

Recommendations for the provision of services in primary care for people with diabetes

Foreword

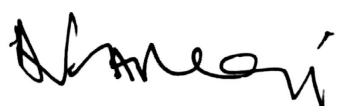
It is now known that there are 1.8 million people in the UK diagnosed with diabetes. By 2010 it is estimated that there will be three million people with diabetes in the UK with potentially huge implications for the health service in terms of workload and financial costs. The importance of diabetes to the health of the nation has been acknowledged by all four nations of the UK which have identified diabetes as a priority. With such a large population of people with diabetes it is now increasingly accepted that primary care will provide the majority of routine clinical care for this group. This is explicitly acknowledged in key policy initiatives such as the national frameworks for diabetes and the new General Medical Services (GMS) contract for primary care.

The publication of these recommendations for primary care is therefore timely. They have been developed by a multidisciplinary group of experts all of whom are recognised as advocates for improved care for people with diabetes. The recommendations are based on up-to-date evidence including landmark studies such as the United Kingdom Prospective Diabetes Study (UKPDS), the Diabetes Control and Complications Trial (DCCT) and on authoritative guidance such as that produced by the National Institute for Clinical Evidence (NICE).

Primary care teams will find much in this document to guide them on providing high quality care for people with diabetes including meeting the quality criteria in the new GMS contract. Key to this will be supporting people with diabetes to take an active role in their own care.

Primary care organisations (PCOs) will also find that these recommendations will help them to identify the key issues to ensure they meet the needs of people with diabetes. In particular primary care organisations will need to ensure that commissioned services are person-centred and delivered by appropriately skilled healthcare professionals, working within a well organised whole system of care.

The challenge for PCOs will be to ensure that resources and training are provided and effectively utilised in order to ensure that these recommendations are adopted throughout primary care, and not just in centres of excellence.



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This is a revision of the document entitled *Recommendations for the Management of Diabetes in Primary Care*, editions of which were published in 1993, 1997 and 2000, which in turn was a revision of the document entitled *Recommendations for Diabetes Health Promotion Clinics*, originally produced by an East Anglian Working Party on Diabetes Services in 1991 and subsequently adopted by the, then British Diabetic Association.

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1. Introduction

Diabetes mellitus is one of the most common chronic disorders in the UK, affecting people of all age groups. The prevalence of diabetes increases with age – at least one in ten older people resident within the UK have diabetes. Diabetes is also more common in people of South Asian, African and African Caribbean origin. The World Health Organisation predicts a doubling of the number of people with diabetes worldwide between 1995 and 2010.¹

Diabetes is a leading cause of blindness, kidney failure and limb amputation and greatly increases the risk of coronary heart disease and stroke. It can also threaten the successful outcome of pregnancy. Diabetes accounts for at least 5 per cent of healthcare costs. Up to 10 per cent of hospital inpatient resources are used to care for people with diabetes.²

Diabetes mellitus is caused by a deficiency of, or insensitivity to, the hormone insulin, resulting in an inability to control the use and storage of glucose - blood glucose levels therefore rise. There are two main types of diabetes:

- Type 1 diabetes, which results from an absolute deficiency of insulin and more commonly presents acutely before the age of 30, although it can occur at any age
- Type 2 diabetes, which results from a relative deficiency of, and/or insensitivity to, insulin and is more commonly diagnosed over the age of 40 although it is increasingly being diagnosed in younger people, even children.

Although the onset of Type 2 diabetes is usually less dramatic than that of Type 1 diabetes, the long-term sequelae are similar and equally devastating.

There is increasing evidence that the onset of Type 2 diabetes can be prevented or delayed by maintaining a healthy weight and increasing physical activity levels – this is particularly important in those at increased risk of developing Type 2 diabetes.³ Meticulous metabolic control can prevent or delay the onset of the complications of diabetes. The impact of these complications can also be greatly reduced if they are detected early and appropriately managed. Thus, regular surveillance for and early diagnosis of the complications of diabetes are also important. It is also generally accepted that early diagnosis and treatment of people with Type 2 diabetes can also help reduce their likelihood of developing long-term complications and the costs associated with diabetes.⁴ In view of the high risk of cardiovascular disease in people with diabetes, particularly those with Type 2 diabetes, the careful management of other cardiovascular risk factors, including smoking, physical inactivity and especially hypertension and dyslipidaemia, is also essential.

The provision of diabetes services is complex – care is provided by a wide range of professionals, including general practitioners (GPs) and other primary healthcare professionals and specialist diabetes teams, as well as people with diabetes and their carers. The achievement of good outcomes for people with diabetes is dependent on the provision of well-organised and coordinated diabetes services that draw on the knowledge and skills of health and social care professionals working across primary and secondary care.

GPs have a pivotal role to play in ensuring that all people with diabetes receive effective diabetes care and this has now been recognised by the inclusion of clinical indicators for diabetes in the Quality and Outcomes Framework, a key element of the new contract for the provision of General Medical Services. The responsibility for ensuring that all people with diabetes registered on their practice lists are receiving planned diabetes care rests principally with GPs and other members of the primary healthcare team. It is usually the GP who makes the initial diagnosis of diabetes and it is usually the GP who is responsible for agreeing with the person with diabetes where they will receive each element of their diabetes care and who will provide this. Increasingly, the routine follow up of people with diabetes is also undertaken within primary care.

The purpose of this document is to provide guidance to health professionals working in primary care on the organisation and delivery of services for people with diabetes. The emphasis is primarily on the organisation of diabetes care, rather than on the clinical management of individuals with diabetes. Detailed guidelines for the clinical management of diabetes have been produced by the National Institute for Clinical Excellence (NICE), the Scottish Intercollegiate Guidelines Network (SIGN) and the Clinical Resource Efficiency Support Team in Northern Ireland (CREST).

Further information can be found on the following national websites:

NICE: www.nice.org.uk

SIGN: www.sign.ac.uk

CREST: www.crestni.org.uk

2. Aims of diabetes care

The overall aim of diabetes care is to enable people with diabetes to achieve a quality of life and life expectancy similar to that of the general population.

Ensuring equitable access to high quality diabetes prevention and care is also a vital attribute of a good diabetes service – this includes ensuring equitable access for vulnerable groups, such as those living in institutional care and those experiencing social deprivation, as well as for black and minority ethnic groups.

The overall prevalence of Type 2 diabetes in the population can be reduced by preventing obesity in the general population and promoting a healthy diet and physical activity.⁵ Individuals at increased risk of developing Type 2 diabetes can reduce their risk if they are supported to change their lifestyle by eating a balanced diet, losing weight and increasing their physical activity levels. Multi-agency action is therefore required to reduce the numbers of people who are physically inactive, overweight and obese, by promoting a balanced diet and physical activity across the population. In order to have the greatest impact, action must start in childhood. Action is also needed to help those who are already overweight or obese to lose weight, and people who are physically inactive to increase their levels of physical activity. Primary care professionals have a key role to play in preventing, or at least delaying, Type 2 diabetes by identifying people at increased risk of developing diabetes and supporting them to reduce this risk.

It is now generally accepted that early diagnosis and treatment of people with Type 2 diabetes can also help reduce their likelihood of developing long-term complications and the costs associated with diabetes. Although population-wide screening for diabetes is not considered to be cost effective, it is recommended that screening of those at increased risk of developing diabetes should become a routine part of diabetes services.

The maintenance of near normal blood glucose levels is crucial to the prevention of the microvascular complications of diabetes^{6,7} – diabetic retinopathy, diabetic renal disease and diabetic neuropathy – as well as to the alleviation of the symptoms of diabetes and the avoidance of the acute metabolic crises (hypoglycaemia and ketoacidosis). Regular surveillance for and reduction of cardiovascular risk factors is equally important – this will include, where indicated, the provision of smoking cessation advice, healthy weight management, the promotion of physical activity and the treatment of dyslipidaemia and hypertension.⁸

The active involvement of people with diabetes in the provision of their own care is the cornerstone of good diabetes care. This requires the provision of effective, ongoing education and support, which is matched to the individual's ability and capacity to learn and recognises the importance of the individual's lifestyle, culture and religion. People with diabetes should also be empowered to obtain the maximum benefit from healthcare services so that, as far as possible, they are able to participate in activities open to those who do not have diabetes.

The early detection and treatment of many of the long-term complications of diabetes can reduce morbidity and healthcare costs. In diabetic retinopathy, for example, the early detection of sight threatening retinal disease followed by laser treatment can prevent blindness. Similarly, structured foot care assessment can prevent foot ulcers and amputations. Planned follow-up with effective surveillance for complications is therefore essential.

National standards for the provision of diabetes care have been published in all four nations of the UK. In August 2001, Scotland published their Scottish Diabetes Framework. In December 2001, the Department of Health published the first part of the National Service Framework for Diabetes. This document set out twelve standards for the provision of diabetes prevention and care. These standards, which are set out in full in **Appendix 1**, have since been adopted by the Assembly for Wales. A national framework for the provision of diabetes care has also been agreed in Northern Ireland. Further information about these frameworks is available on the following websites:

England: www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Diabetes/fs/en

Wales: www.wales.nhs.uk/sites/home.cfm?orgid=440

Scotland: www.show.scot.nhs.uk/crag/topics/diabetes/fwork/sdf01.htm

Northern Ireland: www.crestni.org.uk/publications/diabetes.html

3. Provision of diabetes care

Diabetes UK has produced a leaflet for people with diabetes entitled *What diabetes care to expect*. The leaflet, which is available from Diabetes UK (freephone 0800 585 088), explains what treatment and advice people with diabetes should expect from their healthcare team. The leaflet stresses the importance of individuals understanding their diabetes so that they are enabled to manage their own diabetes and become effective members of the healthcare team. Increasingly, people with diabetes will therefore expect to receive the level of care specified in the leaflet, wherever their diabetes care is being provided.

