

Questionnaire survey of community diabetic foot ulcer management

Louise Mitchell, Rosemary Short, Ewan A Masson

ARTICLE POINTS

1 Knowledge and expertise in dealing with ulcers in the community is poor, though many patients are not seen in the clinic.

2 All patients with diabetic foot ulcers should be referred for assessment by appropriately experienced staff.

3 Non-directed education (e.g. study days) may often be attended by those in least need of it.

4 The emphasis on dressings in the community reflects the low priority given to pressure relief.

5 There is a need for directed care finding if the outcome for diabetic foot ulcers is to improve.

KEY WORDS

- Integrated care
- Wound management
- Diabetic foot ulcer
- Questionnaire survey

Louise Mitchell is Senior II Chiroprapist and Rosemary Short is Chief Chiroprapist at Hull and Holderness Community NHS Trust; Ewan A Masson is Senior Lecturer in Medicine at the University of Hull, and Honorary Consultant at Royal Hull Hospitals Trust.

Introduction

The principles of wound management for diabetic foot ulcers are well established and optimal management requires integration between the hospital and community. To evaluate the quality of primary care provision of diabetes services within a health authority in north-east England, a questionnaire survey was sent to all GPs, practice and district nurses. Data sought included approach to callus debridement, pressure relief and choice of dressing. Various inconsistencies were uncovered, some of which give substantial cause for concern. The main conclusion to emerge was the continuing need for education.

Over the past two decades, numerous changes have occurred in the delivery of diabetes care in the UK. Hospital-based outpatient units have evolved into specialist diabetes centres, where a multidisciplinary team approach to care is adopted. In many areas, diabetes care has increasingly become a shared responsibility between primary and secondary care sources. Whether the best care is provided by specialist sources, primary care or shared care is debated (Sowden et al, 1995).

The principles of diabetic foot ulcer management in an integrated multidisciplinary clinic are well established, and include callus reduction, pressure relief, vascular intervention as required, antibiotic therapy and education. As specialist foot clinics proliferate, one might assume that optimal ulcer management would also follow.

The management of diabetes care in Hull and East Riding is currently shared between primary care and hospital services. A multidisciplinary, consultant-led diabetes service is operational. The diabetic foot clinic operates an open referral system for urgent foot problems, treating patients within 24 hours. Ideally, one would prefer a patient with diabetes and a foot ulcer to attend the specialist clinic, even if only once for assessment.

In recent years, sustained local efforts to promote interest in diabetic foot care have included open study days, community

outreach, and invitations to attend the diabetic foot clinic. Despite attempts to educate community medical and paramedical personnel regarding referral and treatments, anecdotal experience suggested that there was substantial room for improvement. A comprehensive survey of diabetic foot care in the East Riding Health Authority was therefore conducted to identify and evaluate weaknesses in the service provided.

Methods

Primary care workers: A postal questionnaire was distributed to all GPs and community nurses (practice and district nurses).

Questionnaires sought information on: assessment, choice of dressing, callus debridement and referral patterns. 'Diabetic foot ulcer' was used as a general term, with no distinction made between neuropathic or ischaemic lesions. All questionnaires were anonymised, but colour coded by health profession.

Assessment: Respondents were asked whether a standardised assessment was used for foot ulcers and, if so, to indicate its frequency of use. Respondents were asked to state the important factors to be assessed when treating a diabetic foot ulcer. Nine factors generally considered important in the assessment of a diabetic foot ulcer served as a comparator (Knowles and Jackson, 1997).

Dressings: A comprehensive list of dressings was supplied and each respondent was asked to indicate the frequency of use of

each (usually, sometimes or never) in the treatment of diabetic foot ulcers.

Callus debridement: Respondents were asked to indicate the necessity of callus removal at the site of the ulceration (always, sometimes or never).

Referral patterns: Respondents were asked which method of referral they most frequently used (e.g. telephone, referral letter, via GP, or other) and how they were informed of such referral possibilities. From a list of conditions that may be associated with a diabetic foot ulcer (pain, local infection, cellulitis and gangrene), respondents were asked when an appropriate referral should be made. Both GPs and community nurses were asked which health professional they would refer the patient to in each case.

