Purchasing for Quality: the Providers' View

Diabetes care

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Diabetes embraces all age groups and socioeconomic classes, affects all aspects of life, and lasts for the rest of life after diagnosis – potentially 60 years or more. A quality service for diabetes therefore must be all embracing, well organised, freely accessible at all times, and provided with sympathy and efficiency. The way to achieve this objective is to have an adequacy of health care professionals, with expertise in diabetes care, from all appropriate disciplines working in a well organised and coordinated way both in the community and in hospital.

Diabetes affects 2% of the population, consumes 5% of the health service budget¹ and leads to appreciable interference with aspects of patients' life and employment. Thus on economic grounds alone it is clear that quality technical services aimed at preventing the many health problems associated with the condition are justified. However, expertise in technical care alone is not a marker of good quality care; central to a good quality service for diabetes care is consideration of the stress, turmoil, and upset produced by diabetes in many families and individual lives. Such a patient focused approach should lead to organisation of services which at all times consider people, not only their disease.

For simplicity insulin dependent diabetes (onset at a young age, prone to ketosis, insulin dependency for life) and non-insulin dependent diabetes mellitus (onset at older age, no ketosis, little need for insulin, morbid vascular complications) will be considered in this review as diabetes. Many aspects of care differ in these two conditions, but the principles underlying provision of services are the same.

Objectives of diabetes care

The primary objectives of good quality diabetes care are to control the metabolic state and to prevent or minimise the unpleasant long term tissue complications of the disease. These complications can have a significant effect on the quality of life. Blindness, for example, is 25 times more common in diabetic than in non-diabetic people.² In studies of patients with diabetes diagnosed before 1942 nephropathy occurred in 41%³; in another study of patients with diabetes diagnosed after 1949, 25% of patients developed nephropathy,⁴ hopefully indicating improved standards and organisation of care. There is little doubt that disease of the legs, usually a mixture of ischaemic and neuropathic problems, is the commonest single reason for

admission of diabetic people to hospital.^{5 6} Also, the high incidence of disease of major vessels, particularly in non-insulin dependent diabetes is well documented.⁷ The unpleasant and costly nature of these problems is often not truly appreciated by many doctors and managers working outside diabetes care.

Organisation of care

Modern diabetes management requires good organisation. People with diabetes will be spread throughout a community and are looked after by many different professionals. Clearly, the work of these professionals and their interrelationships must be coordinated. Indeed, a good quality service responsive to patients' needs has to be carefully planned and organised – it will not happen by chance. In each district or community an appointed person should be responsible for all diabetes care throughout that locality. Conventionally, this has been a consultant diabetologist, but there is no reason why other health care professionals with expertise in diabetes care should not take on this role.⁸ In many districts diabetes nurse specialists coordinate, organise, and manage diabetes care.

To ensure provision of a good quality service for all patients with diabetes a diabetes agency or task force should be set up, led by the person responsible for coordinating diabetes care in the district – in most instances a hospital based diabetologist. The agency should consist of a nurse, a hospital doctor, a general practitioner (local medical committee representative), representatives of the health authority and family health services authority, and a diabetic person nominated by the local branch of the British Diabetic Association. This agency should oversee all the aspects of care described in this article; control the district budget for diabetes; and also negotiate with the purchaser for the provision of finance, services, and facilities. An important aspect of this concept is that the purchaser should become a member of the diabetes agency so that there is continuing and constructive communication between the purchaser and providers about the financial and quality aspects of diabetes care. All professionals involved in caring for people with diabetes should contribute to the discussions and decisions of this suggested agency.

For such an agency to function several authorities need to collaborate and establish satisfactory working relationships. Moreover, agreement about financial contributions from

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various sources may prove difficult. But without such an agency diabetes care is likely to remain fragmented and a good quality service be available to only a few. Good quality diabetes care must be equitable – the days of the prestigious diabetic clinic offering a superb service only to those who entered it are over.†

DIABETES REGISTERS

Central to an organised service is the identification of all those people in the district who have diabetes; this requires a district diabetes register. The introduction of computerised information technology in hospitals and the advanced development of computers in general practice enable such registers to be developed. It is important that those working in hospital and primary care should be able to share information, which computer links can facilitate. Storing data on a computer register helps organisation of care and also provides a facility which can help clinical audit of many aspects of diabetes care, including the process and the eventual outcome of benefit to those people with diabetes.* The cost of setting up and running such a computer register may be considerable, and the difficulties of doing this in one inner city district have been described.⁹ However, the benefits will need to be assessed in the light of improved efficiency.

