

How the National Diabetes Footcare Audit results will lead to improved outcomes for people with diabetic foot ulcers

William Jeffcoate, Roger Gadsby, Arthur Yelland, Claire Meace, Julie Michalowski, Bob Young

The National Diabetes Footcare Audit (NDFa) in England and Wales was established in July 2014. Linked to the National Diabetes Audit, the NDFa aims to review data on all newly occurring diabetic foot ulcers, evaluating care processes and linking these with clinical outcomes. The 2014–2016 report has now been published and demonstrates that delays between presentation and first assessment in specialist care are significantly associated with worse outcomes. The audit can help to reduce both the human and the financial costs of diabetic foot disease.

Diabetic foot ulcers (DFUs) are a cause of considerable suffering and cost to the NHS – approximately £1 billion, 0.8% of the total NHS budget (Diabetes UK, 2017). Although some care outcomes have improved enormously in the last 20 years, with the annual incidence of major amputation in people with diabetes in the UK falling from about 3.5 to 0.8 per 1000 people, there is still evidence of wide geographical variation.

What is the NDFa?

The National Diabetes Footcare Audit (NDFa) in England and Wales was established in July 2014 and is one of a family of national audits that are now linked to the National Diabetes Audit (NDA). It seeks to include all newly occurring DFUs, to measure aspects of care against NICE (2015) standards and to link these with clinical outcomes. The aim is to support efforts to reduce variation in care and to improve outcomes overall.

What data are collected?

The information gathered specifically for the NDFa is in two parts: (a) three questions on the

structure of care, which are submitted annually to every Clinical Commissioning Group (CCG) in England and Local Health Board (LHB) in Wales; and (b) three simple items that foot service clinicians (usually podiatrists) record for each new DFU case. The details of these are presented in *Box 1* and *Box 2* (overleaf). It should be noted that, rather than collect data on DFU healing or amputation, the single, patient-centred outcome measure chosen is a composite of survival and being ulcer-free.

The burden of data capture is deliberately kept low in order to (a) increase involvement in the audit; (b) reduce the likelihood of cases being selected for registration on the basis of ease of completing the form; and (c) minimise the collection of data that may be of uncertain validity. Demographic and other clinical details are available from linkage to the NDA and to the Hospital Episode Statistics/Patient Episode Database for Wales (HES/PEDW).

Who collects the clinical data?

The NDFa encourages involvement from any healthcare professional who assumes care of

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Article points

1. The results of the first National Diabetes Footcare Audit were published online in March 2017.
2. The data suggest that diabetic foot ulcer outcomes are significantly impacted by delays between presentation and first assessment in specialist care.
3. Wide geographical variation in outcomes has also been observed and suggests that some people are not being managed as well as they might be.

Key words

- Audit
- Diabetic foot ulcers
- National Diabetes Audit
- National Diabetes Footcare Audit
- SINBAD

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Box 1. Questions on the local structure of foot care for people with diabetes.

Questions put to Clinical Commissioning Groups and Local Health Boards each year:

1. Is there a training programme designed to ensure the competency of healthcare professionals who undertake annual foot checks?
2. Is there a pathway for referral of all people at increased risk of foot ulceration to a designated Foot Protection Service?
3. Is there a pathway for all new/deteriorating foot disease to allow referral for expert assessment within 24 hours, if needed?

Box 2. Information on the process of care for newly presenting cases.

Information on each new case required from clinical staff:

1. The severity of the foot ulcer at baseline – using the Site, Ischaemia, Neuropathy, Bacterial infection, Area and Depth (SINBAD) grading score, which uses six simple clinical features to define the ulcer, can be quickly completed and has been validated in multiple countries (Ince et al, 2008).
2. The time that elapsed between first presentation to any healthcare professional and first assessment in the specialist unit. To ease the burden of data collection, the elapsed time is divided into just five categories: self-referral, ≤2 days, 3–13 days, 14 days to 2 months and >2 months.
3. Outcome data. The clinician is simply asked if the person is alive and ulcer-free (no foot ulcers or leg wounds at all, whether they have had surgery or not) at both 12 weeks and 24 weeks.

a DFU at any stage of the care pathway. The possibility of multiple entries being received for any one episode is eliminated by use of the patients' NHS numbers.

Preliminary findings from 14 July 2014 to 8 April 2016

The most recent report was published online on 8 March 2017 and includes data from the first 21 months. Full details can be found at: <http://digital.nhs.uk/catalogue/PUB23525>.

Care structures in place

The response of CCGs (in particular) and LHBs to the 2016 questionnaire was not complete, with replies received from 110 of 209 CCGs in England and six of seven LHBs in Wales. Less than 50% of responding organisations confirmed that they had all three of the recommended structures of care (*Box 1*) in place. Definitive answers to all three questions were received from all six responding LHBs, but only from 77 CCGs.

Process of care

A total of 155 clinical services in England and 18 in Wales participated in the NDFA processes and outcomes audit, involving at least one team from 107 NHS Trusts in England and from all seven LHBs in Wales.

The first 21 months of audit included 13 034 newly occurring ulcers. The total number of DFUs that would have occurred in England and Wales over this period is not known but, even if this sample represents only a fraction of the total, this is by far the largest cohort of DFUs ever studied in which data have been prospectively collected.

Population

Patient demographics were as expected: the mean age was 67 years, 70% were male, the mean diabetes duration was 15 years and the majority of patients were of white ethnicity (92%), with DFUs being relatively uncommon in South Asian people despite the high prevalence of type 2 diabetes in this population.

Relationship between time to referral and ulcer severity at assessment

The ulcers were graded on the Site, Ischaemia, Neuropathy, Bacterial infection, Area and Depth (SINBAD) score as severe (i.e. more limb-threatening) in 46% of cases. People who had had an ulcer for >2 months before being assessed by the team registering the case were more likely to be graded as severe than those who were seen more quickly (58% vs 34–51%).

