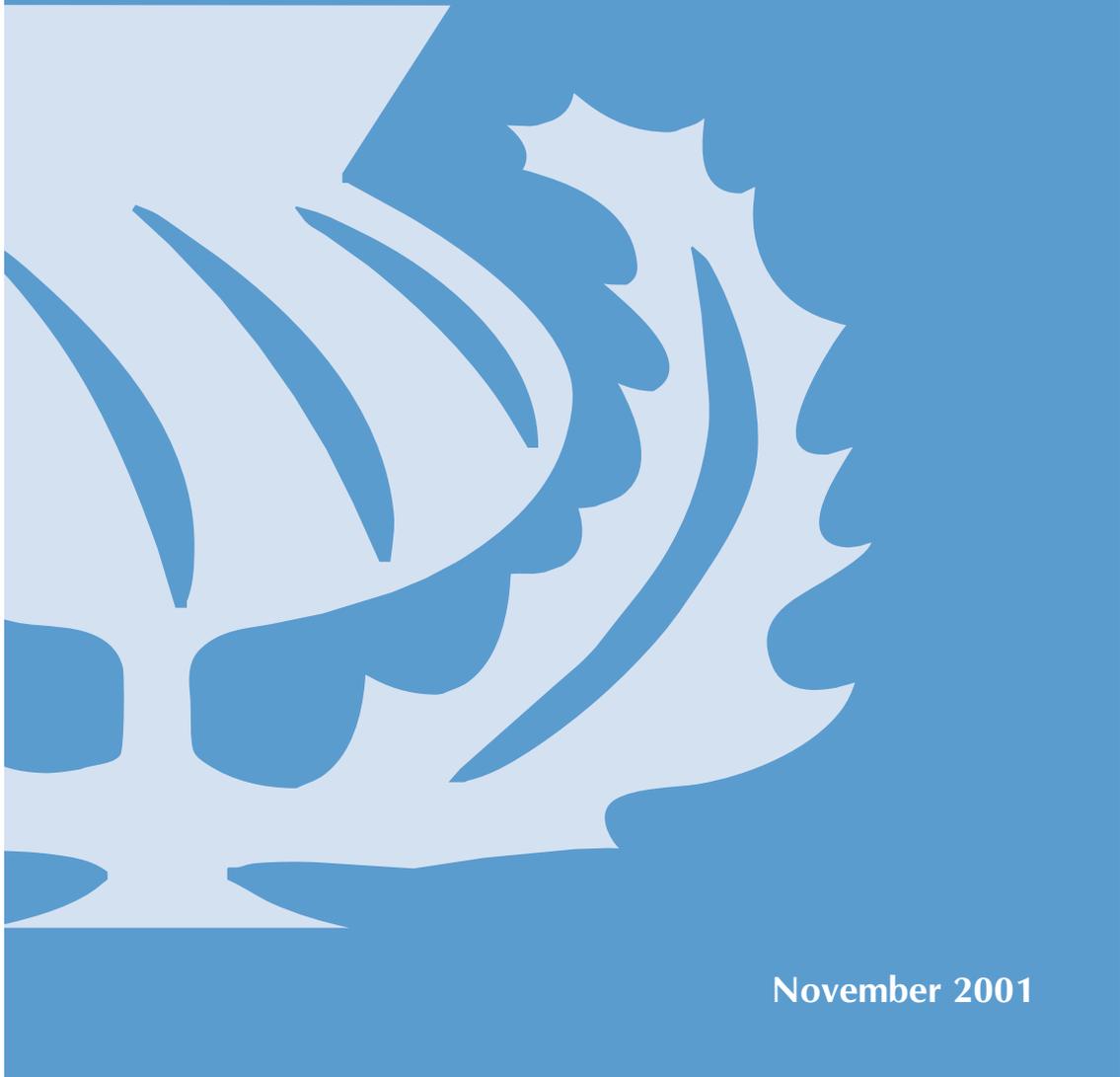


Scottish Intercollegiate Guidelines Network

55

Management of Diabetes

Quick Reference Guide



November 2001

GRADES OF RECOMMENDATION

- A** At least one meta analysis, systematic review, or RCT with a very low risk of bias, and directly applicable to the target population; or
A systematic review of RCTs or a body of evidence with a low risk of bias, directly applicable to the target population, and demonstrating overall consistency of results
- B** Extrapolated evidence from the above or
A body of evidence comprising high quality systematic reviews of case-control or cohort studies, directly applicable to the target population, and demonstrating overall consistency of result or high quality case-control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal.
- C** Extrapolated evidence from the above or
A body of evidence comprising well-conducted case control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal, directly applicable to the target population and demonstrating overall consistency of results.
- D** Extrapolated evidence from the above or
Evidence from non-analytic studies, e.g. case reports, case series or expert opinion
- Recommended best practice based on the clinical experience of the guideline development group

INTRODUCTION

Diabetes mellitus is a major and increasing health problem in all age groups. Diabetes UK estimates that of a population of 5.2 million in Scotland in the year 2000, 122,900 people had confirmed diabetes mellitus and a further 87,100 were undiagnosed, giving a total of 210,000 people with diabetes. Accurate national prevalence data is unknown, but data from the Tayside Diabetes Registry suggests that prevalence is over 2.6% and rising. Type 2 diabetes, in particular, is a growing problem with an ever-increasing prevalence due to the ageing population and the increasing incidence of obesity.

This quick reference guide provides a summary of the main recommendations contained in the full guideline. Recommendations are arranged into the following sections:

Diagnosis and screening	3
Children and young people	4
Lifestyle management	5
Renal disease	7
Cardiovascular disease	8
Foot disease	9
Prevention of visual impairment	11
Diabetes in pregnancy	12
Sources of further information	13
Abbreviations	14

The Scottish Intercollegiate Guidelines Network (SIGN) supports improvement in the quality of health care for patients in Scotland by developing and disseminating national clinical guidelines and facilitating their implementation into practice. SIGN guidelines provide recommendations for effective healthcare based on current evidence.

