Diabetic foot care in the primary care setting

Nazma Toofany

The National Diabetes Support Team (NDST), in the introduction to its publication *Diabetic Foot Guide*, clearly states that 'the NHS should develop, implement and monitor agreed protocols and systems of care to ensure that all people who develop long-term complications of diabetes receive timely, appropriate and effective investigation and treatment to reduce their risk of disability' (NDST, 2006). This article explores how the author's primary care centre has enhanced the service it provides regarding diabetic foot care by adopting the General Medical Services contract (Department of Health [DoH], 2003a), National Institute for Health and Clinical Excellence guidelines (2004), and the National Service Framework for diabetes (DoH, 2001).

Article points

1. Because of the increased prevalence within the South Asian and Afro–Caribbean populations and because this population tend to develop diabetes at an earlier age, the chances of developing diabetic foot complications is higher than in Caucasians. Therefore, improving care for these people is essential.
2. Education underpins diabetes care at every contact between the person and the healthcare team in this general practice.

Key words

- Diabetic foot
- Education
- Foot examination
- Referral

There are 6034 people registered at the author's practice, 299 of whom have either type 1 or type 2 diabetes (a prevalence of 5.0%). This population with diabetes is predominantly South Asian in origin. A variety of languages is spoken by the practice's patients, therefore a number of different values, beliefs, cultures and perceptions to health and disease exist (Hill, 2006).

There is clear evidence of differences in the prevalence of type 2 diabetes in the UK among people of South Asian and Afro-Caribbean descent compared with Caucasians (three- and four-fold higher, respectively; Abbott et al, 2005). Because of the increased prevalence within the South Asian and Afro-Caribbean peoples and because this population tend to develop diabetes at an earlier age the chances of developing diabetic foot complications is higher than in Caucasions (Barnett, 2006). Therefore, improving care for these people is essential. At the author's practice many individuals have strong ties to family in, for example, Pakistan and they are known to return to their country of ethnic origin for long periods at a time; therefore, the continuity in their diabetes care becomes interrupted. Furthermore, many people on the practice register are Muslim and go on the annual pilgrimage to Mecca (the Hajj); some stay there for more than a month. Although not a requirement, most people choose to walk barefoot for a specific part of the pilgrimage – this has, in the author's experience, resulted in burns and ulcers.

The strategies formulated to care for these populations at the author's practice are discussed below.

The service provided

Because of the potential for improvement of health and reduction of healthcare costs, the evidence surrounding diabetic foot care has been extensively and formally reviewed many times in recent years (such as by the International Diabetes Federation [IDF], 2005). The St Vincent Declaration called for a 50% reduction in amputations resulting from gangrene (IDF, 1989), reflecting the belief that much morbidity is preventable by better management of diabetes (World Health Organization, 1999).

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Table 1. The author's qualifications that allow her to successfully examine the feet of people with diabetes in primary care.

The author is a trained educator and has developed the competency to assess the diabetic foot through attendance of: an in-house diabetes foundation course available in the local PCT; foot care workshops delivered by the diabetes specialist podiatrist; and successful completion of the Warwick Certificate in Diabetes Care. The author is competent enough to assess an individual's feet in order to detect risk factors for the development of foot complications, identifying problems at an early stage, to advise and educate them accordingly, and to refer to podiatry or other health care professionals as required.

Page points

1. Evidence suggests that evaluation of the conditions of the skin and soft tissue, and the musculoskeletal, vascular and neurological systems on an annual basis is important for the detection of feet at high risk of ulceration.
2. In order to be able to communicate with the majority of her patients more successfully the author has learnt to speak Urdu.
3. As well as physical examination of the feet, discussion about lifestyle (particularly smoking status), blood pressure control and correction of dyslipidaemia are included in the diabetes annual review.

General foot management

The diabetic foot care service delivered at the author's surgery can be divided into the following three sections.

- Annual foot examinations.
- The delivery of structured diabetes education that includes information on the self-care of feet.
- The referral process in the event of a diabetic foot problem.

Evidence suggests that evaluation of the conditions of the skin and soft tissue and the musculoskeletal, vascular and neurological systems on an annual basis is important for the detection of feet at high risk of ulceration (UK Prospective Diabetes Study, 1998). As part of ongoing care, all people with diabetes have an annual review, which is crucial in the early detection of symptoms that may lead to diabetic foot complications.

Foot examinations

The examination of patients' feet is carried out by the author (see *Table 1* for details of her qualifications to do so). In order to be able to communicate with the majority of her patients more successfully the author has learnt to speak Urdu (as well as English, she is also fluent in Hindi and French). The practice has invested in a Pushtu-speaking podiatrist who is available at the practice every Saturday (Pushtu is spoken by people from Afghanistan and Western Pakistan, where many people on the practice's register are from). All tests carried out are recorded on the diabetes template on the EMIS software (Egton Medical Information Systems Limited, Leeds), and their results get added to the diabetes database. This database also helps when audits are carried out, such as for the purposes of the General Medical Services (GMS) contract.

