Diabetes care and the new GMS contract:

the evidence for a whole county

Abd A Tahrani, Mary McCarthy, Jojo Godson, Sarah Taylor, Helen Slater, Nigel Capps, Probal Moulik and Andrew F Macleod

ABSTRACT

The aim of this study was to assess the impact of the Quality and Outcomes Framework (QOF) of the new GP contract on diabetes care in Shropshire, which has a total population of approximately 460 000. The mean percentage of patients achieving each of the quality indicators in each practice in Shropshire, before and after the implementation of the QOF was calculated. All 16 867 patients with diabetes from all 66 Shropshire practices were included. There were significant improvements in the percentage of patients achieving targets for all quality indicators between April 2004 to March 2006 ($P<0.001$).

AA Tahrani, MD, MRCP, specialist registrar in diabetes; N Capps, RCPath, consultant chemical pathologist; P Moulik, MD, FRCP, consultant in diabetes and endocrinology; AF Macleod, MD, FRCP, consultant in diabetes and endocrinology; Royal Shrewsbury Hospital, Shrewsbury. M McCarthy, MRCGP, GP, Belvedere Medical Practice, Shrewsbury. J Godson, service redesign manager, Shropshire County PCT, Shrewsbury. S Taylor, knowledge specialist, H Slater, assistant commissioner, Telford and Wrekin PCT (TWPCT), Telford.

Address for correspondence
Dr Abd A Tahrani, The Hummingbird Centre, Royal Shrewsbury Hospital, Mytton Oak Road, Shrewsbury, SY3 8XQ. E-mail: abdtahrani@yahoo.co.uk

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INTRODUCTION

There has been widespread interest in the use of incentives to improve clinical care and outcomes in healthcare systems, not least in the UK.[1–3]

The new GP contract has been quoted as the most radical change to health care since the advent of the NHS in 1948.[4] A major component of the contract is the Quality and Outcomes Framework (QOF).[3,5] This offers a scoring system for achievement of healthcare targets which is linked to financial rewards.[5]

Shropshire lent itself to examine the impact of the QOF on diabetes care for many reasons. First, it is a well-defined geographical area with a stable population of 460 000 that covers both rural and urban areas. There are two closely linked primary care trusts that commission care, and a prevalence of known diabetes of 3.2%. Second, 64 of a total of 66 practices responsible to the two PCTs in Shropshire had the same IT system for primary care physicians at the time of implementing the contract. Third, a local project 'Reduction of Atherosclerotic Disease in Shropshire' has encouraged similar data entry by practices for some time. Fourth, the county is served by one central laboratory that downloads the data automatically into the practice IT systems. Fifth, all but one practice took part in the National Diabetes Audit conducted in April 2004, and finally, access was gained to the whole population, that is, all relevant data from all practices in Shropshire.

METHOD

An observational retrospective study was conducted and the size and proportion of patients that achieved each of the quality indicators in each GP practice responsible to the two PCTs (Telford and Wrekin, and Shropshire County) in Shropshire prior to and following the implementation of the QOF was calculated. Data on the size of the diabetes register for all practices were also obtained from the PCTs and had been anonymised with coded identity. Hence, the investigators could not identify any particular practice, or indeed any patient. As the data for individual practices was anonymised and amalgamated, ethical approval was not deemed

How this fits in

The new contract aims to reward practices financially for providing enhanced care to patients. Standards for patients with diabetes are included in the QOF. Markers of organisational care and clinical care for diabetes have significantly improved in association with the introduction of the new contract in Shropshire. The evidence suggests that the contract may have had an impact in improving blood glucose control for patients with diabetes.

necessary. Information on the era prior to the QOF was obtained from the National Diabetes Audit, which examined data for a period of 15 months prior to the contract implementation in April 2004. The National Diabetes Audit data were generated by audit personnel from each individual practice, by taking data manually off individual IT systems. These data were already in the possession of the PCTs, and were completed by 65 of the 66 Shropshire GP practices. From the National Diabetes Audit, all QOF quality indicators, apart from smoking cessation advice, influenza vaccination, and the prescription of ACE inhibitors or angiotensin receptor antagonists, were included. Data regarding examination of the feet were included in the National Diabetes Audit but further specification of peripheral pulses and neuropathy testing, as specified in the QOF, was not available. In this analysis it was therefore assumed that the foot examination in the National Diabetes Audit data included both peripheral pulses and neuropathy testing. This is likely to be the case, as foot screening in Shropshire has been carried out by community podiatrists with a set protocol, and GP IT system template, since 2002.

