National Diabetes Foot Care Audit results: initial steps identify areas of current need

Delayed referral and triage, absence of recommended service structures and lack of clarity among commissioners are among the shortcomings identified in the first National Diabetes Foot Care Audit (NDFA) for England and Wales. Steve Chaplin here examines the NDFA’s recent findings and their implications.

The National Diabetes Foot Care Audit report (2014–15) is very much an initial step in which partial participation by NHS providers and early follow-up data allow only qualified conclusions, but it already highlights areas where improvement is needed.

What is the NDFA?

The National Diabetes Audit (NDA) programme ‘measures the effectiveness of diabetes health care against NICE clinical guidelines and NICE quality standards in England and Wales’. 2 Its recent annual reports have not made comfortable reading for service providers, revealing shortfalls in care delivery and achievement of treatment targets 3 in a period when the direct costs of diabetes care account for 10% of NHS spending – and rising.4

A large proportion of this expenditure is on the management of foot ulcers. NDA reports have so far documented foot-risk checks and amputation rates, and the NDFA was implemented to measure three aspects of the quality of foot care annually:

- Structures: are the nationally recommended care structures in place?
- Processes: does the treatment of active diabetic foot disease adhere to national guidance?
- Outcomes: are the outcomes of diabetic foot disease as good as they can be?

The audit of structures was carried out between October and November 2015: processes and outcomes were measured for patients presenting between July 2014 and April 2015.

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<thead>
<tr>
<th>Variable</th>
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<td>Gender; % of patients</td>
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Table 1. National Diabetes Foot Care Audit (NDFA) patient characteristics compared with the overall National Diabetes Audit (NDA) population: diabetes prevalence, gender, age, diabetes duration and BMI. (Data derived from NDFA report 2014–15) 1

Participation and data overview

Of the 126 service providers registered with the NDFA, 97 trusts and local health boards submitted data for 129 of the 221 registered foot care services. (It is not clear how many specialist foot care services are provided by the NHS in England and Wales so it is not possible to say what proportion of services participated in the audit.) A total of 129 clinical commissioning groups (CCGs) and local health boards (LHBs) – 60% of the total in England and Wales – participated in the survey of service structure.

The data included 5215 first attendances for assessment of a foot ulcer. The annual incidence of diabetic foot ulcer is 2.2%, suggesting that case ascertainment in the NDFA was about 10%. Ninety-six percent of patients had one foot ulcer, with the remainder having two or three.

The mean number of ulcers reported per service provider was 54; about one-quarter of service providers recorded fewer than 20 attendances, whereas more than half of all attendances were reported by 21 centres. The South West Strategic Clinical Network (SCN) reported the highest number of submissions (700), nine times more than the Thames Valley SCN. Centres could begin reporting data at any time during the audit period, so the duration of participation could differ by up to nine months.

Patient characteristics

Records could be linked to the core NDA 2014/15 data for 90% of patients, providing a comparison between those with foot ulcer and the overall population of people with diabetes.

Compared with the NDA population, people with foot ulcer are significantly (p<0.05) more likely to have type 1 diabetes, to be male and, especially among those with type 1 diabetes, to be older. (See Table 1.) Foot ulcer is also associated with a significantly longer duration of diabetes (Table 1), a white ethnic background (Figure 1) and greater deprivation (Figure 2). Among other risk factors, body mass index (BMI) was slightly but significantly greater in people with foot ulcer (Table 1), and differences in smoking status...
were greatest among people with type 1 diabetes (Figure 3).

The proportions of patients achieving treatment targets for blood pressure and cholesterol level were similar in the NDFA and NDA populations, but significantly fewer patients with foot ulcer achieved the target for glycaemic control (Figure 4). In patients with type 1 diabetes, only 12% of those with foot ulcer met all three targets compared with 19% of the NDA population.

**Structure**

The NDFA asked commissioners whether three structures of care recommended by NICE were in place:

- A training scheme ensuring health care professionals have the necessary competence to undertake routine foot examinations during annual diabetes reviews.
- An established referral pathway into a designated foot protection service for patients identified as being at higher risk during annual foot examination.
- An established referral pathway for patients with new, deteriorating or recurrent foot disease to expert assessment within, when necessary, 24 hours.

The response is difficult to interpret – with only 60% of commissioners participating and 62% of these able to give definitive answers, this is not a nationally representative picture. Of those who did answer, 57% had training in place, 77% had a pathway to the foot protection service and 54% had a rapid referral pathway. The corresponding figures for a negative response were 19%, 10% and 25%. Just over half of commissioners had all three services in place but between 2–20% of commissioners were either ignorant of or unclear about aspects of their services, prompting the NDFA to recommend that commissioners should improve their understanding of locally-commissioned services and ensure that NICE recommendations are implemented.

