Hammersmith Hospitals Trust

Guidelines for Management of Diabetes Mellitus

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Contents

Glossary

AAA	Abdominal aortic aneurysm
ABPIs	ankle brachial pulse index
Ang2	Angiotensin 2
ACE	Angiotensin converting enzyme
BM	Finger prick glucose measurement
BMI	Body Mass Index
BP	Blood pressure
CHD	Coronary heart disease
CI	Contra-indication
C-peptide	Insulin C-peptide
CSII	Continuous subcutaneous insulin infusion
CT	Computer tomography
CVA	Cerebrovascular disease
CVD	Cardiovascular disease
CXH	Charing Cross Hospital
CXR	Chest X-ray
DM	Diabetes mellitus
DI	Diabetes insipidus
DKA	Diabetic ketoacidosis
DNS	Diabetic nurse specialist
DP	Dorsalis pedis
DVLC/DVLA	Driving and vehicle licensing authority
DVT	Deep venous thrombosis
ECG	Electrocardiogram
ETT	Exercise Tolerance Test
HGV	Heavy goods vehicle
HH	Hammersmith Hospital
HONK	Hyperosmolar non-ketotic state
GDM	Gestational diabetes mellitus
GI	Gastrointestinal
GP	General Practitioner
IFG	Impaired fasting glucose
IGT	Impaired Glucose Tolerance
IHD	Ischaemic heart disease
IM	Intra muscular
IRMAs	Intra retinal
IV	Intravenous
JPS	Joint position sense
LP	Lumbar puncture
LT	Light touch

MELAS	Mitochondrial myopathy, encephalopathy, lactacidosis and stroke
MI	Myocardial infarction
MODY	Maturity onset Diabetes on the young
MSU	Mid stream urine
NVD	Neovascularisation of the disk
NVE	Neovascularisation elsewhere
NVI	Neovascularisation of the iris
OGD	Oesophago-gastroduoenoscopy
OGTT	Oral glucose tolerance test
OM	Osteomyelitis
PGR	Prandial glucose regulator
PP	Pin prick sensation
PSV	Public service vehicle
PT	Posterior tibial
PVD	Peripheral vascular disease
SC	Sub Cutaneous
SRD	State registered dietician
SU	Sulphonylurea
TIA	Transient ischaemic attach
UKITC	UK islet cell transplantation consortium
VS	Vibration sense
Wt	Weight

Referrals and Contacts

Urgent referrals:

Telephone Endocrine Registrar and Diabetes specialist nurses and Fax referral letter

1. Likely to need insulin
    - Significant ketonuria at any age
    - Young, non-obese, ill, vomiting or rapid wt loss
2. Risk of Non-ketotic hyperosmolar coma
    - ,Elderly, intercurrent illness, glucose >25
3. Sudden deterioration in visual acuity
4. Foot ulceration
5. Pregnancy

Routine referrals:

Supply the following information to assess priority

1. Diagnostic criteria for DM (ie fasting, random or OGTT results)
2. Latest HbA1c
3. Body Mass Index and weight change
4. Symptoms (severity, duration, rapidity of onset)
5. Blood pressure
6. Evidence of existing complications
7. All present medications
8. Past medical history
9. Occupation and contact number (working hours)

Contact Numbers

Hammersmith Hospital

Endocrinology/Diabetes Secretaries	Tel: 020 8383 4828	Fax: 020 8383 3360
Diabetic Nurse Specialists	Tel: 020 8383 4693	Fax: 020 8383 2348
Podiatary	Tel: 020 8383 4616	
Dietetics	Tel: 020 8383 3048	
Appointments	Tel: 020 8383 5000	Fax: 020 8383 8383
24h emergency contact number	Tel: 020 8383 1000 (Ask for endocrine SpR)	

Charing Cross Hospital

Endocrinology/Diabetes Secretaries	Tel:020 8846 1065	Fax: 020 8846 1862
Diabetic Nurse Specialists	Tel: 020 8846 1062	Fax: 020 8846 1080
Podietary	Tel: 020 8846 1621	
Dietetics	Tel: 020 8846 1445	
Appointments	Tel: 020 8383 5000	Fax: 8346 7564
24h emergency contact number	Tel: 020 8383 1000 (Ask for endocrine SpR)	

Background and Introduction

Background

Since the first version of the diabetic handbook in 1993 the DCCT and UKPDS studies have greatly increased the evidence base for the management of Diabetes and these revised guidelines have been prepared over 2001-2002 to document in a readily accessible form our standard practice in both the in and out patient settings of secondary care.

Introduction

These guidelines have been primarily developed in a highly visual flow chart format for the use of medical staff in secondary care but may also be of use to primary care.
The guidelines contain information on departmental policy as regards patient referrals, discharges and patient DNAs together with copies of standard letters and proformas.

The Hammersmith Hospitals trust diabetic clinics has around 5,000 patients under follow up and received more than 900 referrals per year and these guidelines aim to help deliver a consistently high quality service to our patients, to improve communication between primary and secondary care and to reduce waiting times for both new and follow up appointments.

Diabetes Diagnosis and Classification

A) Presenting and associated features

Polyuria, Polydipsia, Nocturia, Weight loss, Blurred vision
Recurrent cutaneous sepsis, Balanitis, Pruritis vulvae
Foot ulcers, Neuropathy
Ischemic heart disease, Cerebrovascular disease
Peripheral vascular disease

B) Risk Factors

Ethnicity, Indian-Asian, Afro-Caribbean, Middle -Eastern
First Degree Relative
Obesity
Recurrent stillbirths; babies > 4.5Kg

C) Diagnostic Criteria

HBA1c CAN NOT BE USED FOR DIAGNOSIS

2x Random Glucose Measurement (1x if symptomatic)

=11.1	Diabetes Mellitus
<11.1	Normal if =6.1 do 2x fasting

2x Fasting Glucose Measurement (1x if symptomatic)

=7.0	Diabetes Mellitus
=6.1 but <7.0	Impaired Fasting Glucose do OGTT

Oral Glucose Tolerance Test 2h Glucose

=11.1	Diabetes Mellitus
=7.8 but <11.1	Impaired Glucose Tolerance
<7.8	Normal

D) Aetiology of Diabetes Mellitus

Type I diabetes: Idiopathic or autoimmune immune mediated β cell destruction leading to insulin deficiency
Type II diabetes: Insulin resistance with relative insulin deficiency associated with obesity, hypertension and dyslipidaemia

E) Other Causes

Genetic defects of b **cell function**

Mitochondrial: maternal inheritance (nt3243 of Leu tRNA identical to MELAS mutation)
Wolfram's syndrome: AR lack of β-cells (DM,DI,hypogonadism,deafness,optic atrophy)
Maturity-Onset Diabetes of the Young (MODY): <25yr. dominant, impaired insulin secretion

MODY-1 : (20q) hepatic nuclear factor-4α?
MODY-2 : (7p) Defective glucokinase
MODY-3 : (12q24) hepatic nuclear factor-1α? most common
? MODY-4 insulin promotor factor 1(IPF-1) and hepatic nuclear factor-1β?

Genetic defects in insulin action

Type A insulin resistance: associated with acanthosis nigracans and PCOS
Leprechaunism : insulin receptor mutation abnormal facial features
Rabson-Mendenhall syndrome : insulin receptor mutation abnormal teeth, nails, pineal
Lipodystrophy : error in post insulin receptor signalling

Pancreatic Destruction

Cystic fibrosis, pancreatitis, pancreatic surgery, haemachromatosis

Endocrinopathies

Hyperthyroidism, Cushings, Acromegaly, Glucagonoma, Pheochromocytoma

Drug induced

Glucocorticoids; Thyroxine, thiazides, β-blockers, Nicotinic acid, phenytoin, protinase inhibitors

Gestational Diabetes

Impaired Glucose Tolerance

Definition of IGT

Oral glucose tolerance test 2h sample greater than or equal to 7.8 but <11.1

Incidence and progression of IGT

Present in 10% to 30% of >65 year olds

On repeat testing

30% revert to normal on repeat testing

50% continue to show IGT

20% are diabetic

(Progression to overt diabetes occurs at 5-10% pre year)

Patient with IGT have increased risk coronary artery, peripheral vascular and cerebrovascular disease.

Management

Annual fasting glucose : proceed to OGTT if greater than or equal to 6.1 but <7.0

Annual blood pressure and lipids

Avoid thiazides, β-blockers and oral steroids when possible

Life style advice

Aim for BMI of 25

If BMI>30 consider

1. Orlistat 120mg with meals
   (2.5Kg loss in 4 weeks before starting and stop if <5% wt loss in 3 months)
2. Sibutramine 10mg od (15mg after 1 month if <2kg loss)
   (Stop if wt loss <5% in 3 months)
3. Metformin 500mg bd

Regular exercise average of 30min/day

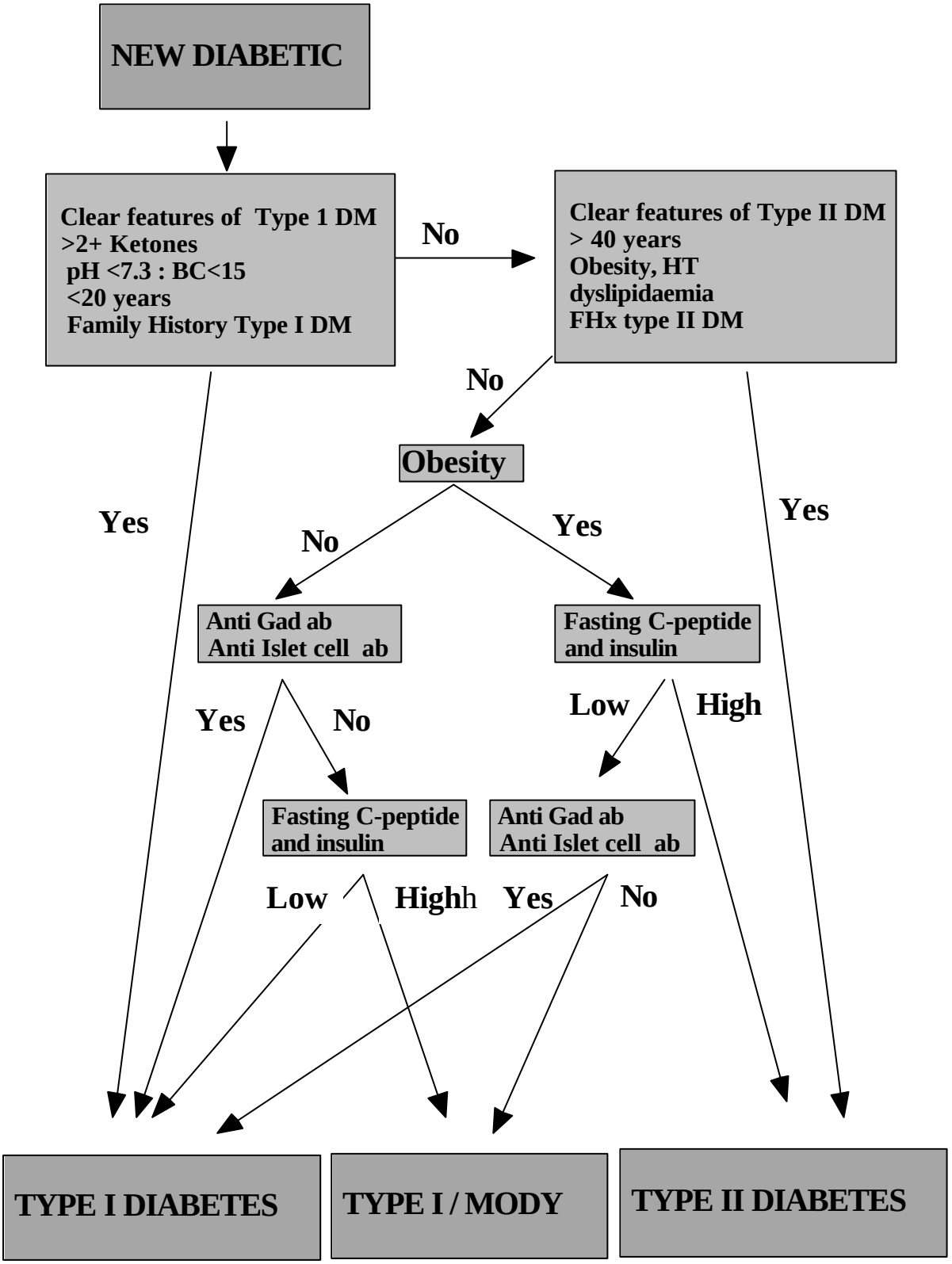
Stop smoking

Moderate alcohol intake may be beneficial

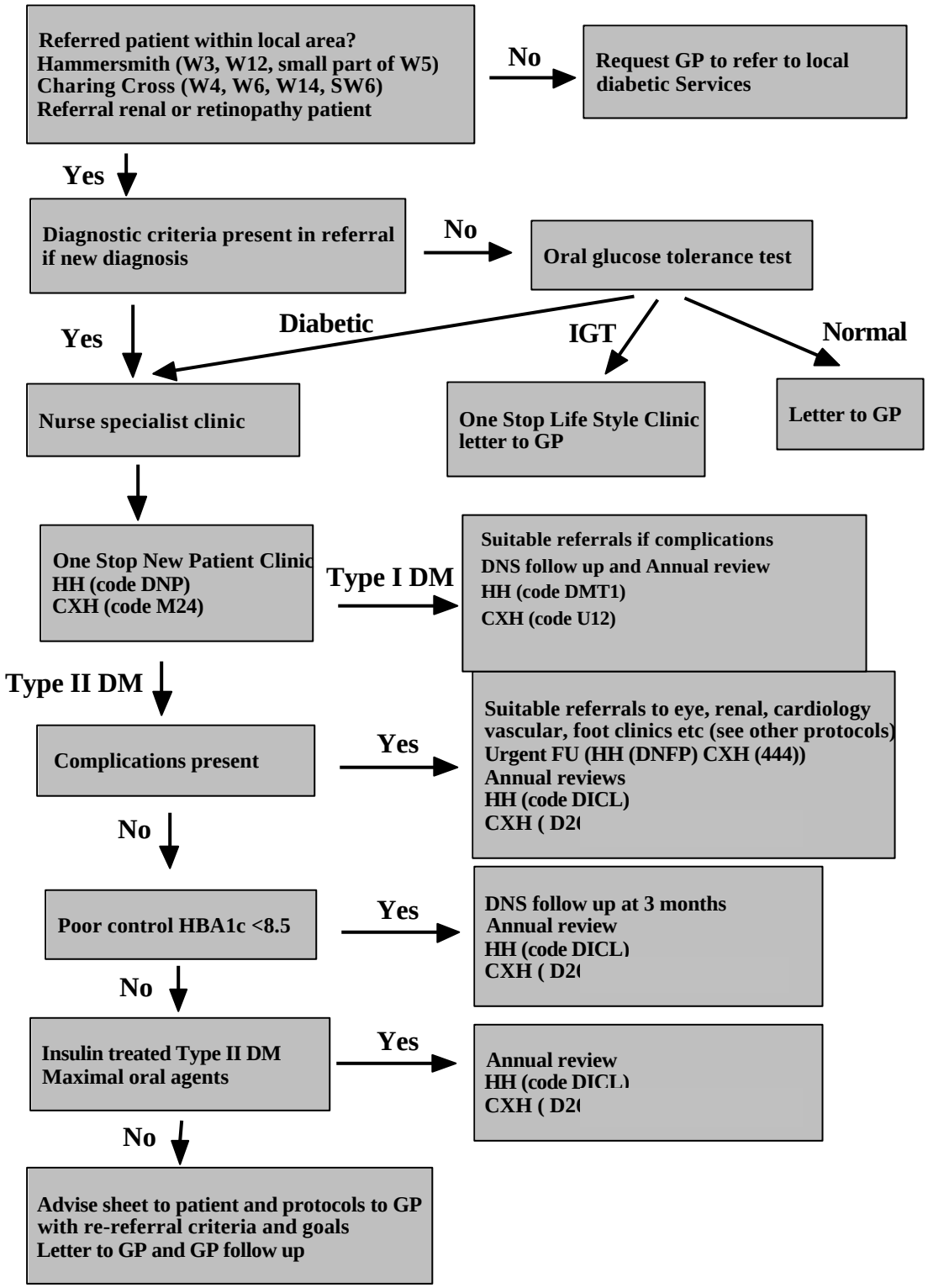
Dietary advise on cholesterol lowering (treatment if 10y CHD risk >30%)

Minimising these risk factors can reduce the incidence of diabetes by 50%

Types of Diabetes Mellitus



Management of New Diabetic Referrals



Nurse Specialist Assessment

AIM : To enable the patient to understand and accept their diabetes, and to try and minimise the long-term complications.

Education is tailored to the patient's need topics include

1) Explanation of diabetes and complications

2) Management of diabetes

3) Learning skills: Blood glucose monitoring, urine testing, insulin injection

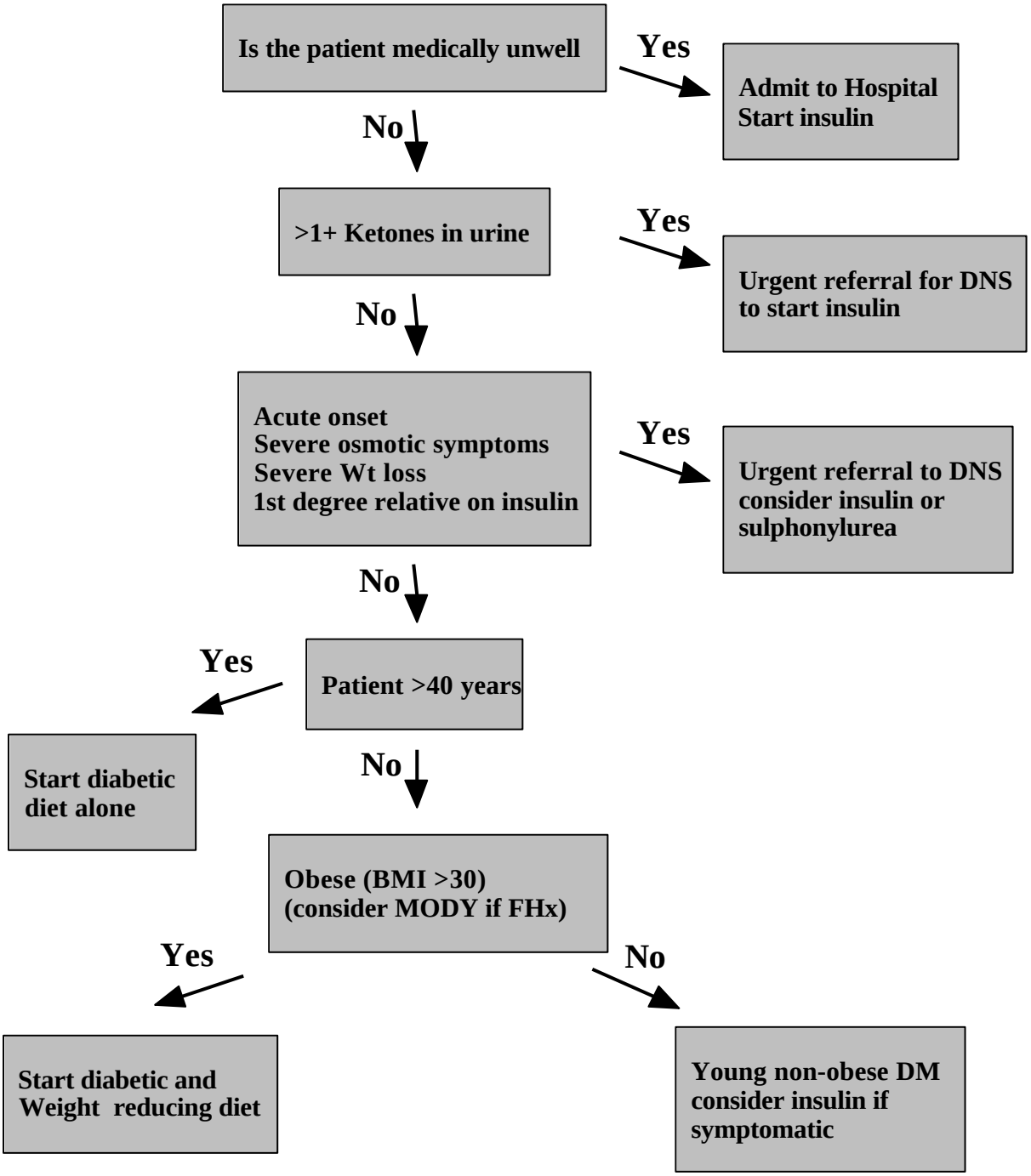
4) Discussion of pre conceived ideas and patients questions

5) Emergency contact number

6) Information on Diabetes UK

7) Institute initial management

Initial Assessment of Treatment



New Patient Medical Assessment

See Proforma 1

RECORD : Wt ; height ; random glucose ; urine dipstick and pin-hole acuity

History to include

Patient's occupation and ethnic origin

Record date of diagnosis and diagnostic criteria

2x random glu =11.1 or 2x fasting glu =7.1 or OGTT 2h glu >11.1

Presumed type of diabetes mellitus

Presentation

Hospital admission with DKA or HONK

Polyuria, polydipsia, visual disturbance, weight loss

Infections : cutaneous, foot ,urinary tract, balinitis, pruritis vulvae

Record known previous complications

IHD, PVD, CVD, retinopathy/cataracts, neuropathy, nephropathy, ulcers, impotence

Directly question regarding

Exercise related chest pain

Intermittent claudication

Foot infections and symptoms of peripheral neuropathy

Erectile dysfunction

Visual disturbances

Assess present control

HBGM results: hypo and hyperglycaemic episodes

Dietary compliance, exercise regime

Has the patient seen the diabetic nurse specialist and dieticians?

Obstetric history

Number of pregnancies; miscarriages; stillbirths, birth weights and mode of delivery

History of gestational diabetes, future pregnancy plans and contraception

Family history

Diabetes mellitus, thyroid disease, hypertension, renal disease

IHD, CVD, PVD with age of onset

Full list of medication and drug allergies

Social history

Smoking history, alcohol intake

Driving (check informed DVLC and insurance company)

Assess occupational risks (driving or machinery etc)

Physical Examination to include

General, cardiovascular, respiratory and abdominal systems

Specifically record

Evidence of hyperlipidaemia (arcus, tendon xanthomata etc.)