The recommendations are graded as shown opposite to indicate the strength of the supporting evidence. Good practice points β are provided where the guideline development group wish to highlight specific aspects of accepted clinical practice.

Details of the evidence supporting these recommendations and their application in practice can be found in the full guideline, available on the SIGN website: **www.sign.ac.uk**.

This guideline was issued in November 2001 and will be considered for further review in 2004.

For more information about the SIGN programme, contact the SIGN executive or see the website.

MANAGEMENT OF DIABETES

WHO CRITERIA FOR DIAGNOSIS OF DIABETES:

The presence of diabetic symptoms (polyuria, polydipsia, unexplained weight loss) PLUS

- fasting plasma glucose > 7.0mmol/l OR
- random plasma glucose > 11.1 mmol/l

In the absence of symptoms:

- 2 fasting plasma glucose samples > 7.0 mmol/l OR
- 2 random plasma glucose samples > 11.1 mmol/l OR one of each OR
- 11.1 mmol/l, 2 hours post 75 g glucose (OGTT)

SCREENING RECOMMENDATIONS

LIFESTYLE MODIFICATION	B All people with diabetes should be screened for depression and offered appropriate therapy.
CHILDREN AND YOUNG PEOPLE	B Screening for pre-type 1 diabetes is not recommended in either the general population or in high-risk subjects.
	C Patients with cystic fibrosis should be screened annually for diabetes from 10 years of age.
	C All people with diabetes should be screened for the following annually from the age of 12 years: <ul style="list-style-type: none"> ▪ retinopathy ▪ urine microalbuminuria ▪ blood pressure
	D Young people should be screened for thyroid and coeliac disease at onset of diabetes and at intervals throughout their lives.
RENAL	D All patients with diabetes should have their urinary albumin concentration and serum creatinine measured at diagnosis and annually.
VISUAL IMPAIRMENT	B Systematic screening for diabetic retinal disease should be provided for all people with diabetes.
	A Patients with type 2 diabetes should be screened from diagnosis
	C Patients with type 1 diabetes should be screened at age 12 years or at onset of puberty whichever is first.
	C Retinal photography or slit lamp biomicroscopes used by trained individuals should be used in a programme of systematic screening.
FOOT DISEASE	C Dilated direct ophthalmoscopy should be used for opportunistic screening.
	D All patients with diabetes should be screened for foot disease.

