

The worldwide implementation of the 'Train the Foot Trainer' programme

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It is shameful that a lower limb is amputated every 20 seconds across the world, considering that most of these could be avoided by fairly simple interventions, supported by fundamental diabetic foot education. However, the training of healthcare professionals to deliver simple, but effective, diabetic foot care is sadly lacking in many parts of the world. The International Working Group on the Diabetic Foot recognised this in 2003 when the Step by Step (SbS) training course was developed and introduced 1 year later in two pilot countries. To address manpower and resource limitations in some countries, the Train the Foot Trainer (TfFT) programme was developed and training teams were implemented across not just countries, but whole regions. This course is not a training course to teach skills and knowledge about diabetes foot disease, it is a programme that teaches course structure, teaching methods, evaluation skills, data collection, strategic organisation/development, networking structures and optimising available resources. Furthermore, it is a course run for experts to train others to become experts in clinical and educational skills and knowledge. This article offers a brief account of this innovative and successful implementation initiative.

The prevalence of diabetic foot complications, particularly ulceration and lower extremity amputations (LEAs), is high with the latter occurring every 20 seconds in the world (International Diabetes Federation [IDF], 2015). The causal pathway to LEA has been shown to be precipitated by foot ulceration in up to 25–90% of cases (Pecoraro et al, 1990; Global Lower Extremity Amputation Study Group, 2000). Due to rising worldwide prevalence of diabetes and shrinking healthcare budgets per capita, the burden and suffering of diabetic foot complications is likely to increase dramatically (Cavanagh et al, 2012).

It is, therefore, paramount to try to facilitate the prevention of foot ulceration as this will prevent LEAs. Within the developed world, LEAs have reduced by 50% or more through improved diabetic

foot care services and structures (Trautner et al, 2007; Krishnan et al, 2008; Ikonen et al, 2010; Moxey et al, 2011; Holman et al, 2012; Jorgensen et al, 2014). However, in the developing world this was, and in many areas is still, not the case. To this end, the Step by Step (SbS) diabetic foot training courses were developed in 2003 and subsequently implemented as pilot projects in India and Tanzania. The success of these were significant and further countries asked for access to these courses (Abbas et al, 2011). The demand became too great and the Step by Step Research and Development Group (SSRDG) of the International Working Group on the Diabetic Foot (IWGDF) initiated a solution to address this; hence, the Train the Foot Trainer (TfFT) programme was born. The core team have been responsive and made several refinements and

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Article points

1. The article chronicles the implementation of a global diabetic foot training programme over 14 years.
2. The programme provided skills in education delivery, not just foot care knowledge.
3. The programme influences professionals, patients, policy makers and politicians.

Key words

- Diabetic Foot International
- Patient education
- Train the Foot Trainer

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Page points

1. Overwhelming demand for Step by Step (SbS) courses led to the development of the Train the Foot Trainer programme
2. Following the SbS courses in India and Tanzania, foot screening and ulcer referrals increased, and amputations reduced significantly
3. Training is essential as 80% of people with diabetes live in the low- to middle-income world regions.

additions to the TtFT programme to meet the growing needs of each specific region. As part of this, the authors have undergone an internal organisational restructuring so that the implementation group of the IWGDF officially became known as D-FOOT International (D-Foot Int) as of April 6, 2017.

Step by Step history and overview

The SbS diabetic foot training programme was developed following a collaborative meeting in Mumbai, India, in 2003, involving the IWGDF, Diabetic Foot Society of India (DFSI), the Muhimbili University College of Health Sciences Dar es Salaam (MUCHS) and the IDF Consultative Section (Bakker et al, 2006). At this meeting, a pilot training programme was designed to improve diabetic foot care in the developing world. Funding was applied for and a grant was given by the World Diabetes Federation (WDF) to fund the pilot programme in two countries: India (also including Bangladesh, Sri Lanka and Nepal) and Tanzania. The aim of this project was to improve diabetic foot care in the two pilot countries by training healthcare professionals and patient education.

The following objectives were set:

- To provide sustainable training of healthcare professionals in the management of the diabetic foot
- To facilitate the cascade of information from healthcare professionals who have undergone training to other healthcare professionals and thus to export expertise
- To reduce the risk of lower-limb complications in people with diabetes
- To empower people with diabetes to care for their feet better, detect problems earlier and seek timely help when problems arise.