Pulse, blood pressure lying and standing, heart sounds, carotid bruits

Peripheral pulses: abdominal, femoral, dorsalis pedis and posterior tibials

Reflexes at the knee and ankle

Lower limb sensation; vibration, 10g microfilament, pinprick

Feet : General skin, nails, ?fungal infection and deformity, ?Charcot's

Visual acuity, presence of cataracts and dilated fundoscopy

Investigations to include

FBC

Renal function, Liver function and GGT, Calcium, (Vitamin D if Asian origin)

Thyroid function,

Fasting Cholesterol, Triglycerides, HDL, LDL, Chol/HDL ratio

Glucose and HBA1c

Random urinary albumin /creatinine ratio

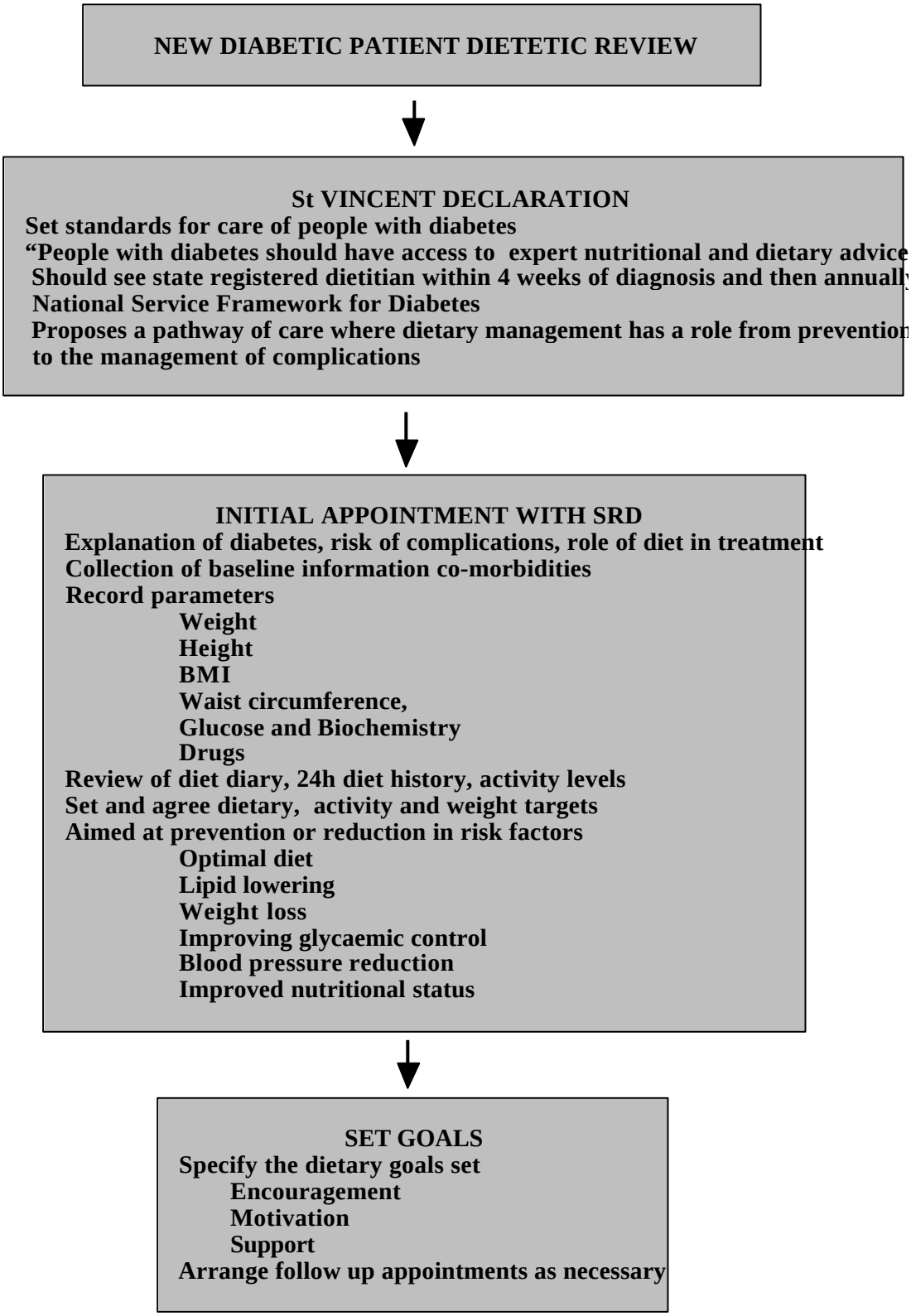
ECG and CXR if indicated

B_{12}, folate and tissue specific autoantibody screen in Type I (including anti GAD and anti-islet cell)

Repeat fasting blood test 2 weeks before next clinic

U&E, LFT, TFT, Chol, Tg ,HDL, LDL, Glu, HBA1c and (CK, GGT if on a statin/glitazone)

New Patient Dietetic Assessment



Driving and Diabetes Mellitus

Adapted from DVLA Medical standards of fitness to drive *Feb 2002* (App.I)

All patients must inform the DVLA of diagnosis and will be sent detailed information

Insulin treated diabetes

Car drivers: Must recognise warning signs of hypogycaemia and meet visual standards

HGV/PSV: Applicants since 1/4/91 barred from driving.
Drivers licensed before 1/4/91 require annual consultant certificate.
Since April 2001 allow 'exceptional cases' to apply for or retain their entitlement to drive class C1 vehicles (3500kg – 7500kg) subject to an annual medical

Temporary insulin treatment (Gestational DM or Post MI)

Car drivers: Notify DVLA. May drive but must stop if severe hypos.
Must notify DVLA if continues insulin treatment continues for > 3 months

HGV/PSV: May not drive, reapply for licence when not on insulin

Oral hypoglycaemics

Car drivers: Retain licence until 70y unless visual acuity or fields affected

HGV/PSV: Licensed unless acuity or fields affected

Diet only

Car Drivers: To notify DVLA if visual acuity or fields affected

HGV/PSV: Licensed unless visual acuity or fields affected

<u>Diabetic Complications</u>

Frequent Hypoglycaemia or hypoglycaemic unawareness

Car drivers: Stop driving until control back to normal (medical report to DVLA)

HGV/PSV: May not drive

Visual Problems

Car drivers: Must be better than 6/9 to 6/12 corrected and fields $>120^0$ horizontal

HGV/PSV: Must be 6/9 or better in best eye (corrected)
Must be 6/12 or better in worst eye (corrected)
Uncorrected better than 3/60 in both
Normal visual fields

Renal Problems

Car drivers: No restriction unless dizziness, fainting or cognitive problems

HGV/PSV: Individual assessment by DVLA

The Annual Diabetic Review

See Appendix III

RECORD : Wt, Wt change; BMI ; random glucose ; urine dipstick result and acuity

History Examination and Investigation

Record accurately

Present age, type of diabetes, age of onset/duration, complications
Other clinical diagnoses
Smoking status
Full list of present medications

List Recent Results (from 2 weeks prior to clinic)

HBA1c, Chol, Tg ,HDL, LDL, Chol/HDL, Cre, Alb/Cre ratio, FT4, TSH, LFT
(GGT and CK if on a statin)

Assess present control

Record home blood glucose monitoring
Record hypo and hyperglycaemic episodes
Dietary compliance
Level of regular exercise

Directly question regarding

Exercise related chest pain
Intermittent claudication
Foot infections
Symptoms of peripheral neuropathy
Visual disturbance
Erectile dysfunction
Pregnancy or plan for pregnancy and contraception
Chiropody

Physical Examination

Specifically record

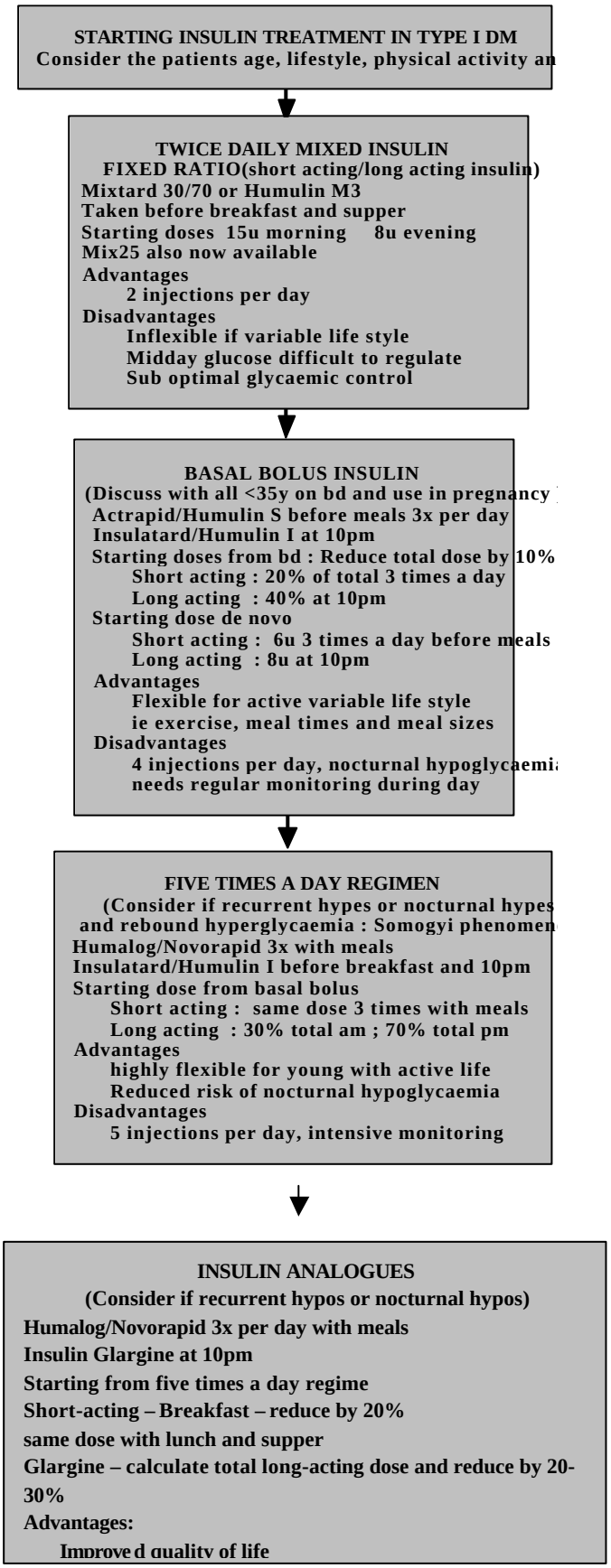
Blood pressure lying and standing
Peripheral pulses: dorsalis pedis and posterior tibials
Reflexes at the knee and ankle
Lower limb sensation : vibration, 10g microfilament and pinprick
Feet : General skin, nails, fungal infections, deformity/Charcot's, Ulcers
Visual acuity, presence of cataracts and dilated fundoscopy

Repeat fasting blood test 2 weeks before next clinic

U&E, LFT, TFT, Chol, Tg ,HDL, LDL, Glu, HBA1c and (CK, GGT if on a statin/glitazone)
Random albumin/creatinine ratio

Dietetics Review at least every 2 years

Insulin Treatment in Type I DM



Commonly Used Human Insulins

Most insulin is used with 3ml re-loadable cartridge pens. 1.5ml cartridges are no longer available
Humapen and Novopen
Disposable pens are also available for ease of use
Special pens are available for partially sighted and elderly

Long acting

Insulin Glargine	**flat profile**	**duration 24h**

Intermediate acting

Insulatard	**peak 5h**	**duration 10h**
Humulin I	**peak 5h**	**duration 10h**

Fast Acting (Taken 30 minutes before meals)

Actrapid	**peak 2h**	**duration 7h**
Humulin S	**peak 2h**	**duration 7h**

Very Fast Acting (Taken with or after start of meals)

Humalog (Lispro)	**peak 1h**	**duration 4h**
Novorapid	**peak 1h**	**duration 4h**

Mixtures of Human Insulin

Human Mixtard 30/70 (30% Actrapid : 70% Insulatard)
also available 10/90, 20/80, 40/60, 50/50

Humulin M3 (30% Humulin S and 70% Humulin I)
Also available M2, M5

Mix25 (25% Humalog : 75% Humulin I)

INSULIN GLARGINE

Insulin Glargine is a long acting human insulin analogue prepared by modifying the structure of insulin to allow more consistent release during the day and thereby mimicking natural basal insulin release.

Glargine maintains a basal concentration of insulin in the blood which can then be increased by injections of short-acting insulin analogues as required. It is used as the basal component of a basal-bolus regime. The prolonged action of glargine, without pronounced peaks over 24 hours, make it ideal for this purpose.

Glargine does not require resuspension before use and this reduces intra and inter-user variability.

In type I diabetes, 3 studies have shown a significant improvement in fasting blood glucose. One study reported a significant improvement in HbA1c though the study was only 4 weeks duration. The manufacturers report a 1.7% reduction in HbA1c. One study reported a significant reduction in nocturnal hypoglycaemic episodes, though this was not supported by 2 other studies. The manufacturers report a 70% reduction in hypoglycaemic episodes.

In type II diabetes, glargine produces no change in fasting blood glucose or HbA1c according to 2 randomised controlled trials but the manufacturers report a 1.4% reduction in HbA1c. Both RCTs report a significant reduction in nocturnal hypoglycaemic episodes.

NICE guidelines

Glargine is a treatment option for **all** patients with type I diabetes

Glargine should only be considered in type II diabetes under the following circumstances

a) The individual requires assistance from a healthcare professional to administer insulin.
b) The individual's lifestyle is severely restricted by recurrent symptomatic hypoglycaemic episodes.
c) The individual would otherwise use twice daily basal insulin in combination with oral hypoglycaemic agents.

Alternatives to s/c Insulin in Type I Diabetes

BRIEF REVIEW OF ALTERNATIVE TREATMENT OF TYPE 1 DM

INSULIN PUMP THERAPY (In UK 1:1000 Type I DM)
Continuous Subcutaneous Insulin Infusion (CSII)

Pump driven infusion of soluble insulin subcutaneously via a cannula into the abdomen
Continuous background dose and boluses before meals
Candidates for consideration of insulin pump
- **Very motivated to take control of own DM and do 4 blood sugars every day**
- **Good understanding of Type 1 DM and effects of insulin, exercise and food**
- **Young type I DM unstable control (hypos/hypers) on 5 times a day basal bolus**
- **Young type I DM poor control and early reversible microvascular complications**
- **Poor control on basal bolus in pregnancy**
- **Sufficient financial resources or health authority funding (initial £2000 & annual £**

Advantages
- **Improved glycaemic control over basal bolus and quality of life**
- **Reduce risk of complications**
- **Help in restoration of hypoglycaemic warning symptoms**

Disadvantages
- **Motivated patients with good knowledge only**
- **Expensive initial equipment £2000 and then £600 per year paid by patient**
- **Experience required by health professionals**
- **Needs 24h help line**
- **Pump failure can lead to rapid DKA**
- **Infections at infusion site**

ISLET CELL TRANSPLANTATION

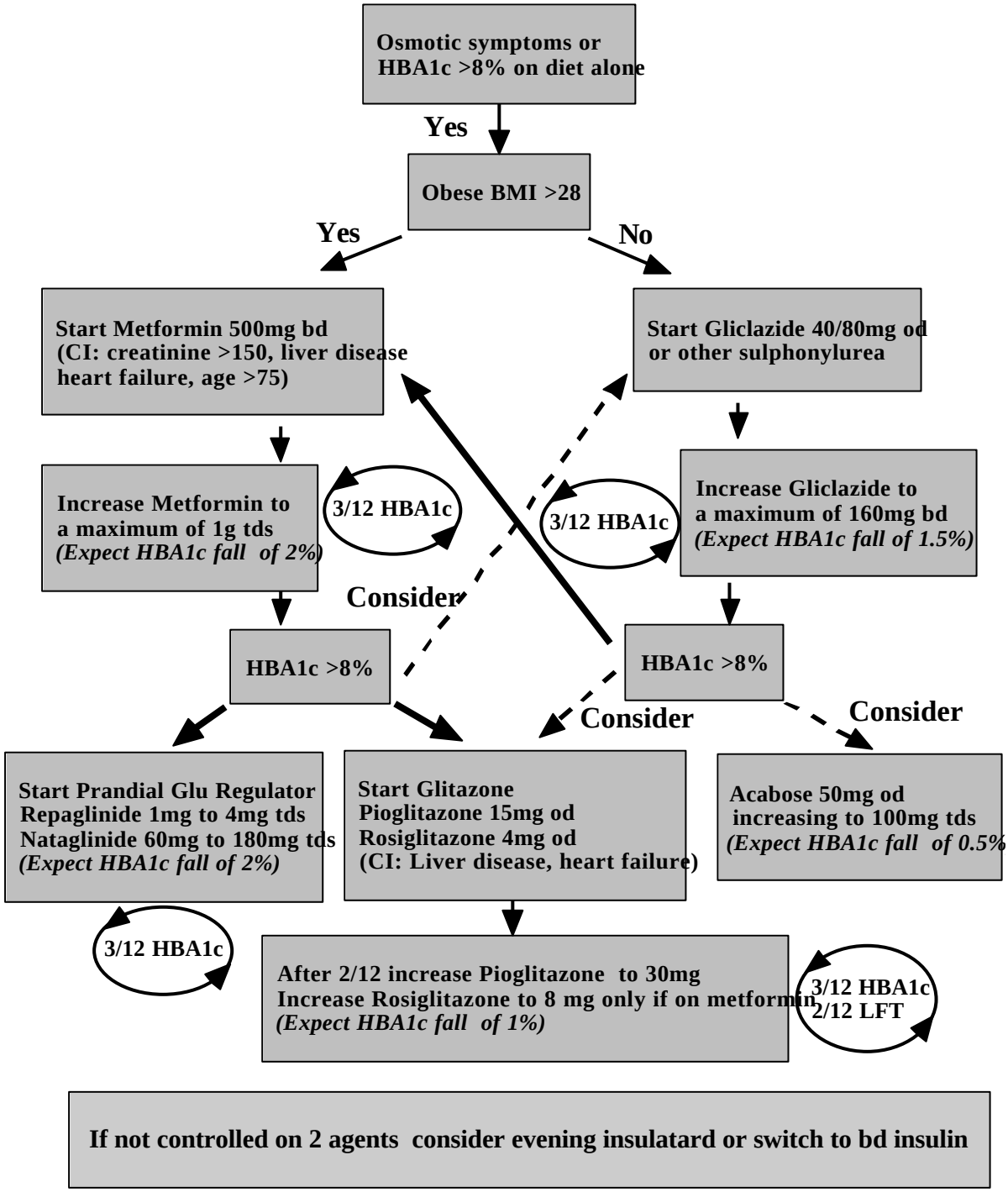
Islet cell transplantation in Type I DM is a research trial only at present
UKITC c/o Research and Information Dept 10 Queen Anne Street London W1G 9LH
UK Islet Cell Transplantation Consortium : planned facilities
- **King's College London, Royal Free Hospital London**
- **Addenbrookes Hospital Cambridge, John Radcliffe Hospital Oxford**
- **Worcester Acute Hospital, University College Leicester, Southmead Hospital Bristo**

Patient Selection Criteria
- **Type I DM between 18 and 65 years**
- **Failure of control and severe hypoglycaemia on optimal 5x per/day regime**
- **early microvascular complications**

Exclusion Criteria
- **Renal Disease**
- **Insulin resistance**
- **repeated episodes DKA**

EDMONTON PROTOCOL (Shapiro et al NEJM 2000 343 : 230-238)
- **Islets**
  - **Isolated from human pancreas (11,000 islets per Kg of recipients weight)**
  - **Cross matched for blood type and lymphoytotoxic ab but not HLA**
- **Transplant**
  - **Percutaneous transhepatic access to portal vein under sedation**
  - **Islets infused over 5 min in 120ml of medium**
- **Immunosuppression**
  - **Sirolimus od, Tacrolimus bd and daclizumab iv 5x 2 weekly**
- **Prophylaxis**
  - **IV vancomycin, Imipenem, VitE/B/A, inhaled Pentamidime monthly**
  - **oral gancyclovir tds for 14 weeks post transplant**
- **Results**
  - **All patients required islets from at least 2 pancreases**
  - **7/7 had insulin independence and normal HBA1c at 1y FU**

Oral Hypoglycaemics Type II DM



Oral Hypoglycaemic Agents

Sulphonylureas (Expect reduction in HBA1c of 1 to 1.5%)
Action : Stimulate pancreatic insulin secretion
(Closes K^+ channels opens Ca^{2+} channels resulting in incised insulin secretion)
Gliclazide initial dose 40mg od before meals titrate monthly to max of 160mg bd
Risk of hypoglycaemia and weight gain average 5Kg
Avoid long acting sulphonylureas in patients >70y,
Avoid sulphonylureas in severe renal impairment (Cre>350) and liver disease
Gliclazide (40mg od to 160mgbd) short acting
Tolbutamide (0.5g od to 1g bd) short acting low incidence of hypoglycaemia
Glimepiride (1mg od to 4mg od) long acting avoid in >70y
Glibenclamide (5mg od to 15mg od long acting avoid in >70y

Biguanides (Expect reduction in HBA1c of 0.8 to 2%)
Action : Increases muscle glucose uptake and decreases hepatic gluconeogenesis
does not result in wt loss or gain
Metformin initial dose 500mg bd with meals titrate monthly to maximum 850mg tds
Risk of GI disturbance, lactic acidosis, renal impairment with radiographic contrast
Avoid in hospital inpatients, renal impairment (Cre>150), liver disease, heart failure and pregnancy
IV contrast: Do not take metformin 48h before or after IV contrast

Acarbose (Expect reduction in HBA1c of 0.5%)
Actions : α-glucosidase inhibitor delayed glucose absorption
Acabose initial dose 50mg od increasing slowly to 100mg tds with meals
Risk of GI disturbance frequent poor compliance

