

How can we improve the care of the diabetic foot?

Diabetes is an increasingly prevalent condition. In 2003 it was estimated that 4.5% of the developing world's population had diabetes — this was expected to increase by 31% by 2025 (Narayan et al, 2006). There are as many as two million people in the UK diagnosed with diabetes and of these 300,000 will develop a foot ulcer, 45,000 of which will require amputation (Diabetes UK, 2006). With an increasingly ageing population, these figures are expected to double by 2010 and the challenges currently faced by diabetic foot care services will be intensified. Diabetes-related foot complications are a major drain on the NHS — diabetic foot ulcers and the resulting amputations cost up to £502m per year, with a toe amputation costing £3,443, a foot amputation £7,786 and a leg amputation £10,979. Despite these depressing statistics there is disparity in service provision across the UK and the introduction of *The National Service Framework for Diabetes* (Department of Health, 2001) and guidance from the National Institute for Health and Clinical Excellence (NICE, 2004) have provided healthcare professionals with the standards required to provide a first-class service. The National Minimum Skills Framework (2006) also outlines the competencies that members of any diabetic foot care team should possess. Unfortunately, the ability to translate this guidance into clinical practice appears to be lacking. An audit of diabetes foot care services in the North West of England (Chadwick et al, 2007) revealed some serious deficiencies in provision. With these challenges in mind this debate asks: 'How can we improve the care of the diabetic foot?'

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I. This particular field is both complex and challenging, what attracts you to this type of work?

PC: As a podiatrist my area of practice is restricted to lower limb complications and in particular the foot. When I was newly qualified, I was fortunate to work in NHS trusts that exposed their junior staff to a wide spectrum of lower limb complications and management options. These included podiatric surgery, biomechanics, podopaediatrics and high-risk foot disease. As my career developed, the complexity and diversity of high-risk foot management, and in particular diabetic foot complications, became my focus. The feeling of making a difference to a person's life by healing an ulcer or preventing an amputation is a very satisfying one.

WJ: I am attracted to this specialty because it remains a neglected area and I find it enormously rewarding. The problem, however, is that the medical profession has failed to grasp just how big a problem diabetic-related foot complications are and has failed over many years to incorporate the subject into the routine education of doctors. As a consequence, it is commonplace for doctors not to even examine patients with foot disease. This would be simply unthinkable in the case of other conditions, such as hypertension, lumps in the breast or rectal bleeding.

Unfortunately, when it comes to diabetes-related foot complications, medical ignorance and mismanagement is widespread. And it is precisely because doctors have historically had little interest in feet

that healthcare commissioners do not incorporate it in planning decisions. The financial costs of diabetic-related foot complications are hidden by the fact that they are absorbed into different budgets (such as medical, surgical, primary care, secondary care, nursing and orthotics). The personal costs and grief of a generally ageing population are hidden in the homes that they have difficulty getting out of.

We all need to stop and think just how much money is spent on this neglected field compared with diseases that may have much greater emotional impact on the public, but no greater physical and emotional impact on the patient. Foot disease remains an unfashionable 'Cinderella' specialty, and this cannot be allowed to continue. The more healthcare professionals that are attracted to the specialty, the faster it can move forward — research activity will increase and care protocols will be established, together with truly multidisciplinary teams. Once healthcare planners realise the magnitude of the costs involved, they will see that resources need to be concentrated in integrated clinical teams and this will lead to improved outcomes.

CM: The management of the chronic complications of diabetic foot disease can be a challenging area of clinical practice, however, working in this field of healthcare can be extremely rewarding for a number of reasons. First, podiatrists play a significant role in the early detection of problems through screening and education, which can prevent the devastating consequences of diabetic foot disease (ulceration, infection, and amputation).

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Of course, the management of patients with acute foot problems poses challenges. However, being able to prevent problems, offer advice and improve a person's mobility and quality of life provides immense job satisfaction. Also, working as part of a specialist multidisciplinary foot care team provides an insight into the roles of other disciplines and allows healthcare professionals to work together, for the benefit of the patient.

2. What do you believe are the differences in care provision for the diabetic foot across the UK and why do they occur?

PC: Despite the introduction of national initiatives from NICE (2004) and the National Minimum Skills Framework (2006) there remains a significant disparity in service provision across the UK. The reasons for this are difficult to determine — the failure of some healthcare trusts to invest in preventive foot care programmes is an obvious problem, as is the lack of local champions to promote the benefits of such programmes. In contrast, other trusts have invested in their services and supported staff development so that patients receive 'gold standard' service, which reduces the risk of ulceration and amputation.

WJ: There are enormous disparities in the quality of care available. I think that some people get quite good specialist care, while many receive next to nothing. In the majority of cases, however, the care that people receive will be provided by a single healthcare professional (tissue viability nurse, vascular surgeon, podiatrist, GP, etc) and yet we know that no one professional

group has the skills to adequately manage foot disease. Differences in service provision occur largely because service provision has traditionally been driven by doctors, yet there are many areas where the local medical specialists have no interest in the foot.

