

# Preventative foot care in people with diabetes: Quality patient education

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Keywords: preventative foot care; diabetes; risk stratification; self care

## Abstract

Foot ulceration and amputation cause extensive burden on individuals and health care systems. One of the reasons for the poor outcome of foot complications in developing countries is the lack of patient education. Due to the multi-factorial pathology of diabetic foot ulceration, the person with diabetes should receive health education which is tailored to the individual's risk status, promote self care and address misconceptions. It is therefore recommended that providers of foot care should participate in ongoing professional education development programmes to obtain skills to assist people in adopting positive self-care behaviour.

JEMDSA 2009;14(2):00-00

## Introduction

The incidence of lower extremity amputation as a consequence of diabetes is considered to be a key indicator of the quality of foot care provided.<sup>1</sup> The reasons for poor outcomes of foot complications in various less developed countries are due to many factors which include lack of awareness among patients and health care providers, non existent or limited podiatry services, poor access to health care facilities, delay in seeking timely medical care, poor referral of health care providers for specialist treatment, lack of concept of a team approach for the treatment of the complicated foot, absence of training programmes for health care providers and lack of quality assurance programmes.<sup>2</sup>

One of the goals established by The International Working Group on the Diabetic Foot and endorsed by the International Diabetes Federation (IDF) to reduce the amputation rate worldwide, is to inform people with diabetes of the measures they can take to prevent foot complications.<sup>3</sup> Foot care education and an annual comprehensive foot examination are included in the SEMDSA Guidelines on the Diagnosis and Management of Type 2 Diabetes Mellitus for Primary Health Care 2009.<sup>4</sup>

Educational programmes may appear ineffective when applied in a standard way to large and relatively unselected populations as there is as yet no hard scientific evidence that education has reduced foot ulceration. There is evidence that structured, continuous education for the person at high risk for ulceration reduces the incidence of foot ulceration. It may therefore be more beneficial when education is delivered according to the individual's risk classification for ulceration and need. Determining the risk factors for ulceration is easy, but determining the health behaviour risk for ulceration is more challenging.

## The challenge in developing countries

Studies from Africa show the enormity of diabetic foot disease with a high incidence of amputations (33%) in people with ulcers and the highest in-hospital mortality rate (50%) amongst people with severe foot ulcers. The most common cause of ulceration was infected neuropathic foot ulcers.<sup>5</sup> The most at risk for infected neuropathic foot ulceration are those with limited information, skills or motivation to care for their feet and poor access to health care for routine care, education and emergencies. Poor living conditions and poverty compound the effects of foot ulceration in developing countries. Examples are injuries from walking barefoot, rodent and insect bites and poor self-care practices. The urgency for the implementation of preventative foot care strategies is clear and should include patient education programmes which are simple, culturally sensitive, cost effective and targeted.

In South Africa where diabetic foot health resources hardly exist, those health providers involved in diabetes care, need to find sound strategies to facilitate good foot self-care. Poor foot care knowledge and practices in rural areas of South Africa were identified as negative experiences by persons with foot ulcers or amputations in a small study done in the Eastern Cape region.<sup>6</sup>

It is recommended that every opportunity to promote foot health should be explored in already stressed clinic set-ups. This includes the application of psychologically-based interventions to assist people to adopt positive self-care foot health behaviour.

## Patient education according to risk stratification

A person with diabetes should receive education that corresponds to their individual level of risk (Table I). Generalised foot care education to all persons with diabetes has questionable value; a person at low

risk may receive education that is irrelevant and a person at high risk may receive education not intensive enough for the condition.<sup>7</sup> Screening and risk stratification should therefore be done before a person with diabetes receives education on foot care.

**Table I: Risk stratification<sup>8</sup>**

Category	Risk profile	Follow-up frequency	Targeted education
0	Sensation intact	Once/year	No lifestyle changes, basic care, disease process
1	Diminished sensation Blood supply intact, no foot deformities	Every six months	Intensive education to promote practical self-care skills, routine podiatry care
2	Diminished sensation, blood supply compromised or foot deformity	Every three months	Intensive practical education that emphasises strategies to modify behaviour and lifestyle Assess knowledge and understanding
3	Previous ulceration or amputation	Every one to three months	As above

Persons with an active foot problem such as ulceration and diabetes diabetic osteo-arthritis ideally should be managed by a multidisciplinary team.

The patient at high risk should understand the implications of the loss of protective sensation, the importance of foot monitoring on a daily basis, the proper care of the foot, including nail and skin care and the selection of foot wear (Table II). The patient's understanding of these issues and their ability to conduct proper foot surveillance and care should be assessed regularly.

**Table II: Foot care education for the high risk foot<sup>7</sup>**

Good self-care practice:	Feel for hot spots
	Look for discolouration or swelling
	Feel for sharp toenails
	Look for ingrown nails/black nails
	Look in between toes for soggy skin
To understand the effects of :	If necessary ask a family member or friend to help
	Barefoot walking/ill fitting shoes
	Corns and callus
	Trauma from hot or sharp objects
	Weight-bearing activities
What to do with an injury:	When and where to seek medical help
	First aid skills

Patients with difficulties, physical or cognitive, that impair their ability to assess their condition or ability to take the appropriate care will need special attention and assistance from their carers.

The Scottish Foot Action Group Education Leaflet 2008 is a good example of the development and implementation of a risk education programme on a national level. It is hoped that this system will encourage better understanding of the risk and appropriate management plan to minimise the risk of developing further foot complications in Scotland.<sup>8</sup>

## Who educates?

All health care providers of people with diabetes should be able to conduct a simple screening of the neurological, vascular, dermatological and the musculoskeletal systems to identify those at high risk.<sup>9</sup> Education should not be the responsibility of the podiatrist alone but should be provided and reinforced by all in the team, at every level and reinforced regularly. An agreed structured programme may therefore be the better option to ensure the person with diabetes receives consistent information.

## Diabetes Self Management Education

As health care systems have limited resources, centres should look at the benefits of group based Diabetes Self Management Education sessions (DSME). There is some evidence that group based DSME programmes are more cost effective, result in greater treatment satisfaction and are slightly better in supporting lifestyle changes. Group programmes should be designed to meet the individual's needs while taking advantage of the experiences of the group of patients to provide support and assistance to each other.

## Poor adherence to self-care education

The results of large studies in the UK and US<sup>10</sup> indicate that the majority of patients diagnosed with sensory loss have a poor understanding of their condition, which results in failure to engage in good self-care practices.<sup>11</sup> The educator's ability to understand and empathise with the patient's common-sense perspective is central to effective communication. These findings strongly suggest that health care providers need to identify those with misconceptions and practices and correct it by providing clear and practical self-care education.

## Conclusion

A targeted foot care education programme can allow a fragile diabetes care system to be better utilised. Limited resources, especially in low income settings, should not be taken up by inappropriate education and treatment programmes for those at low risk. All providers of foot care should participate in ongoing professional education development programmes to obtain skills to assist people in adopting positive self-care behaviour. A reduction in the amputation rate can be achieved by a trained diabetes workforce working in an effective system of care and vice-versa.

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