The tests are carried out to determine evidence for neuropathy, ischaemia, or infection. Examination of individual's feet includes:

- testing of foot sensation using a 10 g monofilament
- questioning about the presence of out-of-the-ordinary sensations such as pins and needles, tingling, pain or areas of numbness
- questioning about the presence or absence of sweating by the individual's feet
- the determination of foot pulses (by palpation of the dorsalis pedis and posterior tibial arteries), capillary return time, temperature and colour of the skin, the presence of symptoms of ischaemia, such as cramps, and intermittent claudication or rest pain
- inspection of the foot for deformities such as hammer or clawed toes and bone prominences; and for any nail deformities or infection
- visual evidence of neuropathy (dry skin, callus, dilated veins)
- checking the nails and between the toes for evidence of fungal infection
- inspection of footwear.

Following examination, the degree of risk of foot complications is classified as described in *Table 2*.

As well as physical examination of the feet, discussion about lifestyle (particularly smoking status), blood pressure control and correction of dyslipidaemia are included in the diabetes annual review. However, for those with any conditions that impede successful self-monitoring, for instance poor vision or arthritis, an agreed plan of management with a view to minimising inadvertent self-harm would be established. In such cases, active participation or involvement from family members is encouraged. Those who are housebound, living in care or nursing homes receive domicile visits for their examinations.

Structured patient education

All people newly diagnosed with type 2 diabetes are offered a referral to the community group education session to learn about self-care of their condition, including foot care. These sessions are available in English and Urdu and are provided in a variety of settings, such as the local fire brigade building. The author's practice has continued the diabetes education using the one-to-one approach to achieve a structured approach for the individual. Education underpins diabetes care at every contact between the person and the healthcare team in this general practice.

The National Institute for Health and Clinical Excellence (NICE) technology appraisal on patient education models for diabetes (NICE, 2003) defines structured patient education as:

> ***'A planned and graded programme that is comprehensive in scope, flexible in content, responsive to an individual's clinical and psychological needs and adaptable to his or her educational and cultural background.'***

As there is no consistency in the way structured education is provided across the board, the author's medical centre conceptualised 'structured education' for patients using the following four key criteria.

- Education must have a structured and written curriculum in place.
- Trained and, if necessary, multilingual educators must be made avilable to the service user.
- The education curriculum must be quality-assured to maintain consistently high standards.
- The opportunity for feedback must be provided.

Two consultation rooms are available in the practice for comfortably accommodating the patient plus up to three people accompanying him or her. A large enough lift is available to facilitate wheelchair users' attendence at diabetes sessions.

During a session, a plan of management between the patient and the practice nurse (the author) is agreed. The practice believes that supporting people to self-care is a crucial aspect of any high-quality diabetes service. This is also stipulated by the *National Service Framework for Diabetes: Delivery Strategy* which also sees structured education of people with diabetes as a vital part of empowering them to manage

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Table 2. Risk classification for the diabetic foot.

Risk status	Definition of risk	Notes on referral
Low risk	Foot pulses palpable; normal sensation; no marked deformity; no or minor foot pathology; no systemic complications.	No referral necessary; continue care in the GP practice with annual foot review; offer group health education.
At-risk	One of the following: neuropathy; absent pedal pulses or abnormal Doppler signal; a history of vascular surgery; marked foot deformity; painful neuropathy.	Non-urgent referral to the community podiatry team; continue with routine management based upon individual needs (see at least every 12 weeks); offer group health education; perform annual foot review.
High risk	Two of the following: neuropathy; gross foot deformity; absent pedal pulses as apparent by monophasic Doppler signal; history of foot ulceration; previous amputation; stable Charcot.	Urgent referral to diabetes specialist community-based podiatry; continue with specialist management based upon individual needs; perform regular reviews; offer intensive foot health education; advise attendance of community vascular clinic.
Active foot disease	One or more of: active Charcot; osteomyelitis; severe infection; cellulitis; current ulceration.	Immediate referral to acute diabetic foot clinic or the acute vascular department; send to the accident and emergency department if out-of-hours and critical ischaemia or gangrene is apparent.

Page points

1. The author's practice provides a one-to-one or individualised education session to impart information regarding diabetic foot care.
2. It believes that people with diabetes make a series of lifestyle choices regarding, for example, diet, physical activity and stress management.
3 An educational approach gives them the dependency and autonomy to self-care.

their diabetes (Department of Health, 2003b). During a typical session, the following issues are taken into consideration:

- cultural and religious backgrounds, values and beliefs
- previous diabetes education.

