

PRACTICE OBSERVED

Practice Research

Problems of comprehensive shared diabetes care

J L DAY, H HUMPHREYS, H ALBAN-DAVIES

Abstract

In its first year 747 diabetics were entered into a comprehensive shared care scheme in which general practitioners agreed to follow up their own patients. After two years patients were recalled to hospital for review through a computer based recall system. Analysis of the first 209 patients reviewed showed that the recall system worked well with failure to trace only eight patients. Six new cases of foot ulcer, 15 of retinopathy, 14 of macular degeneration, and 15 of raised blood pressure requiring treatment were detected at review. Sixty four patients appeared to have had no check on their diabetes during the two years. Of the 117 with written evidence in their cooperation books that they had received some diabetic supervision, many had had no measurement of weight (32), blood pressure (49), or urine (68) or blood glucose (70), and only 55 had had foot and 65 eye examination.

This erratic and generally poor standard of supervision suggests that much tighter organisation is required within each practice, with time being set aside specifically for care of diabetics. Practice nurses could have an important role in the delivery and organisation of care.

Introduction

The problems of large hospital based diabetic clinics are notorious, but merely discharging patients to the care of their general practitioners without careful organisation leads to a deterioration in standards, with many patients dropping out from follow up and a high readmission rate.^{1,2} Several schemes have been developed where care is shared between the hospital and general practitioners. The miniclinic concept initiated by Thorn *et al* is well known,³ but even in the most zealous districts fewer than a third of practices have developed such clinics.⁴ In contrast, the Poole system includes all practices in the district with computer surveillance.⁵ Routine follow up of patients in these schemes depends on the skills of the general practitioner. Yet those necessary for detecting retinopathy are frequently defective. We attempted to devise a cooperative hospital-practitioner scheme in Ipswich that would include all practices, provide enough flexibility to allow different methods of working, and use a computer based system to recall patients to the hospital for screening for complications. This paper reports how and why this scheme was developed, its evaluation, and its deficiencies.

Development of the scheme

Ipswich district provides care for 330 000 people, including about 4000 with diabetes. These are served by 42 practices and 164 general practitioners. In 1981 seven of the regular fortnightly general practice postgraduate meetings were devoted to diabetes care. All practitioners were invited by letter, and the average attendance at each meeting was 60; all but one singlehanded practice was represented by at least one member at one meeting. After a general update on the essentials of diabetic care all participants took part in defining the minimum requirements of care. All expressed considerable interest in improving care and developing new systems. Few, however, were keen to develop miniclinics. The reasons were: problems due to practice size, threats to the concept of whole person family medicine, and removal of a patient's choice of doctor. Nevertheless, it was agreed that general practitioners would care for considerable numbers of their own patients with diabetes. They undertook to provide agreed standards of care, follow up, and recording, but each practice was

Ipswich Hospital, Ipswich, Suffolk IP4 5PD

J L DAY, MD, FRCP, consultant physician
H HUMPHREYS, SRN, research assistant
H ALBAN-DAVIES, DM, MRCP, senior medical registrar

Correspondence to: Dr Day.

responsible for its own system of achieving these. Because of deficiencies, however, especially in ophthalmological assessment, all patients would in the first instance be reviewed in hospital after two years.

AGREED PRINCIPLES OF THE SCHEME

Selection of patients for general practitioner care—All patients attending the hospital clinic at six monthly or yearly intervals whose diabetes was well controlled (fasting blood glucose value <7 mmol/l or postprandial value <11 mmol/l) or in whom it was decided that improved control could not be achieved were considered for general practitioner care. No distinction was made between those requiring and those not requiring insulin. Children, recently diagnosed young adults, women of childbearing age, those having problems with control, and those with complications requiring treatment were excluded. Patients already being looked after solely by their general practitioner were also entered into the scheme.

