Diabetic foot care training in developing countries: Addressing the skills shortage

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Article points

1. Podiatry services for the diabetic foot are largely absent in the developing world, often in countries where the incidence of diabetes is among the highest.
2. The International Working Group on the Diabetic Foot established the Diabetic Foot Care Education Working Group, which has launched a curriculum to train diabetic foot care assistants in developing countries and those countries without a podiatry service.

Key words:
- Podiatry
- Education
- Developing countries

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The growing prevalence of diabetes is accompanied by increases in the number of diabetic complications, including those of the foot. This will especially affect developing countries, where the percentage of the population with diabetes is rapidly out-pacing that in the developed world. With only 19 countries worldwide having licensed schools of podiatry, and trained podiatrists operating in approximately 35 countries, a large shortfall of podiatry services exists globally. To address the resultant skills shortage in diabetic foot care, the International Working Group on the Diabetic Foot established the Diabetic Foot Care Education Working Group to develop a programme to train accredited diabetic foot care assistants in developing countries.

Worldwide, there are more than 246 million people living with diabetes (International Diabetes Federation [IDF], 2007). Diabetic foot disease is a threat to every person with diabetes, and is the most common cause of admission to hospital for people with the condition (IDF, 2005). The ultimate consequence of diabetic foot disease is that more than one million lower-limb amputations are performed annually (Boulton et al, 2005).

In developed countries, one in every six people with diabetes will develop an ulcer during their lifetime (Boulton et al, 2005). In developing countries, foot problems related to diabetes are thought to be commoner still. Belhadj (1998) reported a clinic-based study in Algeria and found an ulcer prevalence as high as 11.9%. Given that the IDF (2005) finds up to 85% of amputations resulting from diabetic foot disease to be preventable, these figures are unacceptably high. Furthermore, the prevalence of diabetes globally is growing annually and is expected to reach 5.2% by 2025, up from 4.1% in 2007 among those aged 20–79 years (IDF, 2007). Without action, global rates of diabetic foot disease, and the amputations associated with its poor management, will increase alongside this forecasted rise in the prevalence of diabetes.

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1. To address concerns regarding the variations in the standard of diabetic foot care between countries, The International Working Group on the Diabetic Foot (IWGDF) established the Diabetic Foot Care Education working group in September 2007.
2. While it is widely accepted that a comprehensive podiatry service is an essential element in the care and management of the diabetic foot, the majority of people with diabetes live in countries where there are no podiatry services.
3. Based on IWGDF records, it is estimated that certified podiatrists are currently working in approximately 35 countries, suggesting approximately 180 countries are without podiatry services.
4. Some developing countries are offering successful diabetic foot care courses. In particular, India, Tanzania, Egypt and Pakistan have all become involved in the Step-by-Step programme.

The treatment, and subsequent care, of people with diabetic foot disease has a significant impact on healthcare budgets, while poor treatment, or no treatment at all, can have a potentially devastating impact on the lives of individuals and their families. This is particularly the case in places where access to health care is restricted, and awareness of diabetic foot disease is low.

To address concerns regarding the variations in the standard of diabetic foot care between countries, the International Working Group on the Diabetic Foot (IWGDF) established the Diabetic Foot Care Education Working Group (DFCEWG) in September 2007. The DFCEWG developed a proposal for training diabetic foot care assistants in countries that do not have a podiatry service (IWGDF, 2008). In this article, the authors discuss the need for such a programme, the nature of the courses to be offered and plans for its implementation.

Podiatry services in the developing world

While it is widely accepted that a comprehensive podiatry service is an essential element in the care and management of the diabetic foot, the majority of people with diabetes live in countries where there are no podiatry services (Apelqvist et al, 2008) – only 19 countries worldwide have licensed schools of podiatry (Bakker et al, 2005).

The training of a podiatrist (also known as chiropodists or podologists) varies slightly from country to country, but each licensed school offers a recognised qualification in this medical science devoted to the foot and its disorders, and therefore podiatrists are the principal practitioners consulted in the treatment of diabetic foot disease.

Based on IWGDF records (IWGDF, unpublished data), it is estimated that certified podiatrists are currently working in approximately 35 countries. This number suggests that approximately 180 countries are without podiatry services, and further that foot care is being undertaken in those countries by a range of practitioners with varying levels of training and skills. More concerning still, 80% of countries with the highest prevalence of diabetes are in the developing world (IDF, 2007), and those countries with the highest incidence of diabetes are frequently those without podiatry services. A number of Middle Eastern countries, including Bahrain, Kuwait, Saudi Arabia and the United Arab Emirates, dominate the world top-ten league table for the highest percentage of diabetes in the population (IDF, 2007), and yet just over one dozen podiatrists are employed in the Middle East (Sue Tulley, personal communication; *Figure 1*). So few podiatrists do not constitute a service, only individuals providing the best care they can – the IWGDF feels that this situation is unacceptable.