The National Minimum Skills Framework (2006) for the management of the diabetic foot is soon to be complemented by a report from Diabetes UK and allied organisations on the care pathway for management of foot disease in hospitals. These documents effectively define the services that should be accessible to all people with diabetic foot disease and should form the basis of commissioning and service specification across the country.

CM: I believe there are differences in care provision across the UK. Such differences can be influenced by geographical location, for example, in urban areas that have established diabetes centres, access to the multidisciplinary foot care team will be higher than in more rural areas that may lack facilities. Funding may also differ across primary care and acute trusts.

3. Is it possible that there is no specific discipline that can take responsibility for patients with diabetic foot problems?

PC: As a podiatrist I have a certain bias and feel that we should be regarded as the 'guardians of the foot' as we provide all the levels of care required. Along with patients, podiatrists should be regarded as the hub of care provision, but it is essential that they are supported by a wide-ranging multidisciplinary team.

WJ: No single professional group has the skills necessary to manage foot disease on its own, let alone dealing with all the complications of diabetes and its co-morbidities. All new cases of foot disease (ulcers, infection, new pain or inflammation, gangrene) should be assessed within one working day by a suitably skilled professional. If there is a clear issue with a limb-threatening infection or critical ischaemia, or the problem does not rapidly resolve itself, the patient should be urgently referred for specialist assessment by the local multidisciplinary team.

CM: Published literature has long since recognised the need for a multidisciplinary approach to the management of the diabetic foot. Edmonds et al (1986) reported the benefits of establishing a specialised multiprofessional clinic for patients with diabetic foot ulcers. Detailed analysis of their service revealed a high rate of ulcer healing and a reduction in the number of major amputations, which was attributed to the team approach. I believe there is no one discipline that can, effectively, address all aspects of diabetic foot disease and that a team approach is imperative to achieve metabolic, vascular and mechanical control.

With regards to taking responsibility for patients with diabetic foot problems, there may be merit in one clinician taking the lead in order that they can coordinate care across the team, however, this is not necessarily a role for any one discipline but rather the most appropriate person for each case.

PC: *'Primary and secondary care have to work synergistically, using an 'escalator' approach, where people move up and down depending on their individual complications.'*

WJ: *'A good maxim is for healthcare professionals to ask themselves what they would want if the patient in front of them was their own mother or father.'*

4. Which disciplines should make up the therapeutic team for this patient group in order to ensure delivery of optimal care?

PC: The key is that the people within the team have the necessary skills and competencies. That said, the team could include diabetologists, diabetes specialist nurses, podiatrists, district nurses, practice nurses, tissue viability nurses, vascular, podiatric and orthopaedic surgeons, orthotists, radiologists microbiologists, and psychologists.

WJ: It is not so much the disciplines that are important, as the skills of the individual practitioner. Any team needs someone who can diagnose infection and someone who can recognise critical peripheral arterial disease. There must be a practitioner who knows the details of the patient's diabetes, can make appropriate changes to treatment, debride wounds and apply dressings. A team also needs someone who can arrange urgent referrals to suitably qualified individuals, for example, a vascular or orthopaedic surgeon.

CM: Multidisciplinary team working is essential in order to achieve optimum management of the diabetic foot. A number of healthcare professions play a vital role in the holistic care of patients with diabetic foot disease. Edmonds et al (1986) demonstrated the benefits of a team approach in the prevention of amputation, noting that podiatrists, orthotists, nurses, physicians and surgeons can all be part of a multidisciplinary team. This list is certainly not exhaustive, and while it does summarise the key practitioners in the diabetes foot care team, many

others play a key role, including dieticians, radiologists, microbiologists, pharmacists and physiotherapists.

5. Should foot ulcers be managed in primary or secondary care?

PC: This debate has raged for many years. Undoubtedly, the introduction of dedicated secondary care centres of excellence such as King's College Hospital in London have resulted in a reduction of amputations. More recently, community-focused teams that have embraced the NHS modernisation agenda have had a positive effect on ulceration and amputation rates. My own feeling is that the two have to work synergistically, using an 'escalator' approach, where people move up and down depending on their individual complications and the most appropriate place of treatment at that moment.

WJ: Foot disease should be managed by the people with the skills to manage it well and in a way that is most acceptable to the patient. A good maxim is for healthcare professionals to ask themselves what they would want if the patient in front of them was their own mother or father. Who would they want involved, and how quickly. Who would they ring up? If we all keep that image in our minds, then we will hopefully set up the type of service that everyone needs.

The structure of the service depends upon the individual circumstances. There is a very good case for having a community-based foot care team (which would be podiatry-led in most cases), but I believe that this team should be made up of individuals

who are also members of a central multidisciplinary service. Membership of both would ensure ease of communication and cross-referral.

