National Diabetes Foot Care Audit Hospital Admissions Report 2014-2016

Data Quality Statement

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Introduction

The National Diabetes Foot Care Audit (NDFA) is part of the National Diabetes Audit programme (NDA). The NDA is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA) following advice to the Department of Health from the National Advisory Group on Clinical Audit and Enquiries (NAGCAE). The NDA is delivered by NHS Digital, in partnership with Diabetes UK and the National Cardiovascular Intelligence Network (part of Public Health England).

The NDFA has been designed to deliver a reliable, low burden measurement system for diabetic foot disease, covering the basic structure of care services, the management of people presenting with active diabetic foot disease, and their outcomes.

The audit seeks to address three key questions:

- Structures: Are the nationally recommended care structures in place for the management of diabetic foot disease?
- Processes: Does the treatment of active diabetic foot disease comply with nationally recommended guidance?
- Outcomes: Are the outcomes of diabetic foot disease optimised?

In order to support the audit question ‘Are the outcomes of diabetic foot disease optimised?’ the information collected in the audit has been linked to hospital data to report on the treatments and outcomes experienced by people following their diagnosis and assessment with diabetic foot disease.

Data collection

NDFA data collection for this report follows two strands: a patient-level collection of processes and outcomes (the NDFA processes and outcomes collection) and linkage to admitted patient care data held by Hospital Episode Statistics (HES) in England and Patient Episode Database for Wales (PEDW) in Wales.

NDFA processes and outcome collection

NDFA patient-level information on care processes and outcomes is collected through the Clinical Audit Platform (CAP). People were eligible for submission to CAP if they underwent first expert assessment for diabetic foot ulceration by a specialist foot care service from 14 July 2014 onwards. Data is submitted by NHS Trusts, Local Health Boards (LHBs) and Independent Healthcare Providers (IHPs).

NDFA was a consented audit during the period of data collection for this report\(^1\), so data for non-consented patients is not included.

Admitted patient care linkage

Patients collected in CAP were linked to HES and PEDW admitted patient care data using NHS number. More information on this process is in the ‘Linkage to other data sources’ section below.

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\(^1\) The final data extract was taken on 5 September 2016.
Accuracy and reliability

Participation

It is difficult to assess the level of participation in the NDFA processes and outcome collection, as there is no definitive list of organisations which provide specialist diabetic foot care services.

All LHBs submitted data for this report, while fewer than half of all NHS Trusts open over the course of the audit period provided data. Some NHS Trusts may not provide specialist foot care services, so it is not possible to determine which NHS Trusts are non-participants.

The number of ulcer episodes submitted by each provider varied considerably (between 1 and 769 ulcer episodes), with 22 per cent of participating organisations providing fewer than 20 ulcer episodes to the audit. Because organisation level data on patient numbers is not available, it is not possible to determine which if any providers are under-submitting to the NDFA.

Linkage to other data sources

HES and PEDW

Patients submitted to the NDFA processes and outcome collection were linked to data items recorded in HES and PEDW using NHS number. The linkage cohort contained all NDFA patients with a first expert assessment date between 14 July 2014 and 08 April 2016 who had been included in the second annual NDFA report. Patients submitted to the NDFA after the second annual NDFA report extract was taken (5 September 2016) were not included.

The HES linkage used the most recent available HES data; 2014-15, 2015-16 and 2016-17 (to month 11). Under information governance rules there was no requirement to apply type 2 objections to the dissemination, so no episodes of care were removed from the returned HES data.

The PEDW linkage used the most recent available PEDW data; 2014-15, 2015-16 and 2016-17, with acknowledged caveats that the diagnosis and procedure coding for the last 3 months of 2016-17 data might be incomplete. Only NDFA patients that had been seen by Welsh providers were eligible to be linked to PEDW data. Consequently Welsh hospital admissions of patients first seen in England would not be identified. The proportion of missing data cannot be quantified.