**Processes**

This section covers implementation of NICE recommendations for foot assessment and the correlates of ulcer severity.
National Diabetes Foot Care Audit results

Short report

Annual foot risk assessment

NICE recommends annual foot assessment, with more frequent assessments for people at a moderate or high risk of developing a diabetic foot problem. The proportion of people with foot ulcer who had an annual assessment was 85% – the same as for the NDA population – but the proportion was significantly higher among patients with type 1 diabetes than in those with type 2 diabetes (82% vs 71%).

Ulcer characteristics

The NDFA collected data on the most severe (index) ulcer. Most patients had a single ulcer (89%), regardless of type of diabetes; 7% of patients had Charcot neuroarthropathy but few had active (0.8%) or inactive (2.9%) Charcot foot disease on the same foot as the index ulcer.

Significantly more patients with type 1 diabetes had a severe ulcer (as assessed by the expert team), with 51% having a SINBAD score ≥3 compared with 45% of people with type 2 diabetes (Figure 5). The prevalence of neuropathy, bacterial infection or area ≥1cm² was significantly higher for people with type 1 diabetes, whereas ischaemia was significantly less common. Figure 6 shows the distribution of SINBAD scores.

Rapid referral

NICE recommends that patients with an active foot problem are referred to the foot care service within one working day and triaged within one further working day. Performance against this standard was poor: only 14% of patients were assessed by a foot care service within two days of presentation and a further 29% were seen within three to 13 days. Twenty percent had to wait for between two weeks and two months and 8% for longer than two months. This is important because the prevalence of severe ulcer increased with the time from presentation to assessment (Figure 7).

Overall, the prevalence of severe ulcer was lower among patients whose CCG or LHB had a referral pathway to a foot service (44% vs 54%) but these data were from a subset of the NDFA population and should be interpreted cautiously. The NDFA recommends that ‘all health care professionals should be aware of the need for prompt expert assessment of newly occurring foot ulcers in people with diabetes and should know how this assessment can be arranged’.

Audit outcome

The primary clinical outcome of the audit was being ulcer-free 12 weeks after the first expert assessment. The definition of ulcer-free includes major and minor amputation provided all wounds have healed; outcomes were not available for about 10% of patients due to death or lack of information.

About half the number of patients were ulcer-free at 12 weeks, with no differences between those with type 1 or type 2 diabetes. Having a referral pathway in place made no difference
the healing outcome but the prevalence of being ulcer-free decreased with longer delay between presentation and assessment (Figure 8). Differences in outcome were statistically significant for being seen within two weeks vs both two weeks to two months and more than two months; however, there was no significant difference between being seen within two days vs three to 15 days.

Every component of the SINBAD score was associated with a lower probability of being ulcer-free (Figure 9). Overall, 60% of patients with a non-severe ulcer were healed at 12 weeks compared with 36% of those with a severe ulcer.

The NDFA found large variations in outcomes between strategic clinical networks, ranging from a 20% healing rate for severe ulcers in Cheshire and Merseyside to 48% in the South West. This is not necessarily indicative of the quality of care because the quality of data reporting varied between providers and the NDFA included only 10% of cases.

Regression analysis showed that age, ethnicity, BMI, social deprivation, duration of diabetes and diabetes type were not significant predictors of 12-week healing, and the NDFA concludes that a service would not have poorer outcomes simply due to an older or more deprived population. By contrast, SINBAD component measures and Charcot foot disease were significant factors determining worse outcomes, with less but still statistically significant effects due to time to assessment, sex and smoking status. The NDFA again recommends caution when interpreting these data due to the small numbers involved and variable data quality.

Conclusions

The NDFA confirms an association between ulcer severity and the time taken to reach the expert team, and between both these factors and a lower chance of being ulcer-free at 12 weeks. These findings confirm the value of NICE’s recommendations for prompt referral of people with diabetes with a new foot ulcer.

The report acknowledges the precautions necessary when interpreting data from a small proportion of the 45 000 patients who present with a new foot ulcer in England and Wales every year. It anticipates improved coverage in the future, providing information that will clarify reasons for the variation in outcomes. In addition, longer-term data will provide information about six-month outcomes, hospital admissions, ulcer recurrence and the incidence of amputations.

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References

References are available online at www.practicaldiabetes.com.
References