Given that the value of a multidisciplinary service lies in the number of different specialist skills it brings together, it is more than likely that it will be based in a hospital and it makes no sense to move secondary care practitioners into the community for the sake of politics. Nothing is gained, and much may be wasted, by moving people away from the environment in which they work best. The real answer to the problem lies in close and effective communication.

Also, transport is a major issue for some, with the facilities available often being inflexible and unresponsive. This adds greatly to the suffering of people who have to be supervised in a multidisciplinary clinic — no matter where that clinic is sited.

CM: I have experience of managing foot ulcers in both primary and secondary care settings. In my opinion it is imperative that the necessary facilities, resources and staff team are available, regardless of whether the setting is in primary or secondary care. However, the advantages of secondary care, in my experience, is that it provides a more seamless service and a better patient experience, particularly for patients with severe ulceration. This is because staff in the foot clinic have speedier access to consultants, the vascular team, radiography, orthotists and microbiology and can achieve more rapid hospital admission for those with limb-threatening conditions.

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However, for those with less complex foot ulceration, primary care can offer a local service for the patient, which is important if they need to attend for daily dressings. Essentially, a mixture of primary and secondary care is beneficial, however, to achieve this it is essential that colleagues in primary and secondary care communicate effectively.

6. In order to reduce the incidence of foot problems there has to be a greater understanding of the issues by all members of the healthcare team. How can this be achieved?

PC: This is a very challenging task as awareness needs to be raised on every level. It starts with using a care planning approach, which is negotiated and patient-focused, through to frontline care providers such as district nurses, and using every new case as an opportunity to educate and raise awareness. A positive 'no blame' reflective approach should also be encouraged when things go wrong. Groups such as Foot in Diabetes and Diabetes UK are championing change and raising awareness at a national level.

WJ: It may not be possible to reduce the incidence of foot problems very much in some high-risk groups, but services can certainly produce improved outcomes if any newly occurring disease is promptly assessed and expertly managed.

How can this be achieved? The answer is a staged one, including:

- ▶ Recognition by healthcare professionals and planners that there is a problem which needs to be addressed

- ▶ The establishment of the multidisciplinary services where none exist. These services must have a policy of accessibility and the routes of referral must be understood by non-experts
- ▶ Once the team is established, it must make communication and liaison a central plank of its service and must establish protocols for shared care
- ▶ The need for urgent assessment of newly occurring disease by a skilled and suitably experienced healthcare professional
- ▶ These principles apply not only to communication and liaison between professionals in primary and secondary care, but equally between different specialist groups in hospitals.

The answer, therefore, is to set up the service and then concentrate on education, education and education. The main thing that a non-expert healthcare professional needs to know is who to refer to and how. The main thing that a patient needs to know is that this kind of care is their right.

CM: Interprofessional education in diabetic foot disease is essential as part of undergraduate training programmes for all healthcare professionals involved in this field. Shared education on assessment and management strategies for the diabetic foot would help to standardise patient care. Shared education should also facilitate interprofessional learning, whereby practitioners learn about each others' roles and responsibilities in the management of diabetic foot disease. Bringing together medical, nursing and allied health students at an early stage in their careers may

help to break down potential barriers to future interprofessional working, including poor communication, misunderstanding and professional stereotyping (Xyrichis and Lowton, 2007). Such educational strategies should continue post-qualification, through continuing professional development and post-graduate training programmes, in order to enhance team-working and standardise care. **WUK**

References

- Chadwick P, Stuart L, Fox M et al (2007) An audit to improve the care of diabetic foot. *Wounds UK* 3(2): 73–7
- Diabetes UK (2006) *Diabetes: State of the Nations 2006. Progress Made in Delivering the National Diabetes Frameworks*. Diabetes UK, London
- Department of Health (2001) *National Service Framework for Diabetes*. Department of Health, London
- Edmonds ME, Blundell MP, Morris ME (1986) Improved survival of the diabetic foot: The role of a specialised foot clinic. *Q J Med* 60(232): 763–71
- Narayan KM, Zhang P, Kanya AM (2006) *Diabetes: The Pandemic and Potential Solutions. Disease-controlling Priorities in Developing Countries (2nd Edition)*. Oxford University Press, New York
- NICE (2004) *Type 2 Diabetes – Prevention and Management of Foot Problems*. NICE, London
- National Minimum Skills Framework (2006) *Commissioning of Services for People with Diabetes*. Available at: <http://www.diabetes.org.uk/Documents/Professionals/Education%20and%20skills/NatMinSkillFrameworkFootNov06.pdf> (accessed 14/10/08)
- Xyrichis A, Lowton K (2007) What fosters or prevents interprofessional team-working in primary and community care? A literature review. *Int J Nurs Stud* 45(1): 140–53