Diabetes care should be person-centred and should aim to empower individuals to manage their own diabetes.⁹ Professionals providing diabetes care should support individuals to manage their own diabetes and help them to adopt and maintain a healthy lifestyle. They should actively encourage partnership in decision-making, thereby enabling people with diabetes to have choice, voice and control over what happens to them at each step of their care. A care plan, negotiated and agreed with each individual, set out in an appropriate format and language for the individual, and reviewed as part of the care planning process, is key to the achievement of this aim. Where appropriate, parents and carers should also be fully engaged in this process.¹⁰

In order to support and encourage self-care and self-management, all healthcare staff should:

- treat individuals with respect and dignity
- ensure that people with diabetes know how to contact members of the team providing their diabetes care and ideally should have a named person who is their main contact
- provide high quality care and regularly review their clinical and psychological needs
- answer any questions about the quality of services received
- provide interpreting services if English is not the person's first language and seek appropriate services for those with sensory impairment or learning disability
- provide information and structured education about diabetes management and local health related services
- remain up to date about diabetes and its care and treatment, in order to keep people with diabetes up to date about their condition
- facilitate access to a second opinion where required (subject to the agreement of the person's GP or consultant).
- give information about Diabetes UK services and details of local support groups – information is available on the Diabetes UK website (www.diabetes.org.uk)

The responsibilities of the person with diabetes are to:

- take as much control of their diabetes on a day-to-day basis as possible - the more the person knows about his or her own diabetes, the easier this will become
- learn about and practice self-care, which should include dietary management, exercise, taking medication as prescribed, the monitoring of blood glucose levels by blood or urine testing and knowing what action to take - decisions about self-care should be made as a result of informed choice
- examine their feet regularly or have someone else check them
- know how to manage their diabetes and when to seek help if they are ill – for example, if they develop a chest infection, flu, diarrhoea or vomiting
- build into their daily life the diabetes advice discussed with their care team
- talk regularly with members of their diabetes care team
- ask questions during consultations, using a list if they find this helpful
- attend scheduled appointments and inform the healthcare team if they are unable to attend.

4. Organisation of practice-based diabetes care

GPs and practice staff are responsible for ensuring that all people with diabetes registered with their practice are receiving high quality diabetes care, tailored to meet the needs of each individual patient.

The first step to achieving this goal is to identify all registered patients who have clinically diagnosed diabetes and those at increased risk of developing diabetes. This will involve the setting up and maintenance of practice registers of people with diabetes and people at increased risk of developing diabetes.

Practice registers, which should ideally be computerised, will facilitate the call and recall of:

- people at increased risk of developing diabetes so that they can be offered ongoing support to help them reduce this risk as well as regular surveillance for diabetes
- people with diagnosed diabetes for regular reviews.

Practices should also have systems in place for following up non-attenders.

Practices should agree **practice guidelines for the management of diabetes**, which clearly define the roles of each member of the primary healthcare team involved in the care of people with diabetes. A practice may decide to adopt nationally developed guidelines, or to adapt such guidelines to reflect their particular circumstances. The Diabetes Care Pathway pullout included in the centre of this document may be a useful starting point for this discussion.

The following issues should be addressed in practice guidelines:

1. Prevention of Type 2 diabetes

Practices should have systems in place for identifying people at increased risk of developing diabetes so that they can support them to reduce this risk by offering them appropriate advice on how to reduce this risk. Further information on the prevention of Type 2 diabetes is given in **Appendix 2**.

2. Identification and diagnosis of people with diabetes

Many people with diabetes remain undiagnosed and a high index of suspicion amongst all members of the primary healthcare team is therefore essential. In addition, practices should have systems in place for actively identifying people with undiagnosed diabetes – their priority should be to focus on those known to be at increased risk of developing diabetes. Further information about the early identification of people with diabetes and criteria for diagnosing diabetes is given in **Appendices 3 and 4**.

3. Initial assessment and care at diagnosis

Once a diagnosis of diabetes has been confirmed, patients should be assessed to determine whether they need to be referred to a specialist diabetes team and, if not, treatment and care should be initiated – this will include the provision of education about diabetes and its management, including the provision of dietary advice. Further information about the initial assessment and care of people with newly diagnosed diabetes is included in **Appendices 5 and 6**.

4. Initial and ongoing education

Mechanisms for ensuring that all people with newly diagnosed diabetes receive initial and ongoing education about diabetes and its management should be agreed. The National Institute for Clinical Excellence recommends that structured patient education should be made available to all people with diabetes at the time of initial diagnosis and should then be available as required on an ongoing basis.¹¹

The provision of education should be based on adult learning principles that promote active learning – ideally provided within a group format, unless this is considered inappropriate. Structured programmes should be provided by appropriately trained multidisciplinary teams including, as a minimum, a dietitian and a diabetes specialist nurse (or practice nurse experienced in diabetes) who understand the principles of patient education. A list of topics and suggestions about how education may be organised is given in **Appendix 7**.

Culturally and linguistically appropriate educational materials should be available in the surgery. Lists of suitable educational materials are available from Diabetes UK.

5. Provision of dietary advice

Diabetes UK recommends that all people with newly diagnosed diabetes should be assessed by a registered dietitian. GPs, practice nurses and community nurses also have a crucial role to play in the provision of initial and ongoing dietary advice. The provision of consistent dietary information is essential. The general principles of dietary advice are set out in **Appendix 8**.

6. Continuing care

Once their diabetes has been stabilised, people with newly diagnosed diabetes should be invited to attend for regular reviews of their day-to-day metabolic control and ongoing education, as frequently as required to meet the needs of the individual. In addition, they should be recalled at least once a year for a formal review of their metabolic control and the quality of their daily life, and should be offered annual surveillance for cardiovascular risk factors and long-term complications. Further follow-up appointments should be offered, as appropriate, to focus on any issues raised during annual reviews.

Further information about the provision of continuing care for people with diabetes is given in **Appendix 9**.

Individual targets for the management of weight, blood glucose, blood lipids and blood pressure should be agreed with each person with diabetes. Suggested management targets for individuals with diabetes are set out in **Appendix 10**. These are in line with the quality indicators for diabetes that have been included in the Quality and Outcomes Framework, which was introduced from April 2004 for practices providing general medical services or personal medical services.

A person-centred care plan should be negotiated and agreed with each person with diagnosed diabetes so that the responsibility for the various aspects of care and agreed actions are clear. This should be reviewed regularly as part of the ongoing care planning process.

The care of people with diabetes is always a collaborative effort involving a number of different health professionals and centrally the person with diabetes. The appropriate setting for the various elements of this care will vary over time according to the needs of the particular patient.

It will be for the members of the primary healthcare team, in collaboration with members of the specialist diabetes team, to negotiate and agree with each patient where each element of care should take place.

Ideally, local diabetes policies should be agreed which set out recommended referral criteria for people with diabetes, including the timing and route of such referrals – although it should be acknowledged that the criteria adopted by individual practices may vary to take account of the different levels of skill and interest in the management of diabetes between primary healthcare teams.

Some groups of patients are usually better followed up by a specialist team, including:

- children and young people with diabetes
- women with diabetes who are considering pregnancy or who are already pregnant
- any person with diabetes for whom the GP feels specialist advice is required regarding the management of metabolic control, cardiovascular risk factors or diabetic complications
- people with complex psychological problems, eg difficulty coping.

The aim should be to ensure that people with diabetes receive their care in the most appropriate setting for the person with diabetes. Suggested criteria for referring people with diabetes to specialist diabetes services are set out at **Appendix 11**.

All people with diabetes should be encouraged to maintain regular contact with members of the primary healthcare team – including the health visitor and the community midwife, where appropriate – even if their routine diabetes follow-up is undertaken by a specialist diabetes team. Patients should be encouraged to consult their GP for problems that are not directly related to their diabetes.

Following discussion, it may be agreed that some patients, currently being followed up by a specialist diabetes team, could in future be followed up by the primary healthcare team, or by an intermediate diabetes care team or be the subject of collaborative care between the primary care and specialist diabetes teams – the options will vary according to the local pattern of diabetes care provision. Any change in the provision of care should only take place with the agreement of the person with diabetes.

Communication between all those involved in the provision of diabetes care – including the person with diabetes – is the key to successful care. New approaches are being developed to support this process, including the development of electronic patient records and the ability for these records to be shared with and accessed by all the health professionals involved in the provision of a patient's care – as well as patients themselves. In the meantime, a personal diabetes record, held by the person with diabetes, can help to facilitate this process and should include an up-to-date copy of the agreed care plan.

GPs and their staff should provide planned follow-up for any person with diagnosed diabetes who is not being followed up elsewhere. The way in which diabetes care is organised will vary depending on local circumstances. Many primary healthcare teams find that the care of people with diabetes is most efficiently organised in designated diabetes clinics, while others prefer to see patients within their general surgeries. Whichever system is adopted, a degree of flexibility will be required to meet the needs of all groups of patients. For example, those who are working may find it difficult to attend a designated clinic. An opportunistic approach will also be

required for those patients who do not respond to invitations to attend for review appointments. Separate arrangements will need to be in place to address the needs of those who are housebound or living in residential and nursing homes and, where applicable, those in custodial settings.

Key elements of effective diabetes care:

- practice-based registers of people at increased risk of developing diabetes to facilitate the regular testing of and provision of lifestyle advice to people at risk of developing diabetes
- practice-based registers of people with diagnosed diabetes to facilitate the regular call and recall for review of all people with diabetes, which are shared between primary and secondary care
- practice guidelines for the prevention and management of diabetes
- clear patient centred individualised care plans agreed with each person with diabetes that are tailored to meet the needs of the individual and, where appropriate, their carers
- personal diabetes records that can be shared with and accessed by all the health professionals involved in providing care to an individual – as well as the person with diabetes
- a local diabetes policy that includes suggested criteria for referring people with diabetes to specialist diabetes services
- an agreed named contact to help guide the person with diabetes through the healthcare system.

5. Skills required to provide care for people with diabetes in primary care

The care of people with diabetes within the primary care setting should be provided by a multidisciplinary team, including, as a minimum, the GP and practice nurse, supported by administrative staff. Other members of the primary healthcare team, including registered dietitians, podiatrists, district nurses, midwives, health visitors and school nurses and counsellors, also have an important role to play in the provision of diabetes care.

