

Foot Protection Service: are we doing enough to protect our patients?

Angela Jones and Vanessa Goulding

The increase in population numbers and prevalence of diabetes is creating a burden on the Foot Protection Service (FPS) that cannot be sustained with its current operating methods. The emerging strategy in Wales, as part of its delivery plan for people with diabetes, is to provide information and support for patients to become active and engaged in their own foot health outcomes. Cardiff and Vale University Health Board Podiatry department has developed a novel patient education programme to deliver foot health information to patients with diabetes referred to the FPS from Primary Care. STANCE: Diabetes Foot Health Engagement and Empowerment to Self-Care is a multifaceted approach to providing information and support to patients to assist them in reducing the risk of diabetic foot disease.

It is widely acknowledged, with the rapid increase in the numbers of patients with diabetes and associated complications, such as diabetic foot ulceration (DFU), NHS services are under increasing pressure to deliver clinically effective and cost-effective care (Welsh Government, 2016). Evidence has shown that integrated diabetic foot services, which include a Foot Protection Service (FPS) working alongside a multidisciplinary foot care team (MDFT), ensure patients have access to the right care, at the right time, in the right place (Kerr et al, 2014).

The role of the FPS, often community podiatry teams, is to primarily prevent diabetic foot disease (DFD) and to treat and manage diabetic foot problems should they arise (the National Institute for Health and Care Excellence [NICE], 2015a). However, with increasing demands on FPS this raises the question if this demand can be sustained in the current economic climate. Additionally, with over 300 people per year having a leg, foot or toe amputation in Wales (Diabetes UK, 2015), is the FPS doing enough to protect patients?

In Wales, FPSs use the United Kingdom national guidelines on which to base the provision

of services. NICE Guidelines (NG) 19 (2015) recommend at least an annual foot assessment for all people with diabetes and increasingly frequent reviews depending on foot risk for ulceration and for those who are not able to check their own feet. In addition to NG19, strategic drivers that shape the delivery of care in the NHS in Wales include: Diabetes Delivery Plan for Wales 2016–2020 (Welsh Government, 2016), National Diabetes Foot Audit and, more recently, Directed Enhanced Services (DES) Module (General Medical Service, 2018) for diabetes. Within these documents are well-defined endorsements for the provision of education for patients that enable informed decision making in collaboration with the professionals providing care.

Cardiff and Vale University Health Board (CAV UHB) provides health and wellbeing services to a total adult population of 408,000. This is estimated to rise to 469,000 by 2035 (Institute of Public Care, 2017). These figures suggest that primary care teams (GP practices) and the FPS will need to be able to manage nearly 41,000 people diagnosed with diabetes by 2035. Approximately 30% of the current FPS caseload (12,300) (Lease et al, 2006)

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Article points

1. Patient education can support patients' knowledge of diabetes foot health care.
2. Multifaceted approach, repeatedly delivering foot health messages can help to support better self-care.
3. Current practices within the Foot Protection Services for supporting diabetic foot health are unsustainable and could be ineffective at preventing diabetic foot disease.

Key words

- Diabetes
- Foot Protection Service
- Patient Education
- Podiatry

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Box 1. Prudent health care principles (Bevan Commission, 2018).

- Achieve health and wellbeing with the public, patients and professionals as equal partners through co-production
- Care for those with the greatest health need first, making the most effective use of all skills and resources
- Do only what is needed, no more, no less; and do no harm
- Reduce inappropriate variation using evidence-based practices consistently and transparently

are classified to have a risk of DFD as moderate, high or active and, as such, receive their foot health care within the FPS. If the podiatry service in CAV UHB were to offer these patients just four contacts per year, 49,200 appointments would be needed. In practice, not all patients with these foot risks are identified or referred to the FPS, but given the current demand and further projections of need, this level of individual contacts is increasingly unsustainable. In addition, Green et al (2007) have recognised that the contact interventions offered do not adequately address the root cause of DFD failing to prevent disease progression, particularly if the patients are not adequately “engaged” or “activated” to make changes to their modifiable risk factors early enough after their diagnosis.