CHILDREN AND YOUNG PEOPLE WITH DIABETES

Type 1 diabetes accounts for >90% of diabetes in young people <25 years:

- 12-15% of young people <15 years with diabetes have an affected first degree relative
- children are three times more likely to develop diabetes if their father has diabetes rather than their mother
- 20% of patients with cystic fibrosis (CF) will develop diabetes by the age of 20, with the incidence increasing to 80% by age 35 years

DIAGNOSIS & SCREENING	PSYCHOLOGICAL INTERVENTIONS			
<p>B Screening for pre-type 1 diabetes is not recommended in either the general population or in high-risk children and young people.</p> <p>C Patients with CF should be screened annually for diabetes from 10 years of age.</p>	<p>Psychological or educational interventions have positive effects on psychological outcomes, knowledge about diabetes and glycaemic control.</p> <p>B Regular assessment for psychological problems, especially maladaptive coping strategies and eating disorders is recommended.</p> <p>A The use of cognitive coping strategies targeted at diabetes-specific problems is recommended.</p> <p>B Encourage parental support and family communication, with targeted psychological treatment of family disruption and related stress factors.</p>			
INITIATING THERAPY AT DIAGNOSIS	LONG TERM COMPLICATIONS			
<p>C A home-based programme for initial management and education of children with diabetes and their families is an appropriate alternative to a hospital-based programme.</p>	<th>INSULIN THERAPY</th> <th>MICROVASCULAR DISEASE</th>	INSULIN THERAPY	MICROVASCULAR DISEASE	
<p>B Intensive insulin therapy should be delivered as part of a comprehensive support package.</p> <p>C The insulin regimen should be tailored to the individual child to achieve the best possible glycaemic control without disabling hypoglycaemia.</p> <p><input checked="" type="checkbox"/> Postprandial analogue insulin may safely be used in very young children with unpredictable eating patterns.</p> <p>Medications other than insulin have no role in the management of type 1 diabetes in the young.</p>	<p>A To reduce the risk of long term microvascular complications, the target for all young people with diabetes is the optimising of glycaemic control towards a normal level.</p> <p>From the age of 12 years, all people with diabetes should have the following annual checks:</p> <p>C examination of the retina</p> <p>C measurement of microalbuminuria (overnight AER or first morning ACR)</p> <p>D blood pressure</p> <p>There is no evidence that routine screening for autonomic neuropathy or hyperlipidaemia are of benefit.</p>	<th>DIETARY MANAGEMENT</th> <th>ASSOCIATED CONDITIONS</th>	DIETARY MANAGEMENT	ASSOCIATED CONDITIONS
<p>B Dietary advice as part of a comprehensive management plan significantly improves glycaemic control.</p>	<p>B Young people with diabetes should be screened for thyroid and coeliac disease at onset of diabetes and at intervals throughout their lives.</p>			

LIFESTYLE MANAGEMENT

Modification of adverse lifestyle factors is an important aspect of the management of both type 1 and type 2 diabetes. In particular, appropriate management of risk factors such as **smoking, physical inactivity** and **poor diet** is important for the retardation of microvascular and macrovascular complications.

DELIVERY OF LIFESTYLE INTERVENTIONS

A variety of types of lifestyle intervention have been shown to improve self-management, metabolic and psychological outcomes. These include:

- education which is supplemented by additional support / follow-up and behaviour modification
- computer-assisted programmes which provide education and trigger self-management
- psychological interventions which are varied and include behaviour modification, motivational interviewing, patient empowerment and activation

A Patients with diabetes should be offered lifestyle interventions based on a valid theoretical framework.

