Time to go public on performance?

Until recently, doctors have been trusted by society to provide clinical care without having to demonstrate that they are achieving acceptable standards. Several factors are contributing to a dilution of this implicit trust and to increasing demands for explicit evidence about the performance of the medical profession. Some of these factors represent social trends; for example, the de-professionalization of society, demands for greater accountability of public services, and the expectation that information about health care should be as available as information in others areas of modern life. Other factors relate specifically to health care; for example, public concern at high profile examples of failure of self-policing;[1] increasing evidence of wide variations in quality, often around a mediocre team;[2] the ready availability of data; and advances in our ability to measure quality.[3]

Public disclosure of comparative performance data has been a prominent and controversial policy in the United States of America (USA) for more than a decade.[4,5] Information is now freely available about the performance of health plans, hospitals, and individual doctors. The data are usually published as mean scores on specific quality indicators relating to such disparate areas as patient satisfaction, immunization rates, and post-operative mortality. There has been considerable debate about the content of the data, the process of disclosure, and the associated merits and risk.[6,7]

Despite the resources expended on public disclosure, there has been remarkably little rigorous evaluation of either the positive or negative impact of the information. Even the most fundamental question concerning the relative merits of making performance data public and using the same information for the purpose of internal audit remains unanswered. The limited evidence that is available suggests that doctors in the USA are distrustful of the information, fail to make use of it, and go out of their way to discredit both the scientific basis of the data and any conclusions that might be drawn from them.[8] Neither individual consumers nor purchasers make significant use of the information that is currently available, though there is some evidence that it is starting to have a greater impact on their decision-making process.[7] Organizational providers, such as hospitals, seem to be most sensitive to the information, and there is some evidence that publishing comparative data about performance can play a significant part in improving clinical outcomes.[9]

In the United Kingdom (UK), an emphasis on professional accountability for maintaining and improving quality and public reporting of the results is a central feature of the present government's health policy.10,11 The political spotlight has, for a long time, been focused on secondary care owing to its associated high costs, public profile, and the ready availability of quality indicators designed to measure hospital practice. General practitioners (GPs) would, however, be naïve to think they will escape attention. Indeed, the primary care orientation of health policy in the UK will inevitably shift the political focus from the GP's role as a purchaser of specialist care to his or her role as a provider of generalist care.

An explicit assessment of the quality of care requires the creation of valid and reliable quality indicators.[12] This is inevitably a partial activity that will not reflect the complex and integrated nature of generalist practice and may promote a more biomedical orientation to quality assessment than many GPs would wish to see. Most of the primary care indicators in use by health authorities in the UK at present have uncertain scientific properties and have been chosen principally because of the ready availability of routine data. However, the validity and utility of established and new indicators are being tested at the National Primary Care Research and Development Centre,[13] and this work is influenced in part by research being carried out in other countries, such as the USA.[14]

As GPs struggle to establish the systems to support clinical governance in primary care groups, they may be forgiven for wanting to ignore public disclosure. However, the public reporting of performance is likely to become a central component of clinical governance and, assuming that it is introduced properly and funded adequately, holds several potential benefits for the primary health care team and their patients. Public reporting of valid and reliable quality indicators will help to focus attention on specific problem areas and will encourage debate on variations between practices and over time. Using audit data for internal purposes has also helped to achieve this purpose, but the impact of clinical audit has been disappointing given the level of investment.[15] There is some evidence that making performance information public heightens the sensitivity of health professionals to the results and increases the chances of action being taken.[6] In addition, public disclosure of performance data can help patients to make informed choices or have informed debates with their GP, and a greater degree of openness might have a positive effect on the relationship between doctors and their patients. Making performance information public may also help to highlight serious deficiencies in quality or resource problems resulting in poor quality of care.

