

# Step-by-Step foot care model

Diabetic foot care: A toolkit for the Step-by-Step model



WORLD **DIABETES** FOUNDATION

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## Background

World Diabetes Foundation (WDF) has selected the diabetic foot as a key focus area of support. This is due to the facts that:

- With relatively simple and low-cost measures many lower limb amputations may be avoided.
- The foot tends to be neglected in a health care setting – being attended to by neither the doctor, nor the nurse.
- Too many health care providers are not trained and educated in the specific management of diabetic foot problems.

As a result, many people with diabetes never have their feet checked until it is too late and they are never provided with simple education for self-management and prevention of foot complications. It is against this background that WDF and the International Working Group on the Diabetic Foot took the initiative to put together a model which could be widely applicable throughout the developing world.

A group of foot care experts was brought together to develop the model. Subsequently, it has been implemented and tested with significant success and impact in India and Tanzania, Democratic Republic of Congo, Mali, Pakistan and Kenya.

A model cannot be 100% universally applicable; a certain degree of adaptation to the context in which it is being implemented might be required. However, it is hoped that the below description of the Step-by-Step model may provide inspiration for sustainable and low-cost interventions for the diabetic foot in developing countries.

## Purpose

This description seeks to make available a toolkit for potential WDF project applicants interested in improving foot care provided to people with diabetes.

It outlines the general design and components of the Step-by-Step model and provides links to relevant educational materials as well as to WDF funded projects which have already implemented the model. Lessons learned and key suggestions are also listed to serve as inspiration.

The model may be used on its own with a view to strengthening prevention and care for the diabetic foot in a given context or as a component of an intervention aimed at improving general diabetes prevention and care. It could potentially be applied in combination with the WDF Diabetes/NCD clinics model.

## Overall goals of the Step-by-Step model

- Sustainable, integrated and low-cost health care capacity for preventive foot care, identifying high risk feet and early care for diabetic foot.
- Reduction in lower limb complications and prevention of unnecessary amputations in people with diabetes.
- Empowering people living with diabetes for routine self care for their feet e.g. by detecting problems earlier and seeking timely help when problems arise.
- To improve knowledge of the management of the diabetic foot for health care providers.

### Through

- Training of health care providers in prevention and treatment of diabetic foot problems as well as training in patient education related to diabetes foot care in particular and diabetes care in general.
- Educational material for patients and health care providers to facilitate awareness of the problem of the diabetic foot and ways in which outcomes may be improved by using simple, effective methods.
- Creating more awareness about diabetic foot problems by the cascading of information from health care providers who have undergone training to other health care providers and thus export expertise.

## Model

The Step-by-Step model consist of a two-step training programme for health care providers as well as a pool of educational resources to be used in the training of the health care providers as well as people with diabetes.

## Design of training

The training consists of two courses (basic and advanced) each with a duration of 2-3 days for pairs of 1 medical doctor and 1 nurse/paramedic. It is mandatory to attend both courses.

The participants are taught the principles of basic foot care education and practical management guidelines, given practical training in foot care and equipped with a simple set of instruments for daily practice.

Educational material and patient assessment forms are provided. The typical course size is 20-30 teams in order to ensure close interaction but may vary from country to country.

## Basic course

The initial 2-3 day basic training programme focuses on providing the teams with basic knowledge of diabetic foot complications, incl.:

- What constitutes diabetic foot complications
- History taking and record keeping
- Performing a physical examination of the lower leg
- Screening for ischaemia and neuropathy
- Assessment and identification of feet at risk
- Classification and staging of feet at risk
- When and whom to refer (referral pathways)
- Preventive foot wear
- Demonstration of educational material
- Demonstration and testing of tools
- Demonstration by faculty with live cases:

- Basic treatment (callous removal/debridement)
- Debridement/nail cutting

The basic training has an equal balance of lectures and practical demonstrations. The sessions should encourage an interactive atmosphere with time allocated for participant comments and questions. The practical sessions provide the teams with the opportunity to try out the various techniques and tools given to them.

At the outset of the basic training programme, the teams are given packages containing educational material, resource materials and equipment kits. This material is demonstrated and used during the training in order to allow the teams to become familiar and comfortable with using the tools.