The novel aspect of this programme was that delegates had to attend as a team consisting of a doctor and nurse/healthcare professional, thus promoting teamworking. The teaching, consisting of theory and practical sessions, was delivered by experienced national and international educators/or clinicians.

The first courses started in the autumn of 2004. The SbS diabetic foot project comprised two 3-day

courses set 1 year apart. The first course covered the basics and the second course was more advanced. In the 12 months between undertaking the basic and advanced course, the delegates were asked to collect activity and outcome data.

One hundred teams were selected for the India project: 94 pairs from India, three from Bangladesh, two from Sri Lanka and one from Nepal. The basic (2004) and advanced (2005) courses were run in four locations (New Delhi, Kolkata, Mumbai and Chennai) chaired by Dr Sharad Pendsey.

In Tanzania, 15 teams were selected from 22 regions, with both the basic (2004) and advanced courses (2005) being held in Dar es Salaam, chaired by Dr Zulfiqarali G Abbas. The results of these two pilot projects have been published elsewhere, but in summary, diabetic foot teams and centres were established with a significant increase in foot screening, with an increase in foot ulcer referrals due to raised awareness (Bakker et al, 2006; Pendsey and Abbas, 2007). Additionally, 3 years after the training, the incidence of foot ulcers and amputations in Tanzania fell significantly with sustained diabetic foot services in all trained centres (Abbas et al, 2011).

The success of the SbS training courses led to an increasing demand for the SbS programme to be rolled out in other countries, including Congo, Guinea, Botswana, Malawi, Zimbabwe, Ethiopia, Mali, Egypt, Pakistan, Barbados, St. Lucia, St Marteen, St Lucia, St Kitts, British Virgin Islands, Antigua, Grenada, Dominica, Tobago and Trinidad, and many other Caribbean islands. However, due to limited resources, it was felt that a new model had to be developed to sustain this successful initiative, which was robust in both financial and manpower terms. Additionally, this was pivotal because the need for diabetic foot care in low- and middle-income regions is paramount due to the fact that 80% of people with diabetes in the world live in these regions (World Health Organization [WHO], 2016).

Inception of the Train the Foot Trainer programme

To this end, the SSDRG of the IWGDF in 2010 initiated the TtFT programme. The concept of



Figure 1. Delegates from the fourth Train the Foot Trainer teaching course for Western Pacific in Bangkok, Thailand.

this was to train leading diabetic foot experts and champions from individual countries within a region to deliver SbS courses within their respective countries. The principal of working as country based-teams was central. The content of the programme was based on the SbS curriculum with a dedicated focus on how to teach and how to install the SbS programmes, and on data collection, fundraising and strategic development. The programme was developed by a core team comprising Kristien Van Acker, Neil Baker, Stephan Morbach and Vilma Urbancic-Rovan.

Course overview

The TtFT programme is run over 3–4 days with a series of formal lectures and interactive workshops, demonstrations and discussion groups. A day and a half is spent reviewing the SbS programme components with workshops on key messages, presentation skills, how to run workshops and live case presentations; all of which are focused on teaching methods and skills. This part of the course has now been supported by an additional pre-course 'e-learning' package. The next section is focused on implementation skills, including funding, organisational skills in running SbS locally, nationally and regionally, support structures, networking, PR and sustainability. The final sections are centered on data collection, including a purposely designed tool, strategic implementation planning and goal setting for the next 2.5 years when the SbS programme will be realised in each participating country.

The aims of TtFT programme is to:

- Train national active experts/champions

in diabetic foot disease within a global region to deliver effective, well-structured, sustainable training programmes with demonstrable outcomes.

The objectives of the delegates of the TtFT are the following:

- To organise and implement an SbS training programme for their own country (educational, organisational and public relations) within 2.5 years of attending a TtFT course
- To identify barriers to implementation and find solutions for their needs
- To evaluate the delivered course by collecting and disseminating outcomes of the programme on a national, regional and international scale
- To train trainers from their own communities to deliver SbS training programme
- To encourage, support and develop an ongoing mentorship programme for existing and new diabetic foot champions in their region
- To try to ensure that health ministers, health policymakers, patients and professional groups are involved and supportive
- To determine ways in which teams developed by the SbS can be sustained, supported and, where possible, incorporated into healthcare systems.

