

Have we made a difference? A clinical outcomes audit in a primary care setting

Debbie Hicks, Kit McAuley

Article points

1. An audit was undertaken to ascertain the effectiveness of the diabetes redesign project in Enfield in making a difference to people with diabetes' clinical picture.
2. By the end of the audit, mean HbA_{1c} levels had reduced to 8.2% (66 mmol/mol), a 1.1 percentage point reduction in HbA_{1c} level within the audit period.
3. The final mean total cholesterol level (taken at the time of data collection) was 4.4 mmol/L, a reduction of 0.6 mmol/L.
4. This information demonstrates that the service is value for money and is meeting the needs of stakeholders.

Key words

- Audit
- Intermediate service
- Primary care
- Service delivery

Authors' details can be found at the end of this article.

In September 2005, the authors embarked on the diabetes redesign project in Enfield PCT. The main aim was to ensure that the people of Enfield had access to high-quality diabetes care in the community setting, close to where they live for ease of access, and to reduce waiting times for care. Although initially financial drivers were paramount in instigating the redesign process, the service now being provided is systematic, comprehensive and, most importantly, valued by the people with diabetes that access it, as well as the GPs who refer to it (Hicks and McAuley, 2008). The diabetes team aim to provide a high-quality service offering education, support and advice for people with diabetes, their carers and other healthcare professionals. Over the past 5 years, the authors have documented their progress (Hicks and McAuley, 2006; 2008). This article provides an update on the project and presents the results of a clinical outcomes audit that has been undertaken in 2009–2010.

The diabetes nursing team in Enfield is perceived as providing a well-regarded intermediate service that provides a high standard of diabetes care to the population of Enfield. For example, a patient satisfaction survey undertaken in November 2009 showed that:

- One hundred per cent of people were seen within 15 minutes of their appointment time.
- Ninety-six per cent of people felt that the team were courteous and considerate.
- Ninety-six per cent of people felt that they were given the right level of support from the diabetes team.

- One hundred per cent of people felt that overall quality of care received was either good or very good.

The most recent survey results from July 2010 mirror these results.

The Enfield diabetes team believes it has developed – along with user representatives, GP colleagues and consultant physicians from local acute trusts – a robust model for service delivery and a pathway of care for people with diabetes. This has allowed diabetes care to develop in the primary care setting throughout the past 5 years and the authors hope that progress will continue into the next decade.

Model of care

Healthcare for London has produced guidance that is the result of ongoing work to improve the standard of care for people with a range of long-term conditions, in particular diabetes (Healthcare for London, 2009). It follows on from Lord Darzi's 2007 report *A Framework for Action* (Healthcare for London, 2007), which set out ambitious plans for improving the health and health care of all Londoners.

The *Diabetes Guide for London* (Healthcare for London, 2009) mirrors the model of care that has been used in Enfield since 2005, and the Enfield model has been referenced in the document, along with five other PCTs and NHS Scotland.

In 2008, the Enfield diabetes service formalised and amalgamated its care pathway with the Enfield model of diabetes care. The document *Diabetes Care Continuum: A Model of Care for Diabetes* (Enfield PCT, 2008) now has associated competencies that allows GP practices to benchmark requirements for diabetes care improvement as well as enhanced payments. This document, which is undergoing an update in 2010 to reflect new guidance (Training, Research and Education for Nurses in Diabetes-UK [TREND-UK], 2010), can be accessed at: <http://bit.ly/bDtLtA>.

Diabetes care pathway

The diabetes care pathway has just had its fifth revision and is a popular document within the PCT as well as on the internet. It reflects NICE guidance and is updated annually by a panel that includes consultant physicians from local acute trusts, the present authors and the head of medicines management. Over the past 2 years there have been many requests from other PCTs to use this document.

Organisational changes

Since April 2009 there have been changes to the organisational structure of primary care. The Enfield diabetes team is now managed under the umbrella of "Enfield Community Services". These services are commissioned by NHS Enfield and contact

is maintained with clinical directors. The Diabetes Implementation Group continues to meet every quarter to update on the diabetes project as well as ongoing work. This group has support from service users, as well as representation from Diabetes UK, but unfortunately the commissioning arm is usually unrepresented.