There are also some significant risks associated with public disclosure. It would be a mistake to underestimate the culture change required by GPs as they move from a predominantly reactive and data-deficient style of practice to one characterized by explicit accountability based on their own and their colleagues' measured performance. If this change is perceived as a threat to professional autonomy, it may result in a loss of morale at yet another time of great change in British general practice. Public recognition of deficiencies in the quality of care may result in patients losing trust in their GP, with incalculable consequences for other aspects of the doctor-patient relationship. Misleading information may damage a GP's reputation, and the detailed technical data contained in public reports of performance are easily misinterpreted by the general public, the media, health managers, and health professionals themselves. Additional unintended consequences of public disclosure have been described, including deliberate manipulation or 'massaging' of the data and an inappropriate focus on what is being measured, to the detriment of other areas of activity.[16]

A greater degree of openness and increased accountability for the quality of care provided in general practice is inevitable, as it is in all areas of health care. It is in the interests of GPs and their patients to ensure that this happens in a rational and sensitive way to maximize the potential gains and reduce the associated risks. To accomplish this, GPs need to contribute to the debate from the start and work with their primary care groups, academics, health services managers, and patient representatives. Failure to do so will result in the quality of general practice being judged by those with little understanding of its nature or purpose.

MARTIN N MARSHALL

Harkness fellow in health care policy and senior lecturer in general practice, University of Exeter

References

1. Smith R. All changed, changed utterly. [Editorial.] *BMJ* 1998; **316:** 1917-1918.
2. Chassin MR, Galvin RW. National Roundtable on Health Care Quality. The urgent need to improve health care quality; Institute of Medicine National Roundtable on Health Care Quality. *JAMA* 1998; **280:** 1000-1005.
3. Brook RH, McGlynn EA, Cleary PD. Quality of Health Care Part 2: measuring quality of care. *N Engl J Med* 1996; **335:** 966-970.
4. Epstein A. Rolling down the runway; the challenges ahead for quality report cards. *JAMA* 1998; **279:** 1691-1696.
5. Marshall MN, Shekelle PG, Leatherman S, Brook RH. The public disclosure of performance data: the merits and the risks. BMJ March 1999 **(include subject to acceptance - author please update)**
6. Chassin MR, Hannan EL, DeBuono BA. Benefits and hazards of reporting medical outcomes publicly. *N Engl J Med* 1996; **334:** 394-398.
7. Leatherman S, Sutherland K. Evolving quality in the new NHS: policy, process, and pragmatic considerations. *Quality in Health Care* 1998; **7(suppl):** S54-S61.
8. Schneider EC, Epstein AM. Influence of cardiac-surgery performance reports on referral practices and access to care; a survey of cardiovascular specialists. *N Engl J Med* 1996; **335:** 251-256.
9. Hannan EL, Kilburn H, Racz M, et al. Improving the outcomes of coronary artery bypass surgery in New York State. *JAMA* 1994; **271:** 761-766.
10. Department of Health. *A first class service, quality in the NHS.* London: Department of Health, 1998.
11. NHS Executive. *The new NHS, modern and dependable. a national framework for assessing performance*. [Consultation document.] London: NHS Executive, 1998.
12. Berwick D. Curing Health Care. *New Strategies for Quality Improvement*. San Francisco: Jossey Bass, 1991.
13. Roland M, Holden J, Campbell S. *Quality Assessment for General Practice.* Manchester: National Primary Care Research and Development Centre, 1998.
14. Schuster MA, Asch SM, McGlynn EA, *et al.* Development of a quality of care measurement system for children and adolescents: methodological considerations and comparisons with a system for adult women. *Arch Pediatr Adolesc Med* 1997; **151:** 1085-1092.
15. Davis DA, Thomson MA, Oxman AD, Haynes B. Changing physician performance: A systematic review of the effect of continuing medical education strategies. *JAMA* 1995; **274:** 700-705.
16. Smith P. On the unintended consequences of publishing performance data in the public sector. *Int J Pub Admin* 1995; **18:** 277-310.