District nursing audit: A one-month prospective audit of all district nursing activity relating to diabetic foot ulceration was also undertaken. The data collected were later cross-referenced with local diabetic clinic records to identify known patients.

Emergency referrals: All emergency referrals to the diabetic foot service were recorded prospectively over a 6-month period, in an attempt to monitor referral sources and the appropriateness of referrals. Information recorded included referral source and nature of foot problem.

Results

Response rates to the questionnaire were 25% for GPs and 60% for practice/district nurses. Only 26% of responding GPs and 21% of responding nurses had had any relevant experience or specialist training in diabetic foot care. Despite this lack of training, 86% of GPs participated in diabetes mini-clinics within the practice.

Assessments: The use of a standardised assessment when managing a diabetic foot ulcer was indicated by 26% of GPs and 34% of nurses. The frequency of such assessment varied greatly between GP and nurse (Table 1). ‘Other’ provided space for comments which, although varied, basically indicated that the frequency of assessment often depended upon the individual.

Figure 1 highlights the important factors to be assessed when treating a diabetic foot ulcer (as chosen by the primary care workers).

Dressings: With respect to type of

dressings applied, 80% of GPs delegated the choice of dressing to the district nurse. The variety of recommendations made by the nurses is summarised in Figure 2.

Callus debridement: Only 10% of GPs and 27% of community nurses advocated routine debridement of callus (Table 2).

Referral to diabetes centre: The most frequently used method of referral, for all primary care workers, to the diabetic foot clinic was the telephone (61–64%). With regard to how they were informed about the methods of referral to the centre, 37–41% indicated by secondary care sources (consultants, specialist nurses and podiatrists). Data collected regarding the appropriateness of referral to the diabetic

Table 1. Frequency of use of a standardised assessment

	Initial Visit	Occasional visit	Most visits	Every visit	Other
GP	13%	17%	26%	26%	17%
Nurse	3%	6%	26%	48%	17%

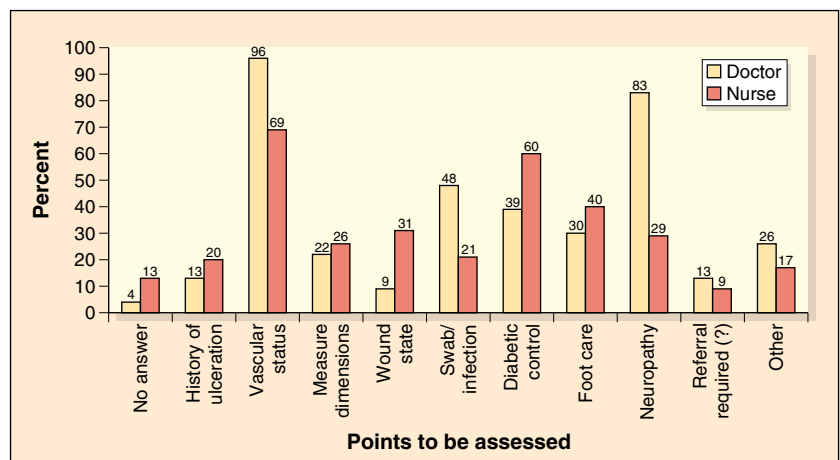


Figure 1. Points to be assessed when treating diabetic foot ulcers (as chosen by doctors and nurses).