Table 1. Summary of organisational quality indicators at all the time points (April 2004, March 2005, and March 2006).

	April 2004, %	March 2005, %	March 2006, %	95% CI April 2004–March 2006 (*P*-value)
BMI record	73 (10)	88 (9)	89 (6)	−19.1 to −14.5 (<0.001)
Smoking record	44 (14)	96 (4)	95 (4)	−54.7 to −47.3 (<0.001)
HbA_{1c} record	75(15)	93 (4)	94 (3)	−22.5 to −15.0 (<0.001)
Retinal screening record	47 (10)	80 (7)	84 (21)	−42.9 to −32.5 (<0.001)
Peripheral pulses record	22 (23)	79 (12)	81 (11)	−63.6 to −52.7 (<0.001)
Neuropathy testing record	22 (12)	78 (11)	81 (23)	−64.2 to −53.2 (<0.001)
BP record	87 (6)	97 (3)	97 (2)	−10.8 to −8.2 (<0.001)
Microalbumin testing record	7 (12)	69(20)	77 (15)	−74.8 to −65.9 (<0.001)
Creatinine record	81 (9)	93 (4)	94 (3)	−15.0 to −11.2 (<0.001)
Cholesterol record	78 (8)	93 (4)	93 (3)	−17.3 to −13.6 <0.001)

The data represent the mean and standard deviation (SD) for the percentage of patients achieving the quality indicator in each GP practice. The 95% CI and P-values for the difference in means between April 2004 and March 2006 are stated. BMI = body mass index. BP = blood pressure. HbA_{1c} = hemoglobin A_{1c}

Also presented here are data collected from the PCTs at two time points, after the implementation of the QOF, (March 2005 and March 2006). Each data point 'looked back' at the last 15 months of care. These data included all the 66 GP practices in Shropshire. The QOF data is generated by input onto the practice computer from healthcare professionals or assistants at the time of the patient's visit, apart from results from biochemical tests, which are downloaded automatically into the practices' IT system from the central pathology laboratory. The IT system brings to the attention of the GP any quality indicators they have not achieved in a certain patient, and then allows, for example, for further contact to be made with the patient.

To remove a potential source of bias and to be able to compare the QOF data with the national diabetes audit, the proportion of patients achieving each quality indicator in each practice out of the total number of patients on the diabetes register in that practice rather than the denominators provided by the practices, was calculated. These denominators provided by practices take into account exception reporting and, as a result, any possible bias of exception reporting from the study's data has been removed.

Statistical analysis

Statistical analysis was done using SPSS software. The mean and standard deviation (SD) for proportion of patients achieving each quality indicator at all time points are presented. Paired sample *t*-test was used to calculate the *P*-value and 95% confidence intervals (CI) for the difference in means of the proportion of patients achieving each quality indicator at the different time points.

RESULTS

The data collected included all GP practices responsible to the two PCTs in Shropshire (66 in total). The total number of patients on the diabetes register was 15 628 in April 2004, 16 121 in March 2005, and 16 867 in March 2006.

Improvements were seen in all organisational and clinical quality indicators between implementation of the contract (April 2004) and March 2006. These changes were highly statistically significant ($P<0.001$) for all indicators (Tables 1 and 2).

Summaries of the organisational and clinical quality indicator results (including means, SD, *P*-values and 95% CI) at all time points are included in Tables 1 and 2 respectively.

The degree of exception reporting taking into account the stated size of the practice diabetes register and the QOF returns was estimated. Exception reporting varied between quality

indicators. From the larger PCT of the two (Shropshire County PCT) exceptions per quality indicator ranged from 0.2 to 12% (median 2.9%). As above, the effect of exception reporting by calculating the results based on the register size rather than the stated denominator for each category was removed.

DISCUSSION

The veracity of these data is supported by random checks of two practices a year, organised by the PCTs, which have revealed no concerns apart from a variation in exception reporting. Any bias that may have influenced the data has been minimised by presenting the results based on the total number of patients with diabetes in each practice, as described above. Had this not been done, the real number and percentage of patients appropriately treated by the set standards would therefore be higher than that shown in the data. At present, Shropshire County PCT is looking into exception reporting as part of their 'value for money' surveys of QOF and their report will be of interest. Little variation between practices, despite variations in exception reporting were found.