There are, however, some notable exceptions and some developing countries are offering successful diabetic foot care courses. Notably, India, Tanzania, Egypt and Pakistan have all become involved in the Step-by-Step programme (Bakker et al, 2006; Pendsey and Abbas, 2007).

To address the lack of podiatry services in many countries, podiatrists and other healthcare professionals with a stake in diabetic foot care are needed to establish and staff new clinics. The IWGDF encourages all countries without a podiatry service to

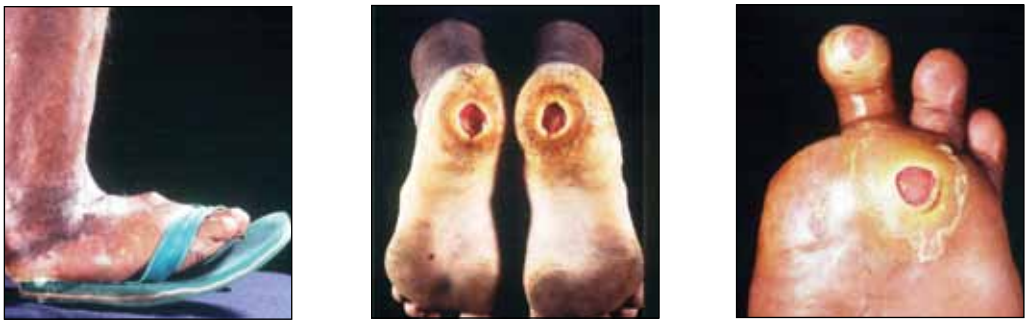

Figure 1. A series of diabetic feet that presented to one of the authors' podiatry clinic in the Middle East.

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1. In the long-term, to address the lack of podiatry services in many countries, podiatrists and other healthcare professionals with a stake in diabetic foot care are needed to establish and staff new clinics.
2. In the short-term, in countries without a podiatry service, interested healthcare professionals should be offered a standardised diabetic foot care education programme that will allow them to develop their knowledge and skills in the treatment of the diabetic foot.
3. The *Diabetic Foot Care Education Programme* comprises two curricula: a basic and an advanced course for the training of diabetic foot care assistants.
4. The courses are designed to be undertaken by physicians, nurses and allied healthcare professionals currently treating diabetic foot disease.

employ podiatrists, to train podiatrists at recognised universities and to establish their own university-level podiatry courses. These, however, are longer-term objectives. In the short-term, in countries without a podiatry service, interested healthcare professionals should be offered a standardised diabetic foot care education programme that will allow them to develop their knowledge and skills in the treatment of the diabetic foot. Thus, the IWGDF established the DFCEWG and charged it with developing a programme to train diabetic foot care assistants in countries where neither comprehensive foot healthcare services, nor practitioners specialising in foot care (namely podiatrists) exist.

Developing the *Diabetic Foot Care Education Programme*

In September 2007, the DFCEWG began developing a diabetic foot care education programme. A draft of the programme was developed by the DFCEWG (Sue Tulley [Chair, Saudi Arabia], Ali Foster [Secretary, UK], Margreet van Putten [the Netherlands], Vilma Urbančič-Rovan [Slovenia] and Karel Bakker [the Netherlands]). Corresponding members (Abdul Bassit [Pakistan], Andrew Clark [South Africa], Anna Korzon [Poland], Simone Lorde [Barbados], Beth McBride [Belize], Marg McGill [Australia], Hermelinda Pedrosa [Brazil] and Sharad Pendsey [India]) were asked for comment on the first draft, and their feedback was incorporated into a revised draft. This revised draft was sent to all 90 IWGDF representatives for their comments. Once the provided comments had been collated and incorporated, a final draft was approved.

The *Diabetic Foot Care Education Programme* (Tulley et al, 2008) was presented at the 7th Scientific Meeting of the Diabetic Foot Study Group, Pisa, Italy (11–13 September 2008), and is available at www.iwgdf.org. The *Diabetic Foot Care Education Programme* (Tully et al, 2008) comprises two curricula: a basic and an advanced course for the training of diabetic foot care assistants. These courses are not intended to detract from others already in place. Rather, they offer standardised international courses that countries without a podiatry service can apply to undertake.

Participants

The courses are designed to be undertaken by physicians, nurses and allied healthcare professionals currently treating diabetic foot disease. The courses are not designed for podiatrists, or to be run in countries where podiatrists practice. Exceptions to this are where podiatrists who wish to become course leaders will undertake the courses themselves, or where existing podiatry services are small and understaffed.

Certification

The DFCEWG proposes that these courses confer on the participant a certificate (basic course) or a diploma (advanced course) in diabetic foot care, that would be IDF and IWGDF accredited. The IDF is a recognised and well-respected leader in the fight against diabetes, and it is hoped that governing bodies (specifically, ministries of health) in those countries in which the course will be offered will recognise course accreditation by this organisation. Whether the accreditation will be awarded after examination, or for ongoing course work, or both, has yet to be decided.