B Education programmes, computer-assisted packages and telephone prompting should be considered as part of a multidisciplinary lifestyle intervention programme.

B Health care professionals should receive training in patient-centred interventions in diabetes.

QUALITY OF LIFE AND DEPRESSION

- Depression is more common in people with diabetes than in the general population.
- The presence of microvascular and macrovascular complications are associated with a higher prevalence of depression and lower quality of life.
- Remission of depression is often associated with an improvement in glycaemic control.
- Pharmacological (antidepressant therapy with a SSRI) and non-pharmacological treatments (e.g. cognitive behavioural therapy, psychotherapy programmes and coping skills training) have been shown to be effective in diabetic patients with depression and may also improve glycaemic control.

B Be aware of the effects of depression on diabetes.

B Screen all people with diabetes for depression and offer appropriate therapy.

B SSRIs are recommended in preference to tricyclic antidepressants for treatment of depression in patients with diabetes.

B Make every effort to avoid severe hypoglycaemia, particularly in those newly diagnosed.

EXERCISE AND PHYSICAL ACTIVITY

- Regular physical activity is associated with a reduced risk of development of type 2 diabetes.
- A rate of perceived exertion scale is useful for estimating exercise intensity.
- In people with type 2 diabetes physical activity or exercise should be performed at least every second or third day to maintain improvements in glycaemic control. In view of insulin adjustments etc. it may be easier for people with type 1 diabetes to perform physical activity or exercise every day.
- Exercise with normal insulin dose and no additional carbohydrate significantly increases the risk of hypoglycaemia during and after exercise. Intramuscular insulin injection and injection of insulin into exercising areas increases the absorption of insulin and the risk of hypoglycaemia and should therefore be avoided.

B All people should be advised to maintain at least moderate levels of physical activity (e.g. daily walking) as a lifelong lifestyle modification.

D Patients with existing complications of diabetes should seek medical review before embarking on exercise programmes.

HEALTHY EATING

Intensive therapy or contact in patients with diabetes shows clinically beneficial effects on weight and glycaemic control during the period of intervention. More education and contact appears to improve outcomes.

B Encourage **overweight** individuals and those at high risk of developing diabetes to reduce their risk of developing diabetes by lifestyle changes.

B Clinical interventions aimed at dietary change are more likely to be successful if a **psychological approach** based on a theoretical framework is included.

B Patients with diabetes may drink up to 3 units of **alcohol** with a minimal effect on blood glucose. If exercise and consumption of alcohol are combined there may be a greater lowering of blood glucose.

SMOKING CESSATION

Simple advice to stop smoking given by a physician, a nurse or a counsellor has a small but significant effect. Group behaviour therapy is more effective than self help material but has not been proven to be superior to individual advice.

B **Nicotine replacement therapy** should be provided (for up to 8 weeks) for smokers of more than 15 cigarettes each day who are trying to quit.

MANAGEMENT OF DIABETIC NEPHROPATHY

RISK FACTORS

- hyperglycaemia
- raised blood pressure
- baseline urinary albumin excretion
- increasing age
- duration of diabetes
- presence of retinopathy
- smoking
- genetic factors
- raised cholesterol and triglyceride levels
- male sex
- serum homocysteine levels

DEFINITIONS

Microalbuminuria - a rise in urinary albumin loss to between 30 and 300 mg/day. Alternatively, to avoid a timed urine collection, a urinary albumin:creatinine ratio (ACR) > 2.5 mg/mmol in men and > 3.5 mg/mmol in women or a urinary albumin concentration > 20 mg/l defines microalbuminuria.

It is the earliest sign of diabetic nephropathy and predicts increased total mortality, cardiovascular mortality and morbidity, and end-stage renal failure.

Diabetic nephropathy - the presence of a raised urinary albumin excretion rate (>300mg/day) with or without a raised serum creatinine level in a patient with co-existing diabetic retinopathy.

This represents a more severe and established form of renal disease and is more strongly predictive of total mortality, cardiovascular mortality and morbidity, and end-stage renal failure than microalbuminuria.