Experience suggests that a nurse, usually the practice nurse, is essential to the successful provision of diabetes care within the primary care setting.¹² The GP should also be actively involved, particularly in the optimisation of blood glucose and lipid control, the management of hypertension and the identification and management of diabetic complications.

Pharmacists are increasingly becoming active members of the primary healthcare team. The new pharmaceutical services contract includes familiar essential services, such as dispensing, signposting and sharps disposal. However, an increasing number of pharmacists are likely to offer additional and enhanced services, which could include full clinical medicines review, diabetes and CHD screening, smoking cessation and care home services. For further information on the role of the pharmacist in diabetes care, see the joint Royal Pharmaceutical Society of Great Britain/Diabetes UK guidance documents at www.rpsgb.org.uk

The primary healthcare team should be supported by additional personnel, including consultant diabetologists, diabetes specialist nurses, as well as by the provision of a retinal screening programme.

Members of the primary healthcare team involved in the provision of diabetes care need to be trained in:

- **communication** – including the ability to communicate with other members of the primary healthcare team, specialist care colleagues and colleagues working in other agencies, as well as with people with diabetes and their carers. Staff should also be skilled in behavioural change counselling and have the skills necessary to motivate change and to negotiate and agree goals
- **the provision of education, information and support** – including the ability to impart the necessary knowledge, motivation and self-care skills to enable people with diabetes to take responsibility for their own healthcare, and an understanding of the emotional and social problems likely to be faced by people with diabetes
- **diagnosis and examination** – including the identification of the complications of diabetes
- **clinical management** – including the management of diabetes and its complications, associated conditions, cardiovascular risk factors and care planning skills
- **record keeping and administration** – including the maintenance of personal diabetes records, a diabetes register and a call/recall system.

Sufficient time should be allocated and funding provided to enable all members of the primary health care team to attend relevant recognised courses on the management of diabetes. Continuing education and training are essential. A list of diabetes courses is available from www.diabetes.org.uk/conferences

6. Provision of integrated diabetes services

The planning and provision of local diabetes services requires the cooperation of many different professionals and the close involvement of people with diabetes in order to ensure the delivery of seamless diabetes services that meet the standards of care that people with diabetes expect.

Key requirements for ensuring the effective planning and delivery of diabetes services include:

1. Coordinated planning

A shared vision for the future provision of local diabetes services should be developed with all stakeholders – this should address the prevention of diabetes, as well as the treatment and care of people with diabetes. A local diabetes strategy and implementation plan should be agreed, which sets out the aims and objectives for local services and clear plans for delivering this vision over a specified period of time, including the necessary resources. Such a plan should reflect the needs of the local population and an assessment of the scope and quality of the existing local services – the development of the plan should be informed by the views and experiences of people with diabetes.

2. Effective delivery

The roles and responsibilities of all agencies involved in the delivery of local diabetes services should be agreed – particular attention should be paid to the organisation of a retinal screening service coordinated across the whole healthcare system in line with the recommendations of the National Screening Committee. Further information for all four nations can be found via www.nscretinopathy.org.uk

3. Leadership and team working

Strong leadership for the delivery and organisation of services and the championing of the needs of people with diabetes are essential. This should be supported through the appointment of adequately resourced clinical champions, user champions and network managers. The involvement of people with diabetes should extend beyond the appointment of a single diabetes champion. Ideally, a variety of interests should be represented, including people from black and minority ethnic communities.

4. Monitoring

A system should be in place for aggregating at a whole systems level data collected by practices on individual patients – this should comply with confidentiality and data sharing policies. This should include clinical outcomes data as well as data on the process of care. Such a system will support the requirements of the Quality and Outcomes Framework as well as providing a mechanism for monitoring the local implementation of the national diabetes frameworks.

Planning mechanisms across the nations

Since the publication of the national diabetes frameworks, the organisations responsible at local level for commissioning healthcare have been establishing mechanisms to coordinate the effective planning of local diabetes services. The result has been a new emphasis on the development of local diabetes networks to shape policy and practice and enable the provision of high quality, integrated local diabetes services across multiple providers and communities.

Emphasis has been placed upon user involvement in all aspects of diabetes service planning and local planning mechanisms should offer people with diabetes opportunities to get involved in improving the quality of local diabetes services.

In England, responsibility for ensuring local health service provision lies with primary care trusts (PCTs). The National Service Framework for Diabetes: Delivery Strategy recommends an integrated approach to the planning of local diabetes services. This includes:

- a focus on the development of managed diabetes networks
- the reshaping and strengthening of the role of advisory groups as the link between the diabetes networks and PCTs, with accountability for decision-making
- the appointment of diabetes champions and network managers in each PCT.

In Wales, responsibility for local health service provision lies with local health boards, which have the same boundaries as local authorities. The National Service Framework for Diabetes in Wales: Delivery Strategy recommends an integrated approach to local planning, drawing on the Welsh national health strategy Improving Health in Wales. This includes:

- developing the role of local diabetes service advisory groups (LDSAGs) as the mechanism for NSF implementation – or, where LDSAGs do not currently exist, setting up new multi-stakeholder groups
- the creation of separate user reference groups of people with diabetes, one to relate to each LDSAG.

In Scotland, responsibility for local health service provision lies with regional NHS boards. The Scottish Diabetes Framework sets out local planning arrangements. These include:

- the identification of local clinical leaders to champion the provision of integrated diabetes services
- the appointment of local 'diabetes coordinators' to improve communication among local diabetes stakeholders, especially between primary and secondary care professionals
- the retention (or creation) of local diabetes service advisory groups with a stronger role in driving change in diabetes services at regional level
- the establishment of managed clinical networks in all regions by September 2004.

In Northern Ireland, responsibility for local health services and local social services lies with health and social care boards. The Diabetes UK/CREST report on diabetes outlines the importance of lead consultants and GPs working closely together to ensure full integration of diabetes services between primary and secondary care. The report recommends the identification of regional project managers to lead the initiatives on integrated care, eye screening and diabetes registers and information. The report also outlines the following standards for integrated diabetes care:

- there should be agreed guidelines (including indications for referral to hospital) for primary and secondary care
- services should be coordinated between primary and secondary care
- all people with diabetes should have an annual review with a structured format
- the annual review is for screening, prevention and treatment of complications
- management goals are agreed between the person with diabetes and the diabetes team at the annual review
- people with diabetes should be able to contact the diabetes team at any time for advice either in person or by phone
- education and information is an integral part of diabetes care
- people with diabetes can choose to manage their own care in hospital if they are well enough to do so
- all service providers receive regular education and updating on developments in diabetes care.

Local planning mechanisms

Every part of the UK has its own history of planning diabetes services and the different national frameworks perpetuate these differences. Consequently, local planning arrangements for diabetes are varied and many are still provisional. These arrangements deliberately cut across organisational boundaries in order to overcome the traditional barriers that historically have prevented organisations and professionals working together. The perspective of people with diabetes, for whom organisational distinctions are irrelevant, is essential in developing this model of integrated planning.

Although the recommended mechanisms for planning local diabetes services vary from nation to nation, they all share the following common features:

- a core planning and/or implementation group, which brings together the diverse stakeholders involved in the commissioning and delivery of local diabetes services, including people with diabetes – in some areas LDSAGs have remained and their role strengthened, whereas, in other areas, new groups with decision-making powers have been set up, variously referred to as local diabetes implementation groups, local diabetes planning groups or network boards.
- a wider network of professionals involved in the day-to-day delivery of local diabetes services, which must be involved in decisions taken by the core planning group about the future delivery of services and is also responsible for professional development and quality improvement in the local area – this is sometimes referred to as a ‘managed clinical or diabetes network’ because it is led by clinicians; in some areas, the core planning group and the clinical network are not separate entities and, in other areas, the network has a core planning group that in turn reports to a smaller executive network board.
- accountability through the local body responsible for commissioning local diabetes services.

7. Improving the quality of diabetes care

As part of a programme of continuous quality improvement, there should be ongoing clinical audit of the quality of practice-based diabetes services.

The accumulation of anonymised data across the whole system of care can enable the evaluation of the effectiveness of diabetes services in improving the health of people with diabetes. In order to monitor long-term and short-term progress against national standards, it is important to monitor:

- the prevalence of diabetes
- the process of care
- the prevalence of cardiovascular risk factors and other markers of late complications
- acute and intermediate outcomes of care
- outcomes with long time scales.

Many of these indicators are included within the new GMS Quality and Outcomes Framework.

New systems are developing to enable practices to monitor care at a practice level. If data collected at practice level are to be aggregated at a higher, whole system level, it is important to ensure the standardisation of data collection. This will also support practices to fulfil the requirements of the Quality and Outcomes Framework.

Furthermore national support programmes are being developed to support national and local audit of diabetes care through the National Clinical Audit Support Programme in England, and Diabetes E self-assessment programme for England. In Northern Ireland the joint Diabetes UK/CREST Report on Diabetes recommends CREST's current practice of including a clinical audit model with each of its reports in order to facilitate monitoring and evaluation of progress on implementation. The Report also states that in using such an audit methodology progress on the development of the Diabetes Service Framework throughout Northern Ireland needs to be closely monitored over the next three years. In Wales the Audit Commission for Wales is leading on this work while, in Scotland, the NHS Quality Improvement Scotland (NHS QIS) and the annual Scottish Diabetes Survey are the national programmes.

It is also recommended that the views and experiences of people with diabetes are regularly assessed. The results of any local audits and surveys should be published and used as the basis for improving services.

Suggested indicators for auditing the quality of diabetes care are set out in **Appendix 12**.