In July 2010 the Government published the White Paper *Equity and Excellence: Liberating the NHS* (Department of Health, 2010). Earlier in the year the National Diabetes Audit (NHS Information Centre, 2010) showed that 90% of people with diabetes across England and Wales are in contact with their healthcare teams at least once a year, but that these contacts are not being converted into effective care. The Enfield team felt it necessary to assess whether this worrying pattern that has formed across England and Wales was reflected in Enfield, or whether the team had made a difference to clinical outcomes in diabetes care. The impact of the above documents on community and acute diabetes services is yet to be seen, but it appears that further changes to the way that diabetes services are commissioned will be likely.

Clinical outcomes audit

The Enfield diabetes team has always felt confident that both service users and GPs were happy with the intermediate diabetes service in the locality. This was evidenced by the patient and GP satisfaction questionnaire that took place in January 2007, as well as feedback to the service. Subsequent annual patient satisfaction surveys have also been very positive (unpublished outside of NHS Enfield). Despite this, the team has always wanted to know whether it was as successful at making a difference to the person with diabetes' clinical picture as it was at improving these individuals' experiences.

Now, 5 years into the diabetes project in Enfield, the team has had 4877 referrals through its triage service. In the past year alone (April 2009 to April 2010) the team has had 804 referrals, of which only 32 (4.0%) have required forwarding onto the local acute trusts.

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2. The Enfield diabetes team is now managed under the umbrella of "Enfield Community Services". These services are commissioned by NHS Enfield and contact is maintained with clinical directors.
3. The Enfield diabetes team has always felt confident that both service users and GPs were happy with the intermediate diabetes service in the locality. This was evidenced by the patient and GP satisfaction questionnaire that took place in January 2007, as well as feedback to the service.
4. Five years into the diabetes project in Enfield, the team has had 4877 referrals through its triage service. In the past year alone (April 2009 to April 2010) the team has had 804 referrals, of which only 32 (4.0%) have required forwarding onto the local acute trusts.

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1. The team reviewed the outcomes of 361 people referred to the diabetes service between November 2005 and May 2009 who had a complete dataset available.
2. Only referrals through triage deemed to be suitable for level 3 diabetes care were included in the audit. Individuals referred for neurovascular assessment, education only, dietetics only, podiatry only, or people requiring referral onwards to acute services (level 4) were not included.
3. Enfield has 13 316 people on the diabetes register (Enfield Retinal Screening Register, accessed on 31 March 2010) and 62 GP practices across three localities: Edmonton, Enfield North and Southgate.
4. Diabetes referrals are triaged daily, Monday to Friday, by either the nurse consultant or one of the DSNs. It is at this point that the urgency of the referral is assessed.

Aims

An audit was undertaken to assess the effectiveness of the Enfield intermediate diabetes service on people with diabetes' clinical outcomes.

Methods

The team reviewed the outcomes of 361 people referred to the diabetes service between November 2005 and May 2009 and who had a complete dataset available. Twelve housebound people with diabetes who required home visits were included.

Only referrals through triage deemed to be suitable for level 3 diabetes care were included in the audit. Individuals referred for neurovascular assessment, education only, dietetics only, podiatry only, or people requiring referral onwards to acute services (level 4) were not included. Other exclusions included people who had incomplete referral and outcome data available.

Between June and September 2009 the authors allocated administration and DSN time for the clinical outcomes audit. Patient notes were examined and retrospective details entered on to a Microsoft Excel spreadsheet. The following parameters were reviewed:

- Name.
- Date of birth.
- Referring GP.
- Date of referral.
- Locality.
- HbA_{1c} level on referral.
- Total cholesterol level on referral.
- Blood pressure on referral.
- Date of first appointment.
- Number of appointments.
- Number of dietetic contacts.
- Number of telephone contacts.
- HbA_{1c} level at last appointment.
- Total cholesterol at last appointment.
- Blood pressure at last appointment.

Results

Referral data

Enfield has 13 316 people on the diabetes register (Enfield Retinal Screening Register, accessed on 31 March 2010) and 62 GP

practices across three localities: Edmonton, Enfield North and Southgate. There are 28 single-handed GP surgeries, which account for 45.2% of the practice population. Some 171 referrals to the diabetes nursing team were received from these single-handed practices, which equates to 47.4% of the total (361) that were audited.