SCREENING

- D** All patients with diabetes should have their urinary albumin concentration and serum creatinine measured at diagnosis and at regular intervals, usually annually.
- D** Urinary albumin concentration should be measured using a first morning urine sample and the urinary albumin:creatinine ratio should be measured by a laboratory method or a near-patient test specific for albumin at low concentration.
- D** An abnormal result should be confirmed by a further sample without delay.

PREVENTION OF DIABETIC NEPHROPATHY

- A** Good glycaemic control (HbA_{1c} around 7%) in all patients with diabetes and tight blood pressure control (< 140/80 mm Hg) in patients with type 2 diabetes should be maintained to reduce the risk of developing diabetic nephropathy.

TREATMENT OF DIABETIC NEPHROPATHY

- A** Blood pressure should be maintained < 140/80 mm Hg in all patients with diabetes.
- A** Patients with microalbuminuria or proteinuria should be:
 - commenced on an ACE inhibitor
 - considered for angiotensin II antagonist therapy.
- A** Patients with type 1 diabetes, proteinuria and a reduced GFR should reduce dietary protein intake to 0.6 - 0.8 g/kg/day.
- Patients should be referred to a renal clinic if serum creatinine exceeds 150 mmol/l.

DIABETIC CARDIOVASCULAR DISEASE

RISK FACTORS

- Smoking
- Hypertension
- Hyperglycaemia
- Dyslipidaemia

Morbidity and mortality from cardiovascular disease (CVD) are 2-5 times higher in people with diabetes than the general population

Current assessment methods may underestimate risk in people with type 1 diabetes or type 2 diabetes with nephropathy

PRIMARY PREVENTION

SMOKING CESSATION

Follow **lifestyle modification recommendations to reduce CVD risk factors**

BP LOWERING

A Treat aggressively with lifestyle measures and drug therapy.

A Consider **ACE inhibitors** as first line therapy (*see renal disease*).

GLYCAEMIC CONTROL

A Consider **metformin** as first line oral hypoglycaemic in overweight patients (> 120% ideal body weight).

LIPID LOWERING THERAPY

D Consider lipid lowering drug therapy in type 2 diabetes if **10 year risk of a major coronary event is $\geq 30\%$** . Consider at a lower risk threshold in people with type 1 diabetes and type 2 diabetes with nephropathy.

ANTIPLATELET THERAPY

B Consider **aspirin (75 mg)** for all patients who have diabetes and well-controlled hypertension whose risk of a coronary event is > 20% over 10 years.

Case fatality from MI in patients with diabetes is double that of the general population

Diabetic patients more often present with a painless ('silent') MI

MANAGEMENT OF ESTABLISHED CVD

B Intensive **insulin** treatment

A **Thrombolytic** therapy

C Consider **primary angioplasty**

B Long term **aspirin + clopidogrel** (75 mg/day)

A **β -blocker** therapy

A₁/B **ACE inhibitor** (within 48 hours in patients with LVSD)

B **Statin** therapy if total cholesterol > 5 mmol/l

A Diabetic patients undergoing angioplasty should be treated with **stents** where feasible, and receive adjunctive therapy with **abciximab**

Thrombolysis should not be withheld due to concern about diabetic retinopathy

Primary angioplasty may be more effective than thrombolytic therapy in diabetic patients with acute MI

Diabetes is not a contraindication to use of β -blockers

Indications for coronary angiography in patients with diabetes are similar to the general population, recognising the increased risk of mortality following CABG and angioplasty

MANAGEMENT OF DIABETIC FOOT DISEASE

Diabetic foot problems are a common complication of diabetes. The absence of reliable symptoms and high prevalence of asymptomatic disease make foot screening essential. Risk factors for peripheral vascular disease include smoking, hypertension and hypercholesterolaemia. Risk factors for foot ulceration include peripheral vascular disease and peripheral neuropathy, previous amputation, previous **ulceration**, the presence of callus, joint deformity, visual/mobility problems, and male sex.