STANCE group information intervention

In light of the unsustainable demands on the FPS, and the clear recommendations by the strategic drivers, CAV UHB FPS has developed a structured patient group information session called STANCE: Diabetes empowerment and confidence to self-care. STANCE has been offered to all patients who have been referred to CAV UHB podiatry since inception in July 2017. This project adopted the prudent health care principles (*Box 1*) and used continual service improvement methods, including Plan, Do, Study, Act (PDSA) cycles to produce a 1-hour group information session. The group session is followed up with a one-to-one consultation with the podiatrist 2 weeks later. STANCE is sub divided into two themes: “Healthy Me” and “My Healthy Feet”. The dual approach gives greater emphasis to NICE Guidelines 28 (2015), which focuses on patient education, managing cardiovascular risk and blood glucose levels, and identifying and managing

long-term complications, as well as NICE guidelines 19, which focuses on preventing and managing foot problems. This allows clinicians and patients to understand that in the prevention of DFD the two themes are not independent of each other.

STANCE information development

In addition to the strategic drivers, the content for the STANCE education was informed by patient focus groups. Co-production with the involvement of stakeholders is a fundamental principle of prudent health care. Patients, their family/carers and the podiatry staff were considered to be primary stakeholders and, as such, were invited to focus groups to inform the content, format and structure of the group information sessions. The benefits of this type of qualitative patient involvement is to allow a group of people who will be directly affected by the outcome to express thoughts, views and ideas that they consider to be important and beneficial to them (Gibbs, 1997; Leung et al, 2009).

Fifty-two patients were contacted from the CAV UHB patient database to participate, 12 agreed to attend two workshops giving informed, written consent for their thoughts, opinions and advice to be used to develop the information session. The 12 patients had a range of experience using the FPS, some were awaiting access to the Podiatry service, and others were existing patients classified as having moderate risk feet and others who had experienced a DFU and/or amputation. The participants were split into three groups according to their experience and were asked nine questions. The questions were based on finding out:

- What the groups knew about how diabetes affected their feet
- What they wanted to know about how diabetes affects their feet
- What ways they would like to receive additional information and learning
- What was their main source of information.

Group facilitators were minimally involved in the conversations, but ensured all group members were able to voice an opinion. Opinions, thoughts and meanings were teased out of the conversations and recorded. Often, the questions were not directly answered, but initiated discussions about any issues or concerns that the groups experienced. This was

seen to be an advantage to collecting participants' feelings and understanding their concerns as a whole regarding their diabetes. The data were collated directly after the focus group and themes were identified, which included myths, fears, contradictory information, existing knowledge, patient-identified needs and expectations, and confidence and assurance. Based on the conversations witnessed, the facilitators expressed the following conclusions:

- Patients had differing experiences with primary care, some GP's very good, some were reported as not "interested"
- Patients did not recall any diabetes foot education or education of any kind given at primary care
- Chronic disease becomes expected and a social normality due to its prevalence
- No or little connection between controlling diabetes, weight, health and wellbeing and DFD.

There was a consensus within the focus group that the patients wished to receive small 'bite-sized' pieces of information delivered in various formats that could be repeated over a prolonged period of time. This concurs with Goulding et al (2017) who also acknowledged the importance of personal learning needs and preferences. In addition to the delivery of the information session, good-quality, evidence-based written information, such as those produced by Diabetes UK, is provided. Links to Pocket Medic, a suite of bespoke patient information films, are also given. These short films, which incorporate powerful patient stories, can be viewed on a mobile phone, tablet or home computer whenever or wherever is convenient.

Rice et al (2017) in a small service evaluation study, found a significant reduction in HbA_{1c} of patients who had watched one or more of the educational films. Furthermore, STANCE has utilised Florence (<https://www.getflorence.co.uk>), a text messaging service that can be used to provide a sequence of tailored, short health education messages over a period of time. This has provided an opportunity to repeat and reinforce the information enabling it to be sustained over an extended period of time. Florence can also allow the web links for the Pocket Medic films to be sent directly to a patient's smart phone, reminding and encouraging them to view the educational films. Saffari et al

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Figure 1 (left). Confidence and knowledge Patient Reported Outcome Measures.

Figure 2 (right). Confidence and knowledge Patient Reported.

Figure 3 (left). Was the Podiatrist?

Figure 4 (right). Do you know your foot risk classification?