The first pilot programmes were run for the South and Central American region in Brasilia in 2012, followed by Tobago (Caribbean) in 2013, Bled (Central and Eastern Europe) in 2015 and Bangkok (Western Pacific) in 2016 (Figure 1).

Delegate selection criteria

In order to attend the TtFT programme as a delegate, a selection process exists with certain eligibility criteria, this is to try to ensure post-course implementation is successful. This is vital as generally only two delegates can attend from each representing country, however, in some cases more delegates can attend if a country is large geographically. The selection criteria include evidence of diabetic foot clinical activity, organisational skills, and collaboration and support from patient organisation and ministry of health. The team should comprise a physician/surgeon and a healthcare professional with a willingness to work collaboratively. Finally, they must be willing to sign a contract with the TtFT organising committee stating the following:

- That they are prepared to implement a regional/national programme to prevention amputations related to diabetes, starting by upgrading their own centre of reference
- That they will formally report to the organising committee after 6, 12, 24 and 30 months
- That they will contribute to an anonymised data collection system in line with the international principles of data security and privacy.

Data collection

The TtFT core team recognised from the outset there was a fundamental need for a standardised and useful dataset and collection method for all participating delegates and countries. The original intention of this was to help individuals, centres, and countries collect activity and outcome data whereby helping them develop their practice and lobby for continuing support. Equally the team needed to be able to identify the impact of the programmes and use this for further fundraising, programme refinement and future developments. It was also hoped that there would be the potential to compare activity and outcome data from different regions.

Initially, the authors developed a basic dataset to be collected using a simple spreadsheet, supported with a glossary of definitions and terms. However, this was poorly used as it was time consuming and was dependent on users having access to Microsoft

Excel. An alternative solution was sought and this spurred an innovative collaboration with Universit  Numerique Francophone Mondiale (UNFM). The result was the development of the DIAbetes Foot Initiative, named the DIAFI data collection system. This comprises a data collection programme that is housed on a USB stick allowing for easy and quick data collection covering predetermined parameters and immediate analysis of downloaded data. This is unique and can easily be transported to any clinical setting, and can be anonymously exported. As the datasets are identical in each USB stick, data can be collated at local, national, regional or even international levels.

E-learning pre-programme module

After the first two TtFT programmes were run, the authors realised that too much time was spent addressing some of the theoretical aspects of diabetic foot complications, thus reducing the amount of available time to meet training objectives. It was decided that a pre-course e-learning package would be developed to address this. Working in collaboration with UNFM, an interactive web-based learning package was produced to address the main basic Sbs topics. This was possible by an unrestricted grant from industry. This e-learning, 'e-foot care' package consisted of video-recorded lectures with simultaneous PowerPoint presentations and practical workshop videos, together with a self-assessment section for each topic covered.

Intended course outcomes

The principal outcome is to facilitate comprehensive diabetic foot care infrastructures that provide local foot care that integrates the International Consensus Guidelines on the Diabetic Foot (Schaper et al, 2016). The course is intended to develop local, regional and national networks and study/working groups with sustainability of service and education development and referral pathways. It is hoped that the delegates will be instrumental in driving and implementing policy decision making in their respective regions. Finally, another key outcome is intended to be the provision of a support mechanism for local champions encouraging the development of further national training programmes with a national faculty to meet local needs.



Outcomes

This article does not include a detailed outcome from the TtFT programmes that have taken place, as this will be reported elsewhere in the near future. However, the authors will share that the majority of participating countries are active in delivering SbS course, with almost 4,000 trained healthcare professionals in Latin America alone and many diabetic foot teams (more than 125 units) have been developed. In one Eastern European country, podiatry training is now being formalised and introduced nationally. From the recognised successes of TtFT programmes the authors have collaboratively worked with the WHO, ensuring that therapeutic footwear is now a basic human right for those suffering with diabetic foot disease (Baker and van Acker, 2016).