As a suggestion, the packages may contain:

- Diabetic Foot – Clinical Foot Atlas
- Managing the Diabetic Foot (Foster & Edmonds)
- International Consensus Document and Practical Guidelines on DVD 2007
- Patient educational booklets
- Two-sided patient teaching aid – spiral binder
- Summary book
- Posters
- Photocopies of all presentations by faculty members

Instruments and tools:

- 1 Nail clipper
- 1 Nail file
- 10 Surgical blades
- 1 BP handle for the blades
- 1 Pair of scissors
- 2 Forceps (1 plain + 1 toothed)
- 1 Artery forceps
- 1 Tuning fork 128
- 1 Reflex hammer
- 20 Monofilaments
- Disposable gloves
- Probe
- Scoop

The content of the packages may vary depending on the local context of the project. In some contexts it may be appropriate to divide the material; giving some to the nurse/para-medic and some to the medical doctor – in other contexts providing one, combined package for the team is the best solution. The basic training programme is followed by an advanced 2-3 day training programme for the same teams after 1 year.

In between the two sessions, the teams are required to establish foot care clinics in their respective health facilities by introducing regular screening of feet among the diabetes patients seen in their health facilities.

In order to maintain momentum in between the two training sessions, it is important for the project managers to maintain contact with the teams a.o. through reports on progress during this year.

This also enhances chances that as many teams as possible attend the advanced training after one year as well as securing that the participants continue to have focus on the diabetic foot after training has ended.

The trained teams may be asked to commit themselves to do check-ups and carry-out prevention and treatment on a given number of feet per week/month, depending on the national context and to keep record.

### Advanced course

After 1 year, the same teams are called back for the 2-3 day advanced training programme. This programme has increased emphasis on practical sessions and presentations by the teams on specific patient cases dealt with, experience gained/lessons learned during the year of implementation.

100% compliance rate in terms of participation of the same teams is difficult to achieve. Nevertheless, this should be enforced to the extent possible in order to ensure maximum benefit and outcome of the training to the participants. Certification if any regarding the training is given only after attending both modules.

The programme for the advanced training should take point of departure in the feedback obtained from the participants upon completion of the basic training programme. The programme could include the following elements:

- Reporting on what the participants have achieved in one year (since first workshop)
- 5 selected case presentations by delegates, 15 minutes each with discussion
- Live cases with delegates participation
- Peripheral Arterial Disease (PAD)
- Aetiopathogenesis, Diagnosis
- Management of PAD
- Diabetic Neuropathy
- Neuroosteoarthopathy (Charcot Foot)
- Debridement/nail cutting
- Imaging modalities of the diabetic foot
- Indications for amputation
- Effective techniques of education
- Patients education video
- Doctors education on examining the foot video
- The biomechanics of the foot in diabetes
- Demonstration of foot pressure measurement
- Newer treatments
- Live TCC application on patients and sharp debridement
- Post course evaluation

At the advanced training programme, the participants are issued with training materials aimed at other health care providers, enabling the teams to cascade the knowledge obtained to others in their respective local contexts.

After the second course the participants are again requested to keep records of their patients and to report after one year to the faculty.

### Evaluation

It is recommended to make a baseline evaluation of knowledge of diabetes and diabetic foot complications at the beginning of each course and a final one by the end of each course in order to evaluate the strong and weak points in the training for future courses.

It is recommended to make a general evaluation of the course, including participant's satisfaction etc.

## Participants

The Step-by-Step model is based on the premise of a team approach to care; i.e. the doctor performs the tasks s/he is best suited to perform and the nurse/para-medical performs the tasks s/he is best suited for. By making such a division, time is for example freed up for the doctor to attend to the complicated cases requiring medical intervention.

As a result the following considerations could be used in the selection of candidates:

1. Focus on the importance of people coming as teams (doctor and nurse) from the same health care facility. The primary choice of teams should be the ones made up of one doctor and one nurse. The second choice should be doctor and diabetes educator/technician/dietician.
2. Aim for 20-30 teams per training programme in order to permit and encourage active participation by all participants.
3. Focus on health facilities which already attend to diabetes patients.
4. Ensure a commitment (preferably in writing) from the health facility management that they plan to prioritise diabetes/foot care activities going forward.
5. The role of the public vs. the private health care sector will vary from country to country. However, it should be noted that WDF has a strong poverty focus and therefore supports efforts aiming at building capacity in health facilities which are accessible and affordable to the lowest income groups among a given population.
6. Avoid doctors from large teaching institutions who have possibility of continuous training as they already have exposure and they could tend to dominate the training.
7. Avoid people who have already received training on the diabetic foot to ensure relevance of the training for the participants.
8. Avoid repetition of delegates from the same town. Emphasis should be put on choosing teams representing different towns/districts to ensure geographical spread of the expected subsequent cascading of the training.