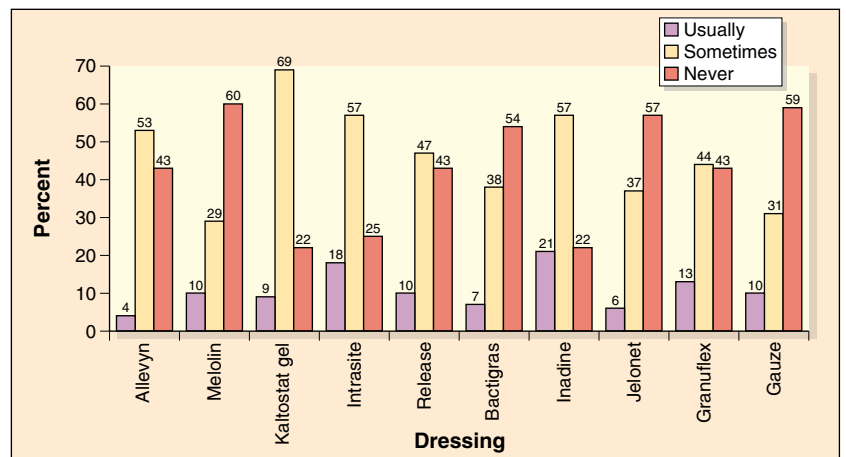


Figure 2. Dressing used/recommended by nurses in the treatment of diabetic foot ulcers.

foot clinic are summarised in Figures 3 and 4.

District nursing audit: In the audit period, 35% of individuals treated by the district nurses were not known to local diabetes services. Emergency referrals are summarised in Table 3.

Discussion

Like many questionnaire surveys, the overall response rate was poor. However, it is reasonable to assume that the limited number of respondents comprised individuals who had sufficient knowledge or interest to complete the questionnaire. Therefore, they can provide us with some insight into the current problems within East Riding Health Authority.

In the general diabetic clinic, basic foot examinations are performed annually and if patients are known to be at high risk of developing foot problems they are assessed more regularly (usually within the foot clinic).

Accurate assessment is necessary for the successful treatment of a diabetic foot ulcer. This must include not only the basic wound appearance (size, shape, depth and state) but also the aetiology, presence of infection, vascular status and neurological status. Results showed that 26% of GPs and 34% of nurses used a standardised assessment when managing a diabetic foot ulcer. The nurse respondents appear to focus on assessing the wound appearance (dimensions and state), diabetes control and vascular status, whereas the GPs appear more interested in control of infection, vascular status and neurological status. One reason for the difference may be extent of clinical knowledge, although knowledge may not truly reflect clinical practice. These results indicate that there is a need for a standardised assessment specific to the diabetic foot.

The pattern of emergency referral tends to confirm our concerns that primary care professionals may not access services appropriately. The majority of referrals come directly from patients or carers.

Choice of dressings

Dressings alone will not heal a foot ulcer (Knowles and Jackson, 1997); callus removal and pressure relief must be used for neuropathic ulcers, while ischaemic ulcers require vascular intervention for healing to occur. Unfortunately, the debate surrounding the choice of appropriate wound dressings remains, and appears to be the priority for community workers.

Little scientific evidence exists to support the use of any specific dressing for foot ulceration (Fisken and Digby, 1996; Miller, 1998). However, simplified guidelines on the important characteristics of a foot ulcer dressing have been published (Foster et al, 1994).

The current survey showed that the majority of community nurses favoured a variety of moist wound healing dressings for ulcer treatment, whereas in a simultaneous survey of the diabetic foot clinic, such products were rarely used, the emphasis

Table 2. Frequency of callus removal at ulcer site

	Always	Sometimes	Never
GP	10%	70%	20%
Nurse	27%	67%	6%

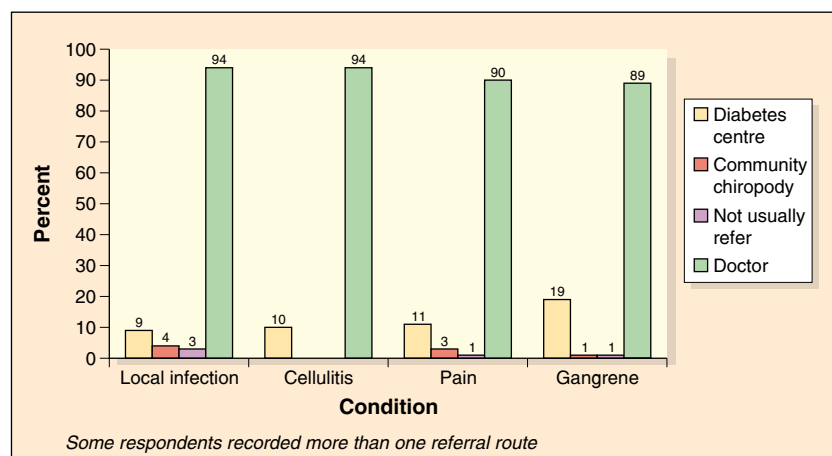


Figure 3. Nurses' indications of point of first referral, or not, of patients with diabetic foot ulcers.

