Audit of diabetes in general practice

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Abstract

Objectives—To complete a first audit cycle of diabetes care in a general practice and to develop a simple method for continuing the audit cycle.

Design—Retrospective examination of the medical records of all diabetic patients in a general practice in 1990.

Setting—A group general practice in a Bristol health centre with roughly 13 200 patients, which since 1983 has had a protocol for care of its diabetic patients.

Patients—223 known diabetic patients in the practice.

Main audited measures—Comparison against previously agreed standards of process and outcome of diabetic care in the practice, including number of patients whose care had been reviewed in accordance with the practice protocol, serum fructosamine and blood glucose concentrations in patients aged under 70, and number of newly diagnosed patients given explicit education and referred for diabetic advice.

Results—Defined standards were not met for several criteria—for example, percentages of patients aged below 70 (n=149) with serum fructosamine concentrations <3-5 mmol/l (62% v 90% defined value) and <2-8 mmol/l (35% v 70%) and last recorded blood glucose concentrations <10 mmol/l in insulin dependent patients (n=48) (23% v 90%) and <5 mmol/l in non-insulin dependent patients (n=101) (17% v 90%). Of newly identified diabetic patients (n=32), 59% and 28% respectively were referred to dieticians and given educational material compared with the 100% standard.

Conclusions—The practice has a high prevalence of diabetes (1-7%) but has the resources for their care. The format and implementation of the agreed systematic process of care for diabetic patients needs improvement.

Implications—A simple audit suitable for most general practices might record two measures of the process of care—a disease register of all diabetic patients in a practice and an attendance register to determine whether they have regular check-ups—and one measure of the outcome of care, such as serum fructosamine concentration (or local equivalent). A practice could establish its own standards for these measures and monitor its performance against them.

Introduction

Various initiatives in the past 20 years have promoted an improved structure for the care of diabetic patients in general practice in cooperation with hospital specialists.\(^1\) Each NHS general practitioner has a continuing medical responsibility for a defined population of patients, whose prevalence of diabetes is between 1% and 2% (usually 15-30 diabetic patients per general practitioner).\(^1\)

The process for providing structured care for these patients varies among hospitals and practices.\(^2,4\) Whichever the process, some measure or audit is necessary to ensure that care is effective and efficient. Changes in outcome subsequent to changes in the structure and process of care may be difficult to assess in general practice, when the number of diabetic patients in each practice may be low. Intermediate or surrogate measures of the outcome of care may have to be used instead of final measures of outcome such as...
mortality, morbidity, and disability. Objective intermediate measures, such as glycated haemoglobin concentration, have been used, and more subjective measures, such as number of days of absence from work or school, have been proposed. There are few reports of an audit of diabetic care in general practice in which care has been audited and subsequently reaudited. This report closes the circle of a first cycle of audit.

Methods

The partnership of seven doctors (five full time and two part time) is a training practice (with two trainees) in a health centre in the north Bristol suburbs within a few miles of three district general hospitals and an eye hospital. Of all new referrals, 70% are directed to the nearest district general hospital. The practice population is roughly 13200. Each year a 10th of patients are new registrations and a 10th leave the practice.

First audit

Before 1983 there was no structured diabetic care in the practice and the process of care was haphazard. The first audit of the 125 known diabetic patients in 1983 concluded that we should identify all diabetic patients, provide a routine format for regular history taking and examination, develop a recall system for those patients who missed their regular examination, and improve the knowledge and motivation of the doctors and patients. Subsequently, we developed a protocol for the care of the diabetic patients in the practice, which included a routine format for history taking and regular examination, suggested biochemical aims of treatment, and gave aims for education and support. This process of organised diabetes care was incorporated into the daily booked appointments with the doctors and not in a separate diabetes mini-clinic. A register of all diabetic patients is maintained on a separate practice computer and is used to recall patients so that they can be reviewed at least annually. A medical audit assistant is employed to help with a continuing programme of practice audits. In April 1990 our protocol for diabetes care was approved for remuneration by Avon Family Practitioner Committee (now Avon Family Health Service Authority) as a health promotion clinic.

Second audit

The protocol developed after the 1983 audit changed and organised the process of care in the practice, but this audit in 1990 examined whether the conclusions of the previous audit had been implemented and whether the defined standards for the process of care and outcome of care of the diabetics had been achieved. The standards were as follows. (1) All diabetic patients whose diabetes was diagnosed or who joined the practice more than six months previously should be included in the recall system. (2) All patients in the recall system should have been invited for a diabetes check up or had a check up within the previous 13 months. (3) All patients who had had an annual check up should have had the examinations (as agreed in the practice protocol) and subsequent treatments recorded. (4) In patients aged under 70 the last recorded serum fructosamine concentration should be <3-5 mmol/l in 90% and <2-8 mmol/l in 70%. (5) In patients aged under 70 the last recorded blood glucose concentration should be <10 mmol/l in 90% of insulin dependent patients and <8 mmol/l in 90% of non-insulin dependent patients. (6) All patients with a diagnosis of diabetes in the previous 12 months should have been offered an appointment with the dietitian and given some educational material, and this information should have been recorded in the medical records. (7) Patients who had not had a check up should have had the attempts at a check up or the reasons for the omission recorded in their medical records. (8) All practice partners (seven) should have participated in the agreed diabetic protocol.

The medical records of the diabetic patients in the practice were examined for entries during the previous 13 months. Information was entered into a database for collation and analysis.