Discharge from hospital clinic—After selection the patients attending the hospital clinic were seen at a special clinic session to ensure that the criteria for discharge were met. They were fully examined and their diet reviewed. All were provided with cooperation books, similar to those used in Poole, but modified to include simple data recorded on carbonless double paper. The duplicate copy was removed and used for computer recording (using East Anglian Regional Health Authority's main computer) and constructing the recall register. Patients were advised to report to their general practitioners within three to six months of their clinic appointment. Those patients already being looked after solely by their general practitioner were also entered into the recall scheme by being given a cooperation book and asked to complete and send in the duplicate form.

Follow up—All patients were to be fully evaluated after two years at the hospital based recall clinic. The minimum standards of practitioner care in the two years between discharge and review were as follows. (1) The general practitioners would review their diabetic patients at least once a year if they were well controlled; if the patients were less well controlled they should be seen more often or referred back to hospital unless it had been agreed between the general practitioner and the consultant that poorer degrees of control should be tolerated. (2) At each attendance the following variables would be measured: blood glucose (more recently HbA₁), urine glucose, weight, and any other blood or urine values the general practitioner thought necessary. (3) At least once a year visual acuity and blood pressure should be measured, fundoscopy performed, and the feet inspected. The actual method of recall and follow up within the two years was left to the discretion of each practitioner.

Computer recall system—The recall system was designed to produce lists of patients suitable to attend the recall clinic two years after their discharge. At the appropriate time a postcard was sent to the general practitioner asking if the patient could attend—that is, if he was still alive, mobile, or living in the area. If no response was received within four weeks an appointment was sent.

Evaluation—All patients had blood glucose and HbA₁ concentrations and their urine examined at discharge and at recall. Clinical findings at each examination were compared and the following recorded: change in blood pressure; development of new diabetic foot ulcers, new retinopathy, or cataracts; fall in visual acuity; or the development of albumin in urine. The type of care of diabetes during the two years between discharge and recall was established by questionnaire and by examining the cooperation book entries. The questionnaire was designed to determine the number of visits to the general practitioner, the purpose of such visits, and whether or not the patients believed their diabetes had been "checked." Cooperation books were examined for frequency of visit and recording of blood glucose concentrations and urine, eye, blood pressure, or foot examinations. An "examination" was assumed to have occurred if any comment was entered under any of these headings in the book.

Results

A total of 747 patients were discharged from the hospital clinic in the first year and 620 in the second. Subsequently numbers should fall, giving a maximum of about 2000 patients in the scheme, 20 of them attending a recall clinic each week.

The first four months of the recall system were analysed in detail: 272 patients were invited for recall, and 209 attended. Only eight were untraceable; 18 had died, 11 had transferred back to the main diabetic clinic, 11 postponed the appointment because it was inconvenient, nine had moved, three refused to attend, and in three cases the general practitioner advised against attendance.

Among the 209 there was a small but significant increase in mean blood glucose and HbA₁ concentrations in the two years between discharge and follow up. The mean (SEM) postprandial glucose value rose from 10.3 (0.3) mmol/l to 11.7 (0.5) mmol/l ($p<0.01$) and HbA₁ from 11.2 (0.3)% to 12.3 (0.3)% ($p<0.001$).

Clinical examinations at recall showed 15 new cases of retinopathy (13 background and two proliferative) and four patients with a fall in visual acuity due to macular degeneration, but there were no new cases of cataract. Six new foot ulcers were detected, and 15 patients were thought to need additional treatment for raised blood pressure.

GENERAL PRACTITIONER FOLLOW UP

Of the 209 patients, 117 had written records in their cooperation books that showed assessment of their diabetes by their general practitioners. Ninety two had no such written entries. Twenty eight of the 92 thought that their diabetes had been checked but that the cooperation book had not been filled in either because the patient forgot it or because the general practitioner did not want to complete it. Sixty four thought that their diabetes had not been checked. Of these 64 patients, 10 considered that no contact with their general practitioner had been necessary, some because they thought their diabetes had been cured, 18 had received repeat prescriptions for testing materials or sulphonylureas but had had no assessment of their condition, and 36 had attended for other illnesses and repeat prescriptions but said that their general practitioner had not asked about their diabetes.

To attempt to assess what sort of follow up had taken place for those who definitely had written evidence of some assessment we analysed in more detail the cooperation books of the 117 patients with entries (table).