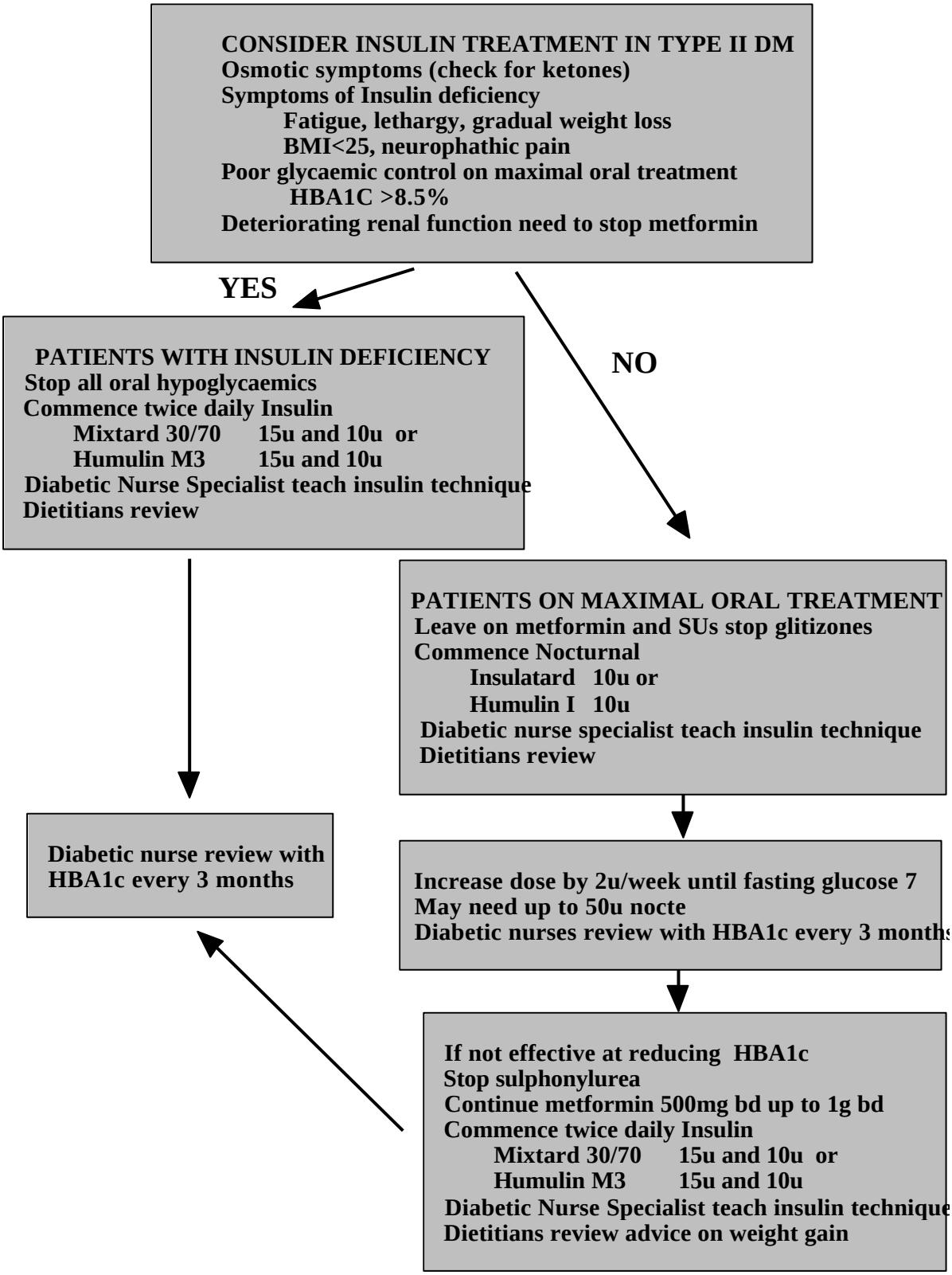
Prandial Glucose Regulators (Expect reduction in HBA1c of 1% to 2%)
Actions : Rapid short action via the sulphonylurea receptor stimulating insulin release
Repaglinide 0.5 to 4mg 15 minutes before meals (max 16mg/d)
Nateglinide 60 to 180mg 15 minutes before meals (maximum 540mg/d)
Possible benefits: less wt gain and hypoglycaemia, can be used with metformin
Repaglinide may be used as monotherapy and both in renal impairment
Neither to be used with sulphonylureas or in pregnancy
Risks GI disturbance : avoid in severe hepatic or renal impairment and pregnancy

Thiazolidinediones (Expect reduction in HBA1c of 1%)
Actions : PPARγ nuclear receptor activator (peripheral insulin sensitisation)
Indicated for use in inadequately controlled diabetics on

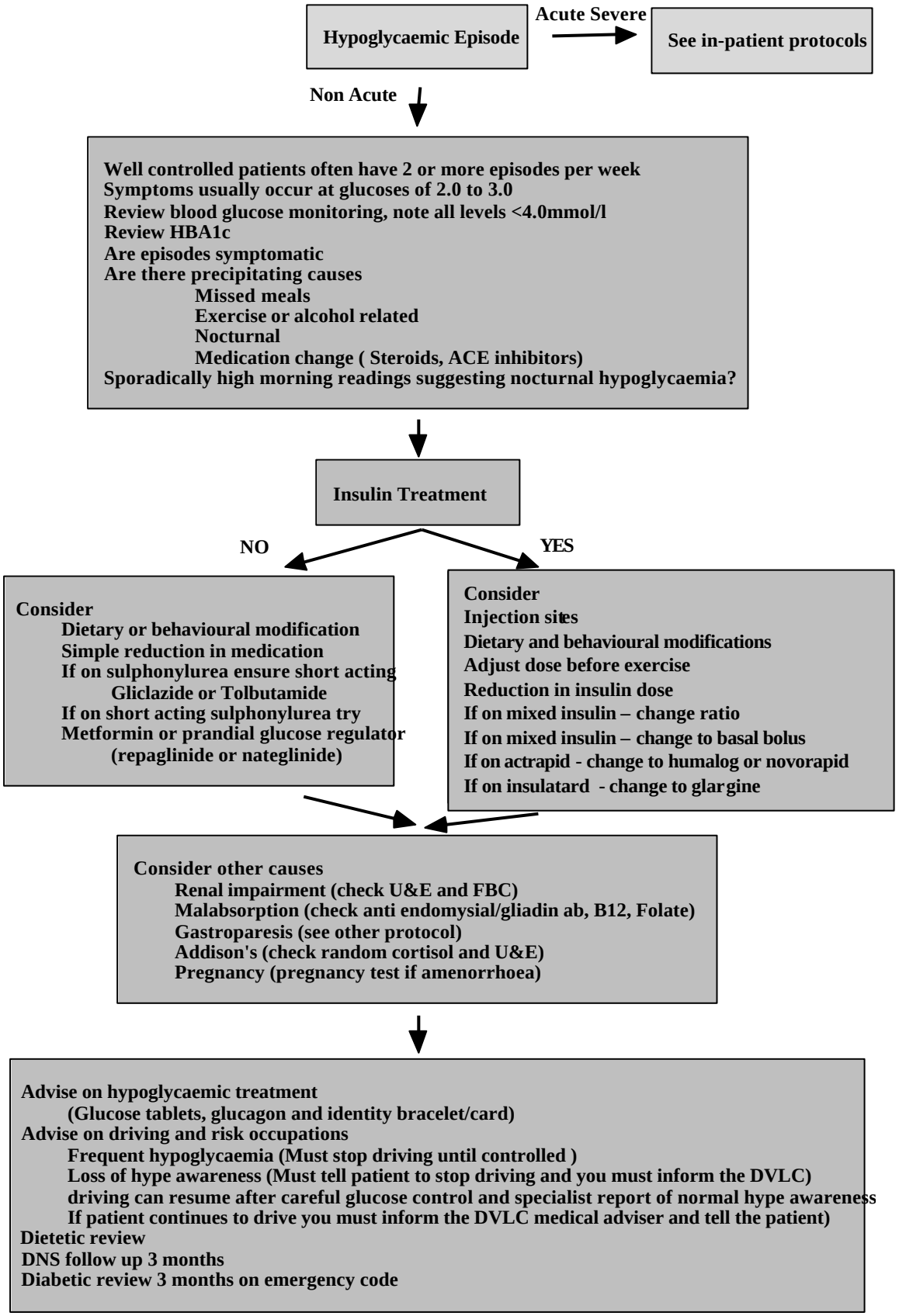
- suphonylurea but intolerant of metformin
- obese patients on metformin.

Not licensed currently for use as monotherapy or with insulin
Pioglitazone 15mg od increasing to 30mg od
Rosiglitazone 4mg od increasing to 8mg od after minimum of 2 months (only with metformin)
Risks GI disturbance, wt gain and oedema
Avoid in hepatic impairment, heart failure and pregnancy
Monitor liver function at baseline and every 2 months for first year (stop if ALT 3x normal upper limit)

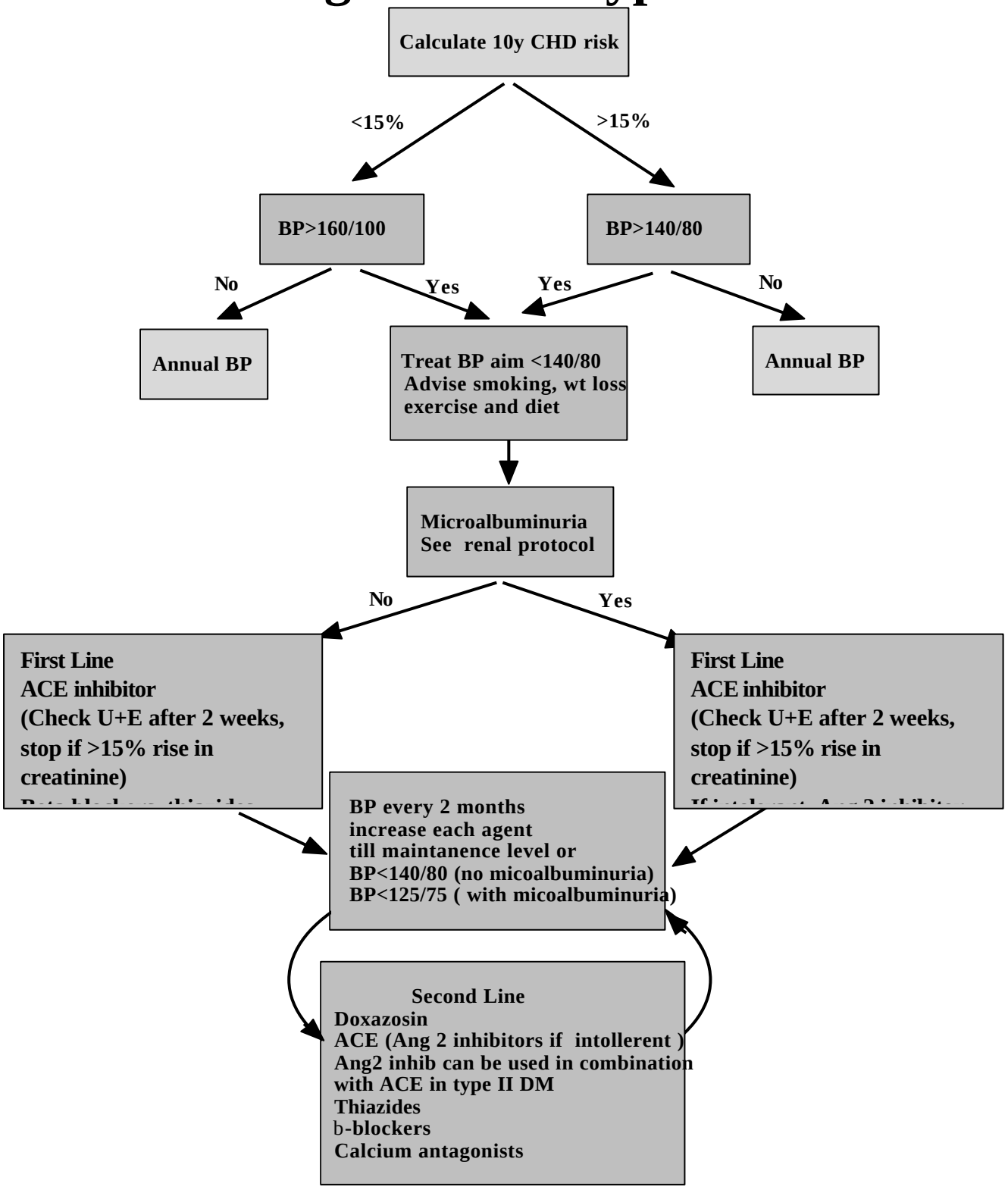
Insulin Treatment in Type II Diabetes



Recurrent Hypoglycaemia



Management of Hypertension



Guidelines for starting ACEI or Ang2 inhibitors;

- **Check U+E after 1-2 weeks – stop if Cr rises by > 15%**
- **Stop thiazides whilst initiating treatment to avoid volume depletion**
- **Discontinue NSAIDs**
- **If significant PVD, perform MRA to exclude renal artery stenosis**

Hypertension Data

- Hypertension occurs more frequently in patients with diabetes than in the general population. 40% of newly diagnosed subjects enrolled in the UKPDS had were hypertension and this increased during the study to being 48% of all men and 54% of all women

- In type 1 diabetes the incidence of hypertension increases with increasing duration of diabetes and frequently has a renal origin

- In type 2 diabetes hypertension is frequently part of the insulin resistance syndrome occurring with other cardiovascular risk factors.

- Hypertension is significant contributor to micro and macrovacular disease in both type 1 and type 2 diabetes

- In the type 2 diabetic subjects enrolled in the UKPDS for each 10 mm Hg decrease in mean systolic blood pressure there was associated with reductions in risk of 12% for any complication related to diabetes

- The third working party of the British Hypertension Society based the decision to treat hypertension in non-diabetics subjects with a sustained systolic BP of 140 - 159 mm Hg or sustained diastolic BP of 90-99 mm Hg on the presence of end organ damage, cardiovascular disease or a 10-year coronary heart disease risk of =15%. As the majority of diabetic patients will have a coronary heart disease risk of =15% and microvascular and macrovascular complications increase with increasing blood pressure the report recommended initiating antihypertensive drug therapy in diabetic subjects with a sustained systolic BP =140 mm Hg or sustained diastolic BP is =90 mm.

- Angiotensin-converting enzyme (ACE) inhibitors are the first line hypertensive agent for patients with type 1 diabetes as they has proven renal protective properties. All diabetic subjects with micoalbuminures should receive an ACE-inhibitor or an A-II receptor antagonists if intolerant to the former.

- A-II receptor antagonists provide some theoretical advantages over ACE inhibitors in that they directly inhibit A-II by binding to the AT(1) receptor subtype thereby blocking all A-II action at this receptor even when generated through the non classical renin-angiotensin pathways. A-II receptor antagonists have also been shown to significantly reduce the progression of diabetic renal disease in patients with type 2 diabetes.

- Many hypertensive diabetic patients require three of more antihypertensive agents to control blood pressure. Thiazides and β-blockers remain effective and useful first treatment options given alone or in combination. In the UKPDS atenolol was equally effective as the ACE-inhibitor captopril however was significantly cheaper.

- Doxacacin and long acting dihydropyridine calcium antagonists are effective second line agents ideally suited for combination with ACE-inhibitors, Thiazides and β-blockers if blood pressure target are not met.

Key References

- Association of systolic blood pressure with macrovascular and microvascular complications of type 2 diabetes (UKPDS 36): Adler AI. Stratton IM. Neil HA. Yudkin JS. Matthews DR. Cull CA. Wright AD. Turner RC. Holman RR..BMJ. 321(7258):412-9, 2000

- Guidelines for management of hypertension: report of the third working party of the British Hypertension Society. Ramsay L. Williams B. Johnston G. MacGregor G. Poston L. Potter J. Poulter N. Russell G. Journal of Human Hypertension. 13(9):569-92, 1999

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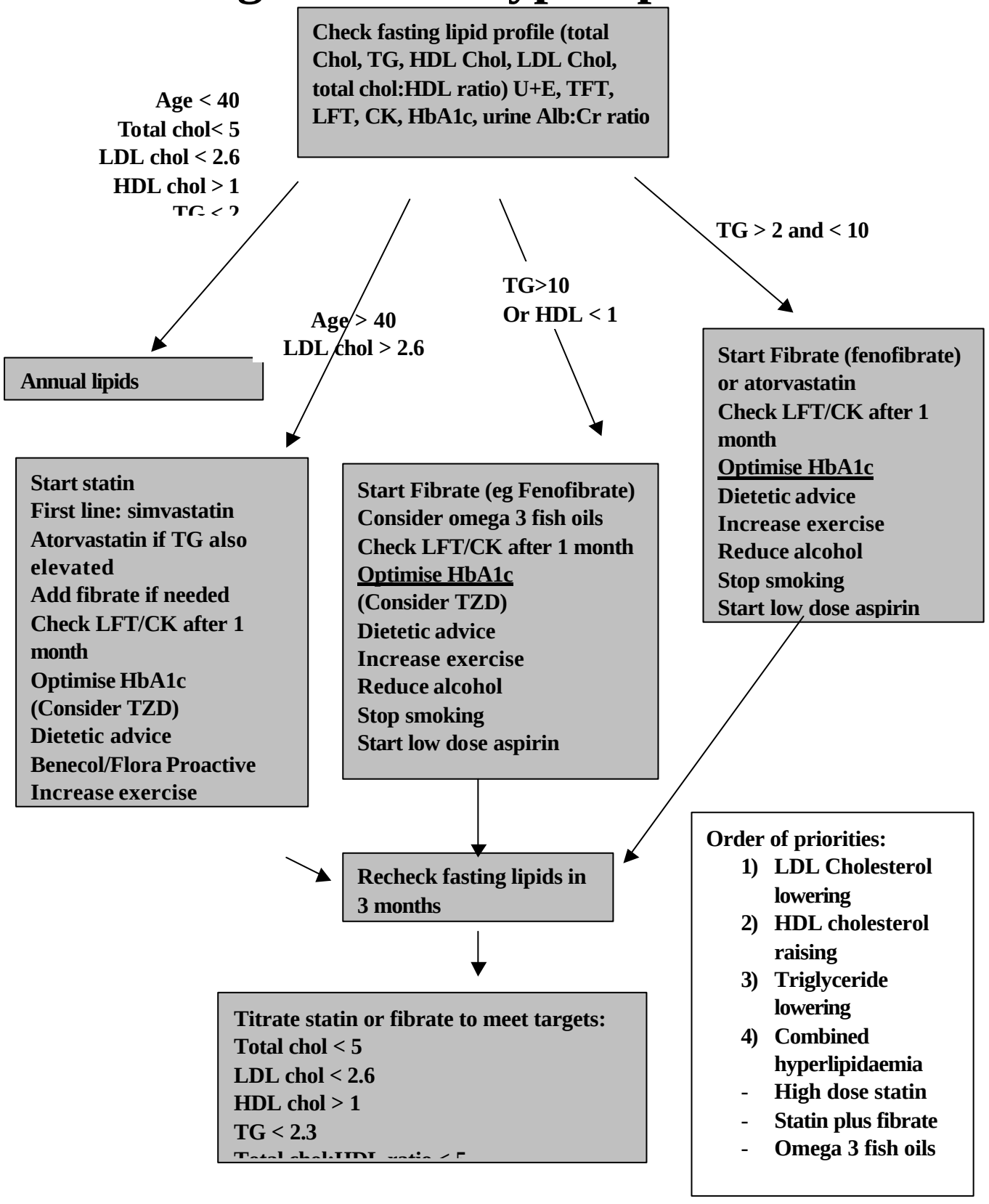
Management of Hyperlipidaemia



Stop statin or fibrate if transaminases over 3 x upper limit of normal or CK greater than 1000

Hyperlipidaemia Data

- All diabetic patients should receive dietary advice on reducing their dietary fat intake, replacing saturated fat with monounsaturated rich fats and oils and on the use of low fat spreads and fat substitutes, ie the use of Benecol and other plant stanols and sterols. Patients should be made aware of how to lower their CVD risk through life style changes.

- Total cholesterol and serum triglycerides in the newly diagnosed patients enrolled in the UKPDS were significantly higher than for the general population. Although the HDL concentration in the diabetic women in the UKPDS were higher than the men by 7% this sex differential was considerably less than for the general population in which it was 22%.

- The Multiple Risk Factor Intervention Trial (MRFIT) demonstrated for or any given level of cholesterol, the incidence of coronary artery disease in diabetes is increased 2-4 times.

- The Scandinavian Simvastatin Survival Study (4S) and Cholesterol and Recurrent Events Trial (CARE) were secondary intervention trials using a statins (simvastatin, and pravastatin) that performed post hoc analyses of the diabetic subgroups. Despite the limitations of such subgroup analyses, these studies strongly suggest that treating hypercholesterolemia in diabetes will reduce the risk of recurrent cardiac events in individuals with pre-existing CAD..

- West of Scotland Coronary Prevention Study Group.(WOSCOP) showed evidence of a statin (pravatatin) in the primary prevention of CVD specific studies on the use of statins for the primary prevention of CVD in diabetics are awaited.

- Satins also provide protection against stroke and peripheral vascular disease

- In diabetic patients with a low HDL cholesterol and low or normal LDL concentrations fibrates offer good secondary protection against further CVD and stroke. In the Department of Veterans Affairs Intervention Trial (VA-HIT) subjects with established CVD and low HDL cholesterols but normal LDL concentrations were randomized gemfibrozil (1,200 mg/day)or placebo for 5 years. Of the 627 diabetics (25% of the study population) gemfibrozil resulted in a 24% relative risk reduction in CVD end points (CHD death, nonfatal myocardial infarction, and definite stroke) compared with placebo.

- Fibrates are first line management in diabetic patients with significant hypertriglerideaemia. A meta-analysis of 17 population-based studies (46 000 men and > 10 000 women) showed that risk of CVD increased by ˜ 30% in men and by ˜ 75% in women for every 1 mmol/l increase in triglycerides. A recent trail on progression of coronary atherosclerosis in type 2 diabetes over 3 years assessed by angiographic criteria showed in a placebo controlled trial micronised fenofibrate (200 mg/day) a showed a significantly smaller increase in percentage diameter stenosis with the fibrate than the placebo group.

Key References

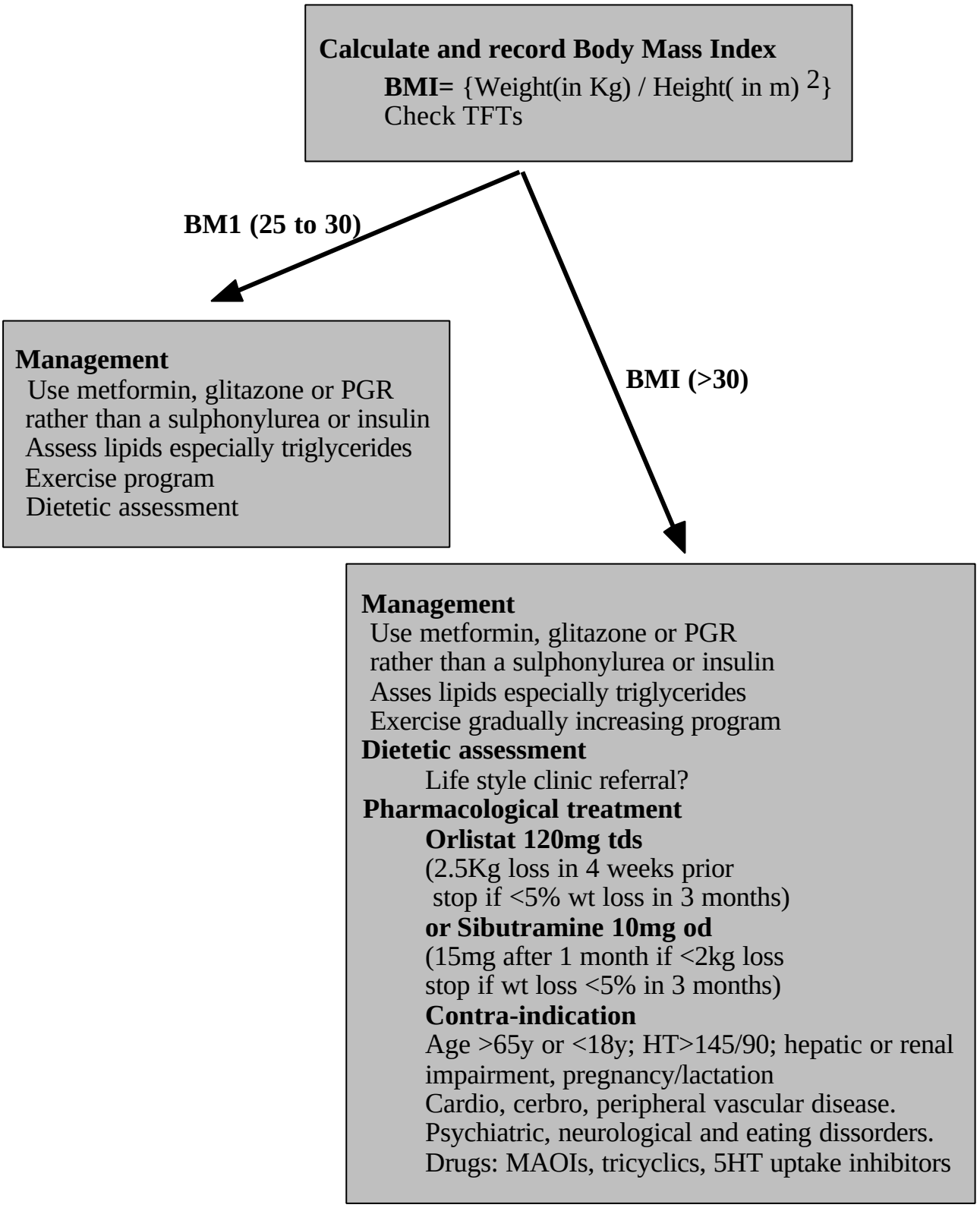
Rubins HB, Robins SJ, Collins D. The Veterans Affairs High-Density Lipoprotein Intervention Trial: baseline characteristics of normocholesterolemic men with coronary artery disease and low levels of high-density lipoprotein cholesterol. *Am J Cardiol* 1996;78:572-575.