Outcome data and relationships with severity of ulcer at referral and time to referral

The outcome measure – being alive and ulcer-free at 12 and 24 weeks – was significantly more likely for people with less severe ulcers: 60% and 74% were alive and ulcer-free after 12 weeks and 24 weeks, respectively, compared with only 35% and 56% of those with severe ulcers. The clinical outcome was also better in those who were seen within 2 weeks of first presentation (see *Figure 1*).

Early analysis also suggests considerable geographic variation in outcomes. For example, the number of people with severe ulcers who were alive and ulcer-free at 12 weeks ranged

from 13% to 66% between the best- and worst-performing NHS Trusts and LHBs.

Limitations of the data and conclusions

The results of the NDFA show clear associations between the time to first assessment by the team that assumed care of the DFU and both the severity of the ulcer and the chances of the person being alive and ulcer-free at 12 weeks. These associations were maintained at 24 weeks.

It is believed that this relationship is causative and that ulcers deteriorate when they are not referred quickly. NICE (2015) recommends rapid referral for all new DFUs. However, it is also possible that many less severe ulcers settle quickly in the community without any expert referral, and that the observed link between referral delay and severity simply reflects the fact that a late decision to refer was made because the ulcer was either not improving or was deteriorating. This uncertainty cannot be resolved using collated data from the whole population, but it will be possible at a later date when the total number studied is higher and more valid comparisons can be made between different areas in which referral practices differ.

It will also be possible to compare outcomes of case-mix-adjusted populations managed in different parts of the country, and this will provide further clues into which aspects of the care pathway are independently associated with outcome.

Perspective

It should not be forgotten that changes made to the structure of care over the past decades have been associated with considerable falls in the incidence of major amputation. The persisting evidence of considerable geographical variation is, however, worrying and suggests that some people are not being managed as well as they might be. This audit has the potential to help reduce both the human and the financial costs of diabetic foot disease. ■

Diabetes UK (2017) *Improving footcare for people with diabetes and saving money: an economic study in England*. DUK, London. Available at: <https://is.gd/48PmE5> (accessed 07.08.17)

NICE (2015) *Diabetic foot problems: prevention and management* [NG19] NICE, London. Available at: www.nice.org.uk/guidance/ng19 (accessed 07.08.17)

Ince P, Abbas ZG, Lutale JK et al (2008) Use of the SINBAD classification system and score in comparing outcome of foot ulcer management on three continents. *Diabetes Care* **31**: 964–7

“People who had had an ulcer for >2 months before being assessed by the team registering the case were more likely to be graded as severe than those who were seen more quickly (58% vs 34–51%).”

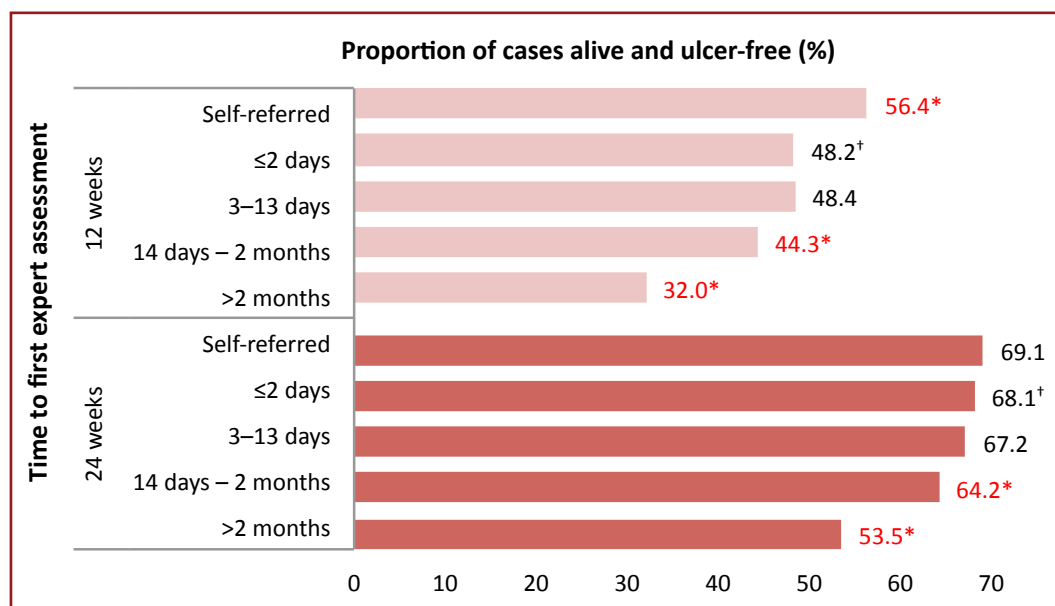


Figure 1. Percentage of people with diabetic foot ulcers who were both alive and ulcer-free at 12 and 24 weeks. Patients were grouped according to time from first presentation to first assessment by the team assuming care.

*P<0.05 when compared with those seen ≤2 days after presentation, as recommended by NICE (2015) guidelines; [†]reference for comparison.

Note: The “Self-referred” group is likely to comprise people already known to the service registering the episode and has been used as a secondary comparison group.

NDFA developments

NHS England has directed NHS Digital to collect information for the NDFA audit programme.

From August 2017, data collection for the NDFA is mandated for providers in England, and signed consent to participate in the audit is no longer required from patients.

Patient consent is, however, still required by participating organisations in Wales.

Further information

The full 2014–2016 National Diabetes Footcare Audit (NDFA) report is available at: <http://content.digital.nhs.uk>

Those interested in participation should contact the NDFA via: <http://content.digital.nhs.uk>