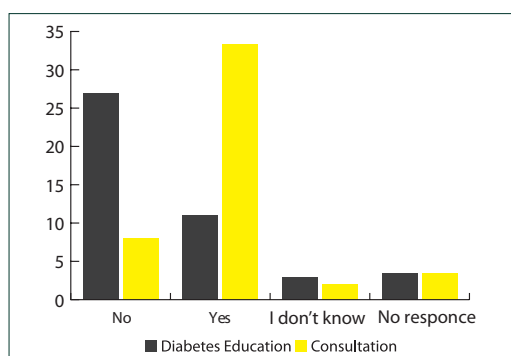
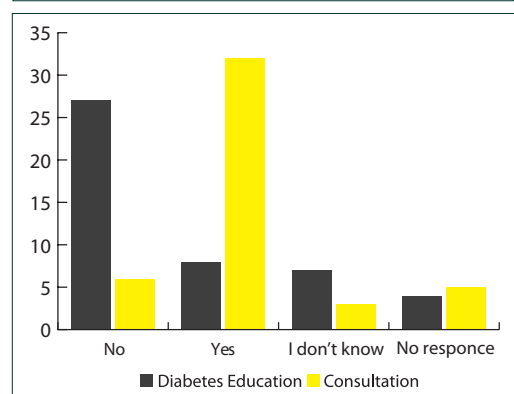
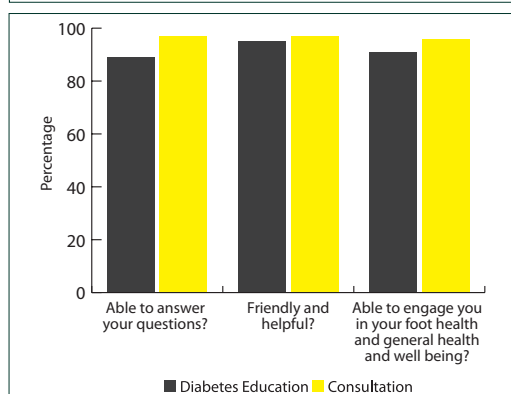
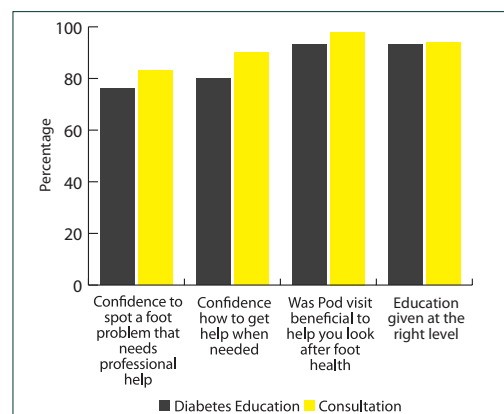
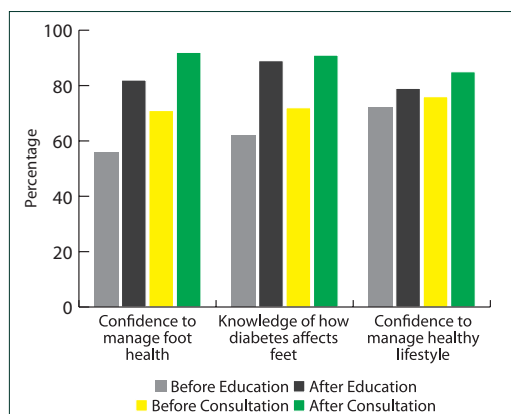


Figure 5. Do you know your HbA_{1c}?

(2014) in a systematic review of text messaged health education for patients with type 2 diabetes found that HbA_{1c} was significantly reduced in the experimental groups compared to the control groups ($P < 0.001$).

The first draft of the 1-hour STANCE information session was evaluated by the original focus group and a locally run Diabetes UK support group to ensure content was relevant and suitable. The session was very well received with excellent reviews and critique on content, delivery style and format. The content was a little too long and

repetitive in parts, but adjustments overall were minor. The finalised, patient approved content for the STANCE group information session consists of four key messages exploring:

1. Good HbA_{1c} (blood glucose) control is best for your feet
2. Attend your annual foot screening and know your RISK classification
3. Importance of regular foot self-care
4. How to get help when you need it.

In addition to learning about the key messages, STANCE offers an opportunity to view a Pocket Medic Film called "Care of the high Risk foot", ask questions and discuss personal experiences, browse a range of material provided by Diabetes UK, discuss good footwear choices, prepare any questions for the follow-up one to one consultation and sign up for the Florence educational text message service.

Follow-up one-to-one consultations are offered to patients approximately 2 weeks after STANCE information. During this contact, the "Healthy Me, My Healthy Feet" approach is adopted where the key messages delivered in the STANCE group

Table 1. Attendance Outcomes.