When the data was returned, 85 per cent of patients in the NDFA were linked to one or more hospital admission record (either HES or PEDW). It is not possible to quantify how many, if any, episodes were missed: some NDFA patients will not have had a hospital admission in the timeframe and some may have died shortly after their recorded assessment. Some PEDW data may also be missing where the patient was first seen in England (see above).

Case ascertainment

The NDFA processes and outcome collection received data on 13,034 ulcers that underwent first expert assessment by a specialist foot care service between 14 July 2014 and 8 April 2016, covering 11,703 patients. Only cases where the patient had consented to their data being included in the audit were recorded. There is no central record of how many patients did not consent to participate in the audit.
Establishing NDFA case ascertainment is difficult because there are no national data on foot ulcer incidence. Two methods have been tried; both suggest case ascertainment of 10 to 20 per cent:

1. An estimated 64,000 people\(^2\) with diabetes in England and Wales have a diabetic foot ulcer at any one time. The NDFA has collected information on 11,703 people over 21 months, which is equivalent to a case ascertainment of approximately 10 per cent.

2. The NDA\(^3\) reports on the numbers of minor and major amputations undergone by people with diabetes recorded in that audit. 57 per cent of GP practices in England and Wales participated in the 2014-15 NDA.

The numbers of people in the wider diabetic population in the NDA who underwent minor and major amputations in 2015-16 were compared with the number of people in the NDFA who underwent amputation over the same period of time. This showed that the number of people in the NDFA having major amputations is 10 per cent of the number of people in the NDA having major amputations, and the number of people in the NDFA having minor amputations is 18 per cent of the number of people in the NDA having minor amputations in 2015-16.

This comparison is not definitive for a number of reasons, including:

a) Not every patient in the NDFA could be linked to the NDA (87 per cent of patients in the second annual NDFA report were linked to recent records in the NDA);

b) Not every incidence of amputation in the NDA would be preceded by a foot ulcer or an expert assessment;

c) GP Practice participation in the 2014-15 NDA was only 57 per cent.

Whilst the above comparisons are imperfect, the results indicate that NDFA case ascertainment is low, probably around 10 to 20 per cent.

**Whilst the NDFA is a unique and invaluable dataset, probable low case ascertainment should be considered when interpreting NDFA findings.**

- The patients submitted to the NDFA may not be representative of the entire population of people with diabetic foot ulcers. For example, submission rates may vary geographically and some sub-groups may be over- or under-represented.

- Counts in the NDFA are likely to significantly underestimate the true, national figures (i.e. numbers of people, ulcers, hospital admissions, procedures and bed days collected will be lower in NDFA).

**Data quality**

Data collected via the CAP system was subject to validation checks.

HES and PEDW operate a number of cleaning and processing procedures on their data. This occurred prior to the acquisition of data through the linking process. Information about these data quality processes is available from NHS Digital (HES) and NHS Wales Informatics Service (PEDW).

\(^2\) Incidence methodology taken from Kerr, M: Diabetic foot care in England: An economic study. (2017) and adapted to include the Welsh diabetic population (population figures taken from the 2016 Quality Outcome Framework).

Some further cleaning processes were applied to the linked HES and PEDW data on receipt of the data extracts. This removed or amended a small number of records with conflicting information (e.g. conflicting demographic information from multiple different data sources).

Whilst the NDFA is a unique and invaluable dataset, probable low case ascertainment should be considered when interpreting NDFA findings (see 'case ascertainment' section above).

**Timeliness and punctuality**

The final deadline for data submission to the NDFA processes and outcomes collection for this report cohort was 26 August 2016. Data was extract from the Clinical Audit Platform on 5 September 2016. The second annual NDFA report covering the period 14 July 2014 to 8 April 2016 was published on 8 March 2017.

Linkage to the HES and PEDW admitted patient care could not be undertaken until the legal basis for the NDFA's receipt of the data was established. Following confirmation, the linked admitted care data used for the report was received on 11 May 2017 (PEDW) and 25 May 2017 (HES).

