

Quality and Outcomes Framework and National Diabetes Audit results for diabetes care: Why are they different?

Roger Gadsby

NICE has outlined nine core processes of care that people with diabetes should have determined annually: BMI; blood pressure; smoking status; glycaemic control (HbA_{1c}); urinary albumin test; serum creatinine level; serum cholesterol level; eye checks; and foot checks (NICE, 2008). However, figures from the Quality and Outcomes Framework (QOF; Health and Social Care Information Centre [HSCIC], 2013a) and the National Diabetes Audit (NDA; HSCIC, 2012) for the percentage of people with diabetes who have received all nine core care processes differ considerably. The National Audit Office tasked the Department of Health with explaining this conundrum, and a report was published highlighting reasons for the differences in QOF and NDA results (Sullivan and Easton, 2012). Findings include that QOF and the NDA serve different purposes, look at different populations and use different Read code sets for recording the nine processes of care, especially for urinary albumin–creatinine ratio, eye checks and smoking status.

The National Audit Office (NAO), an independent group tasked with ensuring that taxpayers' money is spent wisely by Parliament, produced a report on diabetes care and presented this to the Public Accounts Committee of the House of Commons in June 2012 (Sullivan and Easton, 2012). One of the main "measures" of the quality of diabetes care that the NAO chose and highlighted in its report was the percentage of people with diabetes who had received all of the nine core care processes performed in the previous year, as measured by the National Diabetes Audit (NDA); the data used by the NAO were from the 2009–10 NDA (Health and Social Care Information Centre [HSCIC], 2011), and the figure was 49%. This became a headline when it was stated that less than half of all people with diabetes receive the care that they should, and by implication that over half receive none! In fact, when the percentage of people with diabetes who receive either eight or the full nine care processes is measured, it is well over 80%.

A short time after the NAO report, the figures for the completion of the nine care processes for 2010–11 were published by the NDA, and the figure had risen to 54% (HSCIC, 2012); it should also be noted that the figure for 2004–05 (the first year of the NDA) was around 5% (HSCIC, 2006).

When the NAO looked at the results from the diabetes Quality and Outcomes Framework (QOF) 2011–12, they found that the achievements being recorded for most of the core processes of care were over 90% (HSCIC, 2013a). Many GPs too were puzzled when their practice seemed to score low figures for the completion of the nine core processes on the NDA, but achieved high figures on the QOF.

The NAO tasked the Department of Health with explaining this conundrum, and a group was convened to investigate. They have met, analysed the problem and issued a report (Sullivan and Easton, 2012); this article is based on that report.

Citation: Gadsby R (2013) Quality and Outcomes Framework and National Diabetes Audit results for diabetes care: Why are they different? *Diabetes & Primary Care* 15: 77–81

Article points

1. Results from the Quality and Outcomes Framework (QOF) and the National Diabetes Audit (NDA) give widely different figures for the percentage of people with diabetes who have received the nine core processes of care as outlined by NICE.
2. A report that examined this discrepancy (Sullivan and Easton, 2012) found that QOF and the NDA served different purposes, looked at different populations and used different Read code sets for recording the nine processes of care.
3. The greatest discrepancy in Read code clusters were for urinary albumin–creatinine ratio, eye checks and smoking status.

Key words

- National Diabetes Audit
- Quality and Outcomes Framework
- Read codes

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What are the nine core processes of care for people with diabetes?

The NDA indicators for the care processes recommended by NICE (2008) are as follows (listed with relevant QOF clinical indicators from 2010/11 in square brackets):

1. Weight corrected for height, as BMI [DM2].
2. Blood pressure [DM11].
3. Smoking status.
4. Glycaemic control (HbA_{1c}).
5. Urinary albumin test (corrected for urinary creatinine) [DM13].
6. Serum creatinine level.
7. Serum cholesterol level.
8. Eye checks (retinopathy screening).
9. Foot checks (vascular and nerve screen).