CARE MANAGEMENT

- D** All people with diabetes should be screened for foot disease
- C** Access to **structured foot care** for all people with diabetes
- B** **Foot care education** as part of a multidisciplinary approach

Multidisciplinary team
e.g. diabetes physician and specialist nurse, podiatrist, orthotist, vascular and orthopaedic surgeons

FOOTWEAR AND ORTHOSES

Plantar pressure using ordinary shoes is similar to barefoot

- B** Advise patients with diabetic foot disease to wear **high-quality, cushioned-soled trainers** rather than ordinary shoes
- Custom-built footwear or orthotic insoles** should be used to reduce callus severity and ulcer recurrence

TOTAL CONTACT CASTING

- B** Patients with unilateral plantar ulcers should be treated using total contact casting to optimise the healing rate of ulcers

ARTERIAL RECONSTRUCTION

- B** All patients with tissue loss and arterial disease should be considered for arterial reconstruction

TREATMENT

PHARMACOLOGICAL THERAPY

- A** In non-healing chronic neuropathic ulcers after optimal pressure relief, consider **topical RGD peptide, CT-102** or **becaplermin** to speed up healing rates
- B** Consider **subcutaneous g-csf** for diabetic foot infections
- Commence treatment of an infected diabetic foot ulcer with a broad spectrum antibiotic regimen in conjunction with appropriate debridement
- Modify subsequent antibiotic regimens to bacteriology and clinical response

TISSUE REPLACEMENT THERAPY

- B** Consider treatment of refractory diabetic ulcers using living human tissue replacement, provided the patient meets strict exclusion criteria on infection, circulation and ulcer size and depth

PAINFUL DIABETIC NEUROPATHY

- A** Consider **tricyclic antidepressants (TCAs)** as first line therapy in painful neuropathy
- B** **Gabapentin** is also effective and is associated with fewer side-effects than TCAs and older anticonvulsants
- A** Consider topical **capsaicin** for relief of localised neuropathic pain

CHARCOT'S FOOT

Charcot's foot is a neuroarthropathic process with osteoporosis, fracture, acute inflammation and disorganisation of foot architecture

- C** Diagnose Charcot's foot by clinical examination supported by thermography, where available
- D** Total contact casting and non-weight bearing are effective treatments for acute Charcot's foot

RISK ASSESSMENT

(adapted from the Tayside Foot Risk Assessment Protocol)

**Diabetic patients should be assessed annually
by a diabetologist, GP, chiropodist, diabetes nurse specialist, or practice nurse
with training in diabetes to look for presence of neuropathy, ischaemia or deformity**

Patients should be categorised according to the presence of the following symptoms/signs:

<p>Normal sensation AND</p> <ul style="list-style-type: none"> ▪ good pulses ▪ no previous ulcer ▪ no foot deformity ▪ normal vision 	<p>ANY OF</p> <ul style="list-style-type: none"> ▪ Loss of sensation ▪ absent pulses (or previous vascular surgery) ▪ significant visual impairment ▪ physical disability (e.g. stroke, gross obesity) 	<p>ANY OF</p> <ul style="list-style-type: none"> ▪ Previous ulcer due to neuropathy /ischaemia ▪ Absent pulses and neuropathy ▪ Callus with risk factor (absent pulse, neuropathy, foot deformity) ▪ Previous amputation 	<p>Active foot ulceration, painful neuropathy which is difficult to control.</p>
<p>LOW RISK</p>	<p>MODERATE RISK</p>	<p>HIGH RISK</p>	<p>ACTIVE FOOT DISEASE</p>
<p>No specific regular chiropody input needed (except in exceptional circumstances)</p> <p>Patients can undertake their own nail care after appropriate education</p> <p>Annual foot check</p>	<p>Regular (4-12 weekly) general chiropody input</p> <p>For patients with visual impairment or physical disability, who would otherwise fit into the low risk category, input from trained Foot Care Assistants can be substituted (where available).</p>	<p>Chiropodist with interest and expertise in diabetes either at diabetes unit or in community centre</p> <p>Chiropodist may want to consider orthotic referral</p>	<p>Suggest contact with local specialist diabetes team (hospital-based)</p>