Weight and blood pressure were the most frequently recorded variables. They were measured at least once in 85 and 68 subjects respectively. Fewer subjects had their urine (49) or blood glucose (47) examined in the two years after discharge. Eye examination (taken to include record of visual acuity, fundal examination, or comments such as "cataract") and foot examination were performed at least once in only 52 and 62 patients respectively. It might have been thought from the similarity of these percentages that some patients had had more or less complete data recorded by the most conscientious general practitioners while others had had almost nothing recorded, but this was not the case. The records showed no pattern to the type of test or examination included or omitted.

Discussion

The overall results of this scheme were disappointing. Some elements were satisfactory and analysis of the deficiencies provide some indication of how success might be achieved.

The computer based recall system worked well. Few patients were untraced, although Suffolk is traditionally an area of low population movement. The register would have been easier to maintain had it been locally based. It was clear from patients who

Evaluation of diabetes follow up in 117 subjects known to have been seen at least once by their general practitioner. Results are numbers of patients with frequency of visit, test, or examination

No of visits or tests in two years	Visits	Urine tests	Blood glucose or HbA ₁	Blood pressure	Eye examination	Foot examination	Weight
0	0	68	70	49	65	55	32
1	27	13	21	30	31	35	25
2	12	7	9	7	13	19	13
3	3	12	6	9	4	0	12
4	9	0	6	8	1	4	6
5-10	34	15	5	13	3	3	24
20	14	1	0	1	0	1	5
24	18	1	0	0	0	0	—

failed to attend their general practitioners at all in the two years that the directions provided when they were discharged from hospital were ineffective. With a demand led service failure to attend a general practitioner will not normally be detected. Greater concentration on patient advice together with the computer providing a "prompt" to the patient three months or so after discharge should help solve this problem, but a register within all practices is absolutely necessary if regular diabetes review is to be ensured.

Standards of diabetes care for those patients who were reviewed by their practitioner were inadequate. Despite the general practitioners agreeing to undertake a minimum degree of supervision 40% of patients had no biochemical evaluation despite visiting at least once, similar numbers having no eye or foot examination. Interestingly, weight and blood pressure were checked most consistently, yet blood pressure is probably the variable least related to diabetes. The failures of supervision seemed to be due to poor organisation rather than to lack of effort because many subjects were attending very often—possibly too often—but the items checked seemed random. The need for routine follow up of these patients was clearly shown by the detection at the two year hospital review of new cases of eye and foot complications and blood pressure requiring treatment.

Clearly better standards must be achieved. Even if one retains the dubious view that hospital based clinics provide the lesser of two evils, 40-60% of patients are already looked after solely by their general practitioners.⁶ Their standards of care are probably worse than those recorded here. In an audit of general practice in Nuneaton 37% of patients had had no eye examination in the preceding three years,⁷ and a study of diabetes care in the Leicester area provided a similar picture.⁸ Some organisation must be developed within a practice to achieve relatively simple ends. Similar results in hospital clinics might have been observed if diabetics had been followed up in routine medical clinics rather than diabetic clinics. With all their faults diabetes clinics do provide a framework for patients to be followed. Comprehensive miniclinic care in all general practices is a utopian ideal. Even the most enthusiastic developers of miniclinic schemes have managed to establish miniclinics in only 28% of their local practices.⁴

Without such formal organisation some "protected time" for the care of diabetes seems essential.⁹ How might this be organised with the least imposition on practitioners' time? Of the items reviewed by the general practitioners (table), only fundal examination and

possibly examination of the feet cannot be performed by a nurse. Nurses could be responsible for maintaining the register; ensuring regular follow up; performing blood and urine tests; measuring weight, blood pressure, visual acuity; inspecting the feet; and, when appropriate, presenting the patient to the doctor with all the necessary information. Preliminary experience in Sheffield of making the best use of the skills of the practice nurse suggests this might not only offer solutions to many of the problems described above but also receive widespread acceptance by general practitioners.¹⁰ Nurses who have been given this role have accepted it with great enthusiasm. Although practice nurses are employed in only 30-40% of practices, a district nurse or health visitor might be considered an alternative. Any scheme must ensure yearly ophthalmological screening by someone with the necessary skills. Screening by ophthalmic opticians might be a solution, but hospital based review (possibly with the new mydriatic camera) might still be necessary.