Diabetes care team

Diabetes care requires mature teamwork. The diabetes care team needs clear leadership and well defined goals and objectives. The concept of separate teams for hospital and for community care should be abandoned. Only some of the many people needed to provide good quality diabetes care will be based in hospital diabetic clinics. Clearly, some specialist services and skills will need to be sited in hospital clinics. Thus the team consists of medical staff (a consultant and his or her staff in hospital and a general practitioner in the community); specialist nurses in hospital and practice nurses in primary care; dietitians; chiropodists; psychologists; and managerial and clerical staff. Other specialist services (which will be mentioned later) are also needed to provide good diabetes care but do not form part of the core team.

Most members of the team have roles which are central to aspects of diabetes care and there is little need to justify their inclusion in the team.* But a manager and psychologist would probably not be included in a conventional diabetes team.*

Manager – A good quality diabetes service requires management and organisation. Health care professionals often do not have the time or skills to manage the overall organisation, especially if they are also looking after patients. Ensuring the availability of good quality care for all people with diabetes throughout a district, whatever its size, is not possible without a manager with responsibility for maintaining a cohesive working structure,

developing and administering available facilities, and planning for the future.

Psychologist – Diabetes affects many aspects of ordinary living. Experience in diabetes clinics indicates that many people with diabetes face particular psychological problems, concerns, and unhappiness. Lives can be changed irrevocably by diabetes. The features of a diabetes clinic in which the quality of care is much less than optimum include large numbers of patients and a poor appointment system. Such environments encourage little discussion other than about weight and blood glucose concentration. Lack of opportunity to discuss aspects of diabetes, its effects, and its care is probably their major deficiency. For example 40% of diabetic men aged over 45 are impotent,¹⁰ but this is not reflected in the percentage of consultations about this problem. The availability of a psychologist in a clinic will provide skills which other health care professionals may not have and time to allow patients to discuss many problems associated with diabetes. The psychologist will also be able to provide support for the professionals.

Team collaboration and shared care

Involving more general practitioners and others working in primary care as part of the diabetes care team will extend provision of good quality care to more people.

The hospital and community parts of the team need to communicate in several ways. Agreement on guidelines for shared care is essential and it is necessary to decide which aspects of care should be provided by the hospital and which by primary care, with emphasis on always providing good quality care for all and avoiding unnecessary duplication of effort. In many districts the hospital team will be involved mainly with people taking insulin, children, and people with difficult complications of diabetes. All arrangements should always be flexible and take into consideration the training and skills of the individual professionals.

It is of course essential that all health professionals in diabetes care, whether based in primary or secondary care, should receive adequate accredited training and that mechanisms of audit are developed to ensure that guidelines and protocols are adequate and carried out to an acceptable standard.

Providing a collaboration card for sharing clinical data is a simple and effective means of ensuring collaboration.* Future developments will certainly include computerised links, but the advantage of the collaboration card is that it allows the patients (who will hold this record) to have full access (and ownership) to the written record of their health care.

Facilities for diabetes care

Excessive time waiting to be seen is an

† Redundant practice unsupported by published evidence.

* Accepted good practice unsupported by published evidence.

indicator of a poor quality service which can be improved even in very busy clinics by analysing booking and appointment systems. A study at the Royal Hallamshire Hospital five years ago showed that patients failing to attend complained that they were waiting too long to be seen; were never seeing the same doctor, had no time for discussing subjects they wanted to discuss; and were losing time from work (Appointment System Working Party, Hallamshire Hospital, personal communication). In a recent survey of facilities in diabetic clinics in the United Kingdom only 23% of clinics offered an out of hours service for employed people.

