

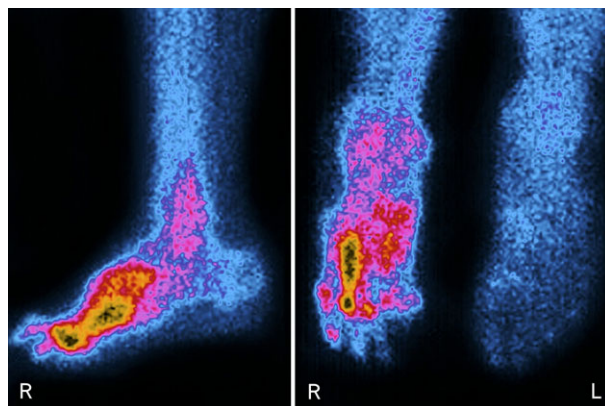
Invited Editorial

Audit of diabetic foot care services – a timely initiative

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Regular national audits, initially of oncology treatments, then of cardiovascular disease and stroke in England, have been successful in improving standards of care and in identifying areas where services should be enhanced [1–4]. Auditing diabetes-related outcomes might be seen as even more challenging because of the diversity of adverse outcomes and their causation. Types 1 and 2 diabetes, pancreatic and genetically determined diabetes share the fundamental characteristics of hyperglycaemia associated with micro- and macrovascular complications. This results in a wide range of ages, comorbidities, ethnicities and levels of deprivation amongst the population living with diabetes in the UK. Despite this, the nationally audited retinal screening programme has achieved remarkable success in the early identification and treatment of sight-threatening retinopathy [5]. This effectiveness in reducing diabetes-related blindness has been founded on comprehensive co-operation of general practices, retinal screening teams, ophthalmology departments and co-ordinated information technology. The willing participation of the population living with diabetes has been crucial. Early identification and mitigation of diabetes-related foot problems should also be possible. The article in the present issue of *Diabetic Medicine* by Holman *et al.* [6], describing a pilot study of diabetic foot ulcer outcomes, represents an essential first step towards the development of a national audit. Once validated on a nationwide scale, the process should highlight generic and area-specific opportunities to optimize interventions to heal ulcers, prevent recurrence and, most importantly of all, minimize potentially avoidable amputations.

Any such audit will be of great value if screening is comprehensive and validated, with accurate recording and follow-up. The pilot study has shown that this can be accomplished in 10 min per patient in the majority of cases in hospital-based specialist diabetes foot clinics in 23 diverse areas; however, this time is significant in the typically very busy diabetic foot clinic. The transformation of this pilot study into a national audit would therefore do well to derive recommendations for administrative support to ensure accurate data collection and full follow-up (17% of patients were lost to follow-up even in this research project) The



Cover image: Diabetic foot ulcer. Gamma scans of two views of an ulcer on a foot of a patient with diabetes. The scans detect gamma radiation from a radioactive isotope that is injected into the bloodstream. The scan has revealed the decreased blood supply to the ulcerated area (yellow/red/pink area with a black centre). Credit: BSIP, Cavallini James / Science Photo Library.

successful national audits in oncology, cardiovascular diseases and diabetic retinopathy all require reliable administrative and information technology support and so should diabetes foot care audits. Established national audits also rely on imaging to define or stage the disease and monitor progress. There is a case here too for imaging-diabetic foot ulcers. Photographs have been validated in the HEELS studies (evaluation of lightweight fibreglass heel casts in the management of ulcers of the heel in diabetes, www.heels-trial.co.uk) and are a useful adjunct to monitoring in many centres. The recommended SINBAD appraisal of ulcers comprises a six-point score, which includes the all-important features of ulcer position, area and depth, infection, sensory loss and vascular insufficiency [7]. The most challenging of these to assess and monitor is the last and there should be a requirement for hand-held Doppler assessment of foot pulses by a trained participant in all foot clinics [8,9]. These pilot study follow-up results are consistent with previous findings that certain features of diabetic foot disease at presentation to the specialist team do predict an adverse outcome [10]. These include hind foot ulceration, depth/duration of ulceration and presence of vascular insufficiency, all consistently encapsulated in the SINBAD score in the pilot study.

More detailed analysis of characteristics associated with outcome of the ulcers in the study is of limited value because of the large minority of patients lost to follow-up and the small number of non-white British patients with foot ulcers in the study. The focus of recruitment on

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specialist diabetic foot services also excludes patients from the community who present as emergencies and proceed direct to amputation.

There are two larger issues. Firstly, an audit based solely on hospital diabetes clinics will bias results to more severe cases. Where a community foot protection team is effective many diabetic foot ulcers will be healed or stabilized as chronic problems in older patients with other more significant comorbidities. Ideally, a comprehensive audit of all ulcers in each district would not only complete the picture but would also be of value in workforce-planning, most especially for community podiatry. Secondly, treatment of diabetes-related foot ulceration represents an expensive form of tertiary prevention. The development of diabetes has primarily not been prevented because of our inability to stem the tide of increasing obesity in the population from an ever-younger age. The development of neuropathy, deformity and vascular insufficiency in those with diabetes can only be secondarily reduced when a better understanding of causation of these complications emerges.

Finally, there is a strong case that future accreditation to run a diabetic foot service should be conditional on participation in the audit. This is an integral part of the success of established national audits. There can then be hope that the 'diabetic foot emergency' can be accorded the same priority as acute coronary syndrome and stroke.

R. Paisey

*Diabetes and Endocrinology Department, South Devon
NHS Healthcare Trust, Torbay, UK*

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