Information used to guide self-management includes the following.

- Individuals' preferred learning style: one-to-one or group, with or without family members; the provision of information and education in various media formats such as leaflets, videos, websites and picture booklets.
- Individuals' attitudes to diabetes and responsibilities for their personal care.
- Readiness to change.
- People's perceptions of their illness, for example, beliefs about effectiveness of treatments, seriousness of their condition and personal control.
- Personal experiences of diabetes.
- Self-empowered behaviour.
- Quality of life and wellbeing.
- Individual's self-management skills.
- Self-confidence and self-esteem.
- Degree of self-efficacy

Dissemination of advice

The author's practice provides a one-to-one or individualised education session to impart information regarding diabetic foot care. It believes that people with diabetes make a series of lifestyle choices regarding, for example, diet, physical activity and stress management. Therefore, it is anticipated that such an educational approach gives them the dependency and autonomy to self-care. The author believes that, if individuals are actively incorporated in the planning of their care, empowerment is more likely to be achieved.

During a typical education session the following issues are discussed regarding diabetic foot care:

- the many complications of diabetes
- that nerve damage in the feet and legs can result in the loss of sensation
- that pins and needles, numbness and burning sensations are all symptoms of neuropathy
- that cold and painful feet can be the result of reduced blood supply to the legs.

Self-care is widely encouraged. The following are particularly focused upon:

- washing feet daily with soap and luke-warm water and thoroughly drying them
- using moisturising cream regularly to prevent drying out of the skin (but avoiding putting cream between the toes)
- cutting or filing of toenails following the curve of the nail, thus avoiding the corners of the nail digging into the surrounding skin (which could result in infection or ulceration)
- the importance of consulting a podiatrist if thickened or ingrown nails, corns or calluses are noticed
- ensuring that feet are properly measured when buying new shoes
- the importance of checking the inside of shoes to ensure there are no cracks, grit or other foreign objects present prior to putting them on
- the importance of avoiding walking barefoot unnecessarily
- wearing the right sized socks or stockings, and changing them on a daily basis
- checking between the toes and underneath the feet, using a mirror if necessary
- looking out for anything that could lead to complications (such as cuts, scratches, blisters, change in colour or temperature of the skin, swelling, any pain and any discharges from a crack or break in the skin).

During the education session individuals are encouraged to ask questions and provide feedback. A diabetes handbook, which covers all of the topics discussed, is also provided at the end of the session.

Regarding those people who intend to go on the Hajj, the author's practice actively involves them in preparing for it safely. The community diabetes team offers workshops in the community setting for the local Muslim population, these are run between Ramadan and the beginning of Hajj. Individuals are encouraged to attend but additional advice is available at the practice to help them perform their pilgrimage while minimising the risk of developing any diabetic foot complications.

Referral process

In the author's experience, the practice of referring by email and telephone means that the referral process is very quick compared with using letters. The availability of multilingual staff within the author's practice, the close proximity of Birmingham Heartlands Hospital and the community diabetes team enhances the communication process between patients and staff, particularly during the referral process. It is essential to have clear guidelines for referral and information for where the patients should be referred to. These are incorporated into the Eastern Birmingham PCT diabetes guidelines which are available for all local practices. *Table 2* illustrates the classification of risk and referral criteria.

Practice performance

It is clear that following the implementation of the GMS contract, there has been an increase in the number of people who have had their foot assessment carried out within this practice. With regard to the points available in the Quality and Outcomes Framework (QOF) the author's practice has been doing well as there has been a marked increase in the percentage of people with diabetes who have a record of the presence or absence of peripheral pulses or neuropathy testing within the last 15 months.

Alongside the positive results some difficulties have also been encountered. It is common practice that people are reminded of their appointment 1 week before and again on the day of the appointment. Yet some individuals still fail to attend. People whose foot assessment is due but who are out of the country have a negative impact on the overall practice performance as determined by the QOF. Furthermore, those people performing the Hajj do not always conform to the advice given to them.

Conclusions

The GMS contract has had a big impact on diabetes care, including increasing the number of people who have a foot assessment carried out as part of the annual review process. Adopting NICE and National Service Framework recommendations with regard to diabetic foot care has also yielded improved results at the author's medical centre. Foot complications can be prevented by supporting people to manage their diabetes successfully and by identifying problems and risk factors early, followed by prompt referral if required. The role of primary care, particularly the practice nurse, is key to preventing people with diabetes needing the services of the acute secondary care diabetic foot clinic and the devastating effects that diabetic foot problems have on the quality of an individual's life. ■

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