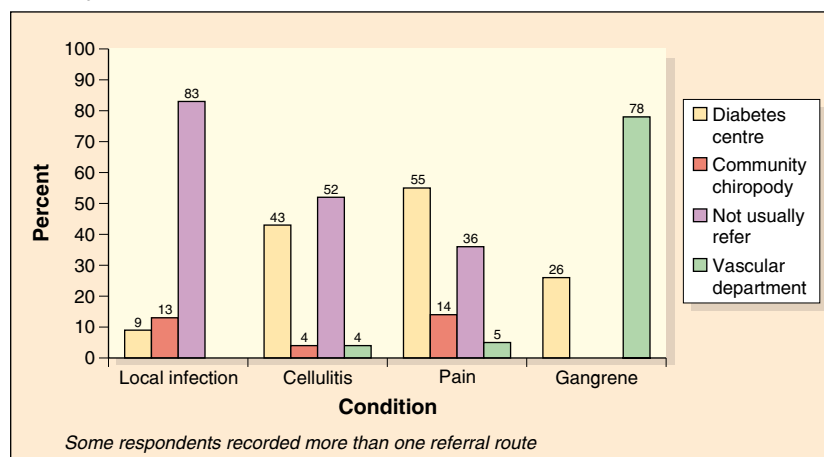


Figure 4. GPs' indications of point of first referral, or not, of patients with diabetic foot ulcers.

PAGE POINTS

1 The importance of callus and its removal is often overlooked.

2 Pressure relief was not recognised as a treatment.

3 Podiatry referral was underused in the community.

4 The majority of community carers used expensive dressings rarely seen in the foot clinic.

being much more on lower unit cost dressings, with active pressure-relieving strategies. The dressings chosen by primary care workers included Allevyn, Intrasite and Kaltostat gel which, although very different, all provide a moist wound healing environment and are used on a spectrum of wound types and healing stages, in accordance with popular opinion that a moist wound environment is optimal for healing. A total of 60% of community nurses indicated that they never used sterile low-adherent dressings such as Melolin or Release. Generally, a varied choice of dressings were used by the nurses, with trends towards moist wound dressings. No specific dressing was favoured, suggesting that nurses may regularly alter their treatment regimen.

Debridement

Debridement is not always required when treating ischaemic diabetic foot ulcers, but the removal of necrotic/sloughy tissue and callus from the wound is required for most ulcers with a significant neuropathic component. Callus build-up in patients with diabetic neuropathy is a precursor of ulceration and

should therefore be reduced to a minimum as a preventive measure (Edmonds et al, 1986).

Of GPs, 20% stated they would never recommend debridement of callus, which is usually recognised as imperative in neuropathic ulceration. Routine debridement can also reveal ulceration underneath the callus (Knowles and Jackson, 1997). Patients with severe vascular compromise do not develop callosities at the ulcer site, and therefore debridement is not required. With 70% of GPs and 67% of nurses indicating that callus removal was sometimes necessary, a true reflection of opinions may not have been generated. Only a few respondents recognised the potential of the podiatrist in this matter. Clearly, more education is required; however, knowledge does not always influence behaviour, and the highest priority must be to get the patient seen by the most appropriate professional advisor. The best mechanism for achieving this has yet to be described.

Cause for concern

In conjunction with appropriate debridement and dressing changes, pressure-relieving devices must be used. This may be achieved in a number of ways, including chiropody felt padding, bed rest, casting techniques, insole therapy and a variety of differing footwear. However, pressure relief was not mentioned by any of the GPs or nurses in the survey.