The time lag to publication of the hospital activity report was therefore 18 months after the end of the audit period, 13 and a half months after the submission deadline and 5 months after receipt of the linked HES and PEDW data.

**Accessibility and clarity**

The main report is presented in PowerPoint and pdf format on the NHS Digital website, with supplementary information in the same format, and supporting data accompanying the report provided as an Excel spreadsheet. Data is provided at national (England and Wales) level only. There is no breakdown of values by service, provider, or clinical network.

Further information about the audit can be found at: http://content.digital.nhs.uk/footcare.

The audit data collection form can be found at: NDFA Data Collection Form 2017

The audit patient information leaflet can be found at: NDFA Patient Information Leaflet 2017

A summary of the terms used in the report is included in a glossary within the report.

**Coherence and comparability**

**Comparability over time**

This report is the first time that the NDFA has been linked to hospital admission data.

**Comparability with other sources**

The National Diabetes Audit (NDA) reports on complications of diabetes, including admissions of people recorded within the NDA for major and minor lower limb amputations. This cannot generally be compared with minor and major amputation activity recorded in the
NDFA, due to differences in the report cohort, in the time frames considered and other differences in reporting criteria between the two reports.

Both NHS Digital and NHS Wales publish admissions data, on hospital activity in England and Wales respectively, and therefore some limited comparison may be made between admissions reported in national publications of HES and PEDW data.

Public Health England publishes diabetes footcare profiles using the same definitions for foot disease related admissions, but considers hospital activity in England over a longer period (3 year) on an episodic basis, whereas the NDFA examines admissions over a narrower time period (6 months), so comparison between the two data sources is difficult.

Assessment of user needs and perceptions

The NDFA advisory group consists of clinicians, podiatrists, patient representatives, Diabetes UK and analysts from the National Cardiovascular Intelligence Network (NCVIN), and provides advice on both the analysis and content of the reports as well as the direction and development of the audit.

The NDA team has an active role in NCVIN workshops to gain a better understanding of how CCGs and localities use the data and how we can improve the NDA programme’s publications and supporting information. These workshops are conducted quarterly and are co-ordinated by Public Health England (PHE) and bring together epidemiologists, analysts, clinicians and patient representatives.

NHS Digital is keen to gain a better understanding of the users of this publication and of their needs. Your feedback is welcome and may be sent to enquiries@nhsdigital.nhs.uk (please include ‘National Diabetes Foot Care Audit’ in the subject line).

Alternatively you can call our contact centre on 0300 303 5678 or write to NHS Digital, 1 Trevelyan Square, Boar Lane, Leeds, LS1 6AE.

Performance, cost and respondent burden

Efforts have been made to reduce the burden on participating teams by the inclusion of linked data from other available sources. By linking to HES and PEDW the audit can report on treatment outcomes associated with audit patients without requiring any further data collection from services participating in the audit.

However, it is acknowledged that participation in the audit does involve costs in time and organisation for the providers that participated, and the NDFA continues to look at ways in which this might be reduced in later collection periods.

Confidentiality, transparency and security

Patient identifiable information – NHS number – has been collected in order to link to information collected in the NDA, HES and PEDW about the patients’ diabetes care. Patient identifiable information is held securely and with restricted access and will not be released from NHS Digital to other parties.
Patients are provided with a Patient Information Leaflet and then provide their signed consent by completing the Patient Consent Form. This informed consent provides the required legal basis to obtain the NHS number of the participant.

Individuals are able to withdraw their consent and request that their information is removed from the audit. At the initial contact they will be given information about how they can request that their information is removed.

It is expected that through the audit collection, all organisations will continue to follow existing NHS codes of practice in regard to patient confidentiality, information security management, record management and other legal obligations.

A risk assessment has been carried out on the audit publication, and no suppression has been applied. Definitive patient identification is not possible due to low case ascertainment in the audit and the high base population of people with diabetes. Although self-identification may be possible, this is not a high concern because all patients have consented to the audit.