These measurements or blood tests should be taken at least annually to ensure that individuals with diabetes have the data available to assess their level of control and to check for diabetes complications.

Reasons for the differences between QOF and NDA results

QOF and NDA serve different purposes

These purposes are as follows.

- QOF is intended to incentivise and resource GPs to deliver a high level of patient care and only extracts aggregated data from general practices.
- The purpose of the NDA is to measure the quality of care received by individuals with diabetes and identify annual trends; it uses patient-level data to achieve this.

The average achievement for care processes as measured by QOF was over 90%, but the data were extracted in aggregate form and so it is impossible to calculate how many people received all nine care processes. The NDA data are extracted in an identifiable form, so it is possible to link individual data across the numerators of each NDA indicator; this showed that 54% of all individuals with diabetes received all nine core care processes (HSCIC, 2012). It is likely that each individual with diabetes missed different checks, which means that practices could have had a high level of achievement for each QOF indicator, while the percentage of individuals who received all nine checks remained significantly lower. Mathematically, with the average QOF scores as they were, the overall achievement for all nine care processes could be as low as 40%.

QOF and NDA look at different populations

These populations are as follows.

- QOF looks at people over the age of 17 years, and allows exclusions.

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- NDA looks at everyone with a diagnosis of diabetes.

The NDA reports on all individuals with a coded diagnosis of diabetes in their record. QOF defines diabetes by the presence of a smaller subset of Read codes in the patient record, specifically excluding four groups of individuals:

- Individuals aged <17 years.
- Those registered with their current practice for <3 months or diagnosed with diabetes for <3 months.
- Those who have been reported as an exception from the QOF audit by their practice.
- Those who have a coded record of “diabetes resolved”.

QOF and NDA use different Read code sets

Using different Read code sets affects the recording of the nine core processes of care in different ways:

- There are six care processes where the only differences between QOF and NDA results are a few per cent (BMI, blood pressure, HBA_{1c}, creatinine level, cholesterol level and foot checks), which is explained by the different populations under study, as outlined above.
- The other three care processes (smoking status, urinary albumin–creatinine ratio and eye checks) show greater differences than can be explained by the different populations – the greatest difference being for the urinary albumin–creatinine ratio.

Why is there such a big difference between QOF and NDA results for urinary albumin–creatinine ratio?

The difference between QOF and NDA results for urinary albumin–creatinine ratio is 10.2% after correction for exception reporting. QOF indicator DM13 reports on: “The percentage of patients with diabetes who have a record of microalbuminuria testing in the previous 15 months (exception reporting for patients with proteinuria)” (HSCIC, 2013b); this indicator has remained unaltered since its introduction in 2004. It is based on a NICE-inherited guideline from 2002; however, NICE guidance on this subject changed in 2008 with the publication of *Clinical Guideline 66* on type 2 diabetes (NICE, 2008). This stated that everyone with diabetes should be tested (whether or not they had previously diagnosed proteinuria), and that the test should be a urinary albumin–creatinine ratio. Before this publication, microalbuminuria dipstick testing of a urine sample in the GP surgery was acceptable. Anecdotal evidence suggests that dipstick testing is still recommended in some local clinical guidelines. This use of dipstick testing and the exclusion of people with proteinuria almost entirely explains the difference between QOF and NDA results for this process of care.

A proposal to remedy this problem of a QOF clinical indicator being at variance with NICE guidance has been formulated. This

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1. The variance between QOF and NDA results for eye checks relates to each audit using different Read code sets, which need to be aligned.
2. The variance between QOF and NDA results for smoking status is caused by using different indicators for smoking status, which means that data from each audit cannot be meaningfully compared.

involves a change in the wording of QOF indicator DM13 to: “Percentage of patients with diabetes who have a record of an albumin:creatinine ratio (ACR) test in their record in the preceding 15 months” (NICE, 2012).

Why are there differences between QOF and NDA results for eye checks (retinopathy screening)?