Appropriate foot care for patients with, or at risk of developing, foot ulceration is afforded a high priority, and referral to the specialist foot clinic within the centre is encouraged from all sources. Given that the clinic operates an open referral policy (from health professional, carer or patient) and the catchment area, more referrals from community nurses might have been expected. It is of concern that 35% of ulcer patients were not known to the diabetes service. Ideally, one would prefer to see every patient with diabetes and a foot problem, if only for assessment, review or further referral. The importance of early referral to specialist foot clinics was highlighted by the healing rates achieved in past reports (Thompson et al, 1991; Murray et al, 1996).

The potential weakness of 'shared care' has been described in the past and further

Table 3. Summary of all emergency referrals made to the foot clinic over a six-month period

Nature of problem	Number of patients
Foot ulcer	26
Acute infection	8
Gangrene	1
Pre-ulcer	1
Blister	2
Oedema	1
Discolouration	1
No real problem	8
Not recorded	3
Origin of referral	Number of patients
Self/carers	18
Chiropody	11
District nurse	9
Practice nurse	6
GP	5
DSN	2

evaluation recommended (Sowden et al, 1995). The survey highlighted worrying deficiencies in GPs' and community nurses' approach to the diabetic foot ulcer, a problem that may potentially be limb- or life- threatening to an individual. Clearly, a focused approach to education is required, targeting the community nurses and chiropodists as well as GPs. The inconsistencies and the need for education, including when to refer to the diabetic foot clinic for assessment, have been communicated to secondary providers in a preliminary report (Mitchell and Masson, 2000).

The current survey suggests that district nurses had the most 'hands-on' contact with patients with diabetes and foot problems and may be the best target for future progress.

Conclusion

The survey revealed inconsistencies in approaches to diabetic foot ulcer management between community and diabetic foot clinics, indicating a continuing need to communicate

the holistic approach to diabetic foot ulcer treatment, incorporating callus removal, pressure relief, vascular intervention and appropriate dressing selection. ■

- Edmonds ME, Blundell MP, Morris ME, Maelor Thomas E, Cotton LT, Watkins PJ (1986) Improved survival of the diabetic foot: The role of a specialised foot clinic. *Quarterly Journal of Medicine* **60**(232): 763-71
- Fisken RA, Digby M (1996) Which dressing for diabetic foot ulcers? *Practical Diabetes International* **13**(4): 107-9
- Foster AVM, Greenhill MT, Edmonds ME (1994) Comparing two dressings in the treatment of diabetic foot ulcers. *Journal of Wound Care* **3**(5): 224-8
- Knowles EA, Jackson NJ (1997) Care of the diabetic foot. *Journal of Wound Care* **6**(5): 227-30
- Miller M (1998) Moist wound healing: the evidence. *Nursing Times* **94**: 74-6
- Mitchell L, Masson EA (2000) Diabetic foot ulcer management: a perspective of primary and secondary care. *Diabetic Medicine* **17**(2): 168
- Murray H, Young MJ, Hollis S, Boulton AJM (1996) The association between callous formation, high pressures and neuropathy in diabetic foot ulceration. *Diabetic Medicine* **13**(11): 979-82
- Sowden AJ, Sheldon TA, Alberti G (1995) Shared care in diabetes. *British Medical Journal* **310**: 142-3
- Thompson FJ, Veves A, Ashe H, Knowles EA, Gem J, Walker MG, Hirst P, Boulton AJM (1991) A team approach to diabetic foot care – the Manchester experience. *The Foot* **2**: 75-82

This work was supported by an educational grant from Smith and Nephew plc.

PAGE POINTS

1 'Shared care' is often promoted as a concept with little evidence of improved outcome for patients.

2 Early referral to experienced professionals (usually in the secondary sector) must be encouraged.

3 Barriers to the process must be identified and minimised.

4 District nurses apply dressings to most wounds and may be the best target for directed educational effort.