

An audit to improve the care of the diabetic foot

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Abstract

Background: More than 15% of people with diabetes will develop a foot ulcer during their lifetimes (Palumbo and Melton, 1995; Singh et al, 2005). In prospective cohort studies conducted among people with diabetes, a history of foot ulceration increased the subsequent amputation risk by two to over three-fold (Adler et al, 1999; Moss et al, 1999). The Government, through The Diabetes National Service Framework (NSF) (2001) and National Institute for Health and Clinical Excellence (NICE) (2004) provided clinicians working in the management of diabetic foot disease with overarching guidance for the delivery of good quality care. **Objectives:** To enhance and develop the national guidance and create minimum standards of care that people with diabetes could expect. **Methods:** The development of practical guidelines and a subsequent anonymous, self-assessment audit to enable services to benchmark their care. **Results:** Only two from 24 trusts met all the minimum standards and identified areas of common concern across the north-west region. **Conclusions:** Evidence-based guidelines must be produced in conjunction with an implementation strategy. This should involve the audit process to monitor adherence in practice to the defined minimum standards of care. The development of an evidence-based specific guideline has enabled North West podiatry services to benchmark their care. **Conflict of interest:** None.

KEY WORDS

Diabetes
Foot care
Guidelines
Audit
Benchmarking

Foot problems are of great significance for people with diabetes and their families (Jude et al, 2004) and can cause reduced mobility, greater morbidity and also have significant financial implications for the NHS. The average cost of one lower limb amputation has been estimated to be £10,960 and the average annual cost of treatment for a foot ulcer is estimated to cost £3,600 (York Health Economics Consortium, 1997). Studies on patients' quality of life have demonstrated

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significant reductions in physical, social and emotional function in patients with foot ulceration (Carrington et al, 1996; Ragnarson et al, 2000; Vileikyte et al, 2003).

There remains confusion and conflict surrounding the management of the diabetic foot that may result in sub-optimal care for patients with diabetes. An audit revealed a five-fold difference in amputation rates within different localities in the north-west region of England. In conjunction with the NHS' clinical governance agenda and in response to such inequalities in care the North West

Podiatry Managers Group commissioned the development of guidelines for the management of the diabetic foot. The guidelines were developed with the primary aim of adding detail and clarity to the National Institute for Health and Clinical Excellence guidance *Prevention and Management of Foot Problems* (NICE, 2004) and providing a practical tool for departments and practitioners to manage people with diabetic foot problems. The aims of the guidelines were to:

- ▶▶ Produce minimum standards of patient care

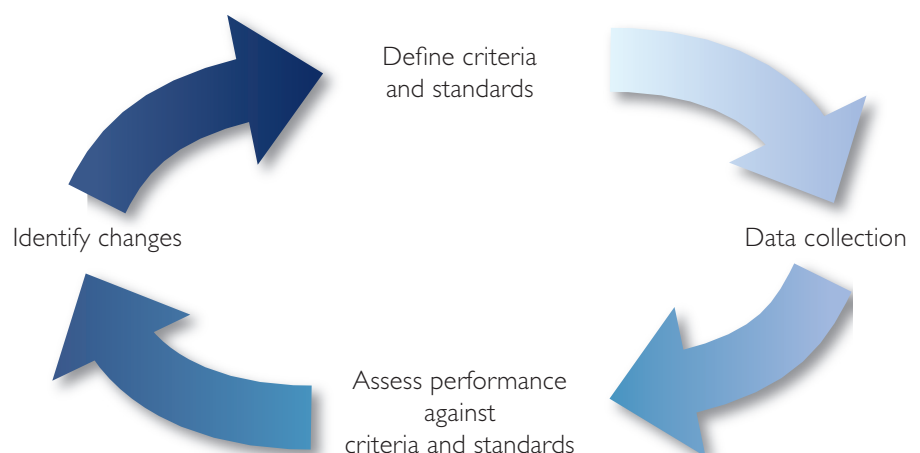


Figure 1. The audit cycle.