DIABETES CENTRES

Diabetes centres are now recommended as the appropriate facility for diabetes care, and the British Diabetic Association recommends such a centre for each district.¹¹ Diabetes centres are not simply replacements for routine clinics but rather a focus for developing all aspects of diabetes care. People with diabetes have much to come to terms with and to learn about diabetes. Education is central to all aspects of care. People will probably learn more about diabetes away from the threatening environment of a standard diabetes clinic.*

The primary role of a diabetes centre is as an educational centre. But the centre will also act as place where advice and support will be easily available and it should be staffed so that it is open all day. It is a resource which allows the advice about diabetes care to be accessible to all people with the condition and also to professionals in hospital or primary care. It is also a focus for the members of the diabetes teams. The development of diabetes centres and the philosophy behind them are probably the most important contributing factors to improvement in diabetes care in the past decade.*

Diabetes centres should provide group teaching and individual sessions on all aspects of diabetes care as well as access to a wide range of published material (pamphlets, books, videos, and the British Diabetic Association's publications). Individual help is essential for those starting treatment with insulin.

The style of consultation should actively encourage questions and discussion of problems. Partners, spouses, and friends should be allowed to take part in the consultation. Many patients want to share their problems; indeed, many of the problems of diabetes affect close family relatives. For example, people requiring insulin and their families have a particular fear of hypoglycaemia. Exclusion of a close partner from discussion about hypoglycaemia cannot properly address the whole problem nor enable its resolution, and thus is poor quality care. However, at present only a small proportion of people come to a diabetes service with their partners.

Patients from less advantaged social backgrounds suffer with more problems associated with diabetes than those from more advantaged situations, and this is apparent in

large industrial cities such as Sheffield (unpublished data on admissions to Sheffield hospitals). Therefore a good quality equitable service should include developing diabetes centres in areas of social need. As more expertise is developed in primary care the emphasis may shift from the traditional hospital based diabetes centres towards community based centres, which are better equipped to respond to local problems.

Identifying complications

Complications of diabetes should be identified at early (treatable) stages through active screening. Achieving this objective will depend on the adequacy of the organisation of the service as well as the technical expertise of the health professionals.

Blindness can be minimised by recognising early retinopathy through screening and laser treatment.¹² Timely recognition of those people whose feet are at particular risk from vascular or neuropathic disease leads to considerable reduction in hospital admissions and amputations.¹³ Identification of micro-proteinuria and raised blood pressure and their treatment will almost certainly lead to a radical reduction in the progress and development of end stage renal failure.¹⁴ The benefit of all these screening programmes to the quality of life of people for whom blindness, amputation, and renal failure can be avoided is immeasurable.

The measures needed are in clinical terms relatively simple – but they need to be performed with technical competence and recorded each year for every patient. Organisation needs to be exceptionally good to ensure that all people with diabetes are included in these programmes, and checks are needed to ensure that all necessary measurements have been performed annually and that any abnormalities have been suitably dealt with.

Screening for retinopathy poses a particular problem. Considerable experience is required to gain competence and confidence. Shared care schemes should allow access to professionals with expertise in eye screening. General practitioners may have less experience and need to use the hospital services for this aspect of care. Screening for retinopathy can be done by hospital diabetologists, opticians, or mobile cameras. The availability of staff and equipment will determine the most appropriate approach to eye screening in each district.* The ultimate measure of good quality screening for retinopathy will be a fall in the incidence of visual problems and blindness due to diabetes. But an important short or medium term process measure is the demonstration that patients with diabetes are screened by appropriately trained staff as part of an annual review.

Treating complications

Treating the problems identified through screening requires access to specialists other

* Accepted good practice unsupported by published evidence.

than the diabetes team:

- Ophthalmologists – for laser treatment and assessment of many visual problems associated with diabetes
- Vascular surgeons – to treat vascular lesions – for example, improving the vascular supply to the leg, either by angioplasty or surgical revascularisation
- Orthopaedic surgeons – to treat deformities leading to foot ulceration
- Orthotists (shoe fitters) – working in conjunction with a doctor and a chiropodist to design appropriate weightbearing and flexible shoes to support deformed anaesthetic and often ischaemic feet
- Cardiologists – to investigate and treat (when appropriate) the many people with diabetes who have associated myocardial ischaemia.