As a result of the recent programme in the Western Pacific, much activity is under way with SbS courses beginning in the Philippines only 3 months after the TtFT course with approximately 60 participants. Furthermore, an exciting, formal collaboration with the Federation of International Podiatry (FIP-IPF) has been established to standardise and aid the introduction of podiatry in low- and middle-income countries.

In common with the SbS programmes, funding was obtained through charitable means and the teaching faculty gave their time and expertise free of charge. In the Caribbean region, Rotary International was the main partner in terms of charitable sponsorship. In keeping with the SbS training, the courses are free to all delegates, including accommodation and meals.

The future

The work has so far managed to cover four of the seven world regions and there is a desire to cover the rest — there is a planned programme for Africa to begin in 2018. In addition, further

implementation programmes and training modalities are being developed together with a supportive networking structure for all participants. ■

If you wish to learn more about the SbS and TtFT programmes around the world, please visit: www.d-foot.org or <http://iwgdf.org>

- Abbas ZG, Lutale JK, Bakker K et al (2011) The 'Step-by-Step' Diabetic Foot Project in Tanzania: a model for improving patient outcomes in less developed countries. *Int Wound J* 8(2): 169–75
- Baker NR, Van Acker KA (2016) Success at the World Health Organization — diabetic footwear recognised as essential! *The Diabetic Foot Journal* 19(3): 117–8
- Bakker K, Abbas ZG, Pendsey S (2006) Step-by-Step, improving diabetic foot care in the developing world. A pilot study for India, Bangladesh, Sri Lanka and Tanzania. *Pract Diab Intern* 23(8): 365–9
- Cavanagh P, Attinger C, Abbas Z et al (2012) Cost of treating diabetic foot ulcers in five different countries. *Diabetes Metab Res Rev* 28(Suppl 1): 107–11
- Global Lower Extremity Amputation Study Group (2000) Epidemiology of lower extremity amputation in centres in Europe, North America and East Asia. *Br J Surg* 87(3): 328–37
- Holman N, Young RJ, Jeffcoate WJ (2012) Variation in the recorded incidence of amputation of the lower limb in England. *Diabetologia* 55(7): 1919–25
- Ikonen TS, Sund R, Venermo M, Winell K (2010) Fewer major amputations among individuals with diabetes in Finland in 1997–2007: a population-based study. *Diabetes Care* 33(12): 2598–603
- International Diabetes Federation (2015) *Diabetes Atlas – 7th Edition*. Available at: <http://bit.ly/2rp1OpJ> (accessed 01.06.2017)
- Jorgensen ME, Almdal TP, Faerch K (2014) Reduced incidence of lower-extremity amputations in a Danish diabetes population from 2000 to 2011. *Diabet Med* 31(4): 443–7
- Krishnan S, Nash F, Baker N et al (2008) Reduction in diabetic amputations over 11 years in a defined U.K. population: benefits of multidisciplinary team work and continuous prospective audit. *Diabetes Care* 31(1): 99–101
- Moxey PW, Gogalniceanu P, Hinchliffe RJ et al (2011) Lower extremity amputations—a review of global variability in incidence. *Diabet Med* 28(10): 1144–53
- Pecoraro RE, Reiber GE, Burgess EM (1990) Pathways to diabetic limb amputation. Basis for prevention. *Diabetes Care* 13(5): 513–21
- Pendsey S, Abbas ZG (2007) The Step-By-Step Program for reducing diabetic foot problems: a model for the developing world. *Curr Diab Rep* 7(6): 425–8
- Schaper NC, Van Netten JJ, Apelqvist J et al (2016) Prevention and management of foot problems in diabetes: a summary guidance for daily practice 2015, based on the IWGDF guidance documents. *Diabetes Metab Res Rev* 32 (Suppl 1): 7–15
- Trautner C, Haastert B, Mauckner P (2007) Reduced incidence of lower-limb amputations in the diabetic population of a German city, 1990–2005: results of the Leverkusen Amputation Reduction Study (LARS). *Diabetes Care* 30(10): 2633–7
- World Health Organization (2016) *Diabetes*. Available at: <http://www.euro.who.int/en/health-topics/noncommunicable-diseases/diabetes/diabetes> (accessed 01.06.2017)