Appendix 1: National Standards for Diabetes

England and Wales: The National Service Framework for Diabetes

1. The NHS will develop, implement and monitor strategies to reduce the risk of developing Type 2 diabetes in the population as a whole and to reduce the inequalities in the risk of developing Type 2 diabetes.
2. The NHS will develop, implement and monitor strategies to identify people who do not know they have diabetes.
3. All people with diabetes will receive a service, which encourages partnership in decision-making, supports them in managing their diabetes and helps them to adopt and maintain a healthy lifestyle. This will be reflected in an agreed and shared care plan in an appropriate format and language. Where appropriate, parents and carers should be fully engaged in this process.
4. All adults with diabetes will receive high-quality care throughout their lifetime, including support to optimise the control of their blood glucose, blood pressure and other risk factors for developing the complications of diabetes.
5. All children and young people with diabetes will receive consistently high-quality care and they, with their families and others involved in their day-to-day care, will be supported to optimise the control of their glucose and their physical, psychological, intellectual, educational and social development.
6. All young people with diabetes will experience a smooth transition of care from paediatric diabetes services to adult diabetes services, whether hospital or community based, either directly or via a young people's clinic. The transition will be organised in partnership with each individual and at an age appropriate to and agreed with them.
7. The NHS will develop, implement and monitor agreed protocols for rapid and effective treatment of diabetic emergencies by appropriately trained health professionals. Protocols will include the management of acute complications and procedures to minimise the risk of recurrence.
8. All children, young people and adults with diabetes admitted to hospital, for whatever reason, will receive effective care for their diabetes. Wherever possible, they will continue to be involved in decisions concerning the management of their diabetes.
9. The NHS will develop, implement and monitor policies that seek to empower and support women with pre-existing diabetes and those who develop diabetes during pregnancy to optimise the outcomes of their pregnancy.
10. All young people and adults with diabetes will receive regular surveillance for the long-term complications of diabetes.
11. The NHS will develop, implement and monitor agreed protocols and systems of care to ensure that all people who develop long-term complications of diabetes receive timely, appropriate and effective investigation and treatment to reduce the risk of disability and premature death.
12. All people with diabetes requiring multi-agency support will receive integrated health and social care.

Scottish Diabetes Framework: Standards

1. Shared vision/clear strategy for diabetes services
2. Patient-focused care
3. High quality care
4. Integrated care
5. Adequate resources
6. Well-trained staff.

Through the implementation of the Scottish Diabetes Framework and agreed national standards for diabetes care, people with diabetes and their families can expect that the local NHS will have a strategy and implementation plan for diabetes services that covers; diagnosis, screening for complications, treatment and care, individualised plan of their care, access to information and education, and an annual review looking at clinical and lifestyle/wellbeing issues.

The establishment of managed clinical networks in each Health Board area in Scotland is designed to ensure the delivery of integrated care across hospital-based and community-based settings. A national IT system to support all aspects of diabetes care is currently being rolled out across Scotland to help support integration.

Northern Ireland: Underlying principles for diabetes services

1. People with diabetes should be involved in planning services for diabetes and should be involved in decisions about their care.
2. All people with diabetes should have access to high quality comprehensive care including education and information.
3. An information infrastructure should support the delivery of diabetes care.
4. Structured programmes of diabetes care should be delivered in primary and secondary care that reflect evidence-based practice.
5. Care should be delivered by professionals with appropriate training and skills.
6. Equivalent standards of care should be achieved in primary and secondary care with appropriate referral to secondary care when complications or problems arise.
7. Diabetes services and clinical standards of care should be subject to regular audit and evaluation.
8. The patient with diabetes should be enabled to live as healthy and normal a life as possible through regular (annual) review and appropriate treatment.
9. Vulnerable groups should receive targeted support and services. Vulnerable groups include those living in nursing/residential accommodation, black and minority ethnic groups, travellers, people with mental ill health and learning difficulties, the homeless, asylum seekers and children and adolescents. The role of carers and support for carers is particularly important. Pregnant women with diabetes should be considered as a vulnerable group.
10. Partnership between people with diabetes service providers and policy makers should be central to the development of diabetes care.

Appendix 2: Prevention of Type 2 diabetes

Although it is not yet possible to prevent Type 1 diabetes, there is increasing evidence to suggest that it is possible to prevent Type 2 diabetes – or at least delay its onset – by preventing obesity and promoting physical activity.¹³ The risk of developing diabetes increases as body mass index increases – diabetes is approximately three times more common in people who have gained around 10kg in weight during adulthood than in those who maintain their weight.

There are two complementary approaches to reducing the incidence of Type 2 diabetes in the population:

- the 'population approach', the aim of which is to reduce the average level of risk for developing diabetes across the whole population
- the 'high-risk approach', which aims to identify those at increased risk of developing diabetes and offering them appropriate advice on how to reduce the risk.

At a population level, the interventions required to reduce the incidence of Type 2 diabetes include:

- increasing physical activity levels
- promoting healthy eating
- preventing and reducing overweight and obesity.

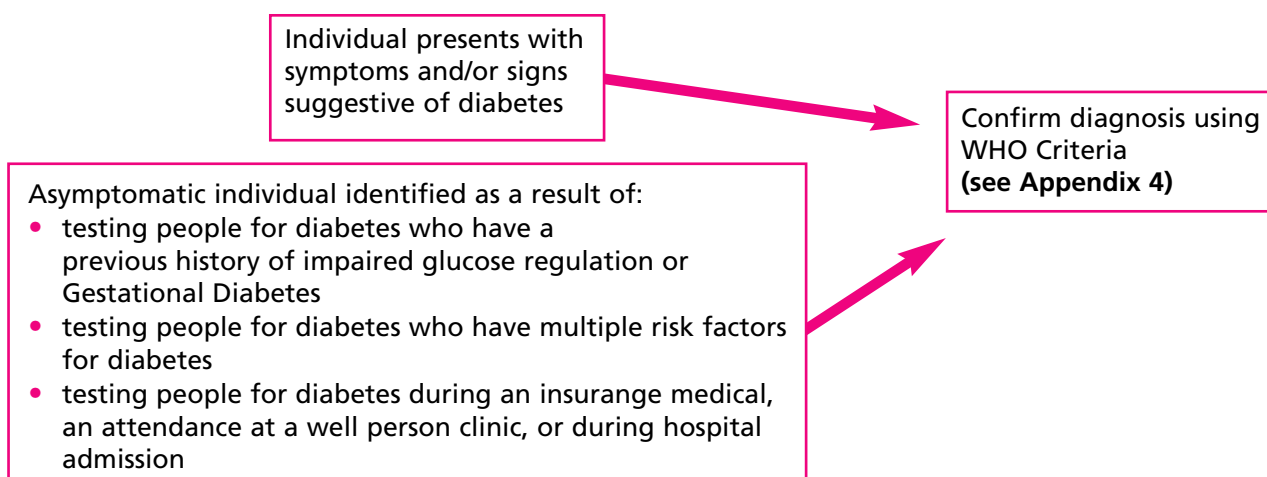
Current guidelines recommend that adults undertake at least 30 minutes of moderate intensity activity (such as brisk walking, cycling, sport or heavy housework) on at least five days each week.¹⁴ Activity can be undertaken as bouts of 10 minutes duration and accumulated over the day. This allows for the promotion of activity throughout the day through sport, exercise, walking, cycling or play.

All adults and children aged over five years should be encouraged to eat a diet, which is lower in fat and includes complex carbohydrates and plenty of fruit and vegetables.¹⁵

Individuals at increased risk of developing diabetes (people known to have impaired glucose regulation, family history and women with a past history of gestational diabetes) should be advised on how they can reduce this risk and supported to lose weight and increase their physical activity levels.¹⁶

People with multiple risk factors for developing diabetes should also be given advice and support opportunistically to reduce their risk of developing diabetes.

Appendix 3: Identification of people with diabetes



Adapted from National Service Framework for Diabetes: Supplementary Information. Department of Health, 2002

Identifying people who have symptoms and/or signs of diabetes

Many people with diabetes will be diagnosed only if professionals remain alert to the possibility that they may have diabetes. All health professionals should therefore be constantly alert to the possibility of a diagnosis of diabetes – active case finding.

Symptoms and signs of diabetes

Symptoms

- increased thirst
- passing a lot of urine, especially at night (may lead to bedwetting in children and incontinence in older people)
- extreme tiredness and lethargy
- weight loss despite increased appetite
- genital itching
- itchy skin rash or slow healing wounds
- discomfort or pain on passing urine
- blurred vision
- tingling, pain and numbness in feet, legs or hands
- sore or burning mouth

Signs

- persistent or recurrent infections, such as skin infections, oral or genital thrush, mouth ulcers and urinary tract infections
- cataracts
- signs of microvascular complications, such as diabetic retinopathy detected by an optometrist during a routine eye check; foot ulcers; loss of sensation in the lower limbs; or impotence (erectile dysfunction)
- signs of cardiovascular disease, such as: high blood pressure; manifestations of dyslipidaemia (abnormal blood lipids), such as xanthelasmata (fatty deposits in the eyelids); absent foot pulses

People presenting with symptoms and/or signs suggestive of diabetes should be offered diagnostic testing in line with the World Health Organisation (WHO) recommendations (see Appendix 4).

Identifying asymptomatic people with diabetes

The following groups of people should be followed up and offered regular testing for diabetes:

- people who have previously been found to have impaired glucose regulation (impaired glucose tolerance and/or impaired fasting glycaemia)
- women who have had gestational diabetes and have tested normal following delivery – they should be tested at 1 year post-partum and then three-yearly

The fact that people may have undiagnosed Type 2 diabetes for many years and some may already have developed complications of diabetes by the time they are diagnosed¹⁷, suggests that early detection of people with Type 2 diabetes by screening may have the potential to improve long-term health outcomes and quality of life for affected individuals.

The possibility of a diagnosis of diabetes should be considered in people presenting to a health professional who have multiple risks for developing diabetes, such as overweight or obesity, particularly central obesity, and a family history of diabetes. People with multiple risk factors for developing diabetes who test negative should be advised and supported to reduce these risks and informed about the early symptoms and signs of diabetes.