Address for correspondence
Dr Martin Marshall, School of Postgraduate Medicine and Health Sciences, University of Exeter, Barrack Road, Exeter EX2 5DW. E-mail: m.n.marshall@exeter.ac.uk

Implications of the United Kingdom Prospective Diabetes Study for general practice care of type 2 diabetes

THE United Kingdom Prospective Diabetes Study (UKPDS) was the largest and longest trail of treatment for people with type 2 diabetes ever conducted.1 It cost over £20 million and ran, in exemplary fashion, between 1977 and 1997. Only 5% of 3867 recruited patients were lost to follow-up over 10 years. The study began at a time when the benefits of intensifying blood glucose were uncertain. The only similar previous trial, the University Group Diabetes Program (UGDP) in the USA, found no advantage from insulin treatment after 8.5 years, and found an increased cardiovascular mortality in groups assigned to tolbutamide and phenformin.[2] Subsequent studies have demonstrated that improved blood glucose control be delay the progression of small vessel disease in both type 1[3] and type 2 diabetes.[4] But none of these studies have been able to establish whether, and to what extent, intensive blood glucose control would reduce the risk of large, as well as small, vessel disease in type 2 diabetes.

The primary aim of the UKPDS was to establish this by comparing intensive management — aiming to keep fasting plasma glucose (fpg) at <6.1 mmol/1 — with the then conventional policy of maintaining patients free of symptoms — fpg <15 mmol/l. In order to define the risks and benefits of individual therapies, control was to be achieved by randomization within the intensive management arm to sulphonylurea, insulin, or, if overweight, metformin. Changes in treatment were only to occur if blood glucose rose to 15 mmol/l. Newly diagnosed patients were recruited. Typically they were Caucasian, aged in their 50s, overweight, male, and highly cooperative. Mean fpg was 8 mmol/l at entry. They attended clinics every three to four months for 10 years, seeing equally committed doctors, dieticians, and nurses.

As the natural history of the disorder unfolded over the first 10 years, two things became apparent. First, blood glucose control is hard to achieve; blood glucose rose inexorably over time, irrespective of treatment group, by an average HbA_{1c} concentration of 1% every five years. The investigators' response was to intensify treatments earlier by adding either metformin or, later, insulin to sulphonylureas. This resulted in an average difference in fpg of 1.7 mmol/l (HbA_{1c} of 0.9%) between intensive and conventional policies over the study period. Secondly, the high prevalence of hypertension (defined as a systolic blood pressure of >160 mmHg and a diastolic pressure of >90 mmHg) and uncertainty over its treatment led to a further randomization, in 1987, of 1148 patients to tight blood pressure control (aim: <150/85 mmHg) or less tight (aim: <180/105) using atenolol or captopril in the tight control group.[5,6] This resulted in a mean difference of 10 mmHg systolic between groups. These protocol additions added greatly to our knowledge of the relative advantages of tight blood glucose or blood pressure control, but limited conclusions about the relative advantages of individual therapies, because of drug crossovers and substitutions.

The trial demonstrated that better blood glucose control reduced the risk of small vessel disease, but the effect on large vessel disease was smaller than we had hoped. Conversely, tighter blood pressure control had larger effects than expected, both on large and small vessel disease, especially sight-threatening retinopathy.

Numbers need to treat (NNT) over 10 years to avoid one diabetes-related endpoint by intensive blood glucose control were 20 compared with six for tight blood pressure control: to avoid one diabetes-related death the NNT were 91 and 15 respectively,

to avoid one myocardial infarction were 37 and 20, and to avoid one stroke were 167 compared with 20. Analyses across all groups showed no threshold effect. Reductions of blood glucose and blood pressure across the range seemed equally important. Moreover, effects on blood glucose and blood pressure were multiplicative. A general practitioner (GP) would need to treat fewer patients over 10 years to prevent on patient developing the most common diabetes endpoints by focusing on both blood pressure and blood glucose.