The highest number of referrals by locality came from Edmonton with 194 referrals (53.7%); 82 (22.7%) came from Enfield North and 86 (23.8%) from Southgate. Edmonton also has the most single-handed GP practices – 13 out of a potential 24 (54.2%); Enfield North had five out of a possible 19 (26.3%) and Southgate had six out of a possible 18 (33.3%). Indicators for social deprivation, health and demographics show that Edmonton is becoming more diverse and increasingly socially deprived (Enfield Council, 2008). Practice nurse sessions in these practices can also vary considerably.

Ninety-seven people with diabetes who had been under the care of the team had been discharged from the service for reasons outlined in *Table 1*.

Waiting times to first appointment

Diabetes referrals are triaged daily, Monday to Friday, by either the nurse consultant or one of the DSNs. It is at this point that the urgency of the referral is assessed. If the person requires an urgent appointment, this can be given immediately, and for routine appointments there is an average wait of 2 weeks. It should be noted that the team does not provide an emergency service but can provide rapid assessment when necessary. A rapid access diabetes and foot service is also available from the North Middlesex University Hospital.

In line with government policy, patient choice is paramount and the person referred to the service is sent a letter to phone the diabetes administrator and arrange a convenient appointment. Waiting times that were collected for the audit, therefore, do not reflect true waiting times, but the date chosen by the patient. As a result, it was decided that waiting time to first appointment should not be analysed.

Table 1. Reasons for discharge.

Reason	n
Did not attend	61
Discharged to GP – care complete	33
Transferred to acute services	2
Died	1
Total	97

Number of consultations

The number of face-to-face consultations were reviewed, as well as the number of telephone contacts made. Face-to-face consultations averaged 4.3 per person. The highest number was 14 for one person over a 3-year period.

Telephone contacts were also examined. The average number of telephone consultations was 3.9 per person. The highest number was 30 for one person who, due to psychological issues, posed a particular challenge.

Dietetic consultations

An average of 1.2 dietetic consultations were attended. The highest number of consultations by one person was six. Every person referred to the service is offered the opportunity to attend the diabetes team's structured education (Monk, 2010).

HbA_{1c} level

HbA_{1c} levels were recorded at the time of referral. The mean HbA_{1c} level on referral was 9.3% (78 mmol/mol), the highest was 16.4% (156 mmol/mol) and the lowest was 4.5% (26 mmol/mol).

By the end of the audit, mean HbA_{1c} levels had reduced to 8.2% (66 mmol/mol), a 1.1 percentage point reduction within the audit period. As demonstrated in the UKPDS (UK Prospective Diabetes Study; Stratton et al, 1998), each 1% reduction HbA_{1c} is associated with a significantly reduced risk of diabetes-related death (21%), myocardial infarction (14%), microvascular complications (37%) and peripheral vascular disease (43%).

The largest improvement in HbA_{1c} level was from 15.1% to 5.9% (142 to 41 mmol/mol), which was attributed to this person's medication being transferred to a dossett box system. At the initial assessment it was clear that this person had little understanding of timing, frequency or dosage of their medication, and was therefore possibly not taking their medication as prescribed. A learning point from this example is that had the person have stated that they were not taking all their medication regularly it would have been safer to reduce the medication and titrate slowly upwards. By placing the

medication in a dossett box, the person did take all their medication at the prescribed times, hence the fall in HbA_{1c} level. This improvement was also mirrored in the person's blood pressure and total cholesterol levels.

People with a low HbA_{1c} level at referral achieved higher HbA_{1c} results to safer ranges after consultations. These people were having frequent episodes of hypoglycaemia. Those with HbA_{1c} levels in the higher range at referral achieved lower HbA_{1c} levels after consultations, closer to their individual targets (Figure 1).

Total cholesterol

People with total cholesterol levels above the target of <4 mmol/L (NICE, 2009) were reviewed as the intermediate team will only recommend treatment changes if total cholesterol is above target. Some 199 people referred had a mean total cholesterol level of >5 mmol/L. The final mean (taken at the time of data collection) was 4.4 mmol/L, a reduction of 0.6 mmol/L (Figure 2). Work is ongoing to lower this level further.