Although the clinical quality data suggest that there has been a real and important health gain, this could have resulted from healthcare initiatives separate from the QOF, such as national and international guidelines regarding cholesterol, blood pressure and blood glucose control targets. Such initiatives could reflect the relatively smooth (but substantial) increase in the percentage of patients with total cholesterol of ≤5 mmol/l, from a mean of 47 to 71%. This finding mirrors the usage of statins in Shropshire County PCT (for all patients), rising from 12 478 prescriptions per month in April 2004 to 15 611 per month in March 2005. Campbell *et al* documented a substantial improvement in organisational indicators and blood pressure control for people with diabetes from 1998 to 2003.

However, the more stringent target of HbA_{1c} <7.4% improved only non-significantly from 37 to 39% over 5 years,[3] whereas the more recent data from Shropshire regarding the achievement of an almost identical target (HbA_{1c} ≤7.4%) increased from 41% to 62%, over just 2 years.

Recording of HbA_{1c} improved following the introduction of the QOF. It is possible therefore that the 'improvement' in HbA_{1c} below the two thresholds is due to the effect of including more patients with proportionately lower HbA_{1c}. However, it is unlikely that this is the sole explanation. It has to be accepted that there is no control group, and that evidence of the impact of the QOF can only be estimated by indirect means.

Table 2. Summary of clinical quality indicators (April 2004, March 2005, and March 2006).

	April 2004, %	March 2005, %	March 2006, %	95% CI March 2004–March 2006 (*P*-value)
Smoking cessation advice	–	95 (7)	96 (5)	[a]–15.2 to –9.2 (<0.001)
HbA_{1c} ≤7.4	41 (16)	48 (9)	62 (8)	–24.1 to –16.2 (<0.001)
HbA_{1c} ≤10	69 (12)	84 (7)	88 (4)	–22.6 to –16.4 (<0.001)
BP ≤145/85 mm Hg	47 (11)	62 (10)	65 (9)	–20.3 to –15.9 (<0.001)
ACEI	–	88 (14)	93 (9)	[a]–40.9 to –24.52 (<0.001)
TC ≤5	47 (9)	64 (8)	71 (6)	–25.9 to –22.0 (<0.001)
Influenza vaccine	–	76 (7)	80 (6)	[a]–24.6 to –18.1 (<0.001)

The data represent the mean and standard deviation (SD) for the percentage of patients achieving the quality indicator in each GP practice. The 95% CI and (P-values) for the difference in means between April 2004 and March 2006 for clinical quality standards are stated. [a]Data represent the difference in means between October 2004 and March 2006 as data for April 2004 was not available for these indicators. HbA_{1c} = hemoglobin A_{1c}. BP = blood pressure. ACEI = angiotensin converting enzyme inhibitors. TC = total cholesterol.

The implementation of the QOF has therefore been associated with improvement in the care delivered to patients with diabetes, whether this care was organisational or clinical, in Shropshire. Although the improvement might suggest the influence of improved practice in general, it is likely that the QOF has had an impact, particularly with reference to blood glucose control (HbA_{1c}). This improvement in Shropshire is likely to reflect a wider improvement in diabetes care across England.

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Competing interests

The authors have stated that there are none

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REFERENCES

1. Chaix-Couturier C, Durand-Zaleski I, Jolly D, Durieux P. Effects of financial incentives on medical practice: results from a systematic review of the literature and methodological issues. *Int J Qual Health Care* 2000; 12(2): 133–142.
2. Epstein AM, Lee TH, Hamel MB. Paying physicians for high-quality care. *N Engl J Med* 2004; 350(4): 406–410.
3. Roland M. Linking physicians' pay to the quality of care — a major experiment in the United Kingdom. *N Engl J Med* 2004; 351(14): 1448–1454.
4. Gnani S, Pollock AM. The new GMS contract — a Trojan horse? *Br J Gen Pract* 2003; 53(490): 354–355.
5. Department of Health. Annex A: Quality indicators — summary of points. http://www.dh.gov.uk/assetRoot/04/07/86/59/04078659.pdf (accessed 24 Apr 2007).
6. Campbell SM, Roland MO, Middleton E, Reeves D. Improvements in quality of clinical care in English general practice 1998–2003: longitudinal observational study. *BMJ* 2005; 331(7525): 1121.