontrolled inflammation, bones become weakened which can lead to fractures and joint dislocation (Jeffcoate & Game 2022). In 2018 a regional survey of 205,033 people with

diabetes in the East Midlands, UK reported a point prevalence of 0.04% (Metcalf *et al.*, 2018). The classic presentation of acute Charcot neuroarthropathy is a unilateral red, hot, swollen, foot with or without pain. These are often the first signs of early Charcot neuroarthropathy, before changes to bone and joints are evident.

For the most up to date (published 2023) review of the evidence and clinical guidelines we recommend the systematic reviews and guidelines produced by the International Working Group on the Diabetic Foot (IWGDF). They cover, prevention of ulceration, off-loading, PAD, infection, wound healing interventions, Charcot-osteoneuroarthropathy and classification tools. They are available free online at:

- [Systematic reviews 2023 - IWGDF Guidelines](#) and [Guidelines \(2023 update\) - IWGDF Guidelines](#)

For guidelines for England and Wales please refer to NICE guideline NG19 - Diabetic foot problems: prevention and management [Overview | Diabetic foot problems: prevention and management | Guidance | NICE](#). For guidelines for Scotland please refer to SIGN 116 – Management of diabetes [sign116.pdf](#)

During the workshops we also discussed the following subjects and papers;

- The use of SGLT2s - Highton P, *et al.* The use of SGLT2 inhibitors in people with diabetes-related foot disease: A Delphi-based consensus study. *Diabetes Obes Metab.* 2025 Aug;27(8):4537-4546. doi: 10.1111/dom.16498. Epub 2025 Jun 11. PMID: 40495570; PMCID: PMC12232341.
- The use of oral vs IV antibiotics for the treatment of osteomyelitis - Li HK, *et al* Oral versus intravenous antibiotic treatment for bone and joint infections (OVIVA). *N Engl J Med* 2019;380:425-436.
- UK outcomes of Charcot - Game FL, *et al.* Audit of acute Charcot's disease in the UK: the CDUK study. *Diabetologia*. 2012 Jan;55(1):32-5. doi: 10.1007/s00125-011-2354-7. Epub 2011 Nov 8. Erratum in: *Diabetologia*. 2012 Mar;55(3):862.
- Microbiology sampling (or not) – Sotto A, *et al.* Beneficial effects of implementing guidelines on microbiology and costs of infected diabetic foot ulcers *Diabetologia* (2010) 53:2249–2255
- Management painful neuropathy - Tesfaye S, *et al.* OPTION-DM trial group. Comparison of amitriptyline supplemented with pregabalin, pregabalin supplemented with amitriptyline, and duloxetine supplemented with pregabalin for the treatment of diabetic peripheral neuropathic pain (OPTION-DM): a multicentre, double-blind, randomised crossover trial. *Lancet*. 2022 Aug 27;400(10353):680-690.

References

Abbott, C., Carrington, A., Ashe, H., Bath, S., Every, L., Griffiths, J., Hann, A., Hussein, A., Jackson, N., Johnson, K., Ryder, C., Torkington, R., van Ross, E., Whalley, A., Widdows, P., Williamson, S., & Boulton, A. (2002). The North-West Diabetes Foot Care Study: incidence of, and risk factors for, new diabetic foot ulceration in a community-based patient cohort. *Diabetic Medicine*, 19(5), 377–384. [j.1464-5491.2002.00698.x20170112-15974-1f4o0ie-libre.pdf \(d1wqxts1xzle7.cloudfront.net\)](https://doi.org/10.1464-5491.2002.00698.x20170112-15974-1f4o0ie-libre.pdf)

Armstrong, D., Boulton, A., & Bus, S. (2017). Diabetic Foot Ulcers and Their Recurrence. *New England Journal of Medicine*, 376(24), 2367–2375. <https://doi.org/10.1056/nejmra1615439>

Armstrong, D., Swerdlow, M., Armstrong, A., Conte, M., Padula, W., & Bus, S. (2020). Five year mortality and direct costs of care for people with diabetic foot complications are comparable to cancer. *Journal of Foot and Ankle Research*, 13(16), 1–4. <https://doi.org/10.1186/s13047-020-00383-2>

Crawford, F., Chappell, F., Lewsey, J., Riley, R., Hawkins, N., Nicolson, D., Heggie, R., Smith, M., Horne, M., Amanna, A., Martin, A., Gupta, S., Gray, K., Weller, D., Brittenden, J., & Leese, G. (2020). Risk assessments and structured care interventions for prevention of foot ulceration in diabetes: Development and validation of a prognostic model. *Health Technology Assessment*, 24(62), 1–232. <https://doi.org/10.3310/hta24620>

Jeffcoate, W., & Game, F. (2022). The Charcot Foot Reflects a Response to Injury That Is Critically Distorted by Pre-existing Nerve Damage: An Imperfect Storm. *Diabetes Care*, 45(7), 1691–1697. <https://doi.org/10.2337/dc21-2508>

Holman, N., Young, R., & Jeffcoate, W. (2012). Variation in the recorded incidence of amputation of the lower limb in England. *Diabetologia*, 55(7), 1919–1925. <https://doi.org/10.1007/s00125-012-2468-6>

Kerr, M., Barron, E., Chadwick, P., Evans, T., Kong, W. M., Rayman, G., Sutton-Smith, M., Todd, G., Young, B., & Jeffcoate, W. J. (2019). The cost of diabetic foot ulcers and amputations to the National Health Service in England. *Diabetic Medicine*, 36(8), 995–1002. <https://doi.org/10.1111/dme.13973>

Fejfarová, V., Jirkovská, A., Dragomirecká, E., Game, F., Bém, R., Dubský, M., Wosková, V., Marta, K., Skibová, J., Wu, S., Křížová, M., Skibová, J., & Wu, S. (2014). Does the diabetic foot have a significant impact on selected psychological or social characteristics of patients with diabetes mellitus? *Journal of Diabetes Research*, 2014, 371938. <https://doi.org/10.1155/2014/371938>

Lazzarini, P., Pacella, R., Armstrong, D., & van Netten, J. (2018). Diabetes-related lower-extremity complications are a leading cause of the global burden of disability. *Diabetic Medicine*, 35(9), 1297–1299. <https://doi.org/10.1111/dme.13680>

Metcalf, L., Musgrave, M., Bentley, J., Berrington, R., Bunting, D., Mousley, M., Thompson, J., Sprengel, M., Turtle-Savage, V., Game, F., & Jeffcoate, W. (2018). Prevalence of active

Charcot disease in the East Midlands of England. *Diabetic Medicine*, 35(10), 1371–1374.
<https://doi.org/10.1111/dme.13679>

Moulik, P., Mtonga, R., & Gill, G. (2003). Amputation and mortality in new-onset diabetic foot ulcers stratified by etiology. *Diabetes Care*, 26(2), 491–494.
<https://doi.org/10.2337/diacare.26.2.491>

NHS Digital. (2022). *National Diabetic Foot Care Audit (NDFA)*. <https://digital.nhs.uk/data-and-information/publications/statistical/national-diabetes-footcare-audit/2025>