The UKPDS demonstrated no specific benefit from any individual treatment for blood glucose and blood pressure; however, in contradistinction to the UGDP, neither sulphonylurea nor insulin had demonstrable adverse effects on cardiovascular outcomes. Intensification of blood glucose control did have adverse effects. After a useful initial weight loss, there was increased weight gain, treatment-limiting hypoglycaemia, and increasing polypharmacy compared with the conventional policy. However, questionnaires to assess impact on quality of life demonstrated that the burden of complications was, in general, worse than the burden of treatment. Moreover, ill effects from weight gain were, on balance, less than the benefits from lower blood glucose. Metformin was particularly beneficial in the treatment of overweight patients and was associated with less weight gain and fewer hypoglycaemic episodes?[7] However, contradictory results in sub-analyses suggest caution in over-interpreting the advantages of metformin, especially in normal weight individuals and in combination with sulphonylureas.

Implications for management

The first responsibility that the UKPDS puts upon us is to get the story right for our patients. At the population level, intensive management of hypertension and hyperglycaemia in type 2 diabetes delays morbidity and mortality. Therefore, at an individual level, reasonable attempts at self-care make sense in trying to influence the uncertain outcomes of life. The second responsibility is to get our organization right, so that registered patients with diabetes have the kind of access to review, support, and treatment advised by the National Health Service Executive[8] and Clinical Standards Advisory Group.[9] This may involve us at the primary care group level in employing extra nurse or dietician time, or lobbying a local trust for additional specialist support at consultant medical or nursing levels.

In terms of risk management, blood glucose and blood pressure control now firmly take their place alongside reducing blood cholesterol and stopping smoking as the major modifiable risk factors in diabetes care. The inevitable result is that the number of medications our patients are offered may easily approach double figures,[10] including, for example, an ACE inhibitor, aspirin, metformin, insulin, a thiazide, a betablocker, a fibrate, and treatments for coexisting chronic disease. However, it is also important to optimize lifestyle choices, the dose of drug, and adherence, rather than simply adding more medications.

The greatest current challenge must now be to develop approaches to help our patients to sustain the changes in lifestyle and patterns of medication taking indicated by the UKPDS. The targets set by the trial may seem out of reach of many patients, but improvements across the range of both blood glucose and blood pressure will give benefit — and potential gain is greatest for those at highest risk. An approach using individually negotiated treatment goals with strong central support of GPs has shown promising results in Denmark.[11]

One great advantage of the UKPDS is that it reduces temptation to blame either our patients or ourselves for the progression of the disease. In the face of treatment limitations, it calls upon all our skills on consulting to develop effective therapeutic alliances. Traditional health education approaches that depend only on provision of information about risks to be avoided, without linking this either to patients' perceptions or to ways of managing behavioural change, have been disappointing; reviews of educational and psychological interventions show that those guided by psychological theory are consistently associated with greater behaviour change.[12,13] Taking pills properly is one key behaviour that can be influenced.[14,15]

Useful techniques include establishing the patient's views on the efficacy of the treatment, perceived side-effects, and the strength of their intention to take the treatment. A review of the barriers to doing so can point the way to making it easier. Adherence can be helped by minimizing the number of pills and doses per day and by making detailed plans of when they are to be taken, using memory containers and prompts such as fridge magnets, spouses, or self-monitoring booklets. Practitioners should demonstrate a real interest in adherence at follow-up, enquiring, for example, 'What success have you had in taking the tables?' 'What makes it easier?', 'What makes it difficult/' rather than '… need any more tablets?' Attention to medication should not distract from other behaviours, especially smoking and physical activity, as well as food choice.

The final responsibility that we must meet is defining the place of earlier detection and primary prevention for this disease where treatment options remain suboptimal. Global patterns of diabetes' prevalence[16] and the association with physical inactivity and obesity[17] suggest that diabetes can be seen as an indicator of a sick society. Viewed from this perspective, prevention requires action to reverse the current trends in key lifestyles among the population as a whole. GPs, especially at the primary care group level, have an important lobbying voice with the Government to push for policies that make healthy food choice and increased physical activity easier for everyone. In terms of earlier detection of diabetes, we might do well to reflect on the recently updated criteria for screening,[18] and ensure that, before we rush to identify the individuals with undetected diabetes on our lists, we have established an effective organization for managing the diabetes and the consultations skills to optimize treatment for the patients we know about already.