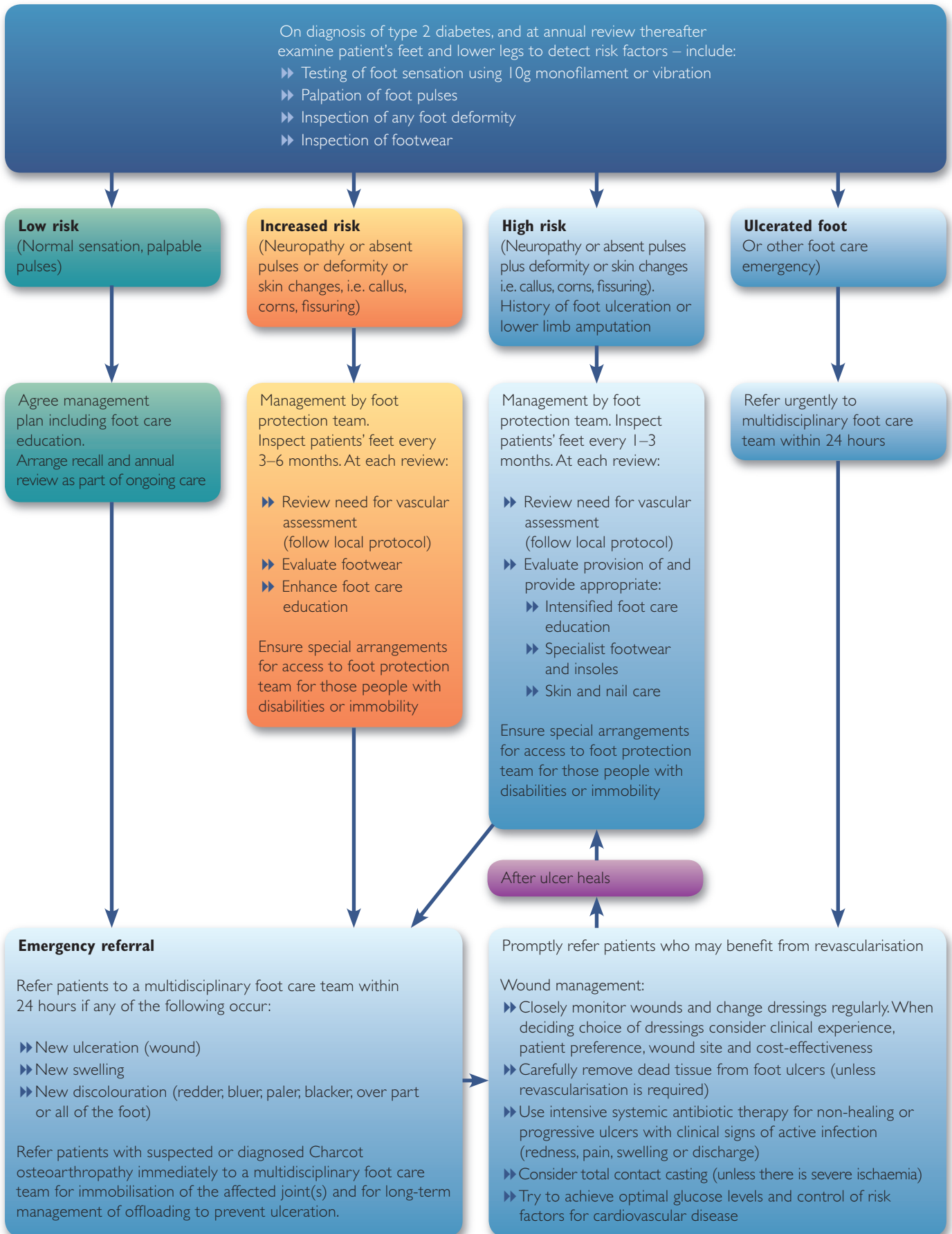


Figure 2. The diabetic foot care algorithm.