Essential facilities

Laboratory services are needed by all diabetes services for estimation of blood glucose, and glycosylated haemoglobin concentrations, lipid profiles, and renal status.

Inpatient facilities should be provided. Diabetologists should provide the expert treatment for inpatients with clinical problems associated with diabetes; diabetic ketoacidosis, an extremely dangerous emergency, should always be treated by the team*; all patients requiring admission for medical problems associated with diabetes should be under the care of the team*; and those admitted with surgical complications of diabetes (for example, problems with their feet) should be looked after in collaboration with the team. Finally, the diabetes care team should at least be informed about patients admitted for reasons apparently unconnected with diabetes.*

Good quality diabetes services should show strong collaborative links with all these specialists and, when appropriate, provide combined clinics.

Special clinics

Combined collaborative clinics contributing to a good quality service should include the following services.

PREGNANCY (OBSTETRIC/DIABETIC) CLINIC

The availability of diabetes advice at a time when meticulous control of blood glucose concentration is essential, combined with obstetric assessment is of undoubted benefit in terms of fetal outcome.¹⁵ Moreover, the convenience and reassurance to the patient of being seen by both sets of experts is important.

FOOT CARE CLINIC

Patients should be seen by chiropodist, nurse, and physician who have easy access to a shoe fitter and vascular surgeon. This form of care reduces the incidence of ulceration and amputation.⁶

ADOLESCENT CLINICS

In the United Kingdom children with diabetes are usually looked after by paediatricians and

not necessarily in organised specialist diabetic clinics. The British Diabetic Association and the British Paediatric Association are together developing approaches to more organised care in managing children with diabetes.

Many districts have a combined clinic for adolescent diabetic subjects with a paediatrician, physicians, nurse specialist, and dietitian collaborating in providing care. Adolescence is a stormy time, often worsened by the burden of insulin dependent diabetes. Ideally, clinics for this group should be run out of hours in reasonably quiet and pleasant surroundings with plenty of time for discussion of diabetic management and aspects of living with diabetes.*

The interface between life and diabetes is a difficult and complex one, highlighted with great clarity in the adolescent age group. Many camps and holiday courses are available for young people with diabetes, and diabetes clinics should be aware of their existence.

IMPOTENCE

Married couples and partners with problems of male impotence should have access to facilities for sensitive discussion of their problem and assessment of the possibility of intracorporeal papaverine injection or the use of various vacuum devices.

RENAL DIABETES CLINIC

End stage diabetic nephropathy is one of the commonest medical conditions treated in renal dialysis units. Metabolic problems, hypertension, and fluid imbalance associated with end stage renal failure tend to overshadow management of diabetes; therefore wherever possible, the renal and diabetes physicians should carry out a combined clinic.

CARE OF ELDERLY PEOPLE

Elderly people with diabetes experience particular problems. Frail elderly people receiving insulin who are prone to hypoglycaemia or have vulnerable ischaemic neuropathic feet are a great concern. Collaboration between all groups involved in diabetes care throughout the community with specialists in care of elderly people is therefore crucial to a good quality diabetes care service. Stronger links between the diabetes team and the care of elderly patients is a development which should be planned for in future.

Audit of diabetes care

Audit of the process of diabetes care and its eventual outcome is now part of clinical practice. Computerised registers and data on diabetes care will help clinical audit, and measurements of the process of care should be collected routinely. If the appropriate information is collected, especially if collaboration exists between primary and secondary care providers, the future pattern of outcome of care will also be measurable.

* Accepted good practice unsupported by published evidence.

The process of diabetes care can be audited in many ways. Clinical audit rather than medical audit is the most appropriate approach to assessing quality of care, and the diabetes care teams should be the forums which discuss aspects of the quality of care and use audit data to improve the service.

Although outcome of care is the aim of diabetic care, it is important to quantify the process measures whose aim is to reduce the incidence of subsequent complications.