Blood pressure

Although blood pressure data were collected, analysis was problematic as systolic pressure may have improved whereas the diastolic pressure may have stayed the same or deteriorated, and

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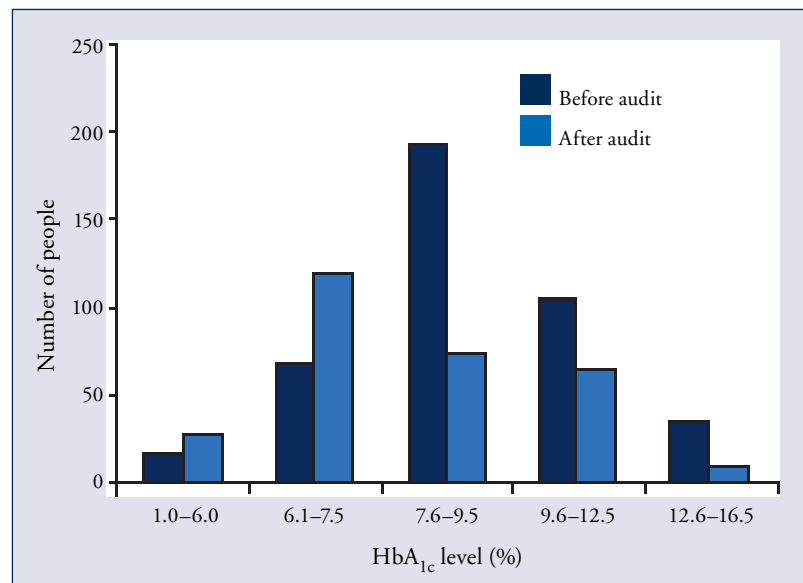
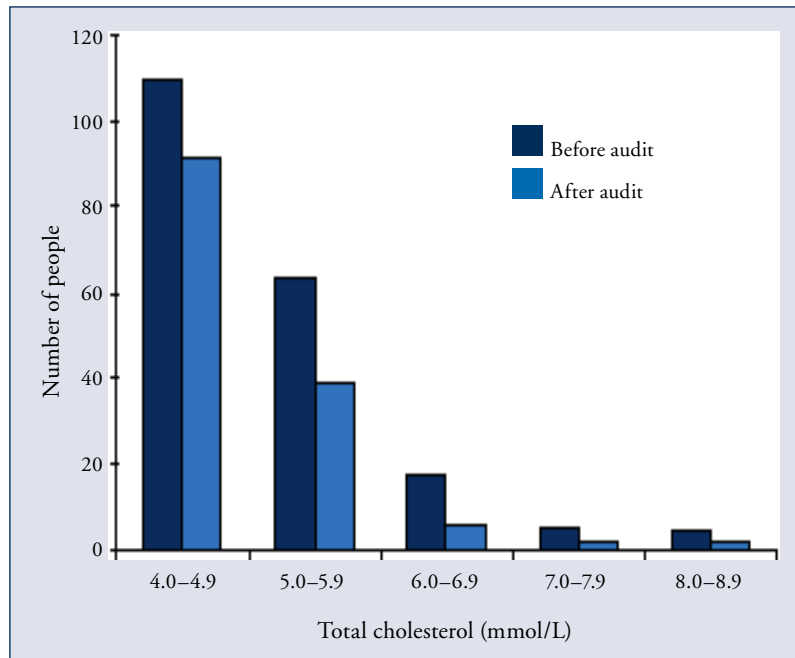


Figure 1. HbA_{1c} results before and after audit.

Figure 2. Total cholesterol results before and after audit.



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vice versa. In addition, many people who were attending the clinic were often flustered as their journey to the clinic was affected by traffic congestion. Such situations could adversely affect blood pressure levels, therefore when this audit is repeated, more meaningful data would be achieved by using 24-hour ambulatory blood pressure monitoring.

It is the authors’ normal practice that where blood pressure is found to be outside the recommended target of <130/80 mmHg (NICE, 2009) they would ask the GP to monitor within a week and titrate the antihypertensive therapy upwards until target is achieved. This would always be reviewed at subsequent visits.

Conclusion

The evidence documented in this article shows that the service offered by the intermediate diabetes team in Enfield is effective at improving clinical outcomes.

The team has learnt, during this process, much about data collection and analysis that will add to members’ skill sets. The team’s service philosophy is to not “sit on its laurels”, and in an ever-changing NHS this is now more important than ever. The authors are

very proud that this information demonstrates that their service is value for money and that it is meeting the needs of stakeholders, such as people with diabetes, GPs, managers and commissioners. The authors look forward to the future and what the recent White Paper might bring.

To ensure that the team is ready for the impact of the White Paper it has distributed a service review questionnaire to its 62 practices. The authors eagerly await the feedback from this. ■

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