ANN LOUISE KINMONTH
Professor of general practice, General Practice and Primary Care Research Unit, University of Cambridge

SIMON GRIFFIN
Lecturer in general practice, General Practice and Primary Care Research Unit, University of Cambridge

NICHOLAS J WAREHAM
MRC clinician scientist, University of Cambridge

References

1. UK Prospective Diabetes Study (UKPDS) Group. Intensive blood glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). *Lancet* 1998; **352:** 837-853.
2. University Group Diabetes Program. A study of the effects of hypoglycaemic agents on vascular complications in patients with adult-onset diabetes. *Diabetes* 1970; **19:** 747-830.
3. Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl Med J* 1993; **329:** 977-986.
4. Ohkubo Y, Kishikawa H, Araki E, et al. Intensive insulin therapy prevents the progression of diabetic microvascular complications in Japanese patients with non-insulin dependent diabetes mellitus: a randomized prospective 6-year study. *Diabetes Res Clin Pract* 1995; **28:** 103-117.

5. UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. *BMJ* 1998; **317:** 703-713.
6. UK Prospective Diabetes Study Group. Efficacy of atenolol and captopril in reducing risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 39. *BMJ* 1998; **317:** 713-720.
7. UK Prospective Diabetes Study Group. Effect of intensive blood glucose control with metformin on complications in overweight patients with type 2 diabetes (UKPDS 34). *Lancet* 1998; **352:** 854-865.
8. National Health Service Executive. *Health service guidelines: key features of a good diabetes service.* [HSG(97)45.] London: NHSE, 1999.
9. Clinical Standards Advisory Group. *Standards of clinical care for people with diabetes.* London: HMSO, 1994.
10. Gaede P, Vedel P, Parving HH, Pederson PA. Intensified multifactorial intervention in patients with type 2 diabetes mellitus and microalbuminuria: the Steno type 2 randomized study. *Lancet* 1999; **11:** 49-53.
11. Olivarius N de F, Pedersen PA. The Danish study diabetes care in general practice. *Scand J Prim Health Care* 1993; **11:** 49-53.
12. Griffin SJ, Kinmonth AL, Skinner C, Kelly J. *Educational and psychosocial interventions for adults with diabetes*. London: British Diabetic Association, 1999.
13. Mullen PD, Green LW, Persinger MS. Clinical trials of patient education for chronic conditions: a comparative meta-analysis of intervention types. *Prev Med* 1985; **14:** 753-781.
14. NHS Centre for Reviews and Dissemination. *Getting evidence into practice.* York: NHS Centre for Reviews and Dissemination, University of York, 1999.
15. Royal Pharmaceutical Society of Great Britain. *From compliance to concordance: achieving shared goals in medicine taking*. London: Royal Pharmaceutical Society, 1996.
16. King H, Rewers M. Global estimates for prevalence of diabetes mellitus and impaired glucose tolerance in adults. *Diabetes Care* 1993; **16:** 157-177.
17. Report of a WHO Consultation on Obesity. *Obesity: preventing and managing the global epidemic*. Geneva: WHO, 1997.
18. National Screening Committee. *First report of the National Screening Committee*. London: Health Departments of the United Kingdom, 1998.

Acknowledgement

The authors wish to record their respect for Professor Robert Turner, principal investigator of the UKPDS, who died suddenly and unexpectedly this summer.

Address for correspondence

Professor Ann Louise Kinmonth, General Practice and Primary Care Research Unit, Institute of Public Health, University Forvie Site, Robinson Way, Cambridge CB2 2SR. E-mail: alk25@medschl.cam.ac.uk