## Faculty

Typically a faculty of 3-4 experts (local and/or international depending on local context) would be able to deliver the training programmes. Faculty members could include:

- Diabetologist with substantial experience in advanced diabetic foot care.
- Podiatrist - Diabetes educator with significant experience in working with diabetic feet at risk/with complications

When selecting the faculty for providing the training it should be considered to what extent local expert capacity is available and may be drawn upon. International faculty members may also be called upon to cover gaps in the locally available expert capacity.

Calling upon faculty members who have previously had experience with the Step-by-Step model may be useful.

## Coaching in the field

Around 6 months after the advanced workshop has ended, it may be considered for the project manager/some faculty members to conduct a follow up in the field in order to see how the teams apply the skills in their daily work. This activity offers the opportunity to guide and correct action by the teams. The aim is to assure that proper foot care is sustained in order to reduce the number of amputations.

## Potential Impact

Depending on the local context regarding prevalence of diabetes, population density etc., as a rule of thumb, the teams could be expected to provide prevention and treatment to about 30 people with high risk feet each month.

The formal training is expected to reduce the amputation rate among patients seen by the teams by about 50%.

## Time schedule

### *Phase 1 (3 months)*

Evaluate existing educational material

Creation/adjustment of educational material (redesign to suit local needs)

Prepare training materials and kits (diagnostic and therapeutic instruments)

### *Phase 2 (6 months)*

Announce training programme through media of preference

Selection of national and (international) faculty  
Selection of participants  
Scheduling course(s)  
Conducting basic course(s)  
*Phase 3 (12 months)*  
Establishment of foot care clinics by trained teams  
Establish reporting system with trained teams  
Initial assessment of project related activities to date and adjustment of advanced course content  
Schedule advanced course  
Conduct advanced course  
Certification of participants  
*Phase 4 (3-6 months)*  
Coaching/supervision of clinics in the field by the national faculty/project management  
Evaluation  
Cascading of training by trained teams - continuous.

## **Sustainability**

Long term sustainability of WDF funded activities represents a core element of the WDF strategy. Commitment from participating health care facilities (public or private) in terms of contributing with co-funding and/or in-kind contributions such as staff, venues, faculty etc. should be encouraged. In order for the project to be sustainable it is also important that the selection process is carried out in a way that guarantees commitment from the course participants to carry on working within the area of diabetes and diabetic foot care after the course ends. This can be done by having the participants commit to checking the feet of all patients seen in the daily practice or by them committing to creating special foot care units in their clinics/hospitals.

## **Suggestions regarding educational material and -methods**

- The educational material for both participants in the training as well as for patients must be culturally neutral or acceptable and make sense to people from various cultural contexts.
- Make interactive sessions with practical cases. Let trainees test many of the methods demonstrated. Sessions can be partly combined with doctors and nurses attending together and partly separated. Educational material and instruments should be provided.
- When methods are tried out in the courses (e.g. demonstration of equipment) it is important to make sure that focus is on the methods actually used in the local context i.e. that the level of technology etc. corresponds with what the participants will encounter in their daily work. In other words, no need to demonstrate top end, costly equipment if it is not feasible in the context the foot care will be practised within.
- Design the sessions in an informal way with practical workshops, limiting the formal lecturing to a minimum. The teams can be divided into smaller groups for detailed sessions e.g. participants can be requested not to clip their nails for 1 month prior to the training. At the training course, doctors and nurses can then be requested to practise the nail cutting equipment and techniques on each other.
- To practise the techniques for debridement and cutting undermined edges of ulcers, it is useful to provide the participants with e.g. sweet limes as "guinea pigs" to imitate diabetic feet. The participants may be taught quite elaborate procedures in this manner, trimming calluses, probing ulcers and cutting out undermined edges using a forceps.
- Along the same lines, participants may be requested not to cut their toe nails 1 month prior to the training. They may then be requested to practice nail cutting by cutting each other's nails using nail clipper.
- Such a session may function as a great ice breaker and help develop a friendly and collaborative atmosphere and it could be used already during the basic training.
- The teams can be requested to prepare posters demonstrating the work done in the last year. Certain cases can then be selected for oral presentation.
- Make a quiz on foot-care with symbolic award for the winning team.