Hokanson JE, Austin MA. Plasma triglyceride level is a risk factor for cardiovascular disease independent of high-density lipoprotein cholesterol level: a meta-analysis of population-based prospective studies. Journal of Cardiovascular Risk 1996; 3:213-219.

U.K. Prospective Diabetes Study Group: U.K. Prospective Diabetes Study 27: plasma lipids and lipoproteins at diagnosis of NIDDM by age and sex. *Diabetes Care* 20:1683-1687, 1997

Scandinavian Simvastatin Survival Study Group: Randomized trial of cholesterol lowering in 4,444 patients with coronary heart disease: the Scandinavian Simvastatin Survival Study (4S). *Lancet* 344:1383-1389, 1994

Obese Diabetic Patients



Proteinuria and Microalbuminuria

Refer all patients with diabetes AND increasing microalbuminuria or proteinuria and/or renal impairment, at least for initial assessment, or any patients in whom the diagnosis of urine or renal abnormalities is unclear

Early morning Alb:Cr ratio >2

Repeat in clinic
Check MSU

Type I **Type II**

24hour urine for protein, serum albumin
Microalbuminuria = 30-300mg/L

DIABETES
Without
MICROALBUMINURIA

ASPIRIN,
STATIN if LDL Chol >2.6
MAINTAIN HbA1c < 8%
BP < 140/80 mmHg
6 MONTHLY URINE ALBUMIN:CREATININE RATIO

DIABETES
with

AIIRA or ACE INHIBITOR in all
BP < 130/80 mmHg
6 MONTHLY URINE ALBUMIN:CREATININE RATIO
Titrate ACEI/AIIRA to

DIABETES
with PROTEINURIA

AIIRA or ACE INHIBITOR in all
BP < 125/75 mmHg
Ensure under regular

DIABETES
with RENAL IMPAIRMENT

Progression of renal failure in diabetes is preventable and requires impeccable BP control and reduction of proteinuria

STOP SMOKING
REGULAR EXERCISE
AVOID WEGHT GAIN

Antihypertensive Therapy

- **Angiotensin receptor antagonists (AIIRA) or ACE inhibitors** should be used in all patients with microalbuminuria or proteinuria to reduce rate of progression to renal impairment, and non-renal vascular morbidity
- AIIRA may be better than ACEI
- Monitor serum creatinine after initiation (at 2 weeks) – creatinine will rise in MOST patients – stop ACEI/AIIRA ONLY if creatinine increases >15% above baseline
- Add diuretic (thiazide or indapamide) or calcium channel blockers (use once daily preparations)
- Beta and Alpha blockers useful
- Patients usually need multiple drugs

Jeremy Levy
Consultant Nephrologist

Proteinuria and Microalbuminuria

- Diabetic nephropathy is the leading cause (25-44%) of end-stage renal failure in Europe, the United States and Japan. Microalbuminuria precedes the development of proteinuria and progressive renal impairment. The progression is of microalbuminuria to pesisitant proteinuria and renal disease is highly dependent on blood pressure , glycaemic control and duration of diabetes. In type 1 diabetes there is also a genetic susceptibility to diabetic . The proportion of renal replacement patients with diabetes is expected to double within the next 15 years, due to the increased prevalence of type 2 diabetes, the younger age of onset of diabetes and patient living longer.

- Microalbuminuria is associated with an increased risk of diabetic the other microvascular complications, namely retinopathy and neuropathy, it is also associated with a fourfold increased risk of macrovascular disease: disease in type II DM.

- Primary prevention of diabetic nephropathy is improved glycaemic control and blood pressure lowering. In the Diabetes Control and Complication Trial, showed intensified glycaemic therapy in type 1 diabetic patients reduced the occurrence of microalbuminuria by 39%, and that of albuminuria by 54%. In the UKPDS the impact of blood pressure control was earlier and more dramatic than the effect of glycaemic control on the development and progression of microalbuminurea.

- Early ACE inhibition, even when blood pressure is completely normal in type 1 diabetic patients with microalbuminuria can normalise albumin excretion rates and reduce the progression of microalbuminuria to persistant proteinuria.

- Angiotensin II type I receptor antagonists in type 2 hypertensive diabetics indicate that these agents also reduce microalbumin excretion rates, an effect that can be further increased with the addition of an ACE inhibitor.

Key References

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- Mogensen CE, Neldam S, Tikkanen I, *et al*. Randomised controlled trial of dual blockade of the renin-angiotensin system in hypertensive microalbuminuric, non-insulin dependent diabetes: the candesartan and lisinopril miroalbuminuria (CALM) study. BMJ. 321(7274):1440-4, 2000

Blood Pressure in Renal Replacement

Blood pressure in renal; dialysis patients

Haemodyalysis aim for <140/90 pre dialysis

Calcium channel blokers can be used daily

No ACE or b-blockers or a-blockers on dialysis days

Peritoneal Dialysis aim for <140/90 pre dialysis

All antihypertensives may be used

Blood pressure in renal transplant patients

Calcium channel blokers can interact with (cyclosporin,tacrolimus,rapamicin)

Amlodipine can be used safely however

If use ACE inhibitors reduce diuretcs and check U&E at 1 week

>20% rise in K= or creatinine stop ACE

Lipids in Renal Replacement

Lipids in renal dialysis patients

Aim for Cholesterol <5 and LDL <3

All current statins may be used

Fibrates shoud only be used at low dose (Gemfibrozil)

Statin and Fibrate together should not be used unless discuss with renal team

Lipids in renal transplant patients

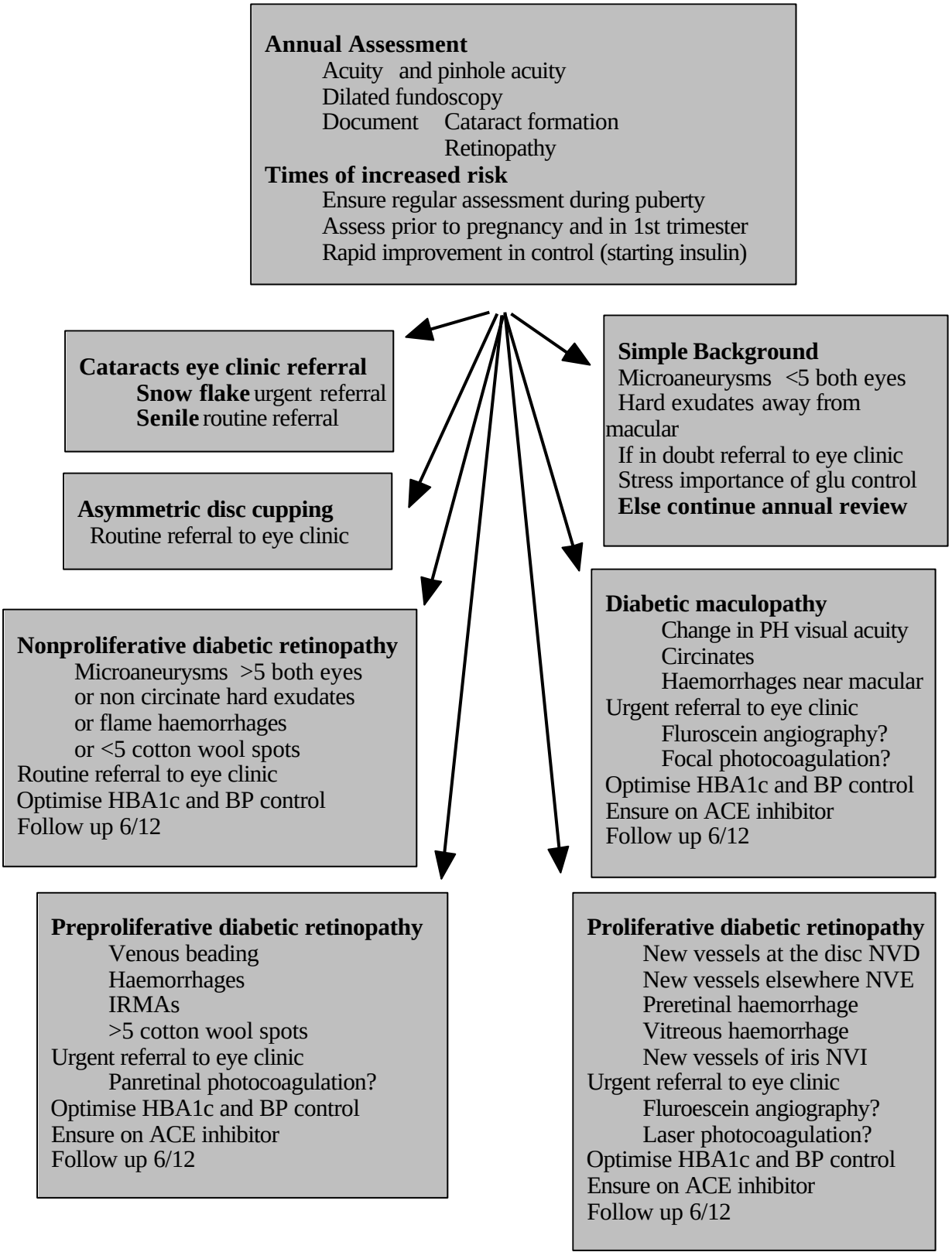
Aim for Cholesterol <5 and LDL <3

Consider interactions with cyclosporin, tacrolimus and rapamicin

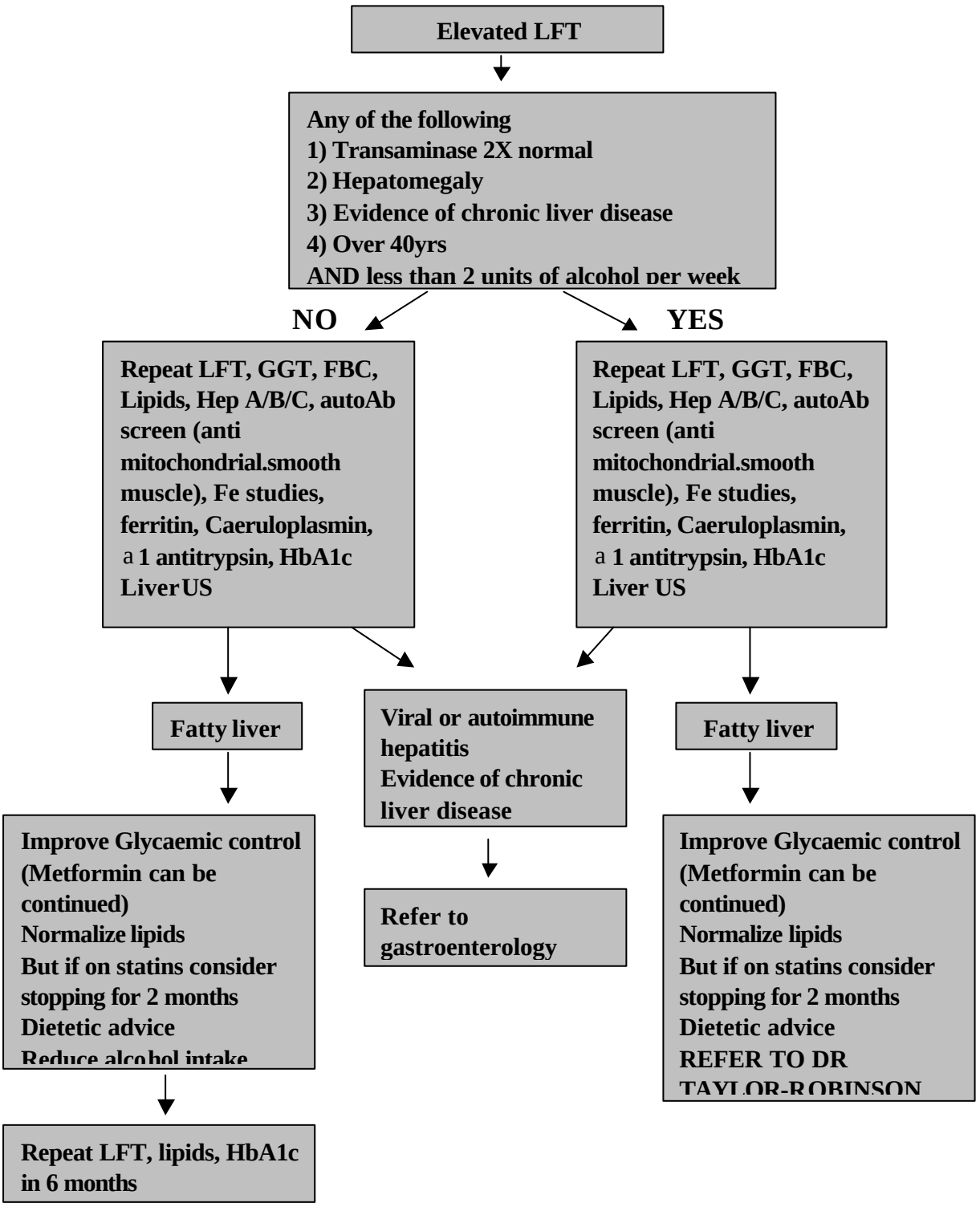
Use Pravastatin and Fluvastatin (differnet elimination to cyclosporin)

Statin and Fibrate together should not be used

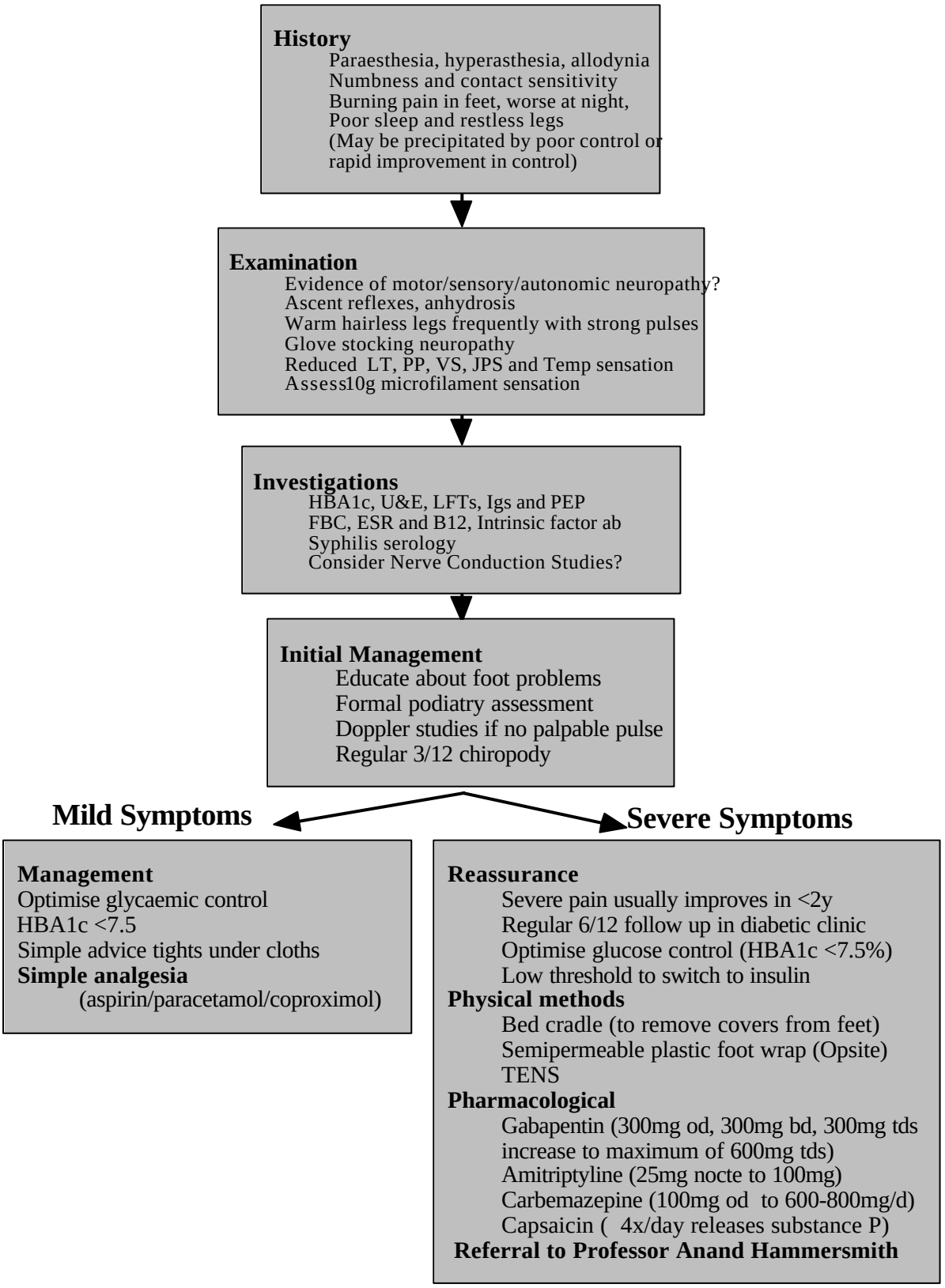
Diabetic Retinopathy



Steatosis in Diabetic Patients



Peripheral Neuropathy



Diabetic Amyotrophy

History

Motor Neuropathy (lumber-sacral plexus)
Frequently male, Type II DM, 50-60y,
Gradual onset
Thigh weakness, severe pain and wt loss
Anorexic

Investigations

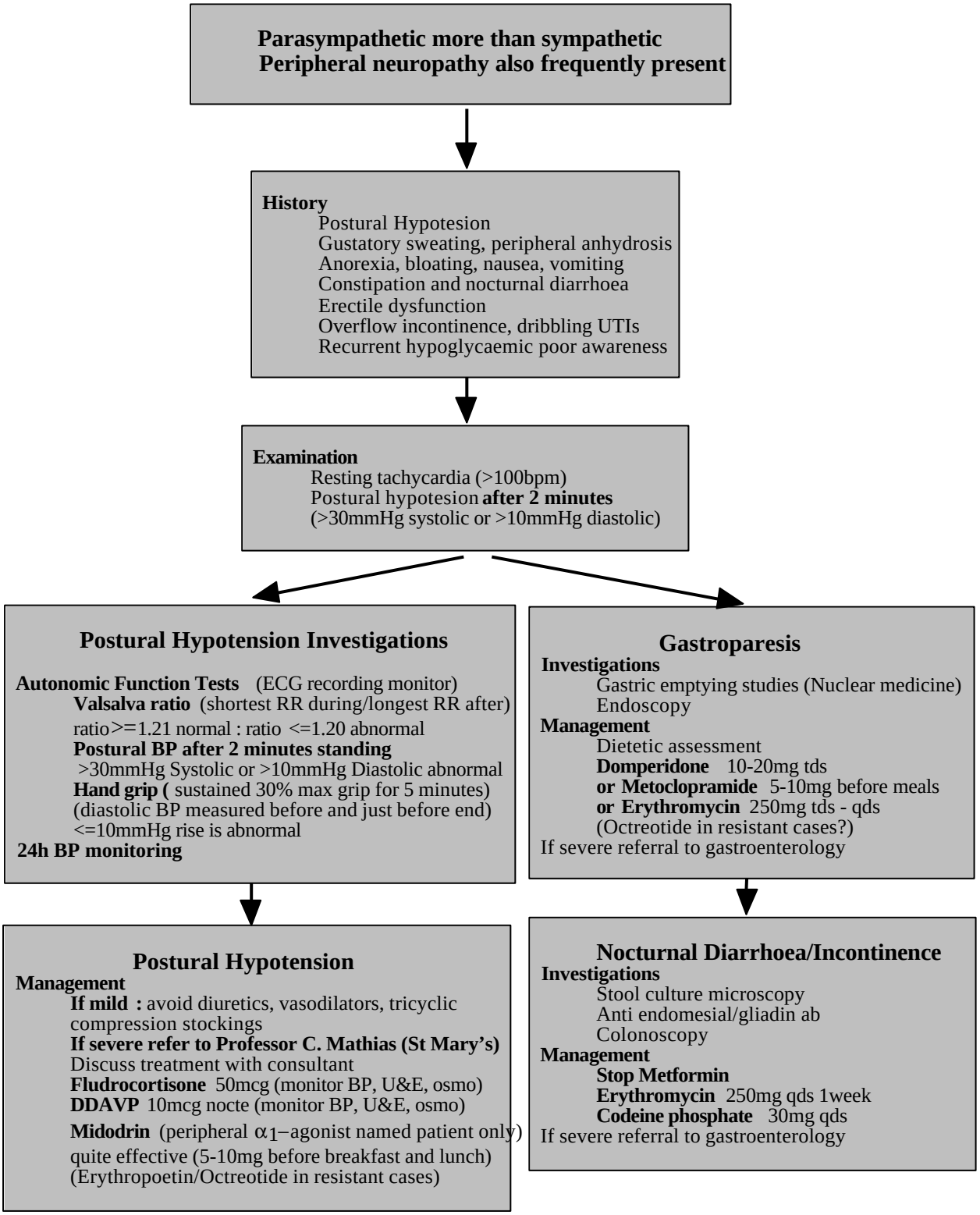
U&E, Calcium, LFTs, CRP
FBC, ESR
HBA1c
PSA
Xray Chest, Thoracolumber spine
Nerve Conduction Studies