People at increased risk of developing diabetes

- people who have previously been found to have impaired glucose regulation (impaired glucose tolerance and/or impaired fasting glycaemia)¹⁶
- women who have had gestational diabetes and have tested normal following delivery¹⁸
- white people aged over 40 years and people from Black, Asian and minority ethnic groups aged over 25 years who:
 - have a first degree relative with diabetes; and/or
 - are overweight (BMI > 25kg/m²); and have a sedentary lifestyle; and/or
 - have ischaemic heart disease, cerebrovascular disease, peripheral vascular disease or hypertension¹⁹
- women with polycystic ovary syndrome who are obese.²⁰

Opportunistic screening of people with multiple risk factors for diabetes will identify some people who do not know that they have the condition, but a strong case can now be made for also introducing a more systematic approach to offering screening to those with multiple risk factors for diabetes. The National Screening Committee (NSC) has advised that there is no evidence that it would be either clinically or cost effective to establish a population-wide screening programme. However, there is emerging evidence to suggest that it may be clinically and cost effective to offer screening to specific sub-groups of the population who have multiple risk factors for diabetes and further research is now being undertaken to establish who should be offered screening, which screening test should be used and the optimum screening interval.²¹ Pending the outcome of this research, Diabetes UK has issued guidance on who should be screened and how often and which screening tests should be used.

Diabetes UK recommends that people with two or more of the risk factors for diabetes (obesity, age, family history, Asian/African racial origin, etc) should be offered screening for diabetes every three years and that the most appropriate screening methods are:

- venous fasting plasma glucose assay, although this will miss 20-30 per cent cases; OR
- venous plasma glucose assay two hours after a glucose load.

Postprandial urinalysis for glycosuria is less sensitive and is not strongly recommended, but may have a place where other methods are not practicable.

If the screening test is regarded to be positive, the person should be given written details of the nature of the screening procedure and the precise result of the test. These should be available in a range of languages and formats. They should be told that the test has indicated a possible rise in blood glucose which needs further checking and should be reassured as far as possible. They should be advised not to make any changes in diet or drug therapy, but to make a routine appointment with their GP within the next four weeks (an earlier appointment should be recommended if the person is symptomatic). The GP should confirm the diagnosis by a formal glucose assay performed in a reputable laboratory. No therapy should be instigated until a final diagnosis in line with the World Health Organisation (WHO) criteria has been established.

If the screening test is negative and the person has no symptoms of diabetes, they should be given advice on how to reduce their risk of going on to develop diabetes and supported to lose weight and increase their physical activity levels. They should also be reviewed at agreed intervals.

However, if the person has symptoms or signs suggestive of diabetes or its complications they should be asked to seek advice from their GP, who should be informed of the screening test result and told that diabetes has not been excluded.

Appendix 4: How diabetes is diagnosed

In 1999, the World Health Organisation (WHO) announced new criteria for the definition, diagnosis and classification of diabetes and its complications. Diabetes UK endorses these criteria.²²

A diagnosis of diabetes has important legal and medical implications and it is therefore essential to be secure in the diagnosis. A diagnosis of diabetes must be confirmed by a glucose measurement performed in an accredited laboratory on a venous plasma sample. The WHO recommends that a diagnosis should never be made on the basis of glycosuria (glucose detectable in the urine) or a stick reading of a fingerprick blood glucose alone – although such tests may be useful for screening. HbA_{1c} measurement is also not currently recommended for the diagnosis of diabetes.

In people who have symptoms and/or signs of diabetes, a diagnosis of diabetes can be confirmed by:

- a random venous plasma glucose concentration ≥ 11.1 mmol/l; or
- a fasting venous plasma glucose concentration ≥ 7.0 mmol/l (whole blood ≥ 6.1 mmol/l); or
- a, two hour venous plasma glucose concentration ≥ 11.1 mmol/l 2 hours after 75g anhydrous glucose in an oral glucose tolerance test.

In order to confirm a diagnosis of diabetes in people who do not have symptoms or signs of diabetes, at least two blood glucose tests must be performed on different days, the results of which must both be in the diabetic range – a diagnosis of diabetes cannot be based on a single blood glucose determination alone. The repeat test can either be performed on a fasting blood sample or on a random blood sample. If the result of the second test is not diagnostic, an oral glucose tolerance test should be performed.

Some people are found to have blood glucose levels which are above the normal range but are not in the diabetic range, ie they have difficulty maintaining their blood glucose levels within the normal range but are able to maintain their blood glucose levels below the diabetic range. People with impaired glucose regulation have a greatly increased risk of developing diabetes and cardiovascular disease. The WHO has now defined two categories of impaired glucose regulation:

- impaired glucose tolerance (IGT), defined as a fasting venous plasma glucose < 7.0 mmol/l with an oral glucose tolerance (OGTT) test two hour value ≥ 7.8 mmol/l but < 11.1 mmol/l)
- impaired fasting glycaemia (IFG), has been introduced to classify individuals who have fasting glucose values above the normal range but below those diagnostic of diabetes. (Fasting venous plasma glucose ≥ 6.1 mmol/l but < 7.0 mmol/l). Such individuals should have an oral glucose tolerance test to exclude a diagnosis of diabetes.

Appendix 5: Initial assessment of people with newly diagnosed diabetes

People with newly diagnosed diabetes should be assessed at presentation to determine whether they need to be referred to a specialist service.

Children and young people presenting with signs and/or symptoms suggestive of diabetes should always be referred urgently on the same day by telephone to a specialist paediatric team experienced in the management of childhood diabetes (or by fax/email where fax/email referral systems are in place) for admission to hospital for initiation of insulin therapy.

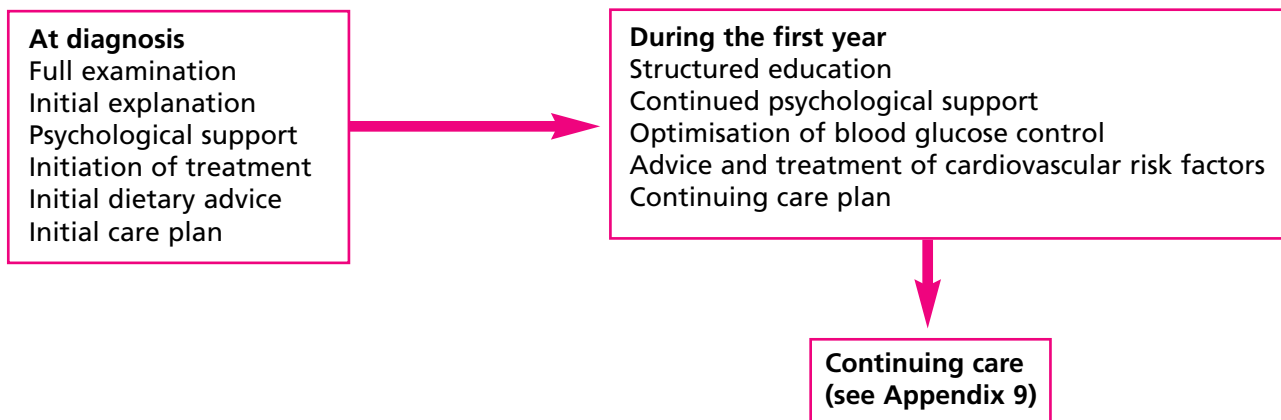
Adults who are clearly unwell, and/or who have ketones in their urine, and/or who have a blood glucose level >25.0 mmol/l, should also be referred urgently on the same day by telephone to a specialist diabetes team (or by fax/email where fax/email referral systems are in place). Those who present with diabetic ketoacidosis (DKA) or diabetic hyperosmolar non-ketotic syndrome (HONK) will require immediate treatment in hospital to correct these abnormal metabolic states.

Young adults (aged under 30 years) should also be referred to a specialist diabetes team. The majority will require insulin therapy, the initiation of which can usually be undertaken on an outpatient basis, although some young adults will also require urgent specialist care.

People with newly presenting diabetes not included in the above categories may be managed within primary care.

Appendix 6: Initial care of people with diabetes

Suggested guidelines for the initial care of people with newly diagnosed diabetes are set out below – the tasks performed and those responsible will vary according to local circumstances.



Source: *National Service Framework for Diabetes: Supplementary Information. Department of Health. 2002*

Initial explanation of diabetes and provision of psychological support

Once the diagnosis of diabetes has been confirmed, the nature of the condition and its management should be sensitively explained in a way that is tailored to the emotional and psychological state of the person and takes account of their social and cultural background. Further information about the provision of education about diabetes is given in **Appendix 7**.

All people with newly diagnosed diabetes should be offered the opportunity to share any initial anxieties and concerns about the diagnosis and the implications for their future lifestyle. The possible effects of diabetes on occupation, driving and insurance should be discussed – if the person concerned is a driver, they should be advised to inform the DVLA and their car insurance company. They should also be advised that they are exempt from prescription charges if started on medication for their diabetes.

Information about diabetes and its management in the form of leaflets, audiocassettes and/or videocassettes, in an appropriate language, should be provided for the patient to take away. It is recommended that this should include written information about Diabetes UK and details of the local Diabetes UK voluntary group. For further information contact Customer Services on 020 7424 1010 or email customerservice@diabetes.org.uk

The psychological impact of the diagnosis should be assessed and any sources of immediate support (eg family/carers/friends) identified. Additional support should be provided as and when necessary.

Clinical examination and investigations

A clinical examination and investigations should be undertaken to:

- exclude any underlying causes of diabetes requiring specific treatment
- identify any long-term complications of diabetes already present
- assess cardiovascular risk
- identify other conditions which may be associated with diabetes such as other endocrine conditions.

Initial treatment and care

Treatment should be discussed with the patient and commenced as soon as possible.