In addition, patients with any of the following signs of **ischaemia** or **infection** should be considered for emergency referral to the hospital surgical receiving service or diabetic foot clinic, where appropriate:

<p>CRITICAL ISCHAEMIA</p> <ul style="list-style-type: none"> ▪ rest or night pain ▪ pale/mottled feet ▪ dependent rubor ▪ ischaemic ulceration ▪ gangrene 	<p>SEVERE INFECTION</p> <ul style="list-style-type: none"> ▪ abscess ▪ cellulitis
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PREVENTION OF VISUAL IMPAIRMENT

Up to 39% of people with type 2 diabetes have retinopathy at diagnosis, 4-8% being sight-threatening

B Patients with multiple risk factors should be considered at high risk of developing eye disease.

Rapid improvement in glycaemic control can lead to short term worsening of diabetic eye disease.

B Stabilise sight-threatening eye disease before achieving significant improvement in glycaemic control.

RISK FACTORS

- Poor glycaemic control
- Raised blood pressure
- Increasing microaneurysms
- Duration of diabetes
- Microalbuminuria
- Proteinuria
- Raised triglycerides
- Lowered haematocrit
- Pregnancy

SCREENING

B Systematic screening for retinal disease should be provided for all people with diabetes.

D Screening should be performed at a site convenient to patients.

Type 2 diabetes

A Screen from diagnosis

Type 1 diabetes

C Screen from age 12 or onset of puberty (whichever is first)

Systematic screening

C Retinal photography or slit lamp biomicroscopy

Opportunistic screening

C Dilated direct ophthalmoscopy

TREATMENT

SIGHT-THREATENING RETINOPATHY
(moderate proliferative or worse)

A Laser photocoagulation

Severe pre-proliferative or mild proliferative retinopathy

A Close follow up or laser photocoagulation

A Use **focal laser photocoagulation** for focal CSMO but not for ischaemic maculopathy
Treat **diffuse maculopathy** if concern that disease is progressing

B Consider early **vitrectomy** for patients with type 1 diabetes and persistent vitreous haemorrhage, also for tractional retinal detachment threatening the macula / severe fibrovascular proliferation.

D Consider **vitrectomy** in patients with diffuse diabetic macular oedema.

D Provide **community support, low vision aids** and **training** to patients with visual impairment.

Cataracts are a more common cause of visual impairment than retinopathy in type 2 diabetes

C **Cataract extraction** is advised when sight-threatening retinopathy cannot be excluded.

B Cataract extraction should not be delayed.

DIABETES IN PREGNANCY

Type 1 diabetes is a high risk state for the woman and her fetus due to increased risks of:

Complications of diabetes	Obstetric complications	Fetal and neonatal complications
<ul style="list-style-type: none"> ▪ ketoacidosis ▪ severe hypoglycaemia ▪ progression of microvascular complications 	<ul style="list-style-type: none"> ▪ pre-eclampsia ▪ maternal infection ▪ polyhydramnios ▪ premature labour ▪ obstructed labour 	<ul style="list-style-type: none"> ▪ fetal distress ▪ late intrauterine death ▪ congenital malformation ▪ respiratory distress syndrome ▪ jaundice

PRE-PREGNANCY CARE

- Pregnancy should be planned, with good contraceptive advice and pre-pregnancy care.
- C** Pre-pregnancy care should be provided by a multidisciplinary team.



- review of medical, obstetric and gynaecological history
- advice on glycaemic control
- screening for complications

DELIVERY

- In women with insulin-requiring diabetes in pregnancies otherwise progressing normally, assess at 38 weeks to ensure delivery by 40 weeks.
 - Delivery in consultant-led maternity units with senior physician, obstetrician and neonatologist available.
 - Monitor progress of labour as for other high risk women, including continuous electronic fetal monitoring.
 - IV insulin and glucose as necessary to maintain blood glucose 4-7 mmol/l.