Management

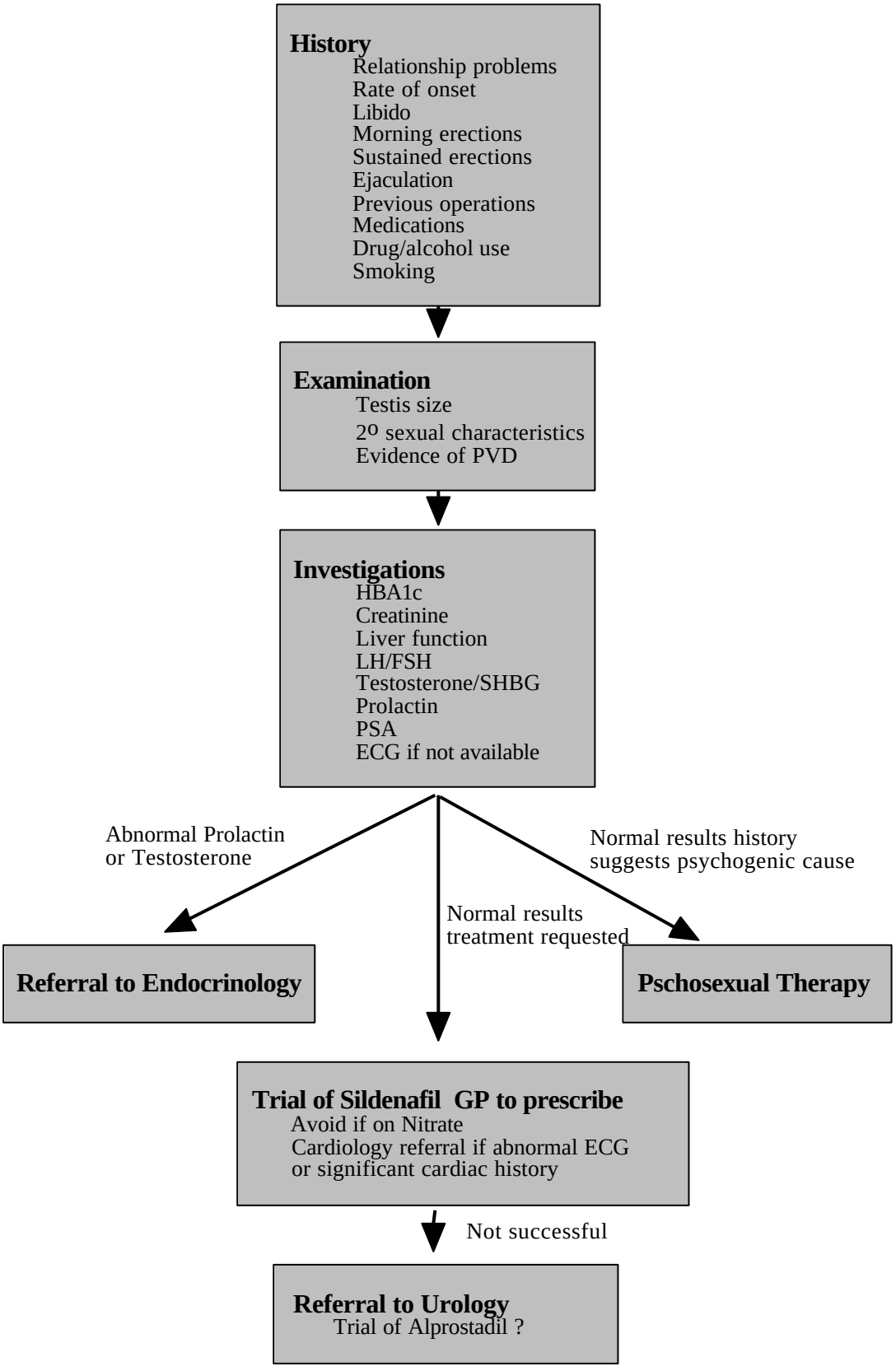
Admit to hospital
Swith to qds insulin
Dietetic assessment
Optimise HbA1c
Analgesia (may need opiates, tricyclics)
Physiotherapy
IV steroids used in trials

Expect gradual improvement over 3/12

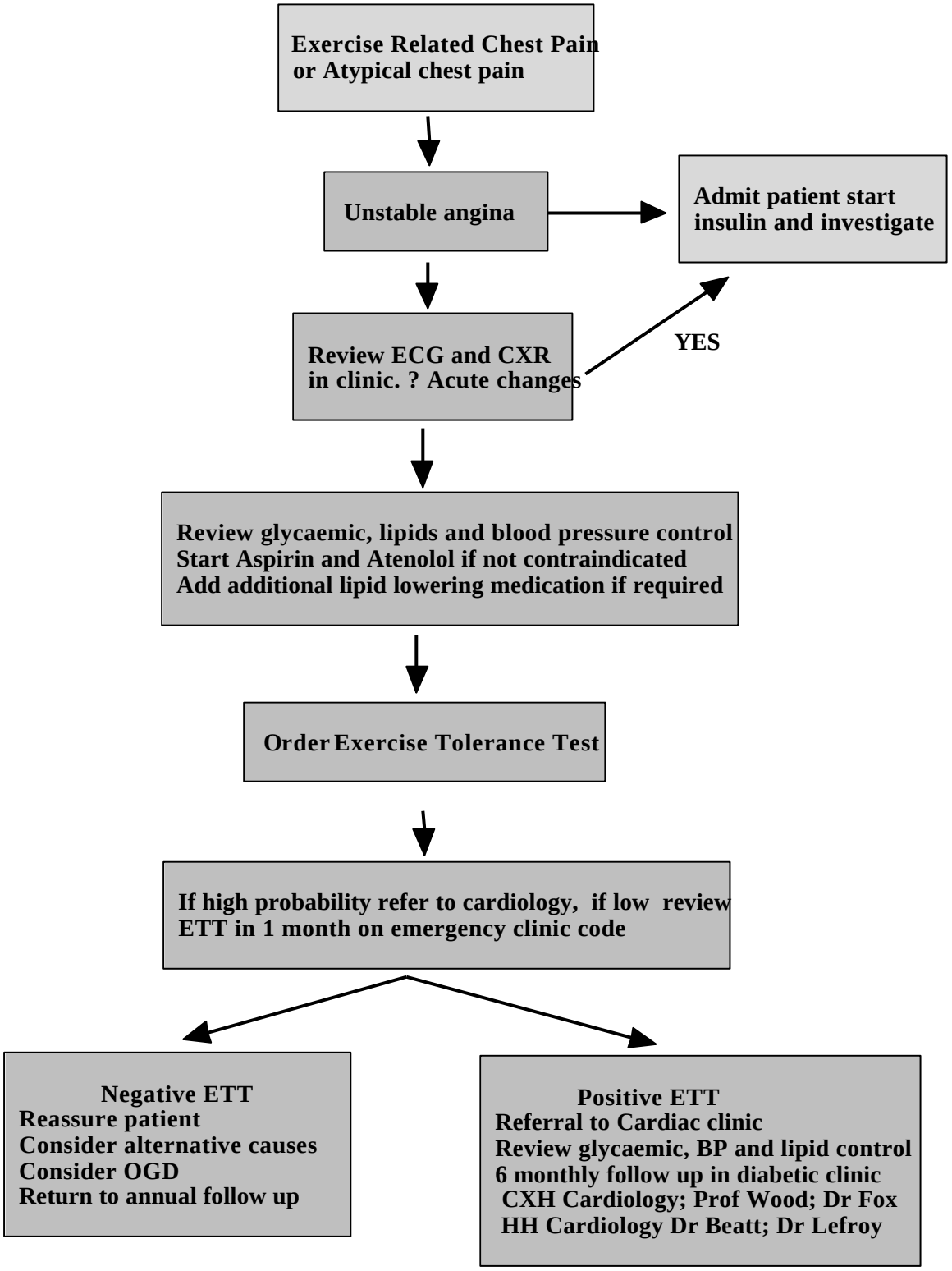
Autonomic Neuropathy



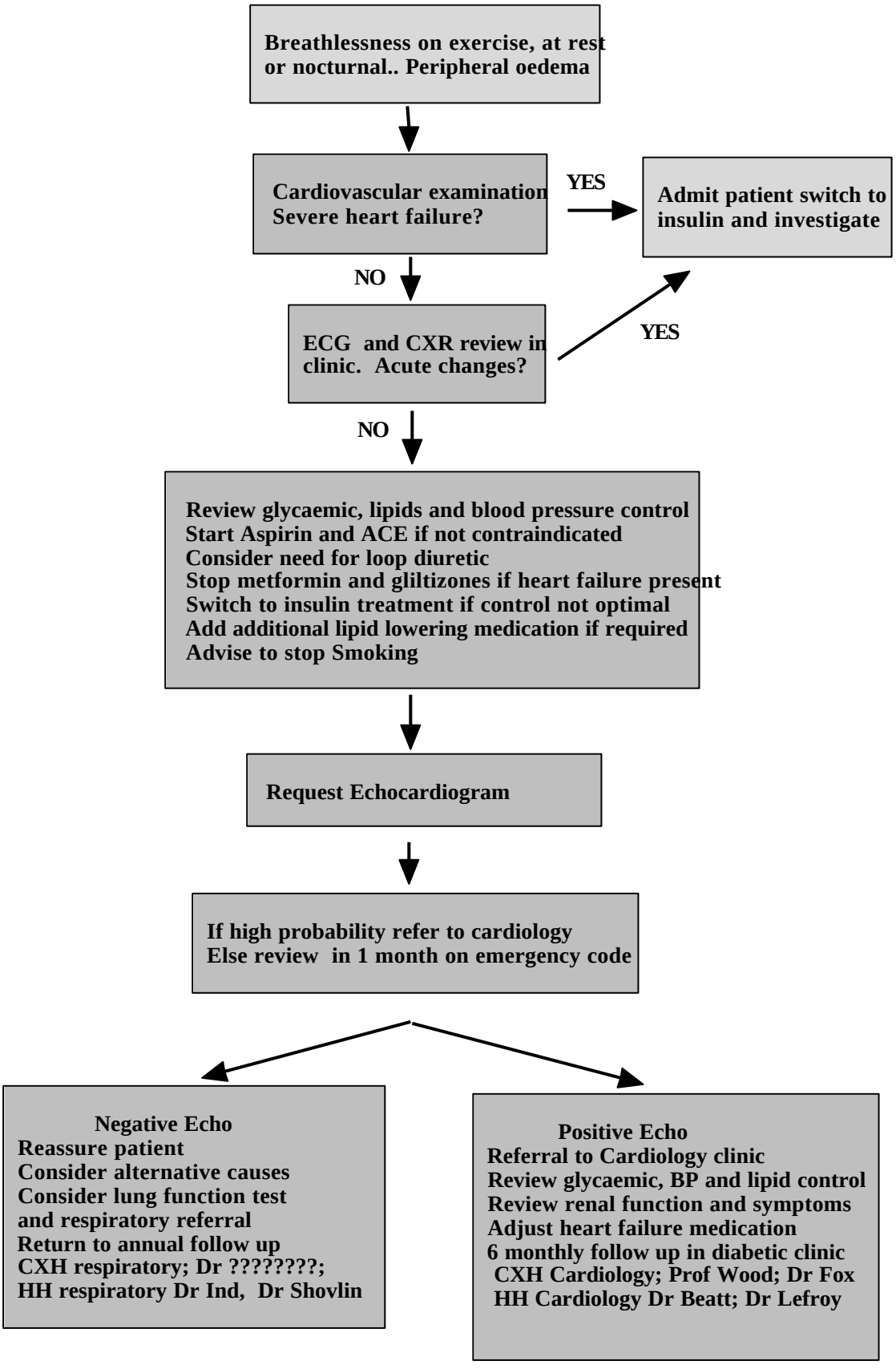
Erectile Dysfunction



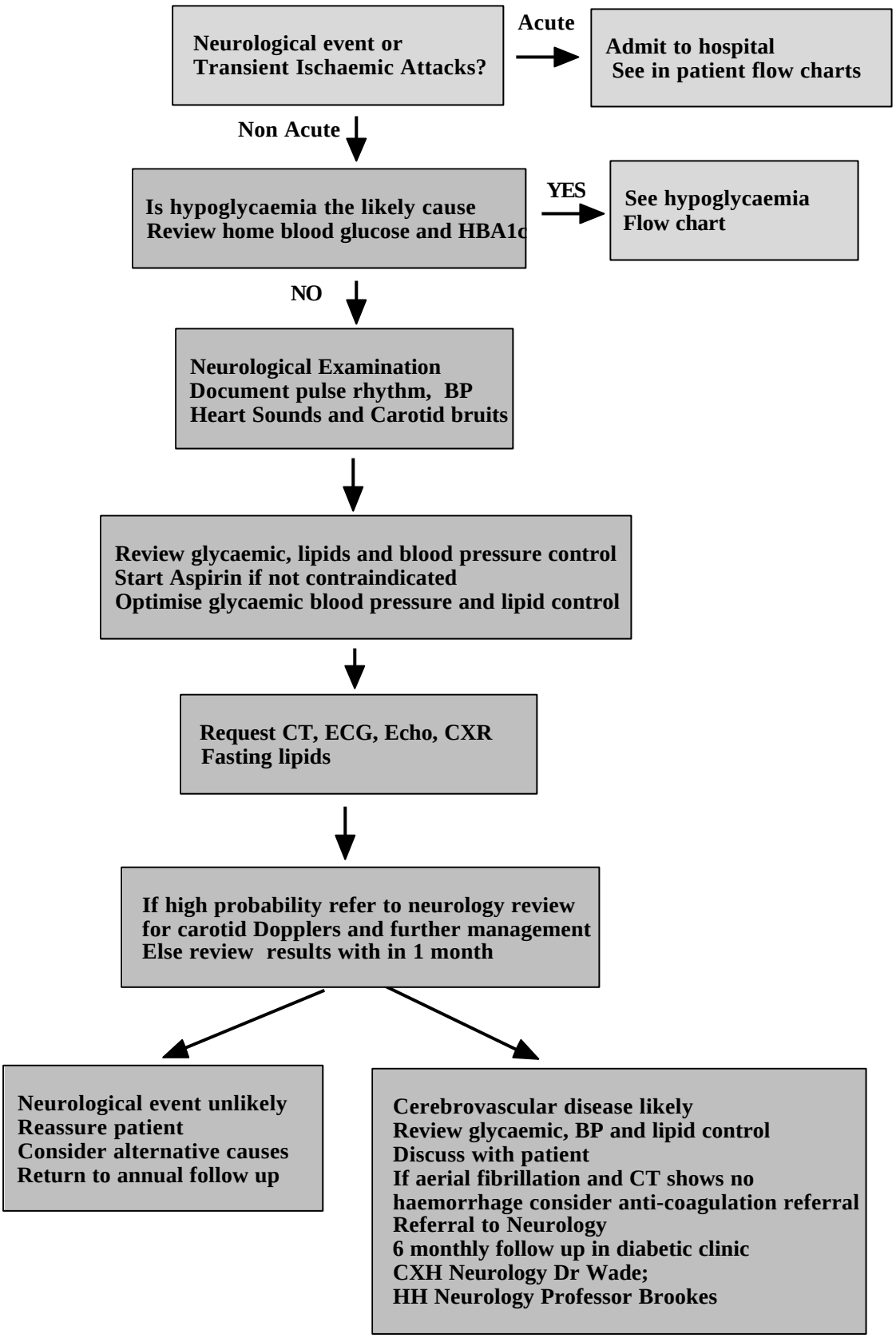
Coronary Heart Disease



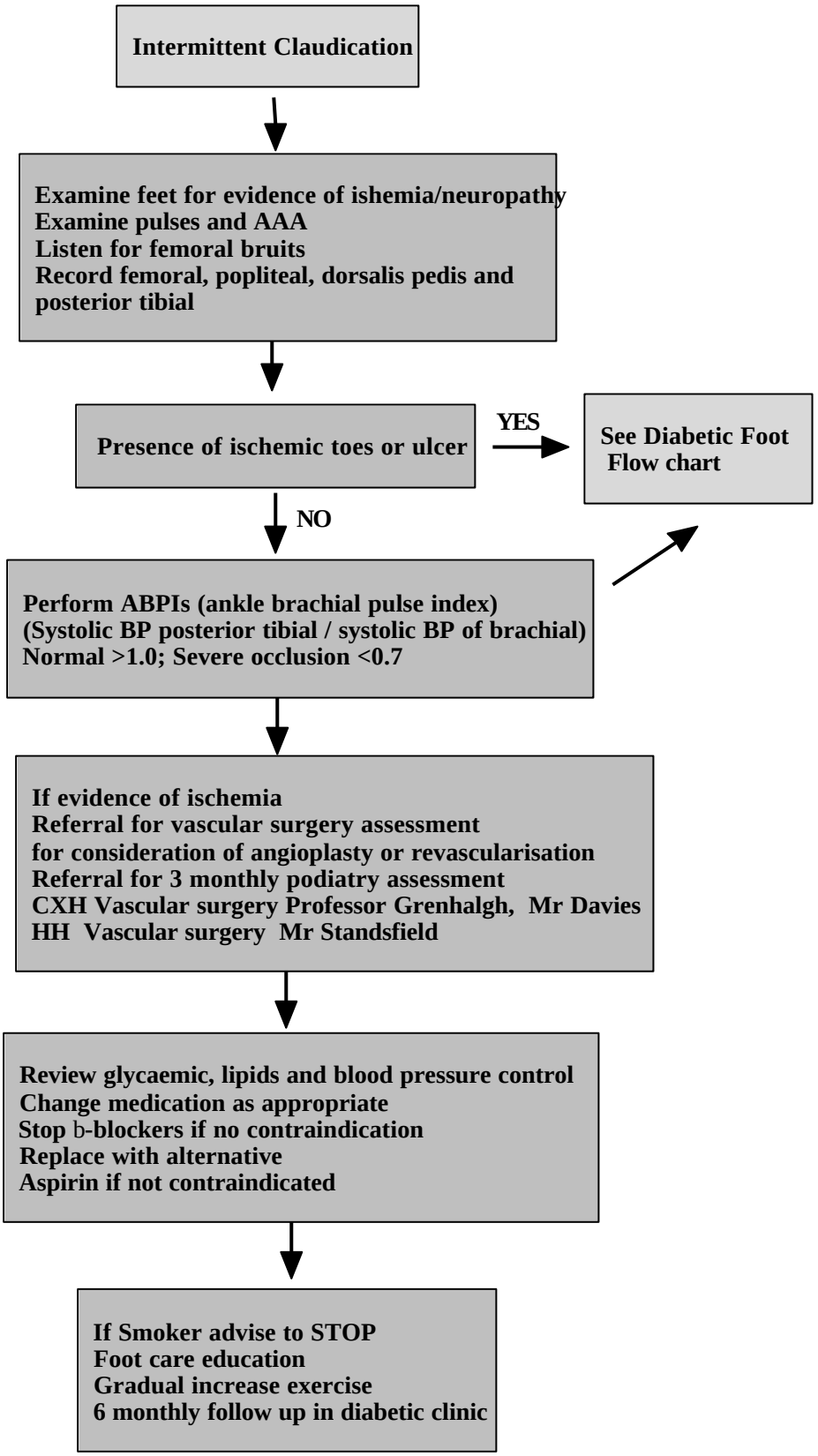
Heart Failure



Cerebrovascular Disease



Peripheral Vascular Disease



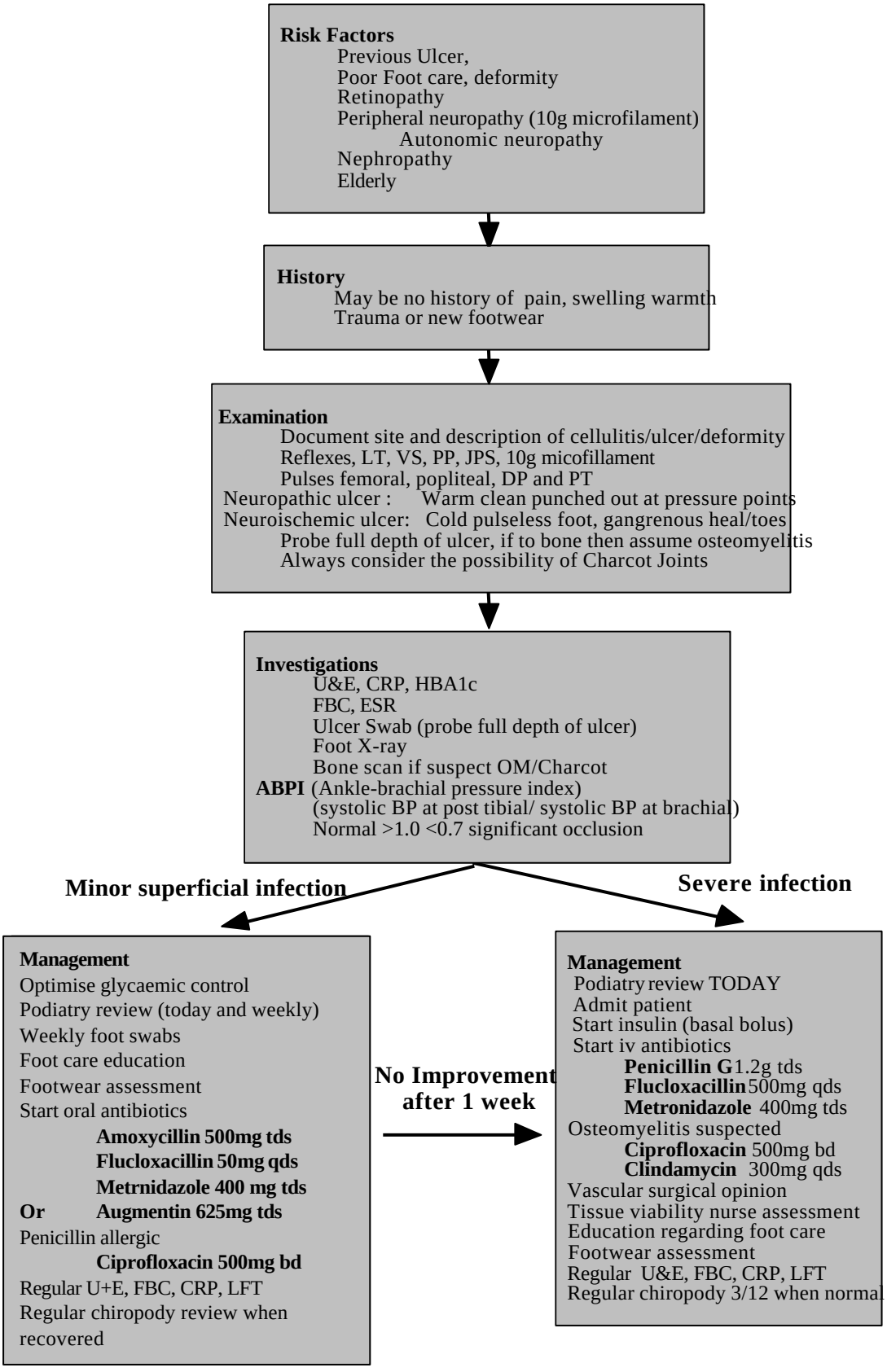
Diabetic Foot Assessment

	Right			Left		
Pulses	Palpable	Weak	Absent	Palpable	Weak	Absent
D Pedis						
Posterior Tibial						
ABPI D pedis						
Post Tibial						
Cap. Filling time			sec			s
Colour	Cyanosed	Normal	Erythema	Cyanosed	Normal	Erythem
Toes						
Foot						
Temperature						
Toes						
Foot						
Vascular Signs & Symptoms	Present		Absent	Present		Absent
Intermittent Claudication						
Rest Pain						
Oedema						
Neurological	Present		Absent	Present		Absent
Pin prick						
10gNeurofilament						
Vibration perception						
Hallux						
Malleoli						
Reflexes	Present	Reduced	Absent	Present	Reduced	Absent
Knee						
Ankle						
Footwear	Suitable	☐	Unsuitable ☐	Specialist	☐	Orthotic ☐

CLASSIFICATION	R	L		R	L
Stage One : Normal foot			Stage Four: Infection/ Necrosis		
Stage Two : High Risk			Stage Five : Amputation		
Stage Three : Ulceration					
Neuropathic			Neuroischaemic		