Foot risk of ulceration	STANCE Follow-up Consultation (n=122) (%)	No Podiatry intervention required/ patient discharged (%)	Advice and guidance with access when needed, patient not discharged, annual review (%)	Short-term podiatry intervention required (2–3 appointments then discharged) (%)	Regular podiatry Intervention required (4–6) appointments per year (%)
Low	89 (73)	83 (68)	0 (0)	6 (5)	0 (0)
Moderate	32 (26)	0 (0)	25 (21)	7 (6)	0 (0)
High	1 (1)	0 (0)	0 (0)	0 (0)	1 (1)
Active	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

session are revisited. A full diabetic foot assessment is carried out along with identifying any underlying health concerns which may increase risk of DFD in the future. Short intervention discussions may identify foot management concerns, loneliness,

and poor food knowledge, lack of knowledge around local health and exercise amenities, as well as managing high HbA_{1c}, smoking and obesity. A directory of local services is available for clinicians providing details of services available and referral

Graham Bowen, Podiatry Service Manager, Solent NHS Trust will be presenting at the **Diabetes Professional Care Conference Foot and Wound Clinic, 14th - 15th November 2018**



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method. Where appropriate a clinician will try to gain commitment to referral rather than simple signposting. Following consultation patients are notified of their foot risk and what it means for their foot health, along with their current HbA_{1c}. Most importantly, they are given details of how and when to get help if or when they need it.

Results

In the absence of a validated diabetic foot care education Patient Reported Outcome Measure (PROM) a tailored, non-validated PROM was devised to understand if the STANCE information improved patient knowledge, confidence in managing foot health/healthy lifestyles, confidence to identify a foot problem that needed professional help and to access help when needed. A numerical Likert scale was used to convert subjective data into objective numerical data. Patients were asked to complete the PROMs questionnaire at the end of the education session and again at the end of the consultation session.

Over a 5-month period, 302 people referred to podiatry with diabetes were invited, along with their family, friends and carers to attend the STANCE group information session. Sixty percent ($n=180$) attended which was encouragingly higher than other structured education courses offered in Wales, which have previously been reported at levels of only 1.4% attendance (Welsh Government, 2017).

All of the patients were invited to attend the follow-up consultation, eight patients declined an appointment as they felt they had enough understanding and knowledge to care for their own feet from the education session. One hundred and twenty-two (71%) of the remaining 172 patients attended the follow-up appointment.

Seventy three percent ($n=89$) of those assessed were identified as having a low risk of DFD (Table 1), 83 of which were discharged back to primary care for their annual foot assessment following their consultation, these referrals were considered to be inappropriate. Six patients identified with low risk required short-term podiatry interventions, such as nail surgery or footwear advice and orthoses prior to discharge. Seven patients identified with moderate foot risk required short-term podiatry assistance with foot health needs and confidence to self-care, these along with the remaining 32 patients identified with moderate

risk were added to a recall list for their annual foot assessment with the podiatry service. These patients were not discharged from podiatry, but remain within the FPS with access when and if they need it. One patient was classified high risk and required ongoing podiatry intervention. No patients with active foot ulceration were seen in the STANCE project during the pilot.

PROM's data collection was found to be difficult to accrue due to time constraints and demand of the consultation clinic. The data collection after the group education was more successful in terms of numbers collected. The PROM's results are shown in Figures 1–5 and illustrate matched questionnaires for patients attending both the group education and the follow-up consultation.

Figure 1 demonstrates the increase in knowledge and confidence before and after group education and before and after consultation. A consistent pattern emerges across all three questions where the score increases from beginning to the end of patient education, but dips again before the consultation contact before ending at the highest scores. For example, confidence to manage foot health rises from 56% of the maximum Likert score to 82% after education before declining to 71% before consultation to 92% after consultation. This is consistent with feedback from the focus group and research (Dorresteign et al, 2014) who stated that they would need to be told information repeatedly before it could be remembered sufficiently well to make an impact on long-term behaviours.

The PROMs also identified favourable increase in knowledge and confidence across other areas, including confidence to spot a foot problem that needs professional help and confidence how to get help when needed. Encouragingly, there was a significant increase in knowing foot risk classification and HbA_{1c} between the end of group education and the end of the consultation.

Discussion

The pathological process of diabetic foot ulcers (DFUs) is well documented (Tesfaye et al, 2005; Leese et al, 2006; Norgren et al, 2007) and associated with a variety of causative factors, including peripheral neuropathy (PN) and peripheral vascular disease (PAD). The progression from diabetes onset, to the development of diabetic

foot disease (DFD) is often insidious and is resultant of an accumulation of modifiable cardiovascular risk factors, including hyperglycaemia, hypertension, hypercholesterolemia, raised body mass index and smoking (Stevenson, 1994; The Diabetes Control and Complications Trial Research Group, 1995).