INFANTS OF MOTHERS WITH DIABETES

- Early feeding is advised to avoid neonatal hypoglycaemia and to stimulate lactation.
- B** Breast feeding is recommended, but support mothers in their method of choice.

NUTRITIONAL MANAGEMENT

- D** Before and during pregnancy, aim for blood sugar between 4 and 7 mmol/l
- D** Dietetic advice should be available in all diabetic antenatal clinics.
Encourage diet including high complex carbohydrates, soluble fibre and vitamins, reduced saturated fats
- B** Pre-pregnancy folic acid supplements (c.4 mg) to continue up to 12 weeks gestation.

COMPLICATIONS DURING PREGNANCY

- OBSTETRIC COMPLICATIONS:**
Manage as for all pregnant women
- METABOLIC COMPLICATIONS:**
Explicit local emergency contact arrangements
- MICROVASCULAR COMPLICATIONS:**
- C** Fundal examination each trimester. Early referral of women with moderate retinopathy to an ophthalmologist.
 - As renal section but **avoid ACE inhibitors.** Suitable antihypertensive agents include methyldopa, labetalol and nifedipine.

GESTATIONAL DIABETES

- B** Women with GDM should receive intensive management with diet and/or insulin if macrosomia is suspected or if blood glucose levels are in the range for established diabetes.

INFORMATION SOURCES AND WEB ADDRESSES

Diabetes UK is one of Europe's largest patient organisations. Its mission is to improve the lives of people with diabetes and to work towards a future without diabetes through care, research and campaigning. With a membership of nearly 200,000, including over 6,000 health care professionals, Diabetes UK is an active and representative voice of people living with diabetes in the UK.

Diabetes UK is the main independent source of information for people with diabetes and their carers in the UK, producing a wide range of books, magazines and booklets alongside a comprehensive and user-friendly website (www.diabetes.org.uk). Their publication range includes the following which may be of interest to patients:

Alcohol and diabetes (Booklet)
Understanding diabetes (Booklet)
Diabetes and your eyes (Booklet)
Diabetic neuropathy (Booklet)
Diabetes. Your guide to a healthy lifestyle (Booklet)
Hypoglycaemia (Booklet)
Pregnancy and diabetes (Magazine)
Living with type 1 diabetes (Book)
Living with type 2 diabetes (Book)
Taking care of your feet (Booklet)
What to expect when your child has diabetes (Booklet)



Diabetes UK also publish reports for the healthcare professional, including:

Diabetic Medicine (a monthly peer-reviewed journal containing papers on clinical research in diabetes)
Diabetes employment handbook
Diabetes and cognitive function
Recommendations for the management of diabetes in primary care
Local diabetes service action groups
Diabetes care today.
Guidelines of practice for residents with diabetes in care homes.



In addition to Diabetes UK, the following websites contain further useful information for patients and health care professionals:

www.diabetes.about.com
www.diabetes.org
www.diabetesmonitor.com
www.niddk.nih.gov/health/diabetes/ndic.htm

www.niddk.nih.gov/health/diabetes/ndic.htm
www.diabetes-healthnet.ac.uk
www.diabetesonestop.com

About.com - Diabetes
American Diabetes Association
Diabetes Monitor
National Institute of Diabetes and Digestive and Kidney Diseases
National Diabetes Information Clearinghouse
Tayside Regional Diabetes Network
Diabetes One Stop

ABBREVIATIONS

ACE	Angiotensin-converting enzyme
ACR	albumin/creatinine ratio
AER	albumin excretion rate
CF	cystic fibrosis
GDM	gestational diabetes mellitus
GFR	glomerular filtration rate
GP	general practitioner
HbA1c	haemoglobin A1c
NHS	National Health Service
NRT	nicotine replacement therapy
OGTT	oral glucose tolerance test
RCT	randomised controlled trial
RGD	arginine glycine aspartic acid
SIGN	Scottish Intercollegiate Guidelines Network
SSRI	selective serotonin reuptake inhibitor
TCA	tricyclic antidepressant
WHO	World Health Organisation



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