Clinicians name:	Date for review:

Diabetic Foot



Charcot Joint

History

Acute onset unilateral erythema, oedema and warmth
Pain may or may not be present
history of mild trauma
Early diagnosis and treatment is essential
Charcots usually involves midfoot
Osteomyellitis usually proceeded by an ulcer and affects metatarsal/calcaneum
Differential diagnosis
Cellulitis, Osteomyelitis, DVT, Gout

Examination

Document site and description of cellulitis/ulcer/deformity
Reflexes, LT, VS, PP, JPS, 10g micofillament
Pulses femoral, popliteal, DP and PT
Document lying and standing BP

Investigations

U&E, AlkP, CRP, Urate , HBA1c
FBC, ESR
Foot X-ray
Bone scan and then White Cell Scan

Management

Podiatry review TODAY
Admit patient
Antibiotics if osteomyelitis is possible continue till excluded
Optimise glycaemic control
Radiology review +/- MRI scan
Orthopaedic surgery review
Immobilisation non wt bearing cast for 1 month
Then total contact cast or aircast with very gradual mobilisation
Regular CRP and AlkP

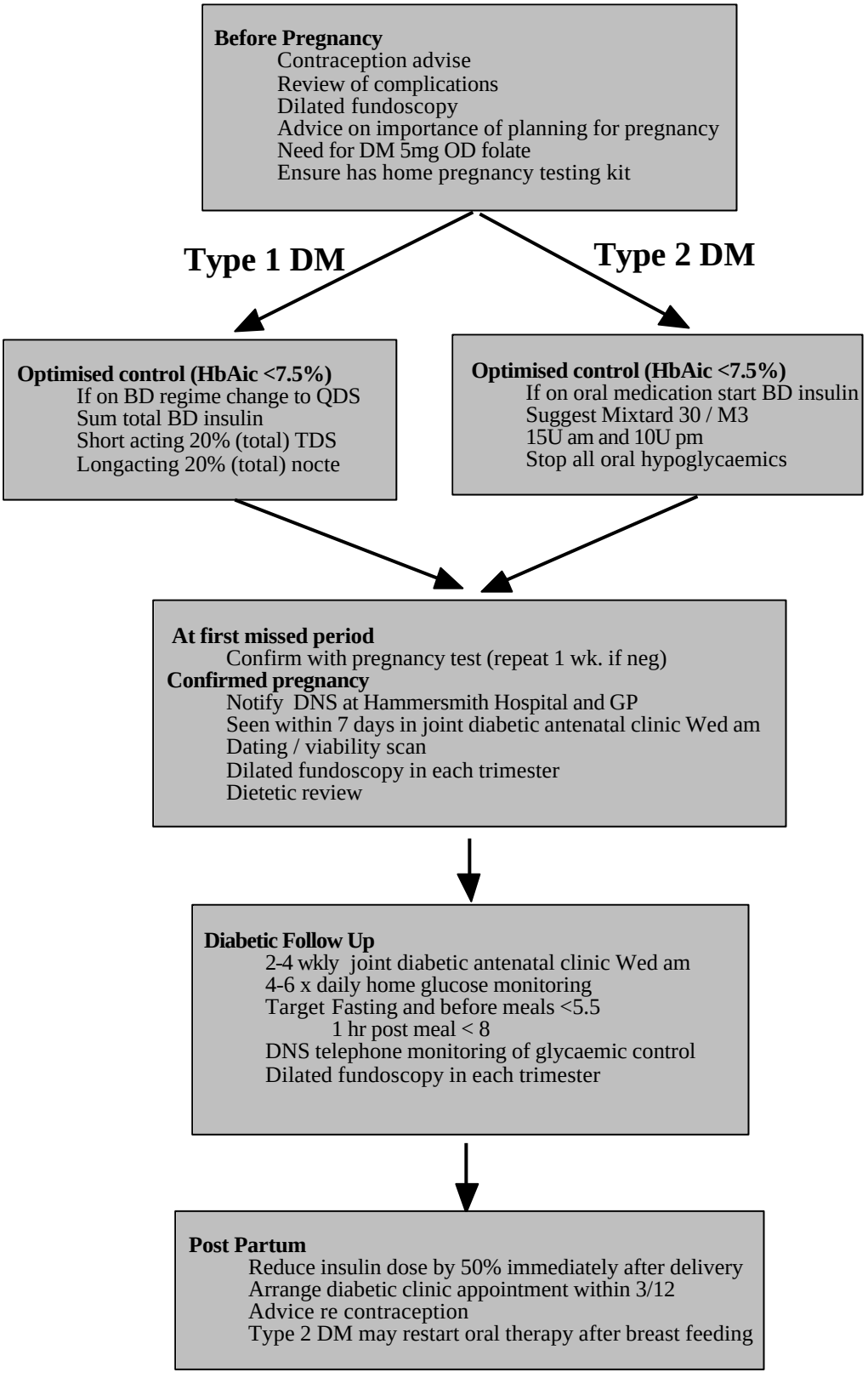
Pharmacological

Bisphosphonates may help :
(? Pamidronate 90mg iv, or oral bisphosphonates)

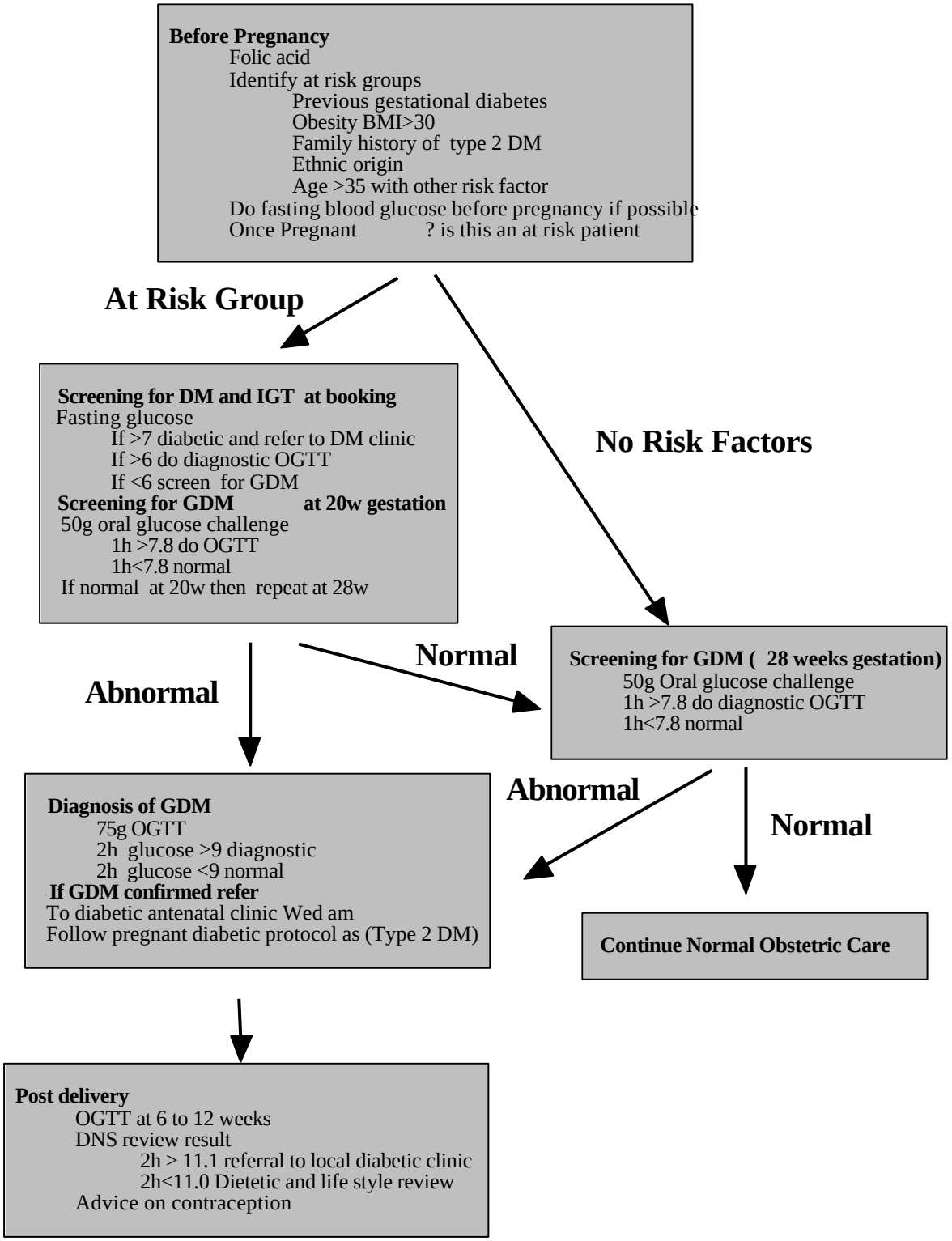
Follow up

Footwear assessment moulded inserts etc
Regular podiatry 3/12 when discharged
Orthopaedic surgery follow up

Pregnancy in Known Diabetics

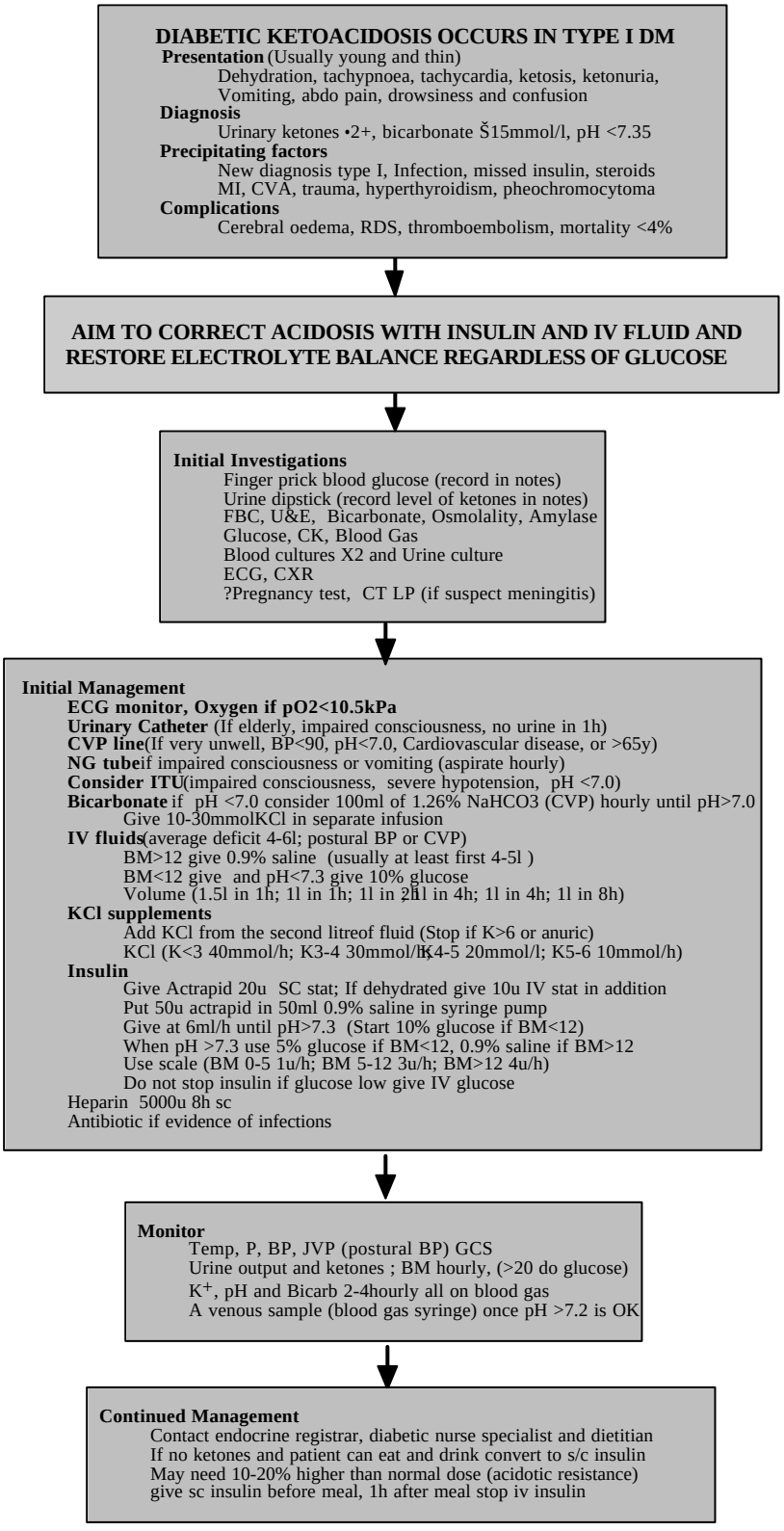


Gestational Diabetics



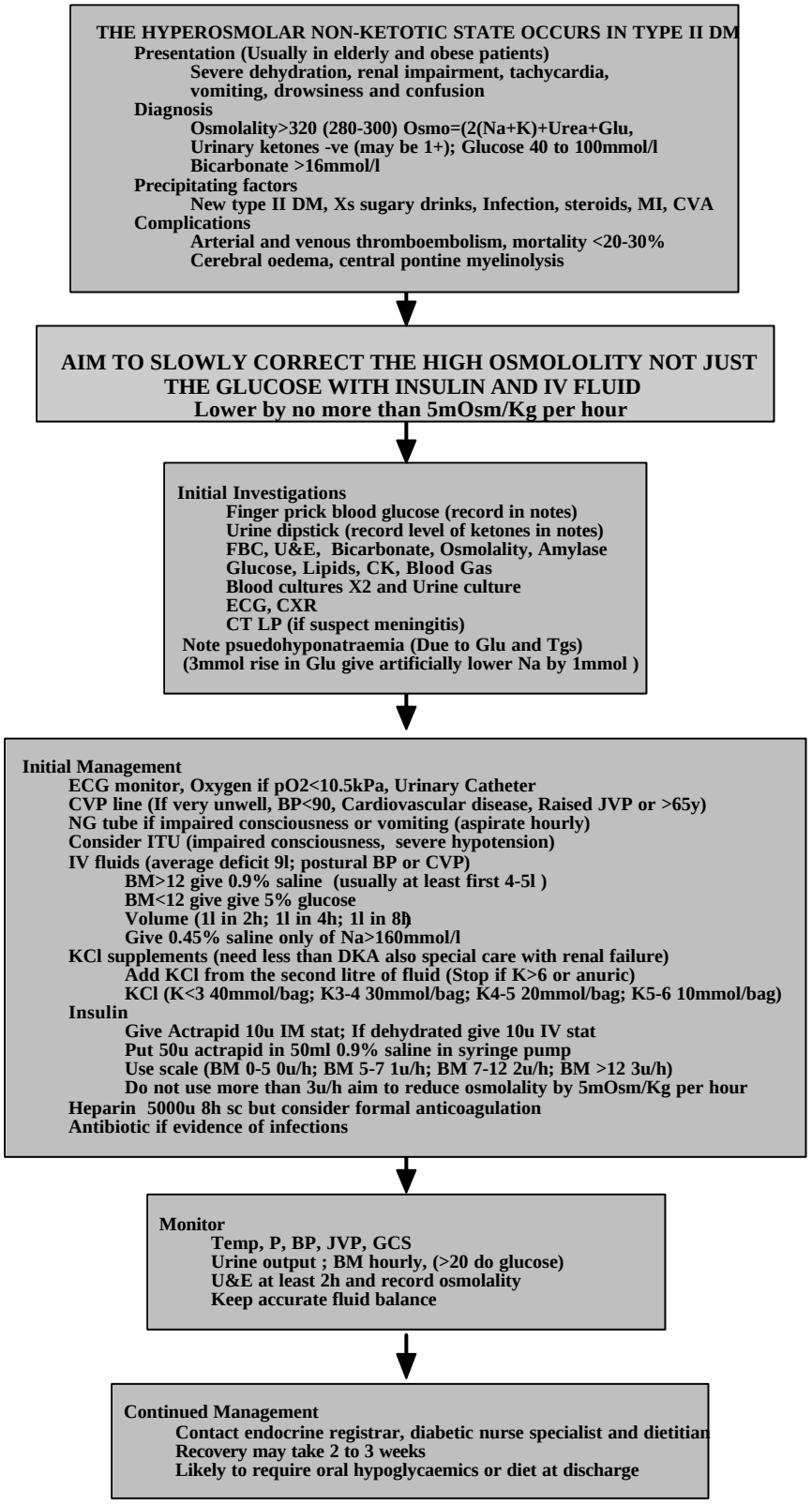
Diabetic Ketoacidosis

(See also Hammersmith Hospitals Guidelines)

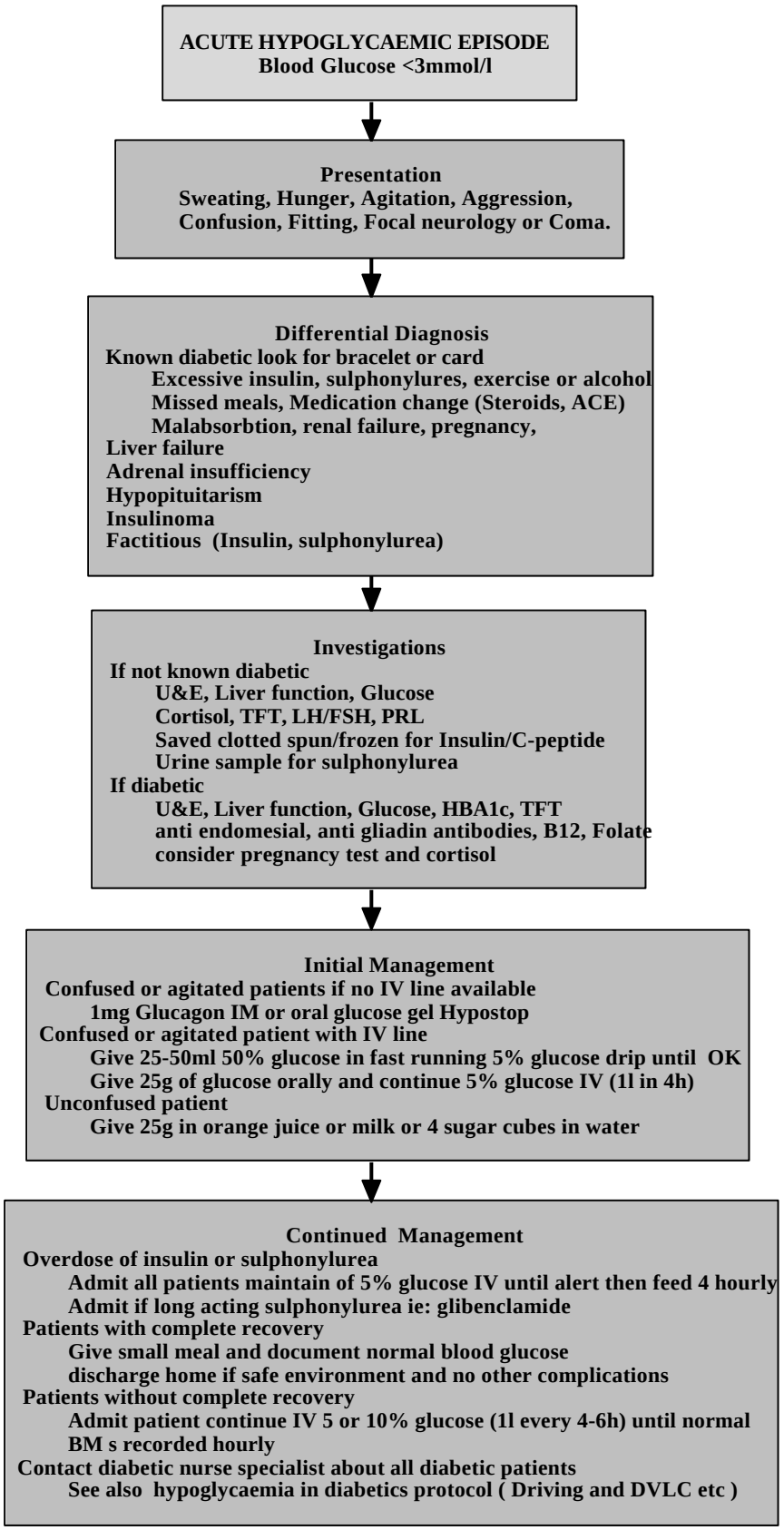


Hyperosmolar Non-Ketotic State

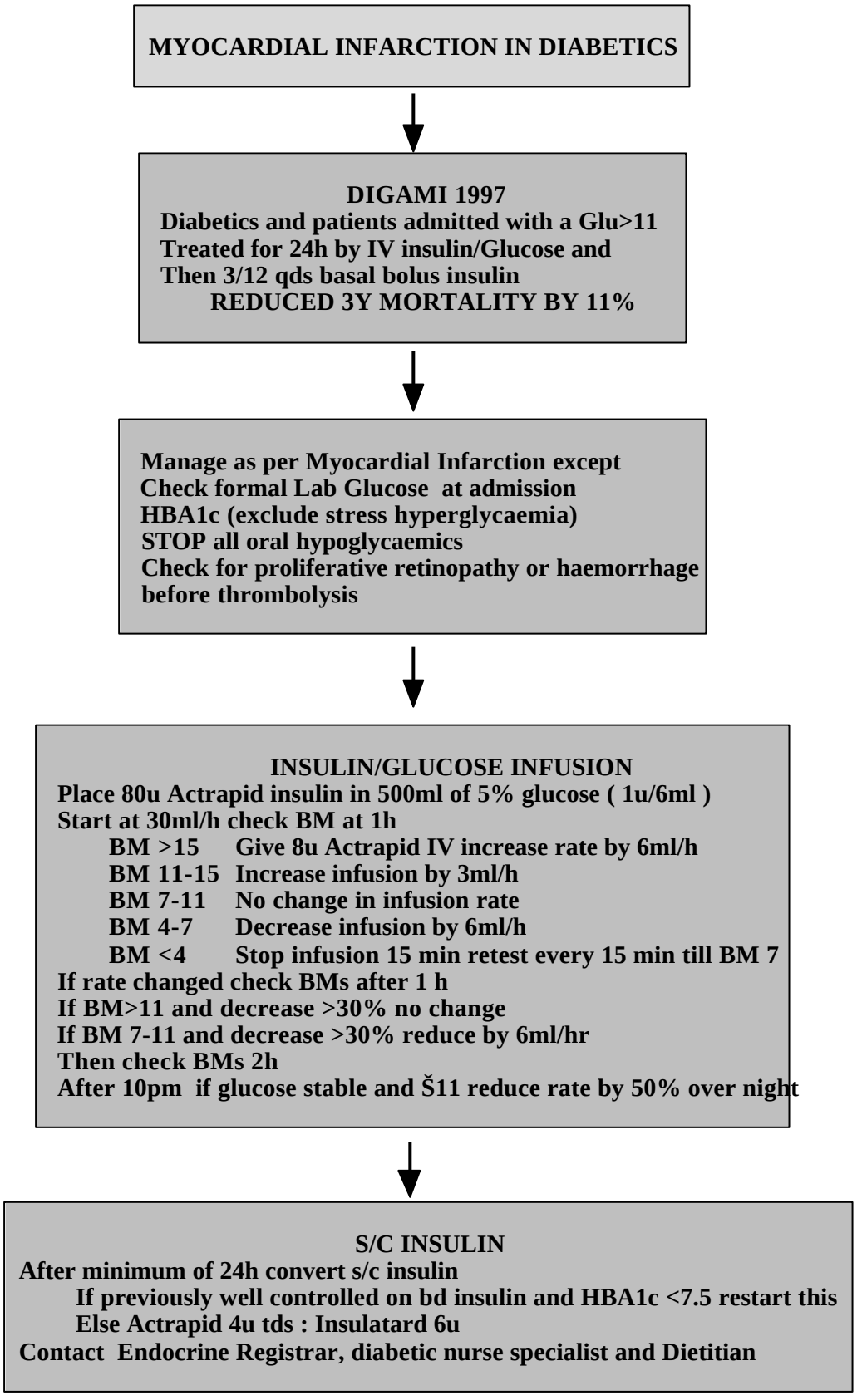
(See also Hammersmith Hospitals Guidelines)