- Insulin therapy should be started immediately in those who are ill at presentation or who have a high level of ketones in their urine. Insulin should also be considered, regardless of age, if one or more of the following are present; severe symptoms, acute onset, marked weight loss, a first degree relative has Type 1 diabetes.
- People aged <40 with diabetes who are asymptomatic and who are overweight (BMI 25-30kg/m²) or obese (BMI>30kg/m²) should be advised to increase their physical activity levels, adopt a balanced diet and aim to reduce their calorie intake. Insulin should be considered in those who are not obese.
- People aged >40 with diabetes who are asymptomatic should initially be treated with diet, weight control and increased physical activity. They should be advised to increase their physical activity levels, adopt a balanced diet and, if they are overweight or obese, aim to reduce their calorie intake. If blood glucose control is not achieved within three months, treatment with oral hypoglycaemic agents should be commenced. Insulin treatment should be considered if blood glucose control is not achieved with diet, increased physical activity and combined drug therapy.

The majority of people with newly diagnosed diabetes will also need to make some changes to their eating habits. All should therefore receive culturally appropriate dietary advice. This should include advice on the distribution of meals in order to ensure a regular intake of carbohydrate across the day and the need to restrict the intake of fat, particularly saturated fat, and sugar. Those who are overweight or obese should be advised and supported to adopt a balanced diet as well as aiming to reduce their calorie intake. Further information on the provision of dietary advice is given in **Appendix 8**.

All people with diabetes should also be advised of the benefits of increasing their physical activity levels.

All people with diabetes should be advised of the adverse effects of smoking and, where required, offered advice on how to stop smoking and support to enable them to stop, including access to smoking cessation services. They should also be offered advice and treatment for any other cardiovascular risk factors.

The initial care plan should be discussed and agreed with the person with newly diagnosed diabetes and a named contact identified who will be responsible for providing support and information. The date of the next appointment should be agreed – regular reviews will initially be required.

Appendix 7: Structured diabetes education

Effective self-care is key to good diabetes care and the provision of education for people with diabetes should be at the heart of diabetes care – the task of the healthcare professional is to develop a working alliance with the person with diabetes to enhance and support their capacity to self-care.

Components of diabetes self-care

Lifestyle

- eating a balanced diet and other changes in eating habits, such as the timing of meals
- regular physical activity
- maintaining a healthy weight
- not smoking.

Self-monitoring

- blood glucose self-monitoring and/or monitoring urine for glucose
- monitoring for symptoms of hypoglycaemia and hyperglycaemia
- monitoring for signs of long-term complications, eg undertaking regular foot checks.

Concordance with medication

- insulin (frequency and dose adjustment)
- oral hypoglycaemic agents
- other medication, such as antihypertensive drugs and lipid lowering drugs.

Diabetes education should be a planned life-long process, starting from the point of diagnosis and remaining as an essential component of diabetes care thereafter. Family members, partners and carers should be included in the education process, as appropriate. The nature and level of information provided, as well as the timing of when this is provided, will ultimately be determined by the assessed needs of the individual and the format of the educational intervention. Oral and written information about diabetes and its management should be provided in appropriate languages and media at each point of the care pathway as part of a structured education programme, meeting nationally agreed criteria.

Immediately after diagnosis, people with diabetes should be offered an explanation of diabetes and its management on a one-to-one basis. Opportunities should be made for the individual to explore their perceptions of its impact on their life and the implications of self-management for their current lifestyle and circumstances, and the immediate problems they envisage the treatment regime might pose. During the next few months after diagnosis, all people with newly diagnosed diabetes should receive more detailed information and education about diabetes and its management.

A tailored programme should be offered that introduces the concepts one by one at a pace agreed with the individual. Structured education should be incorporated at each point of the care pathway in a way that encourages discussion, participation and feedback with the person with diabetes. People with diabetes should be offered the opportunity to participate in group education sessions – there are also innovative techniques involving distance learning or multimedia packages. The appropriate format should be determined by patients' needs and choices.

Goals and strategies should be negotiated and set out in an agreed care plan – the person with diabetes should be an equal partner in determining appropriate actions to modify behaviour. The care plan should be a living document, renegotiated at each stage of the care pathway. The care plan should also include the results of tests, which should be clearly explained to the person with diabetes. People should have ready access to their health records.

Topics to be covered in education programme for people with diabetes

Nature of diabetes

- significance and implications of a diagnosis of diabetes; the impact of diabetes
- aims and different types of treatment
- relationship between blood glucose levels, dietary intake and physical activity
- short- and long-term consequences of poorly controlled diabetes
- nature and prevention of long-term complications
- importance of annual surveillance for complications.

Day-to-day management of diabetes

- importance of a healthy lifestyle, especially physical activity, a balanced diet and not smoking
- importance of self-management
- self-monitoring – glucose monitoring or urine testing
- interpreting the results of self-monitoring and tests of long-term blood glucose control
- adjusting insulin dosage (for those on insulin)
- importance of systematically using different injection sites (for those on insulin)
- storage of insulin; disposal of sharps
- importance of regular foot care, choice of footwear, foot hygiene, the role of podiatry
- importance of oral hygiene and regular dental check-ups.

Specific issues

- hypoglycaemia (for those on insulin or hypoglycaemic agents): warning signs, likely causes, role of alcohol, the need to have rapidly absorbable carbohydrate available and the particular care required if undertaking high-risk activities, such as driving or working with dangerous machinery
- other illness – ‘sick day’ rules must be given to all people with diabetes; (see box opposite)
- immunisations, such as for flu or pneumococcal pneumonia, should be offered to all people with diabetes
- pre-conception advice (for women of childbearing age) – the importance of excellent control at the time of conception as well as during pregnancy
- importance of regular eye examinations – both visual acuity and fundal examination.

(continued)

Living with diabetes

- importance of carrying personal identification, such as Medic-Alert, and a warning card including the name, contact address and telephone number of a person who can help them
- driving: notification of the DVLA and insurance company and the importance of avoiding hypoglycaemia while driving
- holidays
- implications of diabetes for employment, life insurance and travel insurance
- implications for education: liaison with nurseries and schools about children and young people with diabetes is essential.
- making best use of healthcare services: what care to expect; when to contact local services for what; how to get more information (NB people with diabetes are entitled to receive an annual free eye examination by an optometrist/ophthalmic medical practitioner; those receiving treatment with either tablets or insulin are exempt from paying prescription charges)
- accessing benefits, such as the Disability Living Allowance for children with Type 1 diabetes, if applicable
- contacting other people with diabetes
- information about Diabetes UK and local support groups.

'Sick day' rules

- importance of continuing to take insulin or tablets – infact they may need to increase the dose
- testing urine or blood for glucose at least four times a day
- if on insulin, testing urine for ketones
- drinking plenty of liquids
- if not well enough to eat, replacing normal meals with carbohydrate-containing drinks
- contacting GP if in any way unsure about what to do, especially if being violently sick.

For further information see Diabetes UK's care recommendation on education at www.diabetes.org.uk/good_practice/education/recommend.htm and the National Diabetes Support Team's criteria for provision of structured diabetes education programmes at www.cgsupport.nhs.uk/diabetes/structured_education.asp

Appendix 8: Dietary care planning and diabetes

Diabetes UK recommends that all people with newly diagnosed diabetes should be assessed by a registered dietitian, who will provide a tailored and individualised dietary care plan based on the latest evidence of effectiveness.

Dietary and lifestyle support for people with diabetes

Issues that should be addressed include the need for people with diabetes to:

- eat regular meals planned around wholegrain, starchy foods, such as bread, chapattis, potatoes, yam, plantain, rice, pasta, dahl, and wholegrain cereals
- eat at least five portions of fruit and vegetables each day
- reduce calorie intake if overweight or obese and increase physical activity
- achieve and maintain a healthy weight
- reduce dietary intake of fat, particularly saturated fat
- reduce sucrose intake
- aim to include more foods with a low Glycaemic Index
- reduce dietary salt intake
- drink alcohol in moderation (<14 units per week for women and <21 units per week for men*) – excess alcohol can cause weight gain, high blood pressure, dyslipidaemia and, in those taking sulphonylurea drugs or insulin, can make hypoglycaemia more severe; if alcohol is consumed, this should be with or after food. Alcohol also can mask hypo awareness symptoms
- be advised that special diabetic foods are not necessary – they can be expensive and are often high in fat and calories.

People taking hypoglycaemic drugs and insulin will need further advice on dietary management to balance their food intake and physical activity levels with their medication.

Dietary changes need to be agreed at a pace suited to the individual – monthly follow up appointments are recommended in the initial stages after diagnosis or at times of transition, such as when medication is changed.

People with diabetes who present with possible eating disorders (eg bingeing etc) should be referred to a clinical psychologist and dietitian for a joint programme of care.

Reducing cardiovascular risk

The following dietary changes particularly aim to reduce the risk of heart disease:

- choose mono-unsaturated fat – found in olive oil, rapeseed oil and groundnut oil
- aim to eat two portions of oil-rich fish each week to boost intakes of omega 3 oils or, for strict vegetarians, alternative sources include flaxseed oil, rapeseed oil, walnuts and tofu.
- reduce dietary saturated fat – found mainly in animal products, such as meat fat, cheese, butter, ghee and cream
- also limit hydrogenated vegetable oils and trans fatty acids – found in some margarines, biscuits, pastries and processed foods
- moderate intake of polyunsaturated fat, such as sunflower oil/spreads
- include some low fat dairy foods, such as semi-skimmed or skimmed milk and low fat or virtually fat free yoghurts to provide calcium

* A 125ml glass of wine equals 1.5 units of alcohol; half a pint of 3.5% beer equals 1 unit

- eat more fruit and vegetables – aim for at least five helpings per day; fresh, frozen or tinned in natural juice or dried are fine
- eat more pulses, such as beans and lentils
- increase use of fresh foods rather than processed.

Recommended dietary changes for people with hypertension and/or early renal problems

In addition, the following dietary changes are needed to address hypertension and/or early renal problems:

- tackle obesity
- reduce salt intake by not adding it at table, and avoiding obviously salty foods such as crisps, bombay mix, salted nuts, cured meats and fish
- reduce portion sizes of protein foods such as meat, fish, poultry and cheese
- keep alcohol within healthy limits.