Administration and funding

Logistic problems of distributing the courses worldwide, funding, auditing and administrative issues are topics currently being addressed by the DFCEWG. An administrative board would be established to oversee the programme, while at a local level the existing IWGDF country representative or a nominated representative would carry out administrative tasks on the ground.

The costs associated with the programme are recognised by the DFCEWG to be the most difficult aspect of the implementation process. Various options are being explored to fund the programme, including government funding, funding from sponsors, or full or part funding by participants themselves.

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1. The costs associated with the *Diabetic Foot Care Education Programme* are recognised to be the most difficult aspect of the implementation process.
2. Although written to a single standard, each course can be tailored by the course leader to suit the cultural and environmental circumstances of the country in which it is being delivered.
3. Once participants complete the course, the aim is to ensure that a high standard of care is being met and maintained in their practice and annual refresher courses will be offered.

Course leaders

It is envisaged that DFCE working group members and corresponding members will be the first course leaders, and future course leaders will be identified in their own countries over time. Course leaders for the basic course will be either podiatrists, physicians, skilled nurses or educators. For the advanced course the course leaders will be either podiatrists or physicians.

Curriculum

Diabetic Foot Care Assistant I: Basic course

The basic course comprises 36 hours contact time, and is designed to be flexible in its delivery, that is, the course leader will determine whether the course will be full-time, part-time or during weekends. All course work must be completed within 2 months. See *Box 1* for a summary of competencies. Each topic will be delivered primarily as a slide presentation, although some will be in video format.

Diabetic Foot Care Assistant II: Advanced course

The advanced course comprises 160–200 hours contact time, again delivered in a flexible way. All course work must be completed within 6 months. The advanced course will be offered to those who have already undertaken the basic course and are healthcare professionals already employed in diabetes clinics, wound care clinics, surgical or medical wards or other appropriate settings. This course offers more detailed information on the management of the diabetic foot and will include debridement techniques. See *Box 2* for a summary of competencies.

Tailoring the curricula

Although written to a single standard, each course can be tailored to suit the cultural and environmental circumstances of the country in which it is being delivered. For example, the foot care advice offered to a person walking barefoot in a country with an average summer temperature of 45°C will differ markedly from that given to a person shod in the winter months in eastern Europe.

Refresher courses

Once participants complete the course, the aim is to ensure that a high standard of care is being met and maintained in their practice. Annual refresher courses will be offered (two to three 4-hour refresher courses 1 year after completion of the basic course, and a week-long refresher course 1 year after competition of the advanced course). The DFCEWG also plans to develop continuing assessment and post-graduate evaluation programmes.

Conclusion

The lack of podiatry services in many countries limits, or prohibits, some people with diabetes from accessing foot care of a high standard. Until such time as the shortage of podiatrists is resolved, those treating diabetic foot disease who are not trained in the field need access to the educational programmes that will enhance their skills and ensure the best possible outcomes for those receiving treatment.

The *Diabetic Foot Care Education Programme* (Tulley et al, 2008) is one way in which those

Box 1. Competences for the basic course – Diabetic Foot Care Assistant I (Tulley et al, 2008).

- Screening and examination of the diabetic foot.
- Identifying the foot "at risk".
- Cutting and filing nails.
- Removing simple callus (at the discretion of the course leader).
- Assessing footwear.
- Delivering education in footwear, foot care and hygiene.
- Giving general advice to people with diabetes.
- Understanding implications of neuropathy, reporting problems early, understanding what to do and where to go when foot problems develop.
- Avoiding iatrogenic lesions.
- Understanding common causes of diabetic foot problems.
- Infection control and instrument sterilisation.

"The Diabetic Foot Care Education working group hopes that those practitioners, particularly podiatrists, currently working in established podiatry services, will assist in the development of high quality diabetic foot care services abroad."

countries that lack a podiatry service, and who are struggling to deal with diabetic foot disease reaching epidemic proportions, can be assisted. The DFCE working group hopes that those practitioners, particularly podiatrists, currently working in established podiatry services, will assist in the development of high-quality diabetic foot care services abroad. ■

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Box 2. Competences for the advanced course – Diabetic Foot Care Assistant II (Tulley et al, 2008).

- Understanding common causes of diabetic foot problems.
- Screening and examination of the diabetic foot.
- Understanding implications of neuropathy, peripheral arterial disease and infection.
- Assessing ulcers and devising treatment plans.
- Recognition of non-ulcerative pathology (specific dermatological factors associated with skin, nails and callus), recognition of neuro-osteoarthropathy (Charcot foot).
- Removing callus, debriding ulcers, dressing ulcers.
- Assessing footwear and performing adaptations.
- Recognition of the importance of off-loading.
- Avoiding iatrogenic lesions.
- Infection control and instrument sterilisation.
- Delivering education in footwear, foot care and hygiene.
- Advanced education for people with feet at-risk and specifically for people with foot ulcers.
- Giving general advice to people with diabetes.
- Ensuring the people with diabetes understand what to do and where to go when foot problems develop.
- Knowing the importance of early detection and rapid referral.