The difference between QOF and NDA results for eye screening is 7.5% after correction for exception reporting; even after the results are corrected for exception coding, the NDA and QOF reported significantly different results. The clinical intent of the NDA and the QOF retinopathy indicators are essentially the same – to look for evidence of retinopathy screening in individuals’ records – but there are significant differences in the two sets of codes used by the reports; this can probably explain most of the difference between the two reports. Each audit’s Read code clusters are open to criticism, because each audit included codes that might be legitimately recorded in an individual’s notes for reasons other than proper retinopathy screening; for example, the QOF cluster includes a Read code “seen optician”.

Work needs to be done to align the Read code clusters acceptable to NDA and QOF and to remove codes from both that are too general and that do not specify that digital retinal photography has been performed to the nationally agreed standards.

Why are there differences between QOF and NDA results for smoking status?

The difference between QOF and NDA results for smoking status is 5.2% after correction for exception reporting. The QOF smoking data come from a single, complex indicator that extracts aggregated data on smoking status for a population with one or more of a group of long-term conditions, of which diabetes is only one; it looks separately at specific age groups and categories of non-smokers.

The smoking indicator for QOF for individuals with diabetes is included in *QOF Smoking 3*: “The percentage of patients with any or any combination of the following conditions: coronary heart disease, stroke or

TIA [transient ischaemic attack], hypertension, diabetes, COPD [chronic obstructive pulmonary disease], asthma, CKD [chronic kidney disease], schizophrenia, bipolar affective disorder or other psychoses whose notes record smoking status in the previous 15 months” (HSCIC, 2013c). The aggregate nature of the QOF data makes it impossible to separate out the results specific to individuals with diabetes.

The QOF numerator calculation is complicated, and includes:

- Any individual who has, as the most recent smoking status, a status of “current smoker” and that it has been recorded in the past 15 months.
- Any individual aged over 25 who has a latest smoking status of “never smoked”, which has been recorded after the diagnosis date *and* after the individual’s 25th birthday.
- Any individual aged 25 or under who has a latest smoking status of “never smoked”, which has been recorded in the past 15 months.
- Any individual who has, as the most recent smoking status, a status of “ex-smoker”.
- Any individual who has a latest smoking status of “ex-smoker”, which has been recorded in the past 15 months.
- Any individual who has a latest smoking status of “ex-smoker” and has a smoking status of “ex-smoker” recorded in three consecutive years ending at the date the latest recording of “ex-smoker” *without* a later smoking status of “smoker” recorded.

Each rule uses a different smoking code cluster.

In contrast, the NDA numerator is simple; it looks for the latest smoking status code recorded in the audit period and uses just one code cluster.

It seems likely that this explains much, if not all, of the difference between the two audit results. These differences in denominator and numerator specification make meaningful comparison of the two sets of audit data impossible.

How can higher rates of completing the nine core processes of care be achieved?

In order to achieve higher rates of completion of the nine core care processes for people with diabetes, healthcare professionals need to:

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- Analyse where they are – look at their local NDA data to see how they are performing on the achievement of the nine core processes; concentrate on the areas where they are performing less well.
 - Look for any reasons for underachievement, including:
 - Examining the urinary albumin–creatinine ratio. Do local guidelines use dipstick testing or exclude people with previous proteinuria? If so, follow NICE guidelines and send off a urinary albumin–creatinine ratio on everyone with diabetes every year (NICE, 2012). If someone with proven proteinuria is under nephrology services, ask them to send you the results.
 - Look at eye screening results. Ensure that eye screening results sent to you from the eye screening service are recorded, using the correct Read codes, onto the practice computer system.
 - Try to improve the delivery and recording of all care processes; improving several core process rates from 89% to 93% will make a difference.

Concluding remarks

The particular discrepancy about microalbuminuria testing is being dealt with by the change in QOF clinical indicator DM13. Further changes in QoF are likely in the next couple of years to more closely align QOF and NDA results. ■

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