This work implies that in order to deal effectively with DFD, patients with diabetes must be supported and activated to address the risk factors associated with the disease complications. However, despite the supporting evidence, those involved in assessment for the risk of diabetic foot disease, including the FPS, often yield fruitless attempts to describe the events to the patient in a meaningful and engaging manner that activates their involvement in their disease progression prevention (Johnson et al, 2005).

Several small studies have demonstrated that foot care knowledge and patients' behaviour delivered in this way were positively influenced by education in the short term (Corbett, 2003; Lincoln et al, 2008; Monami et al, 2015), however, there is little evidence to support the effectiveness of patient education for the prevention of DFD (Dorresteyn et al, 2014). The dip in confidence and knowledge occurred between the information sessions and the consultation, but this concurs with a variety of outcome measure in the research reviewed by Dorresteyn et al (2014). Knowledge of foot risk and HbA_{1c} increased significantly from post group information session to post consultation, suggesting that the tailored one to one consultation is an important source of information in the STANCE package.

Johnson et al (2005) recorded a range of barriers that inhibited effective education. Included were: time and resources to provide education, health literacy, socioeconomic factors, cognitive impairment, cultural language barriers and patient's mental health. Perhaps the greatest challenge they noted was the human factor of not being able to realise or accept the seriousness of the disease at a time when preventative measures are crucial. Searle et al (2005) in their work examining the reasons for non-concordance with foot health advice, found that a patient was less likely to participate in a recommendation that did not fit with their preferred lifestyle.

Additionally, they noted a patient might wax and wane in the attention they give to their foot health, either initially — no attention as there is no perceived danger, changing to concordance once a foot event has occurred and danger is realised. Conversely, good early behaviours can fade if progress is not physically visible, which is the full intention of preventative measures. These difficulties, in addition to the lack of well-constructed studies do not lend to a wealth of evidence to support the introduction of foot health education.

The PROMs indicate that patients were satisfied with the level of information. The results also imply that this type of information using different methods of delivery may overcome some of the barriers suggested by Johnson et al (2005) and assist in patient activation and behaviour change.

A large proportion of the patients attending follow-up consultation (83, 68%) were identified as having a low risk of DFD. The pilot also indicates that there could be a benefit to providing STANCE foot health information within primary care as it could reduce the number of referrals to the FPS. This would support the recommendation of DES, (General Medical Service, 2018) while reducing the referral burden on the FPS.

There are a number of limitations with this pilot project. The inclusion of an educational review at the annual diabetic foot assessment would provide an ideal opportunity to reinforce the key messages and maintain patient momentum with behavioural change, but was not feasible in the time scale. The use of PROMs again at annual review would allow analysis over a longer period to ascertain the retention of information. Validated activation and behavioural change PROMs would give better indication to long-term changes and the effects on the reduction of DFD.

It is acknowledged that this is a small pilot project, but it has provided a platform to build a new approach to closing the gap between patient knowledge and health literacy. It has allowed meaningful conversations to commence between patients and FPS team members. Since this pilot, STANCE has been fully embedded into practice, the next proposed phase of improvement work is analysis of the current patient caseload data to review numbers of patients reaccessing the service and the incidence of DFD.

Conclusion

Many predict that with the rising numbers of patients with diabetes, the complications associated with it, such as DFD, are going to similarly increase. The current economic climate and financial constraints within the NHS indicate that the FPS will struggle to cope with the increase in demand unless changes are made. For patients, the effects of DFD can be devastating and often these problems can be prevented. Improving knowledge of the effects of diabetes on feet and how to prevent the complications are essential in order to reduce the demand on the service, but improve foot health.

This pilot project has shown that an information session followed up by a one to one consultation can be beneficial to help patients improve knowledge of the effects of diabetes on feet, highlight the importance of good diabetes control to reduce risk factors, identify problems earlier and where to go if a foot problem arises. It also suggests that providing a foot health information session, such as STANCE, to patients in the primary care setting may be advantageous to the patient and help reduce the number of referrals to the FPS. The project also demonstrates there is a requirement to continue to educate our colleagues within primary care to reduce the numbers of inappropriate referrals. Further appraisal of the impact of STANCE is required to evaluate activation, behavioural change and financial impact. ■

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