- ▶▶ Reduce inequality of care across the north-west region
- ▶▶ Define 'gold standard' practices with guidance and working examples of good practice from neighbouring trusts to provide a benchmark for other PCTs
- ▶▶ Use the audit cycle (*Figure 1*) to embed the guidelines into clinical practice.

Development of the guideline

A clinical effectiveness group (CEG) was developed that consisted of podiatry services representatives from 25 trusts in the north-west of England. Due to the amount of interest and the size

of the group, a decision was taken to split the group up so that each group could cover the three distinct management categories of the diabetic foot as identified by NICE (2004). The document was peer reviewed outside of the profession by diabetologists and educationalists.

The categories are defined by the three stages of diabetic foot pathology: the current low-risk foot; the at-risk foot and the ulcerated foot. A chair for each sub-group was identified. To ensure concordance of style and content the evidence base was systematically reviewed in all three stages by an editorial

board that consisted of the chairs from the sub-groups. The guidelines were based on NICE and relied heavily on their evidence review but Cinahl and Medline were used as standard across the groups to search the evidence.

The guidelines were peer-reviewed nationally by key clinical champions of the diabetic foot: Dr RJ Young Consultant Diabetologist, Salford (Chair of The NICE diabetes foot group); Dr M Young Consultant Diabetologist, Edinburgh (Associate Editor, *The Diabetic Foot Journal*); Professor P Wiles Consultant Diabetologist (Professor of the Diabetic Foot, Salford University) and A McInnes, Senior Lecturer, University of Brighton (Editor, *The Diabetic Foot Journal*). The reviewed guidelines were disseminated to all the north-west podiatry departments for implementation. The guidelines were then housed on the National Library for Health at <http://www.library.nhs.uk/diabetes/viewResource.aspx?resID=79358>. An algorithm of the guideline was also developed as an easy reference guide (*Figure 2*).

Audit

One month following publication all 32 podiatry services within the north-west region were sent an anonymised self-assessment audit tool (*Table 1*) to benchmark their services against the minimum standards as identified by the guidelines. The audit tools were completed by either the podiatry service manager or their clinical lead for diabetes and returned to the group chair.

Audit results

There were 32 audit forms distributed to all podiatry service managers and their clinical leads for diabetes, of which 24 were returned. Of these, only two felt they met all the minimum standards. The areas where the standards were not met are shown in *Figure 3*.

The results show that there were four main areas for concern. Ten of the 24 trusts did not provide comprehensive annual complication assessment and four trusts were not using the standard risk stratification tool. Nine of the 24 trusts could not provide the minimum off-loading requirement for a plantar ulcer

Table 1.

Self-assessment audit tool sent to participating podiatry services

Low-risk foot:	
1) Complication assessment (screening) carried out by trained personnel within the area	Yes/No/Ongoing
2) Risk stratification carried out using Blackburn model or similar	Yes/No/Ongoing
At-risk patients:	
1) Regular podiatry for all at-risk patients by registered podiatrist	Yes/No
2) Verbal and written education given	Yes/No
3) Access to a registered chiropodist/foot care team within 24 working hours	Yes/No
4) Footwear assessed and reviewed	Yes/No
5) Orthoses assessed	Yes/No
6) Assessment and referral for other lifestyle changes	Yes/No
Ulcerated foot:	
1) All wounds closely monitored and dressings changed regularly	Yes/No
2) All diabetic wounds probed with a blunt sterile probe to establish full extent	Yes/No
3) In the absence of significant arterial disease wounds are sharp debrided by all staff	Yes/No
4) Are Derby sandals and 10mm Poron liners available to offload plantar ulcers?	Yes/No
5) Are all patients with foot ulcers provided with written contact details for accessing the service?	Yes/No
6) Are all patients offered education which encourages partnership in decision-making?	Yes/No
7) Is all patient advice documented in the patient notes?	Yes/No
8) Are there referral pathways in place for deteriorations in foot ulcers to the diabetic foot care team?	Yes/No
9) Is all assessment and treatment advice documented?	Yes/No
10) Are follow-up requirements documented?	Yes/No
11) Are abbreviations used? If so, is there a referenced copy?	Yes/No
12) Are copies of referrals and patient correspondence filled in the notes?	Yes/No
13) Are details of consent recorded?	Yes/No
14) Can the notes be audited to extract data?	Yes/No