Tackling obesity

Measurements of waist circumference provide a useful guide to the need for an individual to lose weight:

A waist circumference ≥ 102 cm in Caucasian men and ≥ 88 cm in Caucasian women and ≥ 90 cm in South Asian men and ≥ 80 cm in South Asian women is associated with a substantially increased health risk.²³

A 10kg weight loss can result in:²⁴

- 30 per cent fall in diabetes related deaths
- 10mmHg reduction in systolic blood pressure
- 20mmHg reduction in diastolic blood pressure
- 50 per cent reduction in fasting glucose in people with newly diagnosed diabetes
- 10 per cent reduction in total cholesterol
- 13 per cent reduction in LDL cholesterol,
- 30 per cent reduction in triglycerides
- 8 per cent increase in HDL cholesterol.

Even if patients are unable to lose weight, it is still worthwhile for them to set a goal to maintain their weight, without weight gain, which can improve diabetes control and reduce their risk of developing heart disease.

When helping a person with diabetes to lose weight

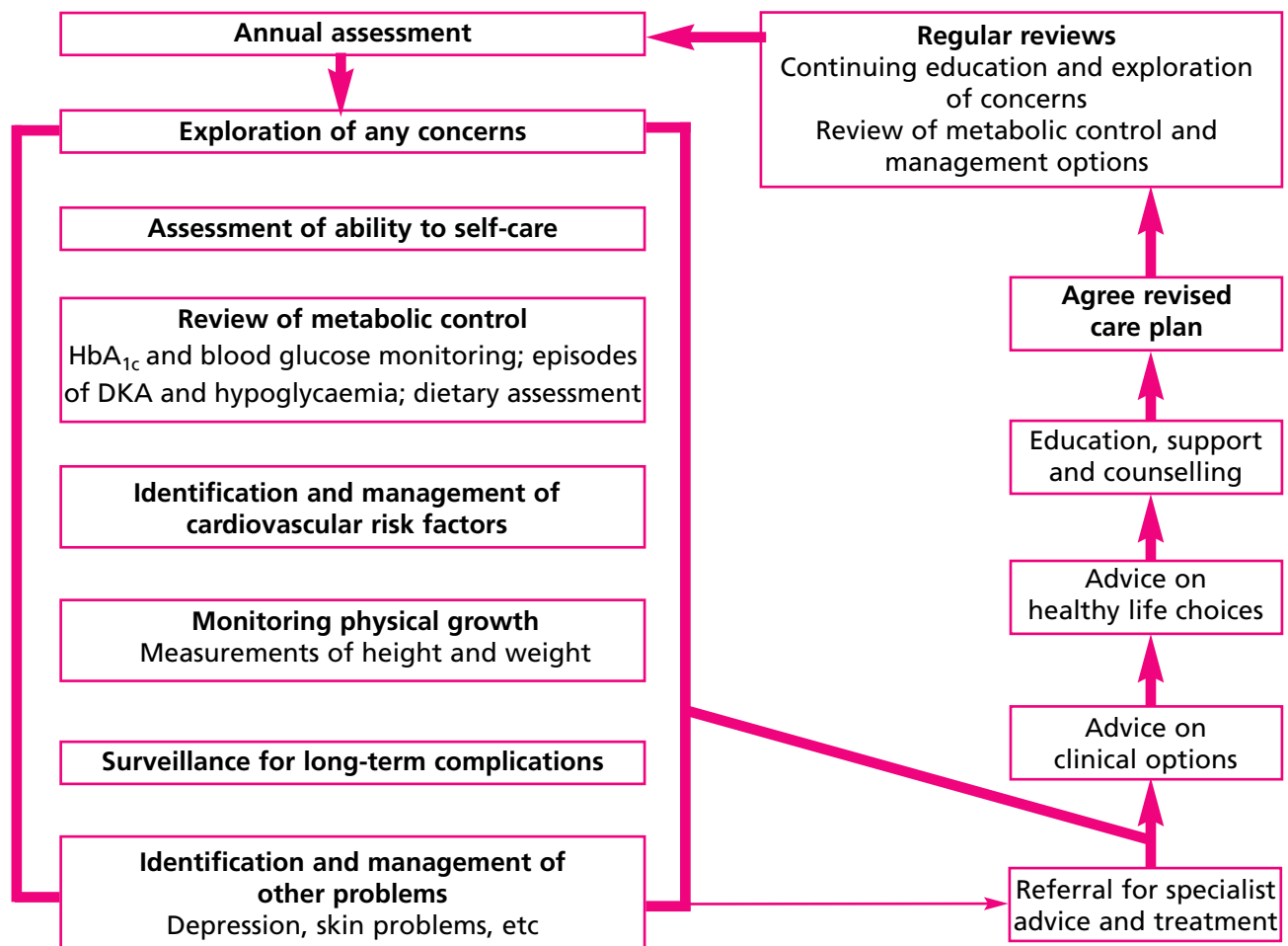
- establish their readiness to make dietary and lifestyle changes and explore behavioural and/or social barriers to change
- agree a realistic weight loss goal – aim for 5-10kg reduction or a reduction of 10 per cent of body weight
- agree dietary changes at a pace suitable to the person with diabetes – this may only be two or three changes, but ensure that there is no risk of hypoglycaemia
- encourage them to start an exercise plan and to aim to undertake moderate physical activity of 30 minutes, every day
- provide regular and ongoing support, to maintain motivation.

Remember that insulin type and dose and medication type and dose may need to be adjusted if carbohydrate intake is reduced and/or exercise is increased.

Additional education topics and written information

- discuss meal serving sizes using a plate model to show proportions of carbohydrate and protein foods – always include vegetables or salad vegetables
- emphasise the importance of replacing fatty puddings or snacks with fruit
- look at snacks and frequency of eating – some people with diabetes may eat additional snacks inappropriately due to their fear of hypoglycaemia
- suggest alternatives to salt, such as spices, lemon juice, herbs, black pepper or vinegars
- explain the benefits of physical activity for the control of weight, blood glucose and blood pressure
- ensure that all information is provided in a linguistically and culturally appropriate manner.

Appendix 9: Continuing care of people with diabetes



Adapted from: National Service Framework for Diabetes: Supplementary Information. Department of Health 2002

Most people with newly diagnosed diabetes feel better within a few weeks of starting treatment, although it may take a few months for good blood glucose control to be established. Health professionals should work in partnership with people who have diabetes to support them in managing their diabetes and to help them to come to terms with their diabetes. They should all be offered the opportunity to participate in a structured education programme – further information about the provision of education about diabetes is given in **Appendix 7**.

People with newly diagnosed diabetes should be reviewed regularly until their blood glucose control has been optimised. Treatment options should be discussed with the patient and those on insulin should have a regime tailored to meet individual needs whilst at the same time optimising blood glucose control. The assessment of blood glucose control is fundamental to the care of people with diabetes. People with diabetes should be supported to achieve the best

possible level of metabolic control, with HbA_{1c} stabilised in the normal range – ideally an HbA_{1c} of less than 7.5 per cent (DCCT-aligned*) – by the end of the first year after diagnosis. However, the risk of hypoglycaemia should also be taken into consideration when agreeing goals for blood glucose control with individuals who have diabetes.

Once the diabetes is stabilised and good blood glucose control has been established, longer-term management targets should be negotiated and agreed for blood glucose control.

Management targets should also be agreed, as soon as possible after diagnosis, for weight, physical activity levels, smoking cessation, blood pressure and blood lipids. These targets should be based on the most recent evidence about the optimum weight, physical activity level, blood pressure and blood lipid levels required to achieve the desired health outcomes, but should also be tailored to the individual, taking account of what it is possible and safe to achieve. Further information is given in **Appendix 10**. People with diabetes should be reviewed at least annually.

All people with diabetes should receive continuing support, including psychological support, for the rest of their lives to enable them to adjust their lifestyle, where required, and to cope with and manage their own diabetes. Those who are not able to undertake certain elements of self-care should receive additional support as necessary.

Blood glucose control should be reviewed regularly, at intervals negotiated between the person with diabetes and those providing their diabetes care, but usually at least once every six months and more frequently in young adults and in those whose control is suboptimal.

All people with diabetes should receive regular surveillance for and management of cardiovascular risk factors. This should take place at least annually in adults with Type 1 and Type 2 diabetes. This assessment should include:

- calculation of body mass index (BMI) and, ideally, measurement of waist circumference (WC) and/or calculation of waist hip ratio (WHR)
- assessment of physical activity levels
- dietary assessment
- review of smoking status
- measurement of blood pressure
- measurement of blood lipids
- for people with Type 2 diabetes, calculation of coronary risk using the UKPDS risk engine (other tables and calculators may underestimate risk by as much as 100 per cent). For people with Type 1 diabetes, no risk engine or table is valid and they should be treated as high risk if microalbuminuria or features of the metabolic syndrome are present.

*HbA_{1c} is a specific type of glycated haemoglobin, formed when glucose present in the blood 'sticks' to the haemoglobin, the protein in red blood cells that transports oxygen throughout the body. The higher the blood glucose levels have been in the previous few weeks, the greater will be the amount of glycated haemoglobin found in the blood. Whereas a blood glucose test can only measure what the blood glucose level is at the moment the test is done, an HbA_{1c} test provides a way of assessing the blood glucose levels over the previous 6–8 weeks. The majority of clinical laboratories in England now use methods for estimating HbA_{1c} that have been aligned to the method used in both the DCCT and the UKPDS. In people who do not have diabetes, 3–6% of their haemoglobin is in the form of HbA_{1c}. The International Federation of Clinical Chemistry (IFCC) has recently developed a new reference method, which measures 'true' HbA_{1c}, and all laboratories will be required to use IFCC standardised methods for all estimating HbA_{1c} at some point yet to be agreed.

People with diabetes who are identified as having hypertension and/or raised low density lipoprotein (LDL) cholesterol and/or triglyceride levels should be offered treatment in line with the latest available evidence. Most people with diabetes will need more than one drug to manage hypertension. There is also increasing evidence to suggest that all people with Type 2 diabetes may benefit from treatment with statins.