Results

The table shows the results of the audit compared with the standards that were set for diabetic care. On the practice list of 13200, 223 diabetic patients were known, a prevalence of diabetes of 1-7%. Of these, 54 had their diabetes controlled with insulin, 120 with oral hypoglycaemics, and 49 with diet alone. Forty were aged over 75, 78 over 70, 134 over 60, and 178 over 50. In all, 215 had been seen by a doctor from the practice in the previous 13 months but not necessarily because of their diabetes.

One hundred and ninety five (87%) had been invited for a diabetes check up in the previous 13 months, and 186 (83%) had had a check up by either a general practitioner in the practice (150) or a hospital doctor (36). The examinations given by the general practitioners all agreed with the protocol of the practice; the full format of those given by the hospital doctors was not known.

Of the 223 diabetic patients, 149 (67%) were aged under 70, of whom 105 (70%) had been tested for serum fructosamine concentration; 92 (62%) had concentrations <3-5 mmol/l and 52 (35%) <2-8 mmol/l. In the 149 patients aged under 70, 112 (75%) had their blood glucose concentration tested. The last recorded blood glucose concentration in 48 insulin dependent diabetic patients in this group was <10 mmol/l in 11 patients (23%) and in 101 non-insulin dependent diabetic patients was <8 mmol/l in 17 patients (17%).

Thirty two new diabetic patients had been identified in the previous 12 months, 19 (59%) of whom had been recorded as having been referred to a dietitian and nine (28%) as having been lent educational material (books or videotapes).

Thirty seven of the 223 diabetic patients had had no diabetes check up in the previous 13 months. In only 16 (43%) of these were reasons for non-attendance recorded in the notes. All seven partners in the practice had participated in the diabetic checks.

This audit was conducted by the authors. The medical audit assistant kept a record of his time spent...
on the audit, and this amounted to 110 hours but excluded the time spent by the general practitioners and the subsequent discussion meetings in the practice.

Discussion

This audit reports the finding that many of the standards set were not achieved. Audited high standards of care across the breadth and depth of general practice are difficult to achieve.12 The original protocol had been successful in changing the general process of care in the practice but had been unsuccessful in achieving the standards set for diabetes care. It contained a monitoring system to check that patients had attended but no system to check on the outcome of their attendance. Discussion within the practice had suggested changes in the protocol and its monitoring to improve future performance. These suggestions included a simpler examination of the patients; an increased coordination of the use of diabeticians, diabetic specialist nurses, opticians, practice nurses, and educational material, particularly for patients with newly diagnosed diabetes or those who are new to the practice; and a regular annual meeting of doctors and nurses to review the protocol with a simpler system of continuous audit (see below).

By April 1991 a medical audit advisory group will be established by each family health services authority in England and Wales. By April 1992 institution of regular, systematic medical audit by all practitioners in every family health services authority is expected.13 The predominant purpose of this educational audit is to improve patient care by achieving the optimum outcome in the most efficient way.14 General goals and five year targets have been set for diabetes care and research in Europe, but these will be difficult to audit in general practice.15 Large data sets of diabetes care16 are difficult to audit in general practice. We suggest a simple audit of diabetes linked to the documentation used for health promotion clinics and practice annual reports. This audit is in three parts. Firstly, an audit of the process of care, which comprises a register of all the diabetic patients in the practice to determine the prevalence of diabetes, which can then be compared with other practices or areas. Such a register is needed if some form of regular review is being offered to all diabetic patients. Secondly, an audit of the process of care, which comprises an attendance register of the diabetic patients who attend for review of their diabetes care or who are offered review. The percentage of patients who attend for review can be compared year by year or with other practices. An attendance register and a protocol for diabetes care are essential if remuneration for health promotion clinics is being sought. Thirdly, a measure of the outcome of diabetes care is recorded on the attendance register. For example, an intermediate or surrogate outcome measure such as serum fructosamine concentration in patients aged under 70 may be collected and compared with an agreed standard. The outcome measure or measures could be compared year by year or with other practices.

This simple audit will improve the efficiency of diabetes health promotion clinics, so improving the care of diabetes. It should also encourage further effective audits in general practice. Thus it will help to achieve the main aims of medical audit—that is, improved patient care and clearer understanding among the carers.


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Audit in Person

The role of the audit analyst

Christina Fielding

In February 1990 I was appointed to a post subsequently entitled audit analyst within the clinical audit department in North Derbyshire Health Authority. With no previous experience in NHS administration I found preparing for the interview difficult. The short job description had mentioned responsibility for data collection and input in two specific projects—in anaesthetics and psychiatry; further information was difficult to locate.

My previous training included nursing and information technology, the second proving to be the most valuable for audit work. I came to realise that the most apt part of the job description was the statement: “... and any other duties appropriate to the position.” This reflected the early stages of people’s understanding of audit. There are no precedents in this job, and initiative is important; already, methods adopted in February are being changed and updated.

The consultant audit coordinator, Dr McConnachie, has been involved in developing audit in North Derbyshire since 1987. By the time I was appointed funding had been arranged and consultants were showing interest and expressing a need for help with projects. At that time we worked for the district and there were possibilities for audit in many different hospitals. Now a separate community audit team has been formed, and we have been devolved to unit level.

An audit secretary was appointed soon after me and our first days were spent training in the medical records department. The aim was to ease the workload of that department and of the medical secretaries. We now collect all patients’ notes ourselves, and any doctor who asks the medical records department for notes for audit is referred to us. The secretary attends the audit meetings for most specialties, takes minutes, collates figures, and distributes agendas, thereby ensuring that