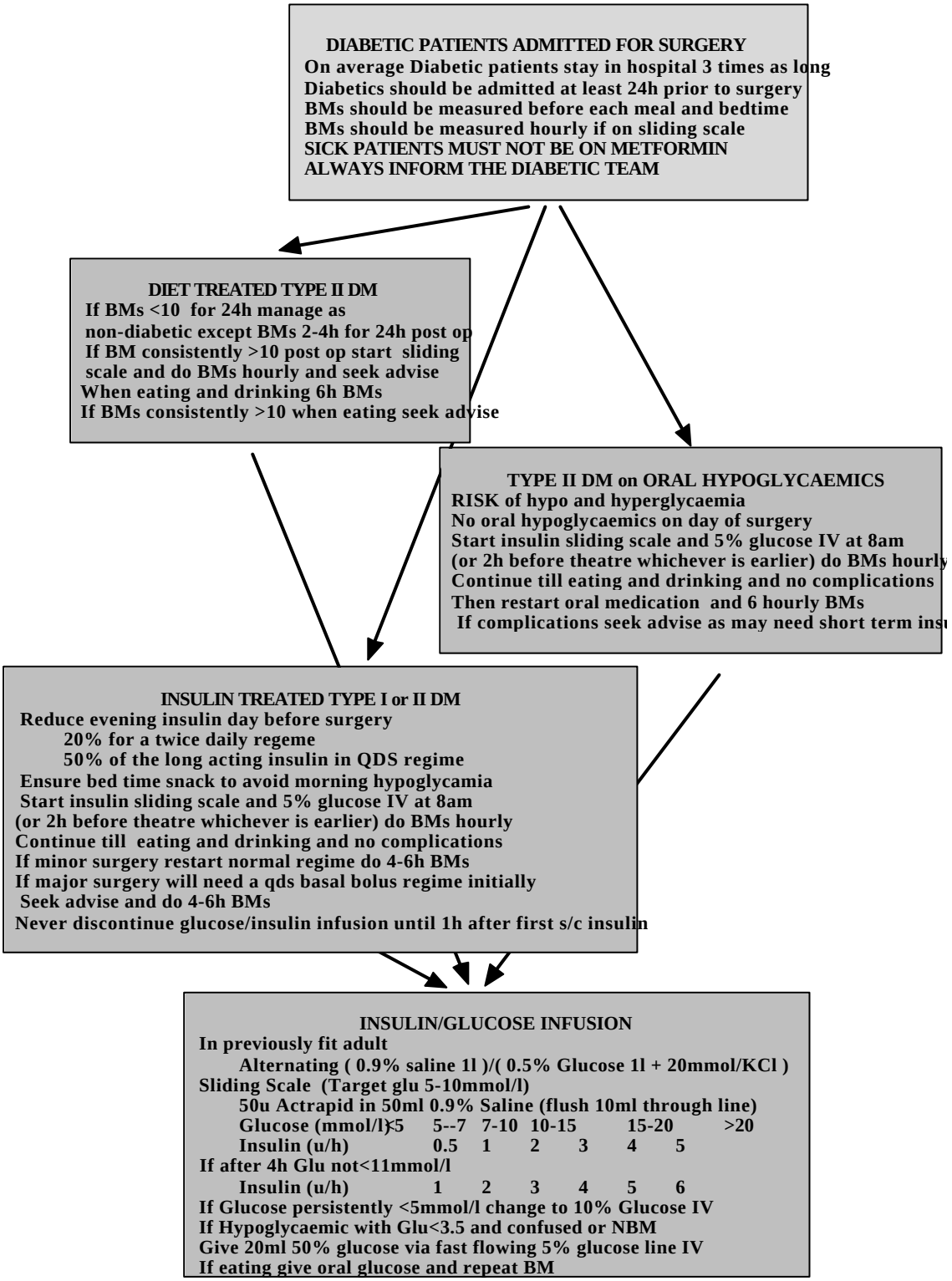
Acute Hypoglycaemia



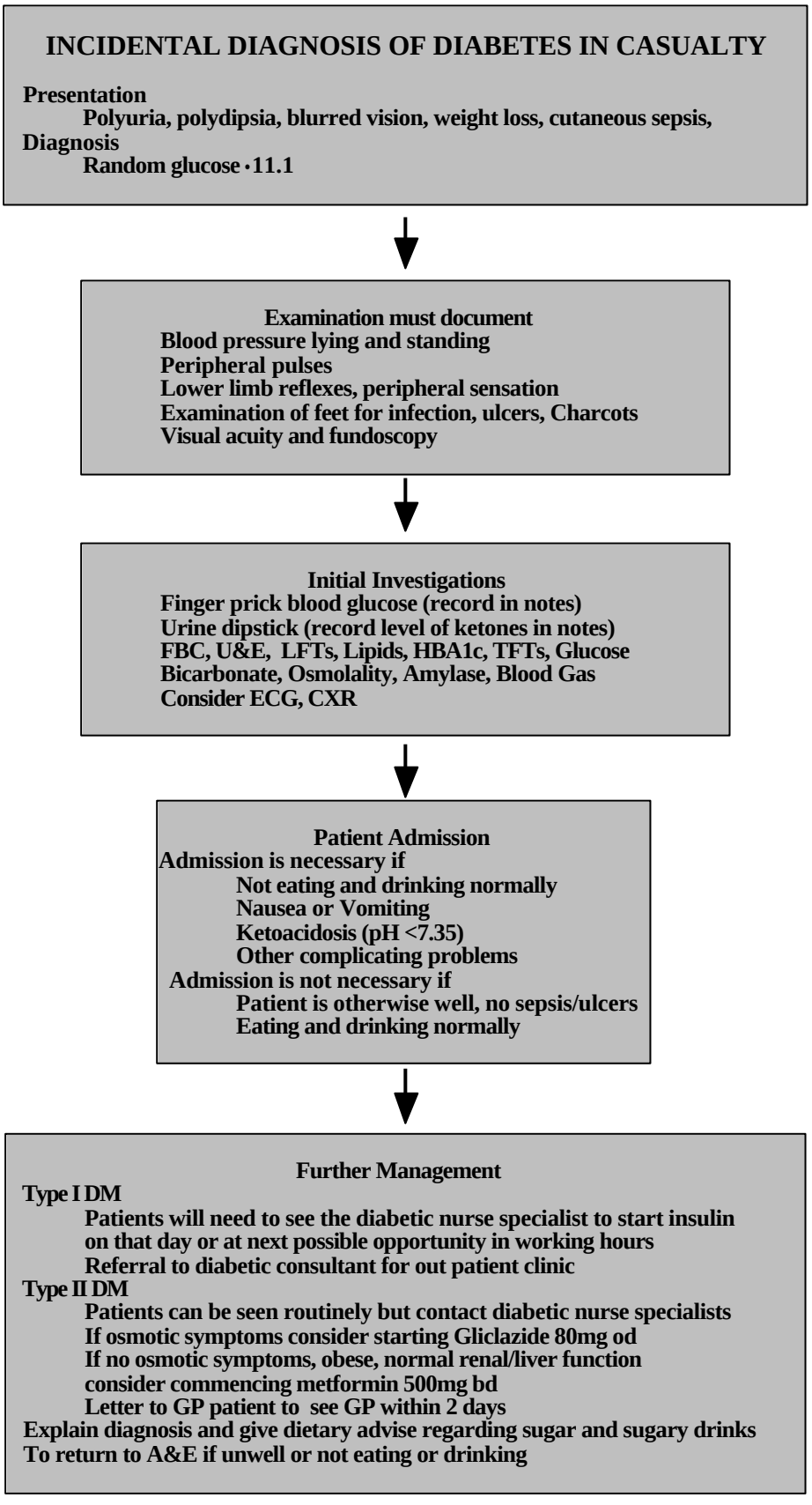
Diabetics and MI (DIGAMI Protocol)



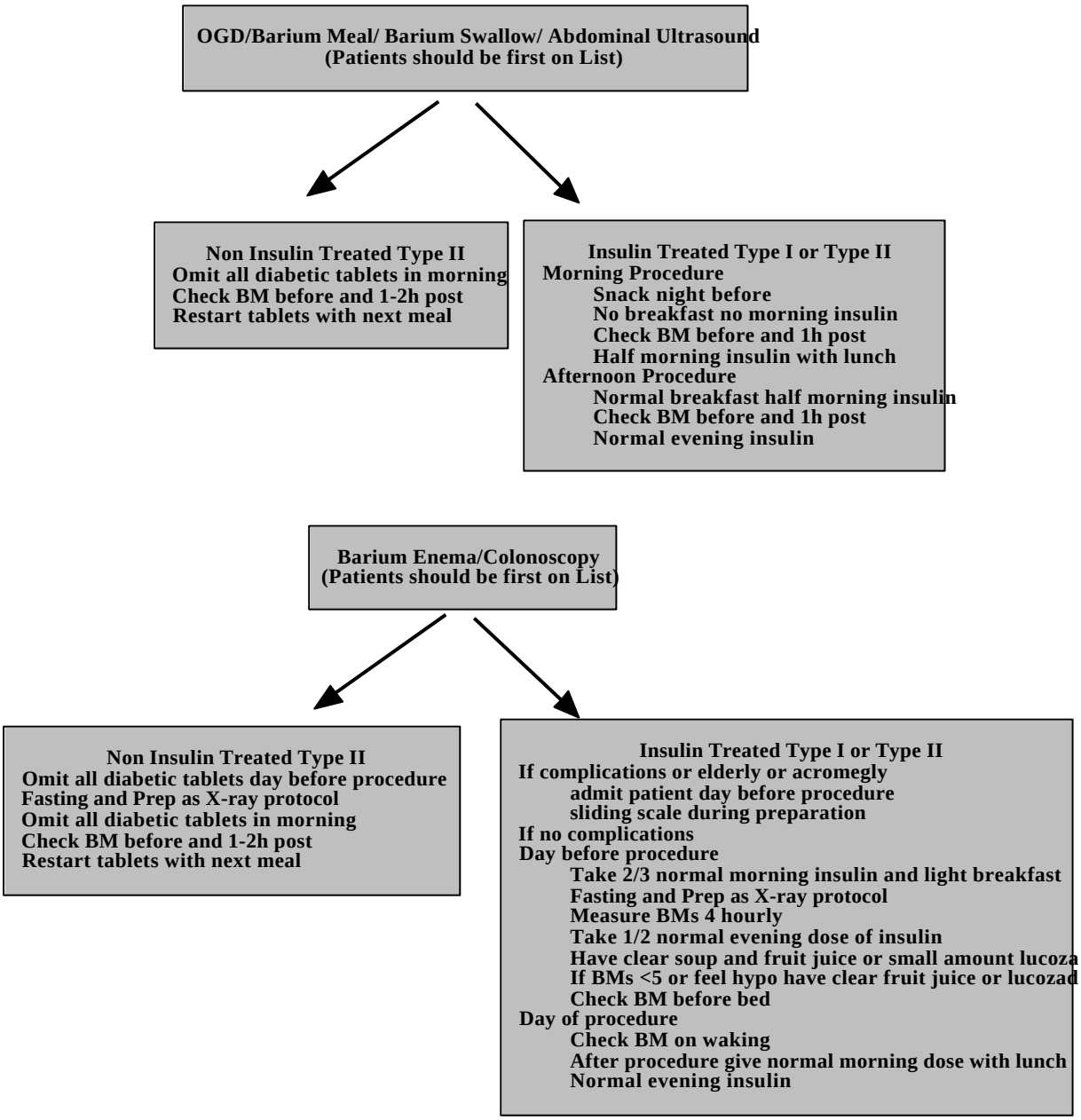
Surgical Patients with Diabetes



Incidental Diabetic Diagnosis



Diabetics and Out Patient Procedures



METFORMIN AND IV CONTRAST

The following protocol is used by the radiology departments at Hammersmith and Charing Cross Hospitals.

Protocol for diabetic patients on Metformin having IV contrast.

1) The patient should be given the information sheet when the investigation is booked. Details of the requesting doctor and their contact number should be added to the sheet.

2) An information sheet should be sent to the doctor requesting the investigation.

3) The patient should not take metformin on the day of the contrast examination. Alternative medication does not need to be prescribed.

4) Before leaving the department the patient should be given a completed U+E form and told to have the blood taken 48 hours later (either in the hospital or by the GP). They will also be given the name and contact number of the doctor who requested the investigation.

5) The day after the blood test, the patient should contact the doctor who has ordered the investigation. The doctor will advise them whether or not metformin can be restarted. (Metformin should not be restarted unless the creatinine is less than 150).

Information for diabetic patients on Metformin having IV contrast medium

Dear patient

You have been given an appointment to have an investigation which uses an injection of 'contrast medium'. Very occasionally, contrast medium with metformin can result in illness. In order to prevent this, you must follow the guidelines below;

1) Do not take your metformin on the day of the contrast test. You do **not** need to have a different medicine whilst the metformin is stopped.
2) Before you leave the X-ray department, please make sure you have a blood test form and the name and contact number of the doctor who requested your test.
3) 48 hours after your contrast test, you must have the blood test requested (either in the hospital, at clinic 6+7 on the 1st floor or from your GP).
4) The day after the blood test is taken, you must ring the doctor below who requested the test. They will tell you if you can restart the metformin.

The doctor to contact is _____

Their contact number is _____

Information for doctors requesting investigations with IV contrast medium in diabetic patients on Metformin

Dear Doctor

RE:

You have requested an investigation involving the use of IV contrast medium on a patient taking metformin. There are case reports of lactic acidosis in patients on metformin due to renal impairment following IV contrast. Therefore your patient has been given the following information

1) The patient should not take metformin on the day of the contrast examination. Alternative medication does not need to be prescribed.

2) Before leaving the X-ray department the patient will be given a completed U+E form and told to have the blood taken 48 hours later (either in the hospital or by the GP). **They will also be given the name and contact number of the doctor who requested the investigation**.

3) The day after the blood test, **the patient should contact the doctor who has ordered the investigation.** The doctor will advise them whether or not metformin can be restarted.

Your patient will contact **you** 24 hours after their renal function has been checked for advice on whether or not to restart metformin.
Metformin should not be restarted unless the creatinine is less than 150.

Guidelines for Diabetic Patients

Assessment and Follow Up

HAMMERSMITH HOSPITAL	TELEPHONE
Diabetic Nurse Specialists	020 8383 4693
Dieticians	020 8383 3048
Podiatry	020 8383 4616
Diabetes Appointments	020 8383 5000
Diabetes Secretaries	020 8383 4828
24h Emergency Advice (Ask for Endocrine Registrar)	020 8383 1000

CHARING CROSS HOSPITAL	TELEPHONE
Diabetic Nurse Specialists	020 8846 1062
Dieticians	020 8846 1445
Podiatry	020 8846 1621
Diabetes Appointments	020 8383 5000
Diabetes Secretaries	020 8383 1065
24h Emergency Advice (Ask for Endocrine Registrar)	020 8383 1000

Diabetes UK	Tel 020 7323 1531 www.diabetes.org.uk

The Initial Diagnosis of Diabetes

SYMPTOMS AT DIAGNOSIS MAY INCLUDE

Thirst
Frequent passing of urine
Weight loss
Blurred Vision
Recurrent infections

DIAGNOSIS OF DIABETES

Must be made in one of 3 ways

1) A random blood sugar greater than 11
2) 2 fasting blood sugars greater than 7
3) A blood sugar of >11, 2 hours after drinking75g of sugar in water

DIABETES MELLITUS

Insulin is the important hormone in sugar (Glucose) control
Diabetes is a failure of the body to control its sugar correctly
There are 2 ways this can happen and so 2 types of diabetes

Type I diabetes

Caused by destruction of the cells that make insulin in the pancreas
There is therefore a total lack of insulin
Usually occurs under the age of 30 years
Always requiring insulin treatment

Type II diabetes

Caused by an increased resistance to the effects of insulin
Usually occurring over 30 years of age
Can usually initially be treated by diet or tablets but may require insulin later
Diet, weight loss and exercise increase sensitivity to insulin and may therefore reduce the amount of treatment required

Complication of Diabetes

PROBLEMS ASSOCIATED WITH DIABETES

The associated problems or complications of diabetes may be present at the time of diagnosis or may occur at any time after the diagnosis

The reason for careful follow up of diabetic patients is to significantly reduce the chance of these problems occurring.

The complications of diabetes are due to the long term damage of the large and small blood vessels in the body due to the effects of a high blood sugar, blood pressure and cholesterol.

DAMAGE TO LARGE BLOOD VESSELS INCREASED RISK OF

Heart attaches due to poor blood supply to the heart
Strokes due to poor blood supply to the brain
Calf pain on walking due to poor blood supply to the legs
Foot infections that may lead to amputation

DAMAGE TO SMALL BLOOD VESSELS INCREASED RISK OF

Damage to the eye that may result in poor vision or blindness
Damage to the kidney that may result in kidney failure and dialysis
Damage to nerves that may result in numbness or pain, damage to the feet and ankles and problems with erections in men.

THE FOLLOWING REDUCE THE CHANCES OF THESE COMPLICATION

Not Smoking	
Good control of blood sugar levels	(HbA1c <7.5%)
Good control of blood pressure	<140/80
Good control of cholesterol	Cholesterol/HDL <5.0
Normal body weight	Body Mass Index <30
Healthy life style (Diet and exercise)	At least 30 minutes exercise 3 times a week
Good foot care	

Please ask your Doctor about your results each time you are seen

New Diabetic Outpatient Assessment

ATTENDING APPOINTMENTS

It is essential that you attend all you appointments with the members of the diabetic team. If you fail to attend an appointment and have not cancel it in advance with appointments department you will be discharged from the clinic.

NEW REFERRAL RECEIVED AND REVIEWED BY CONSULTANT

Priority decided by consultant

Nurse and dietician clinic appointment booked

Medical outpatient appointment booked

(Diabetic diagnosis confirmed if not stated in referral)

NEW PATIENT DIETICIAN CLINIC

Dietary history and advise on diabetic diet

Advise on low fat and weight loss diets as appropriate

Life style advise

NEW PATIENT DIABETIC NURSE SPECIALIST CLINIC

Initial assessment and history

Education about Diabetes and life style advise

Initial treatment decided (diet or tablets or insulin)

Initial treatment started

Blood tests performed

Full blood count

Kidney function, Liver function, Lipid Profile, Thyroid function

Glucose and HBA1c (long term sugar control measurement)

Initial urine tests

ECG in type II diabetics

Follow up appointment made if necessary

NEW PATIENT MEDICAL OUTPATIENT CLINIC

Medical history

Physical examination

Assessment of home glucose monitoring

Assessment of blood test results (Organise further tests if required)

Further diabetic education

Adjustment of medication for diabetes

If needed start medication for high blood pressure and high cholesterol

If needed referral to other specialists

Decide on Hospital or GP follow up

Follow up for diabetic patients

CONTINUED HOSPITAL OUT PATIENT FOLLOW UP

- Diabetics treated with Insulin
- Diabetics with complications affecting their
  - Eyes (Retinopathy)
  - Kidneys (Nephropathy)
  - Nerves (Neuropathy)
  - Heart
  - Feet
- Diabetics with poorly controlled
  - Sugar
  - Blood pressure
  - Cholesterol
  - Severe obesity
- Other complex medical problems

LOCAL FOLLOW UP WITH GENERAL PRACTITIONER

- Diabetics controlled with diet only
- Diabetics with no complications on tablets and
  - Good sugar control
  - Good blood pressure control
  - Cholesterol within guidelines

DIABETIC PATIENT FOLLOW UP SHOULD INCLUDE

- Diabetics with complications should be seen at 6 monthly
- Diabetics with no complications should be seen at least yearly
- At each yearly review the patient should have their
  - Blood pressure checked
  - Feet examined
  - Vision tested
  - Eyes dilated and examined
- Urine tested for microalbuminuria
- Blood tested should include
  - Kidney function, Liver function
  - Lipids (Cholesterol)
  - HbA1c (long term sugar control)

Pregnancy and Diabetes

BEFORE PREGNANCY

Use contraception until planning pregnancy
If planning pregnancy consult your doctor as soon as possible
It is very important that you have excellent glucose control before pregnancy
You should
- Have all your medications reviewed
- Commence Folate 5mg once a day
- Have your eyes dilated a assessed
- Obtain a pregnancy testing kit

In Type 1 Diabetes

Your insulin should be switched to 4 times a day regime

In Type 2 Diabetes

Your should be treated with a twice daily insulin regime
Your diabetic tablets will be stopped
You should do regular blood glucose monitoring
Insulin doses will be adjusted so your HbA1c is <7.5%

DURING PREGNANCY

Check a pregnancy test if you miss a period
If this is negative repeat test after 1 week
If Pregnancy test is positive
Notify GP and Diabetic nurse specialists at Hammersmith Hospital
You will be seen within 7 days at the diabetic antenatal clinic
You will then have 2 to 4 week follow up appointments at this clinic
Your eyes should be dilated and assessed 3 times during pregnancy

Glucose control during pregnancy

Your should do glucose monitoring 4 to 6 times per day
Glucose targets are
- Before meals glucose <5.5
- 1 hour after meals glucose <8

The diabetic nurse specialists will advise you about your control by phone

Appendix I

Appointment Policy

NEW REFERRAL POLICY

GP in Hammersmith Area (W12/W3/(small part W5))
Appointment with DNS, Dietitians and out patients HH (DNP)
GP in Charing Cross Area (W4/W6/W14/SW6)
Appointment with DNS, Dietitians and out patients CXH (M24)
GP outside these areas
Send out of area letter (Appendix I)

NEW PATIENT POLICY

DNA the DNS appointment
See patient at the medical outpatient appointment
Patient seen in medical outpatient
Follow up DICL (HH) or D26/U12(CXH)
DNA new patient appointment
Discharge patient letter to GP re referral (appendix I)

FOLLOWUP PATIENT POLICY

Patient seen in medical outpatient
Follow up DICL(HH)or D26/U12(CXH)
discuss with consultant if <1 year follow up
DNA followup appointment
make next routine follow up DICL (HH) or D26/U12(CXH)
if urgent discuss with consultant
2XDNA followup appointment
Discharge patient letter to GP re referral (appendix I)

Diabetic Clinic Codes

Hammersmith Hospital

DNS clinics

Tuesday am new patients	DBNC(6)
Tuesday pm follow up	BDN2(6)
Thursday am follow up	DTNC(14)
Thursday pm follow up	DTN2(5)

Medical outpatient clinics

Diabetic new patient list	DNP(10)
Diabetic Type II follow up	DICL(40)
Diabetic Type I follow up (1st week even months)	DMT1(40)
Diabetic Emergency follow up (within 2/12)	DEM(5)
Diabetic Foot clinic (1st week of month)	DMFT(5)

Medical retinopathy clinics

Diabetic retinopathy	DOC1(30)
Diabetic retinopathy screening	DRFC

Charing Cross Hospital

DNS clinics

Monday am follow up review clinic	D28(14)
Tuesday pm new type II patients	D24(3)
Thursday am new patient clinic	D105(5)
Friday am review clinic	D106(14)

Medical outpatient clinics

Diabetic new patient clinic	M24(10)
Diabetic follow up Type II	D26(40)
Diabetic follow up Type I (1st week even months)	U12(40)
Diabetic Emergency follow up (within 2/12)	444(5)
Eyes only review (within 2/12)	K74(3)
Diabetic Foot clinic	FTDM(6)

Standard Letters for Hammersmith Hospital

Area for diabetic clinic W3, W12 small part W5

Direct Line: **020 8383 4823**

Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments **020 8383 5000**

Ref:

Date:

Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address

Dear Dr

RE:

Thank you for your referral letter for this patient with Diabetes. Unfortunately due to the high rate of new local referrals and our follow up clinics being fully booked for more than 1 year, it is difficult for us to see patients from outside our local area. I would be grateful therefore if you could, in the first instance refer this patient to your local Diabetes services.