Health professionals providing diabetes care should also explain the importance of regular surveillance for the presence of the long-term complications of diabetes, in line with NICE and SIGN guidelines, including:

- diabetic eye complications
- diabetic renal complications
- lower limb complications
- cardiovascular disease.

All children over the age of 12 and adults with diabetes should receive regular eye examinations, which should include:

- a visual acuity check (corrected with glasses or a pinhole)
- a fundal examination for diabetic retinopathy, following dilation of pupils with tropicamide (unless contraindicated) – the National Screening Committee has recommended that digital retinal photography should be used for diabetic eye screening.

As the eye examination may take place at a different time and in a different place from the rest of the annual review, a check should be made during the annual review to ensure that an eye examination has taken place.

People with diabetes should also receive regular surveillance for other conditions that occur more commonly in people with diabetes, such as depression or erectile dysfunction, in order to ensure that those affected are identified and offered appropriate treatment. For example, health professionals need to ensure that people with diabetes feel they can discuss problems with their sex lives, such as erectile dysfunction. They need to be alert to the possibility that a person with diabetes may be suffering from depression, as people with diabetes often attribute loss of enjoyment or energy to their diabetes rather than to depression.

The management of these conditions is generally the same as for people who do not have diabetes. Health professionals caring for people with diabetes should ensure that they receive equitable access to the services they need. For example, antidepressants are the mainstay of treatment for people with depression. Men with erectile dysfunction require multidisciplinary assessment to establish the underlying causes of their problem (eg diabetic neuropathy, vascular disease, psychological problems) and appropriate counselling and treatment. A holistic management plan should be agreed for the management of the particular condition that takes account of the fact that they also have diabetes.

All women of childbearing age considering motherhood should also receive continuing advice about the importance of planning their pregnancies and optimising their blood glucose control before they become pregnant. This will include the provision of advice on contraception.

Appendix 10: Suggested management targets for people with diabetes

The table below sets out the latest recommended desirable targets for metabolic control and the control of other cardiovascular risk factors in people with diabetes. The overall aim should be for metabolic control to be as near to the non-diabetic state as possible, but targets should be tailored to the individual patient, according to what it is possible and safe to achieve – over ambitious targets can be counterproductive. For example, in those with relatively short life expectancy, it may be inappropriate to impose strict management targets where this may impair quality of life. The impact of other cardiovascular risk factors should also be taken into consideration when agreeing targets. It should also be noted that the achievement of good blood glucose control in patients on insulin therapy may be associated with asymptomatic hypoglycaemia and an increased risk of severe hypoglycaemic events.

All targets are based on current NICE guidance apart from those for blood pressure. These are based on Diabetes UK consensus agreement, which will be reviewed in light of future guidance, as will all targets.

	Desirable targets for people with Type 1 diabetes	Desirable targets for people with Type 2 diabetes
HbA_{1c} (DCCT standardized)	≤6.5% (but ≤7.5% for those at risk of severe hypoglycaemia)	
Self-monitored blood glucose (mmol/l)		
Fasting/pre-prandial	5.1 - 6.5 (Whole blood) 5.7 - 7.3 (Plasma)	<5.5 (Whole blood) <6.2 (Plasma)
Post prandial (2 hours after food)	7.6 - 9.0 (Whole blood) 8.5 - 10.1 (Plasma)	<7.5 (Whole blood) <8.4 (Plasma)
Before going to bed	6.0 - 7.5 (Whole blood) 6.7 - 8.4 (Plasma)	
Blood pressure (mmHg)		
Normal albumin excretion rate	<135/85	<140/80
Abnormal albumin excretion rate	<130/80	<135/75
Lipids		
Total cholesterol	<5.0 mmol/l	
LDL cholesterol	<2.6 mmol/l	
HDL cholesterol	≥1.0 mmol/l for men ≥1.2 mmol/l for women	
Triglycerides	≤2.3 mmol/l	
Body Mass Index (kg/m²)	<25.0 for Caucasians <23.0 for those from an Asian background	

Appendix 11: Criteria for referral to specialist services

The precise criteria for referral to specialist services, including the timing and route of referrals, will vary between localities according to the pattern of services available. Referral criteria should be agreed locally and aim to promote the safety of people with diabetes.

Same day referrals

- children and young people with newly diagnosed diabetes
- the majority of adults with newly diagnosed Type 1 diabetes, particularly those who present with ketonuria or protracted vomiting
- people with diabetes who develop infected, necrotic or gangrenous foot ulceration
- people with diabetes who develop a suspected Charcot foot
- all women with pre-existing diabetes (Type 1 and 2) who become pregnant
- women who develop gestational diabetes
- people with diabetes who sustain a sudden loss of vision, pre-retinal or vitreous haemorrhage, or retinal detachment, or who develop rubeosis iridis should be referred to an ophthalmologist.

Priority referrals

- women with either Type 1 or Type 2 diabetes who are contemplating pregnancy
- people with diabetes who develop persistent microalbuminuria
- people with diabetes who develop renal impairment (creatinine >150mmol/l)
- people with diabetes who develop sight threatening retinopathy should be referred to an ophthalmologist
- people with diabetes who develop severely at risk feet should be referred to the local diabetes foot clinic.

Other situations where specialist advice may be required

People with Type 2 diabetes who need to commence insulin therapy will also need to be referred to specialist services in areas where primary care services are not resourced to initiate this.

Specialist advice may be required for people with diabetes who develop:

- recurrent hypoglycaemia
- poor glycaemic control
- hypertension
- dyslipidaemia
- painful neuropathy which is proving difficult to treat
- erectile dysfunction
- amyotrophy
- morbid obesity which requires atypical interventions, eg surgery such as gastric stapling
- psychological problems, if appropriate psychological/counselling services are not available in primary care.

Appendix 12: Suggested indicators for auditing the quality of diabetes care

Process indicators of the quality of diabetes care

Level of ascertainment	Prevalence of diagnosed diabetes, compared to expected prevalence (taking account of the age and ethnic mix of the practice population)*
Annual review coverage	<p>% patients in whom the following have been assessed within last year:</p> <ul style="list-style-type: none"> • body mass index* • dietary management • tobacco consumption* • urinalysis for proteinuria • urinalysis for microalbuminuria* • blood pressure* • HbA_{1c}* • serum lipids* • serum creatinine* • retinopathy screening* • examination of feet*
Patient satisfaction	<p>Measures of patient satisfaction with care,* eg questionnaire surveys recommended by new GMS contract: General Practice Assessment Questionnaire www.gpaq.info The Improving Practice Questionnaire www.ex.ac.uk/cfep/ipq.htm</p>

Continued opposite

* Included within the new GMS Quality and Outcomes Framework

Indicators of the outcome of care

Wellbeing and quality of life	Measures of psychological and physical wellbeing, knowledge of diabetes and selfcare performance – questionnaires have been devised to monitor these measures (see Diabetes UK website)
Glycaemic control	<ul style="list-style-type: none"> • % patients in each treatment group with HbA_{1c} within acceptable range (< 7.4)*
Prevalence of cardiovascular risk factors	<ul style="list-style-type: none"> • % patients who smoke* • % patients with a BMI >25kg/m² • % patients undertaking no regular physical activity • % patients with hypertension* (>140/80)** • % patients with raised cholesterol (>5.0 mmol/l)* • % patients with raised LDL (>2.6mmol/l) • % patients with raised triglycerides (>2.3 mmol/l)
Markers of microvascular complications	<ul style="list-style-type: none"> • % patients with proteinuria/microalbuminuria* • % patients who have had laser treatment for diabetic retinopathy • % patients with background and sight-threatening retinopathy • % patients with absent foot pulses • % patients with reduced vibration sense • % patients with reduced pin-prick sensation • % patients with foot ulceration
Intermediate outcomes	<ul style="list-style-type: none"> • % patients with angina • % patients with claudication • % patients with symptomatic neuropathy • % male patients with erectile dysfunction
Outcomes with long time-scales	<ul style="list-style-type: none"> • % patients who have had a myocardial infarction • % patients who have had a stroke • % patients with visual impairment • % patients with severe visual impairment • % patients with end stage renal failure • % patients who have had an amputation: below / above ankle

* Included within the new GMS Quality and Outcomes Framework

** This is a more challenging threshold than the GMS contract

Appendix 13: Recommended further reading

1. Department of Health (2002) *National Service Framework for Diabetes Delivery Strategy*
2. Diabetes UK (2003) *What diabetes care to expect*
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Appendix 14: Diabetes UK

All those concerned with diabetes should be encouraged to join Diabetes UK, including:

- patients, their relatives and friends
- healthcare professionals and managers

Membership benefits for people with diabetes and their carers include:

- six issues a year of our members' magazine, *Balance*, packed with news and information
- Diabetes UK Careline for confidential support and information
- a wide range of booklets packed with information about managing diabetes, eating healthily, reducing the risk of complications and more
- a chance to share experiences with others at over 400 Diabetes UK voluntary groups across the country
- Diabetes UK Services' insurance and financial products designed to meet the needs of people with diabetes
- the opportunity to help yourself and others with diabetes in the UK.

Membership benefits for the healthcare professional include:

- *Diabetes Update* our quarterly magazine for healthcare professionals, keeping you informed of diabetes care and research developments
- *Balance*, our bi-monthly patient focused magazine giving practical advice on living with diabetes
- regular mailings to keep you updated about Diabetes UK activities relevant to healthcare professionals
- *Diabetic Medicine*, our monthly journal publishing reviews and original articles in the fields of diabetes research and practice, available at a substantial discount
- discounted delegate fees for Diabetes UK professional conferences (including the Annual Professional Conference)
- travel grant support for presenting authors at all diabetes-related conferences in Europe
- 25 per cent discount on our information publications.

For membership details, please contact Customer Services on 020 7424 1010 or email customerservice@diabetes.org.uk

To contact the Diabetes UK Careline, please telephone 0845 120 2960 (lines are open from 9.00am until 5.00pm on weekdays) or email careline@diabetes.org.uk

For a free catalogue listing all Diabetes UK information call 0800 585 088.

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