A major framework on which to base audit of outcome of diabetes care is provided by the aims of the *St Vincent Declaration* (box).¹⁶

Aims of St Vincent declaration action programmes for diabetes care and research in Europe

- 1 Reduce new blindness due to diabetes by one third or more
- 2 Reduce numbers of people entering end stage renal failure by at least one third
- 3 Reduce by half the rate of limb amputations for diabetic gangrene
- 4 Cut morbidity and mortality from coronary heart disease by vigorous programmes of risk factor reduction
- 5 Achieve a pregnancy outcome in diabetic women that approximates to that in non-diabetic women

An additional objective which should be added is to allow as fulfilled a life as possible and ensure ready access to professionals who understand and address the wider implications of diabetes.

Summary

Providing good quality diabetes care is complex but achievable. Many aspects of the care do not require high tech medicine but, rather, good organisation. Diabetes is a costly disease, consuming £1500 per diabetic patient per year versus £500 on average for a non-diabetic member of the population in health service costs.¹ Investment now in good quality diabetes care is sound: patients will benefit from a better quality of life associated with a reduced incidence of the complications of diabetes and the direct costs to the health service in treating these complications and the indirect costs to employers will be reduced. Physical and clinical assessments – measurements of blood glucose and glycosylated haemoglobin concentrations, weight, and blood pressure and assessment of eyes, kidneys, feet, and heart – are clearly important, but quality must include consideration of people and their reactions to life and diabetes – a lifelong entanglement – for which much more support should be provided.

Appendix

The diabetes agency has provided Sheffield Health Authority with a list of quality objectives in diabetes care. This is similar to that in the pamphlet *What Diabetes Care to Expect* published by the British Diabetic

Association: the objectives are listed below.

A Somebody *newly diagnosed* with diabetes should expect:

- 1 A full medical examination
- 2 An explanation of what diabetes is and an outline of likely treatment in that individual
- 3 A session with specialist dietitian with additional sessions depending on the nature of the patient and their particular diabetes
- 4 The institution of insulin treatment will require frequent sessions on a one to one basis, usually with a diabetes specialist nurse with a wide experience of insulin management
- 5 Instruction and help from this nurse in monitoring diabetes, with blood glucose tests for those having insulin treatment and (probably) with urine tests for those not having insulin treatment
- 6 Detailed practical information about problems of *hypoglycaemia* – the most feared complication of the disease
- 7 Discussion about factors in daily living with regard to diabetes – namely, employment, driving, insurance, prescription charges, and driving licence
- 8 Information about the British Diabetic Association, nationally and locally
- 9 All consultations and sessions should allow a family member or friend to accompany the person with diabetes.

B People with diabetes stabilised and controlled in the future should expect:

- 1 To see a specialist nurse, doctor, and dietitian at regular intervals – possibly annually in straightforward cases but as frequently as need requires
- 2 A specialist member of the diabetes team to be available and accessible at all times
- 3 Further education and re-education as necessary
- 4 An annual medical check or *screening* for problems associated with diabetes:
 - Weight
 - Urine for proteinuria and micro-proteinuria
 - Glycosylated haemoglobin for assessment of long term control
 - Blood pressure measurement
 - Visual examination by ophthalmoscopy and with dilated pupils
 - Examination of the legs and feet for assessment of vulnerability for neurovascular problems.

At any time in this review or during the year there should be the opportunity to discuss day to day management in terms of blood sugars and insulin regimens. Dietary advice should again be available.

- To provide such a high quality of care all staff in the diabetes team, whether in hospital or in the community, should have received adequate and special training in diabetes
- The physical setting for the diabetes consultation should be pleasant and relaxed and as non-clinical as possible

- There should be accessibility to trained staff at all hours of the day and night
 - Many aspects of diabetes care in a community should be focused on a diabetes centre, which should advertise the availability of advice at all times and the availability of special clinics – for example, for foot care, pregnancy, eye screening, and sessions for young people
 - Specialist staff in the diabetes centre should help to provide a link with community clinics in practices and help in educating their staff
 - Educational material should be available in all centres or surgeries providing diabetes care, consisting of: books, pamphlets, videotapes, and organised small group teaching sessions.
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