which is a Poron-lined Derby sandal. Nine trusts did not routinely carry out probing of wounds and 10 did not routinely carry out wound debridement. This could be rectified with linked training. Two other areas highlighted were the lack of access to a 24-hour foot care team and the development of an agreed care pathway.

Discussion

The CEG recognised early in the process that the production of the guideline alone would not necessarily equate to an improvement in patient care. The importance of the use of the audit cycle to drive its actual implementation cannot be underestimated. By performing the baseline audit, individual podiatry services were able to identify gaps in, or the absence of, care pathways.

The guideline identified some trusts that were strong in these areas and this enabled under-performing trusts to use these examples of good practice and adopt or adapt them to their local population needs. For example, one local trust had developed an antibiotic protocol that was adopted across much of the region. The audit also revealed that the departments who had identified a weakness in their delivery of care had used the guidance to advocate for changes in practice and in some instances to attract funding to deliver a change in service.

The act of undertaking an audit improves provision both as an outcome and by the actual process of reviewing and reflecting on service provision. A further benefit of the audit process is it can aid continuing medical education. As a result of the process of guideline development and audit a need for further training around diabetic foot management was identified including the probing and debridement of wounds. The CEG is now developing a training needs analysis.

The next stage of the audit cycle is to review the changes after the baseline audit and measure them against the original minimum standards by the process of re-auditing. The audit although comprehensive in respect of its geographical coverage was limited by its focus on a single profession. This

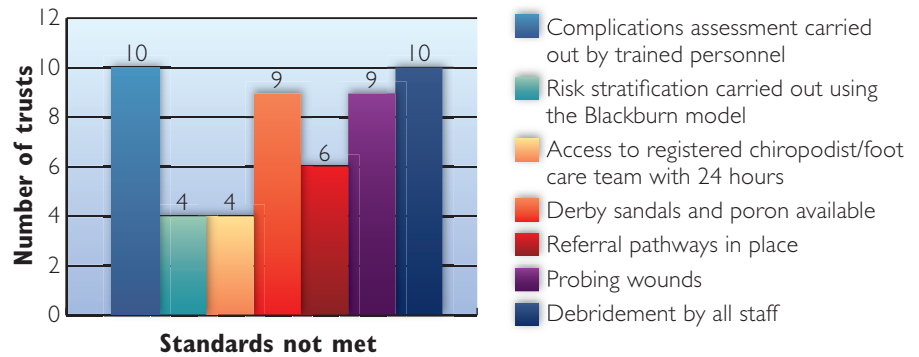


Figure 3. The number of trusts not meeting the specified standards.

was driven by the commissioners of the work. In retrospect an audit of a whole health economy across a region using all professional groups would provide further insight into total service provision. This again could be compared from district to district. The training needs analysis has now been used by some local trusts as a global tool to identify gaps across all the professions working in diabetic foot disease.

Conclusions and future work

The development of an evidence-based specific guideline has enabled north-west podiatry services to benchmark their care. The baseline audit provided an impetus to their implementation. The minimum standards were subsequently adopted by the Greater Manchester Association of Primary Care Trusts to be used as a quality indicator when commissioning a diabetic foot service. A subsequent audit and a formal review of the guidelines to ensure they remain current is to be undertaken shortly. The guidelines have been adopted at a national level by Foot in Diabetes United Kingdom (FDUK) and recognised as examples of good practice by the Society of Chiropodists and Podiatrists and Diabetes UK. The guidelines have also been adopted by many other regional podiatry services around the country. **WUK**

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