Our local area includes W3, W12 and a small part of W5.

Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

Direct Line: **020 8383 4823**

Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments **020 8383 5000**

Ref:

Date:

Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address

Dear Dr

RE:

Thank you for your referral letter for this patient. Unfortunately your referral contains no diagnostic criteria for diabetes. Due to the high frequency of new diabetic referrals would be grateful if you would confirm the diagnosis prior to referring the patient.

Diagnostic Criteria (HBA1c CAN NOT BE USED FOR DIAGNOSIS)

2x Random Glucose Measurement (1x if symptomatic)

=11.1	Diabetes Mellitus
<11.1	Normal if =6.1 do 2x fasting

2x Fasting Glucose Measurement (1x if symptomatic)

=7.0	Diabetes Mellitus
=6.1 but <7.0	Impaired Fasting Glucose do OGTT
<6.1	Normal

Oral Glucose Tolerance Test 2h Glucose

=11.1	Diabetes Mellitus
=7.8 but <11.1	Impaired Glucose Tolerance
<7.8	Normal

We are most grateful for your help with this and will make a new patient appointment as soon as we receive the re-referral
Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

Direct Line: **020 8383 4823**

Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments: **020 8383 5000**

DATE

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

Your patient had an oral glucose tolerance test on ……

The results demonstrate that the patient……..

WHO Diagnostic Criteria

Fasting Glucose

=7.0	Diabetes Mellitus
=6.1 but <7.0	Impaired Fasting Glucose
<6.1	Normal

2h Glucose during Oral Glucose Tolerance Test

=11.1	Diabetes Mellitus
=7.8 but <11.1	Impaired Glucose Tolerance
<7.8	Normal

If the patient has impaired fasting glucose or impaired glucose tolerance we would recommend life style advice and at least yearly a fasting glucose.

We have not made any further follow up appointment.

Kind regards.
Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

Direct Line: **020 8383 4823**

Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments: **020 8383 5000**

Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry that your patient did not attend their appointment at the new diabetic clinic.

Due to the high frequency of new patient referrals we have not made a follow up appointment for your patient. If you wish to re-refer the patient we would be grateful if you could confirm that they are prepared to will attend the hospital diabetic clinic. n addition, we would be grateful if you could and ask them to rearrange the appointment date if they are unable to attend as their non-attendance prevents other urgent patients from being seen.
Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

cc Patient

Direct Line: **020 8383 4823**

Internal Ext: **34823**

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Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry to say that your patient has not attended today's clinic appointment and it may be because of transport difficulties to the Hammersmith Hospital.

If you would like diabetic clinic follow-up for this patient, the patient may be more compliant if you referred them to a more local hospital.

We have not arranged another appointment.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

cc Patient

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Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments: **020 8383 5000**

Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

Patient:

Patient Sticker

We are sorry that you did not attend the diabetic clinic today

Because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you miss a diabetic clinic appointment you will not receive a new appointment for another year. **It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Hammersmith Hospital 2 weeks before the appointment.**

If you fail to attend 2 appointments in succession you will be discharged from the clinic and will require a new referral from your GP to be seen again.

Of course should you develop a new problem your GP can write an emergency referral and we may see you sooner if this is necessary.

We have given you the next available routine appointment, which will be in about 1 year. The details of which will be sent to you in the next few weeks. During the next few months we would advise you to see your GP to check your blood pressure, vision, renal function, glucose control (HbA1c) and cholesterol.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

cc GP

Direct Line: **020 8383 4823**

Internal Ext: **34823**

Fax: **020 8283 3360**

Appointments: **020 8383 5000**

Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry to say that your patient has not attended the last 2 diabetic clinic appointments.

It may be that the patient has moved address. If you have a different address and you would still like diabetic clinic follow-up for this patient, please send us another referral with the correct address.

We have not arranged another appointment.

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

cc Patient

Direct Line: **020 8383 4823**
Internal Ext: **34823**
Fax: **020 8283 3360**
Appointments **020 8383 5000**

Ref:
Date:
Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

GP Address

GP Address

RE: Patient Sticker

Your patient was reviewed in the diabetic clinic today and is considered suitable for discharge from this clinic as they have type II diabetes, are well controlled on diet / sub-maximal oral therapy and have no significant diabetic complications.

Present Medication

Results Date:	
Blood Pressure	**(<145/85)**
BMI	**(<35)**
HbA1c	**(<8.5%)**
Creatinine	**(<125mmol/l)**
Chol/HDL ratio	**(<5.5)**
Urine Alb/Cre ratio	**(<3.0)**
Acuity **Right:**	**Left:**

We have advised your patient that they should be seen at least annually in the practice. Annual review should include a minimum of blood pressure measurement, examination of the feet for peripheral pulses and evidence of peripheral neuropathy. Visual Acuity and dilated fundoscopy should be performed annually either in the practice, by an optician or at the Hammersmith retinal screening clinic. Blood test should include renal function, full fasting lipid profile including HDL and LDL, HbA1c and liver function and CK where appropriate. Urine testing should include urine dipstick analysis and urine albumin/creatinine ratio.

We will be happy to see your patient again in the Hammersmith diabetic clinic should they develop diabetic complications or their control fall outside the above ranges.

Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

Cc Dr Andrew Western

Cc The Patient

Direct Line: **020 8383 4823**
Internal Ext: **34823**
Fax: **020 8283 3360**
Appointments **020 8383 5000**

Ref:
Date:
Clinic Date:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

To all patients attending the Hammersmith diabetic follow up clinic

Dear Sir/Madam,

This letter is just to inform you about out patient appointments in the Hammersmith diabetic clinic and to help us give a better service to you and all our diabetic patients.

With the present number of staff we are only able to see diabetic patients once per year unless they have diabetic complication affecting their eyes or kidneys when they will be seen every six months.

Of course should you develop a new problem your GP can write an emergency referral and we may see you sooner if this is necessary.

Because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you miss your diabetic clinic appointment you will not receive a new appointment for another year. **It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Hammersmith Hospital 2 weeks before the appointment.**

If you fail to attend 2 appointments in succession you will be discharged from the clinic and will require a new referral from your GP to be seen again.

If you have any questions please discuss them when you see the doctor in clinic today.

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

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Internal Ext: **34823**
Fax: **020 8283 3360**
Appointments **020 8383 5000**

Date:
Ref:

HAMMERSMITH HOSPITAL DIABETIC CLINIC

Dear

Thank you for your request for an earlier Diabetic Clinic appointment

We are very sorry but we are unable to make an earlier appointment. Unfortunately because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you have missed a diabetic clinic appointment there is no appointment available until next year.

It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Hammersmith Hospital 2 weeks before the appointment.

Of course should you develop an urgent new problem your GP can write an emergency referral and we will see you sooner if this is necessary.

If you have any concerns please discuss these with your GP. During the next few months we would also advise you to see your GP to check your blood pressure, vision, renal function, glucose control (HbA1c) and cholesterol.

We apologise for the inconvenience.

Best wishes,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

cc GP

Direct Line: 020 8383 4823

Internal Ext: 34823

Fax: 020 8283 3360

Appointments: 020 8383 5000

Advise to patient discharged for Hammersmith Diabetic Clinic

You have been discharged form the diabetic clinic as your diabetes is well controlled.

To continue this good control you should be seen by your general practitioner at least once or twice a year.

At least once a year you should have your

blood pressure checked
vision tested
eyes examined
feet examined
your weight measured

You should have a urine test to check for protein

You should have blood tests for

Kidney function
Liver function
Lipids (Cholesterol)
HbA1c (long term sugar control)

In the future your diabetes may become less well controlled and your GP can of course refer you back to our clinic

Standard Letters for Charing Cross

Area for diabetic clinic W4, W6, W14 and SW6

Direct Line: **020 8846 1065/1067**

Internal Ext: **1065/1067**

Fax: **020 8846 1862**

Appointments **020 8383 5000**

Ref:
Date:
Clinic Date:

CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address

Dear Dr

RE:

Thank you for your referral letter for this patient with Diabetes. Unfortunately due to the high rate of new local referrals and our follow up clinics being fully booked for more than 1 year, it is difficult for us to see patients from outside our local area. I would be grateful therefore if you could, in the first instance refer this patient to your local Diabetes services.

Our local area includes W4, W6, W14 and SW6.

Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

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Internal Ext: **1065/1067**

Fax: **020 8846 1862**

Appointments **020 8383 5000**

Ref:
Date:
Clinic Date:

CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address

Dear Dr

RE:

Thank you for your referral letter for this patient. Unfortunately your referral contains no diagnostic criteria for diabetes. Due to the high frequency of new diabetic referrals would be grateful if you would confirm the diagnosis prior to referring the patient.

Diagnostic Criteria (HBA1c CAN NOT BE USED FOR DIAGNOSIS)

2x Random Glucose Measurement (1x if symptomatic)

=11.1	Diabetes Mellitus
<11.1	Normal if =6.1 do 2x fasting

2x Fasting Glucose Measurement (1x if symptomatic)

=7.0	Diabetes Mellitus
=6.1 but <7.0	Impaired Fasting Glucose do OGTT

Oral Glucose Tolerance Test 2h Glucose

=11.1	Diabetes Mellitus
=7.8 but <11.1	Impaired Glucose Tolerance
<7.8	Normal

We are most grateful for your help with this and will make a new patient appointment as soon as we receive the re-referral

Kind regards.

Yours sincerely,

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Appointments **020 8383 5000**

DATE

CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

Your patient had an oral glucose tolerance test on ……..

The results demonstrate that the patient……..

WHO Diagnostic Criteria

Fasting Glucose

=7.0	Diabetes Mellitus
=6.1 but <7.0	Impaired Fasting Glucose
<6.1	Normal

2h Glucose during Oral Glucose Tolerance Test

=11.1	Diabetes Mellitus
=7.8 but <11.1	Impaired Glucose Tolerance
<7.8	Normal

If the patient has impaired fasting glucose or impaired glucose tolerance we would recommend life style advice and at least yearly a fasting glucose.

We have not made any further follow up appointment.

Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

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Appointments **020 8383 5000**

Clinic Date:

CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry that your patient did not attend their appointment at the new diabetic clinic.

Due to the high frequency of new patient referrals we have not made a follow up appointment for your patient. If you wish to re-refer the patient we would be grateful if you could confirm that they are prepared to will attend the hospital diabetic clinic. In addition, we would be grateful if you could and ask them to rearrange the appointment date if they are unable to attend as their non-attendance prevents other urgent patients from being seen.

Kind regards.

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Appointments **020 8383 5000**

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GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry to say that your patient has not attended today's clinic appointment and it may be because of transport difficulties to the Charing Cross Hospital diabetic clinic.

If you would like diabetic clinic follow-up for this patient, the patient may be more compliant if you referred them to a more local hospital.

We have not arranged another appointment.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

cc Patient

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Appointments **020 8383 5000**

Clinic Date:

CHARING CROSS HOSPITAL DIABETIC CLINIC

Patient:

Patient Sticker

We are sorry that you did not attend the diabetic clinic today

Because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you miss a diabetic clinic appointment you will not receive a new appointment for another year. **It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Charing Cross Hospital 2 weeks before the appointment.**

If you fail to attend 2 appointments in succession you will be discharged from the clinic and will require a new referral from your GP to be seen again.

Of course should you develop a new problem your GP can write an emergency referral and we may see you sooner if this is necessary.

We have given you the next available routine appointment, which will be in about 1 year. The details of which will be sent to you in the next few weeks. During the next few months we would advise you to see your GP to check your blood pressure, vision, renal function, glucose control (HbA1c) and cholesterol.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

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CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address:

GP Address Sticker

Re patient:

Patient Sticker

We are sorry to say that your patient has not attended the last 2 diabetic clinic appointments.

It may be that the patient has moved address. If you have a different address and you would still like diabetic clinic follow-up for this patient, please send us another referral with the correct address.

We have not arranged another appointment.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

Cc Patient

Direct Line: 020 8846 1065/1067
Internal Ext: 1065/1067
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Appointments 020 8383 5000

Ref:
Date:
Clinic Date:

CHARING CROSS HOSPITAL DIABETIC CLINIC

GP Address

GP Address

RE: Patient Sticker

Your patient was reviewed in the diabetic clinic today and is considered suitable for discharge from this clinic as they have type II diabetes, are well controlled on diet / sub-maximal oral therapy and have no significant diabetic complications.

Present Medication

Results Date:		
Blood Pressure		**(<145/85)**
BMI		**(<35)**
HbA1c		**(<8.5%)**
Creatinine		**(<125mmol/l)**
Chol/HDL ratio		**(<5.5)**
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Acuity	**Right:**	**Left:**

We have advised your patient that they should be seen at least annually in the practice. Annual review should include a minimum of blood pressure measurement, examination of the feet for peripheral pulses and evidence of peripheral neuropathy. Visual Acuity and dilated fundoscopy should be performed annually either in the practice, by an optician or at the Hammersmith retinal screening clinic. Blood test should include renal function, full fasting lipid profile including HDL and LDL, HbA1c and liver function and CK where appropriate. Urine testing should include urine dipstick analysis and urine albumin/creatinine ratio.
We will be happy to see your patient again in the Hammersmith diabetic clinic should they develop diabetic complications or their control fall outside the above ranges.

Kind regards.

Yours sincerely,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP

Consultants in Endocrinology and Diabetes

Cc Dr Andrew Western

Cc The Patient

Direct Line: **020 8846 1065/1067**
Internal Ext: **1065/1067**
Fax: **020 8846 1862**
Appointments **020 8383 5000**

CHARING CROSS HOSPITAL DIABETIC CLINIC

To all patients attending Charing Cross diabetic follow up clinic

Dear Sir/Madam,

This letter is just to inform you about out patient appointments in the Hammersmith diabetic clinic and to help us give a better service to you and all our diabetic patients.

With the present number of staff we are only able to see diabetic patients once per year unless they have diabetic complication affecting their eyes or kidneys when they will be seen every six months.

Of course should you develop a new problem your GP can write an emergency referral and we may see you sooner if this is necessary.

Because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you miss your diabetic clinic appointment you will not receive a new appointment for another year. **It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Charing Cross Hospital 2 weeks before the appointment.**

If you fail to attend 2 appointments in succession you will be discharged from the clinic and will require a new referral from your GP to be seen again.

If you have any questions please discuss them when you see the doctor in clinic today.

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

Direct Line: **020 8846 1065/1067**

Internal Ext: **1065/1067**

Fax: **020 8846 1862**

Appointments **020 8383 5000**

Date:
Ref:

CHARING CROSS HOSPITAL DIABETIC CLINIC

Dear

Thank you for your request for an earlier Diabetic Clinic appointment

We are very sorry but we are unable to make an earlier appointment. Unfortunately because of the large number of diabetic patients already under follow up and the high rate of new referrals the clinic is fully booked for the next year and there are no routine appointments available in the next 12 months. This means if you have missed a diabetic clinic appointment there is no appointment available until next year.

It is therefore very important that you attend all your diabetic appointments and have a blood test and urine test done at Hammersmith Hospital 2 weeks before the appointment.

Of course should you develop an urgent new problem your GP can write an emergency referral and we will see you sooner if this is necessary.

If you have any concerns please discuss these with your GP. During the next few months we would also advise you to see your GP to check your blood pressure, vision, renal function, glucose control (HbA1c) and cholesterol.

We apologise for the inconvenience.

Best wishes,

Anne Dornhorst DM FRCP/ Duncan Bassett MA PhD MRCP
Consultants in Endocrinology and Diabetes

cc GP

Direct Line: 020 8846 1065/1067

Internal Ext: 1065/1067

Fax: 020 8846 1862

Appointments 020 8383 5000

Advise to patient discharged for Charing Cross diabetic clinic

You have been discharged form the diabetic clinic as your diabetes is well controlled.

To continue this good control you should be seen by your general practitioner at least once or twice a year.

At least once a year you should have your

- **blood pressure checked**
- **vision tested**
- **eyes examined**
- **feet examined**
- **your weight measured**

You should have a urine test to check for protein

You should have blood tests for

- **Kidney function**
- **Liver function**
- **Lipids (Cholesterol)**
- **HbA1c (long term sugar control)**

In the future your diabetes may become less well controlled and your GP can of course refer you back to our clinic

Appendix II

HbA_{1c}: Method & Interferences

HbA_{1c} is formed by non-enzymatic glycosylation of the N-terminal valine of the ßchain of haemoglobin.

HbA_{1c} is measured in the Hammersmith by **HPLC-boronate affinity chromatography**.

This method is **not** affected by:

- Fetal haemoglobin (HbF)
- Haemoglobin variants (HbS, HbC, HbD)
- Carbamylated Hb (such as in uraemia)

However, it must be remembered that if any of these conditions result in increased red cell turnover, then although there is not direct analytical interference, the shortened red cell (Hb) half life will result in a reduction in HbA_{1c}.

This method has been shown to have good within-laboratory precision, although it may be less satisfactory between laboratories.

I don't have specific information on the thalassemia traits, although as the rate of red cell turnover in these patients is pretty constant then it is presumably reasonable to compare within patient HbA_{1c} results.

Appendix IV

THE HAMMERSMITH DIABETIC CLINIC NHS

CONSULTANTS
Professor Steve Bloom
Dr Anne Dornhorst
Dr Duncan Bassett
Dr Dominic Withers
Dr Karim Meeran
Dr Jeannie Todd

CLINICAL ASSISTANT
Dr Shahenaz Walji

DIABETIC NURSES
Debbie Lake
Marie O'Conner
Jane Ormond
Ursula Kirwan
Molly Nanka-Bruce

DIETITIANS
Dr Gary Frost
Linda Carter

PODIATRISTS
Trusha Patel
Annabel Trimble

PATIENT LABEL

Endocrine Secretaries Tel: 020

Fax: 020 8383 3360
Appointments Office Tel: 020 8383 5000
Fax: 020 8383 8383
Diabetic Nurse Specialists Tel: 020 8383 4693
24h Emergency Service Tel: 020 8383 1000
Ask for Endocrine SpR

Dear Dr _____ **DATE** _____ **2002**

Your patient was reviewed in the diabetic clinic today.

DIAGNOSES **AGE:**

1. Type___ DM; Years diagnosed ____y
2.
3.
4.
5.
6.
SMOKING (YES NO):

PRESENT MEDICATIONS

1.	**8.**
2.	**9.**
3.	**10.**
4.	**11.**
5.	**12.**
6.	**13.**
7.	**14.**

RESULTS (date): **BM Glucose**

Wt change and *BMI (<27)*	**Kg**	**Kg/m2**
HbA1c *(<8.0%)*		**%**
Creatinine *(<120mmol/l)*		**mmol/l**
Urine Alb/Cre *(2)*		
Urine Dipstick *(NAD)*		
Cholesterol *(<5.0mmol/l)*		**mmol/l**
Triglycerides *(<2.3 mmol/l)*		**mmol/l**
HDL *(>1.0mmol/l)*		**mmol/l**
LDL *(<3.5mmol/l)*		**mmol/l**
Chol/HDL ratio *(<5.0)*		
LFTs (if on statin)		
CK (statin/fibrate) (<200)		**U/l**
FT4 *(9-26pmo/l)*		**pmol/l**
TSH *(0.3-4.2mU/l)*		**mU/l**

EXAMINATION **Right** **Left**

BP (<140/80)		**Standing**
Tropicamide		
Pin Hole Acuity		
Retinopathy		
Eye - Other		
Reflexes KJ:		
AJ:		
Sensation VS:		
10g microfilament:		
PP:		
Pulses DP:		
PT:		
Feet		
Injection sites		

NEW EVENTS
HBGM/Hypoglycaemia
Diet / Exercise
Chest pain / Claudication
Change in vision
Neuropathic pain
Foot Infection/Ulcer
Pregnancy plans
Erectile dysfunction

PLAN OF ACTION

Yours sincerely

Dr_____ **Next Review** **Weeks/Month**

Dr (**SHO / SpR / Associate Specialist / Consultant**) see DSN comment ☐

THE CHARING CROSS DIABETIC CLINIC

CONSULTANTS
Professor Steve Bloom
Dr Anne Dornhorst
Dr Duncan Bassett
Dr Dominic Withers
Dr Karim Meeran
Dr Jeannie Todd

CONSULTANTS
Dr Stuart McHardy Young

DIABETIC NURSES
Debbie Lake
Debbie Hutchins
Brenda Lawrence
Ursula Kirwan

DIETITIANS
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Linda Carter

PODIATRISTS
Trusha Patel
Annabel Trimble

PATIENT LABEL

Endocrine Secretaries Tel: 020 8846 1065
Fax: 020 8846 1080
Appointments Office Tel: 020 8383 5000
Fax: 020 8346 7564
Diabetic Nurse Specialists Tel: 020 8846 1062
24h Emergency Service Tel: 020 8383 1000
Ask for Endocrine SpR

Dear Dr _____

DATE_____ **2002**

Your patient was reviewed in the Diabetic Clinic today.

DIAGNOSES AGE:

1. Type___ DM; Years diagnosed _____y
2.
3.
4.
5.
6.
SMOKING YES NO

MEDICATION

1.	**8.**
2.	**9.**
3.	**10.**
4.	**11.**
5.	**12.**
6.	**13.**
7.	**14.**

RESULTS (date): **BM Glucose**

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PH Acuity		
Retinopathy		
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Change in vision
Neuropathic pain / Foot Infection/Ulcer
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Erectile dysfunction

PLAN OF ACTION

Yours sincerely

Dr_____ **Next Review** **Weeks/Month**

Dr **(SHO / SpR / Associate Specialist / Consultant)** see DSN comment ☐