In conclusion, therefore, there lie within general practices major problems which must be solved. Solutions could be provided by ensuring an up to date register of patients within each practice and computer based recall and prompting for follow up. Protected time must be made available. Nurse organised care within each practice might provide the solution to many of these problems of routine biochemical and clinical supervision.

References

- Wilkes E, Lawton EE. The diabetic, the hospital and primary care. *J R Coll Gen Pract* 1980;30:199-206.
- Hayes TM, Harries J. Randomised controlled trial of routine hospital clinic care versus routine general practice care for type II diabetes. *Br Med J* 1984;289:728-30.
- Thorn PA, Russell RG. Diabetic clinics today and tomorrow: mini-clinics in general practice. *Br Med J* 1973;iii:534-6.
- Thorn PA, Hughes HV, Russell IR, Serhan E, Sim ISG, Walker C. Diabetes in general practice—our 12 years' experience. *Shared care in diabetes*. London: Update, 1985:9-14.
- Hill TD. Community care service for diabetics in the Poole area. *Br Med J* 1976;i:1137-9.
- Yudkin JS, Boucher BJ, Schopelin KE, Harris BT, Claff HR, Whyte NJD. The quality of diabetic care in a London health district. *J Epidemiol Community Health* 1980;34:277-80.
- Moor JM, Gadsby R. Non-insulin dependent diabetes mellitus in general practice I. *Practioner* 1984;228:675-9.
- Mellor JG, Samanta A, Blandford RL, Burden AC. Questionnaire survey of diabetic care in general practice in Leicestershire. *Health Trends* 1985;17:61-3.
- Tasker P. In: *Diabetes information folder*. London: Royal College of Physicians, 1986:7-8.
- McKinnon M. The role of nurses in general practice. *Practical Diabetes* 1986;3:232-4.

(Accepted 12 May 1987)

100 YEARS AGO

The treatment of chronic constipation by abdominal massage, which has been systematically practised for many years with the best results by Professor V. S. Manassein, of St Petersburg, has of late begun to find favour with many practitioners all over the world. Amongst others, Mr. Frederick Treves, of London, about two years ago, expressed approval of kneading the abdominal walls, a procedure which had been shortly before recommended by Dr. Kriviakin, of Dagestan (see the *London Medical Record*, August, 1885, p. 334; and April 1886, p. 153). Dr. Hermann Sahli, of Berne, has lately introduced (*Correspondenz Blatt für Schweizer Aerzte*, No. 19, 1887, p. 581) a somewhat startling modification of ordinary massage, which deserves to be more widely known. Massage by professional rubbers is expensive, besides being frequently objectionable in other ways. Dr. Sahli thinks that he has hit upon a plan which will make massage for chronic constipation cheap and easily available. The method, which its inventor warrants as effectual, consists in the patient rolling with his own hands a cannon-ball, or other round metallic mass, weighing from three to five pounds, up and down

over his uncovered abdomen every day for five or ten minutes. The patient lies on his back during the performance, which should always take place at the same hour. The best time is the morning, before rising. Besides rolling the ball about, the patient should from time to time raise it to a certain height, and bring it down on his belly with some force. The whole abdominal surface must be conscientiously rolled every time. The ball may be warmed or wrapped in a woollen cover before use. In some patients this novel form of artillery practice takes effect almost immediately; in most, the bowels are opened a couple of hours after the application. In the bulk of cases the constipated habit disappears in a few weeks, but relapse very frequently occurs when the daily rolling of the abdomen is discontinued. Dr. Sahli believes that his new therapeutic agent will, in spite of its formidable sound, become popular to the extent of generally replacing the lighter ammunition which (in the form of pills, etc) has hitherto been used against the disease.

(*British Medical Journal* 1887;ii:1171.)