

ROTHERHAM DIABETES MANAGEMENT GUIDELINES 2013

ISSUE 4



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NB: These guidelines replace previous versions

OBJECTIVES

There are about 11,000 people diagnosed with diabetes in Rotherham (4.4% of the population) and this is estimated to grow at the rate of 2.5% per year. The Rotherham Diabetes Clinical Network has produced these guidelines to help all health professionals provide optimal care for patients with diabetes in primary, intermediate and secondary care.

The guideline contains the collective consensus on best practice for the management of diabetes and draws on national and international recommendations on standards of care where possible together with local clinical expertise. It aims to provide comprehensive information about diabetes clinical pathways in Rotherham and will be added to and updated over time so that all clinicians can feel confident that by following it, they will provide a high standard of care. It is not designed to be followed slavishly as there will be individual circumstances where experience and the clinical picture warrant an alternative course of action.

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In the event of significant new research findings, or national recommendations, specific areas in these guidelines may be updated on an ad hoc basis. Full revision of the guidelines will be undertaken every two to three years.



GUIDELINES PROVIDE GUIDANCE



These guidelines provide advice on best practice management for the majority of people with diabetes; however, it is not a mandate to be slavishly followed at all turns. Good clinical practice always involves weighing the advantages and disadvantages of a potential course of action based on individual circumstances. If you have comments on the content of the guidelines, please contact:

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 Guidance - must be followed
 Best Practice

 Additional Information
 Document Links

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1. DIAGNOSIS OF DIABETES

SYMPTOMS

- Polyuria
- Polydipsia
- Skin infection or pruritus
- Weight loss
- Lassitude
- Blurred vision
- Urinary or genital infection

People with Type 2 diabetes may have few if any symptoms

A high index of suspicion is needed as up to 30% of cases remain undiagnosed.

CRITERIA FOR DIAGNOSIS

In people with symptoms, diabetes is usually diagnosed on the basis of a single:

- HbA1c \geq 48 mmol/mol
- random venous plasma glucose concentration \geq 11.1 mmol/l
- fasting plasma glucose concentration \geq 7.0 mmol/l (whole blood \geq 6.1 mmol/l)

An HbA1c $<$ 48mmol/mol does not exclude a diagnosis of diabetes and people with symptoms should be offered an alternative test.

HbA1c should not be used as the sole test in any of the circumstances where glucose levels have risen rapidly or very recently ($<$ 2 – 3 months) such as:

- all children and young people with symptoms. The decision to refer should be based on a single raised blood glucose result. **Do not delay referral to the Paediatric Diabetes Team.**
- symptoms suggesting Type 1 diabetes (any age)
- short duration diabetes symptoms
- patients at high risk of diabetes who are acutely ill
- taking medication that may cause rapid glucose rise e.g. corticosteroids, antipsychotics
- acute pancreatic damage/pancreatic surgery

In people without symptoms, diagnosis requires further confirmatory blood tests. Depending on the initial investigation used:

- Repeat venous HbA1c. If second sample is less than 48mmol/mol treat as high risk of diabetes and repeat the test in 6 months or sooner if symptoms develop.
- Repeat plasma glucose. At least one additional glucose test result on another day with a value in the diabetic range is essential, either from a fasting or random sample as above.

If there is still uncertainty, diagnosis is on the basis of:

- plasma glucose concentration \geq 11.1 mmol/l **2 hours** after 75g anhydrous glucose in an oral glucose tolerance test (OGTT)

Diagnosis must **never** be made on the basis of glycosuria or a capillary blood glucose alone; such tests may be useful for risk assessment.

Reference:

1. CMO's Update, 26, May 2000.
2. MeReC Briefing 2004; 25:1-8.
3. WHO, Use of Glycated Haemoglobin (HbA1c) in the Diagnosis of Diabetes Mellitus, 2011

1. DIAGNOSIS OF DIABETES

PROTOCOL FOR 75G ORAL GLUCOSE TOLERANCE TEST (OGTT)

- *Baseline plasma glucose after a 12 hour fast (water only for comfort)*
- *Give equivalent of 75g oral glucose load:*

394ml of Original Lucozade® Sparkling Glucose Drink (73kcal/100ml formulation) that has been allowed to go flat.

- *Repeat plasma glucose 2 hours later*
- *Send sample to laboratory*
- *Patients should refrain from smoking/exercise during the test*

RISK FACTORS FOR TYPE 2 DM

White people aged over 40 years and people from black, Asian and minority ethnic groups aged over 25 years with one or more of the following:

- *A first degree family history of diabetes*
- *Overweight/obese/morbidly obese with a BMI of 25kg/m² and above, with a sedentary lifestyle*
- *Waist measurement >94cm (>37") for white and black men or >90cm (>35") for Asian men, and >80cm (>31.5") for women*
- *People who have ischaemic heart disease, cerebrovascular disease, peripheral vascular disease or treated hypertension*
- *Women who have had gestational diabetes (recommended to have FPG testing)*
- *Women with polycystic ovary syndrome who have a BMI > 30*
- *People who are known to have impaired glucose tolerance or impaired fasting glycaemia*
- *People who have severe mental health problems*
- *People who have hypertriglyceridaemia not due to alcohol excess or renal disease*

A high index of suspicion is needed as up to 30% of cases remain undiagnosed

CLASSIFICATION OF DIABETES

The following is a useful website to check on classification of Diabetes within the practice clinical system:

<http://www.clininf.eu/cod>

1. DIAGNOSIS OF DIABETES

DIFFERENTIAL DIAGNOSIS

Discriminating between Type 1 and Type 2 diabetes:

- Consider Type 1 diabetes if
 - Ketonuria is detected
 - Weight loss is marked
 - The person does not have features of the metabolic syndrome or other contributing illness
- In younger people, consider the possibility that apparent Type 1 diabetes is MODY or Type 2
- With obesity or with a family history of Type 2 diabetes especially if of non-white ethnicity.

Do not routinely use measurement of specific auto-antibodies or C-peptide to confirm the diagnosis of Type 1 diabetes – consider their use at the time of diagnosis to discriminate Type 1 from Type 2 diabetes.

Consider referral to secondary care where a confident diagnosis of either T1DM or T2DM cannot be made.

Impaired glucose tolerance (IGT):

Fasting glucose < 7 mmol/l
2 hour glucose \geq 7.8 but <11.1 mmol/l

and

Impaired fasting glycaemia (IFG):

Fasting glucose \geq 6.1 but < 7.0 mmol/l

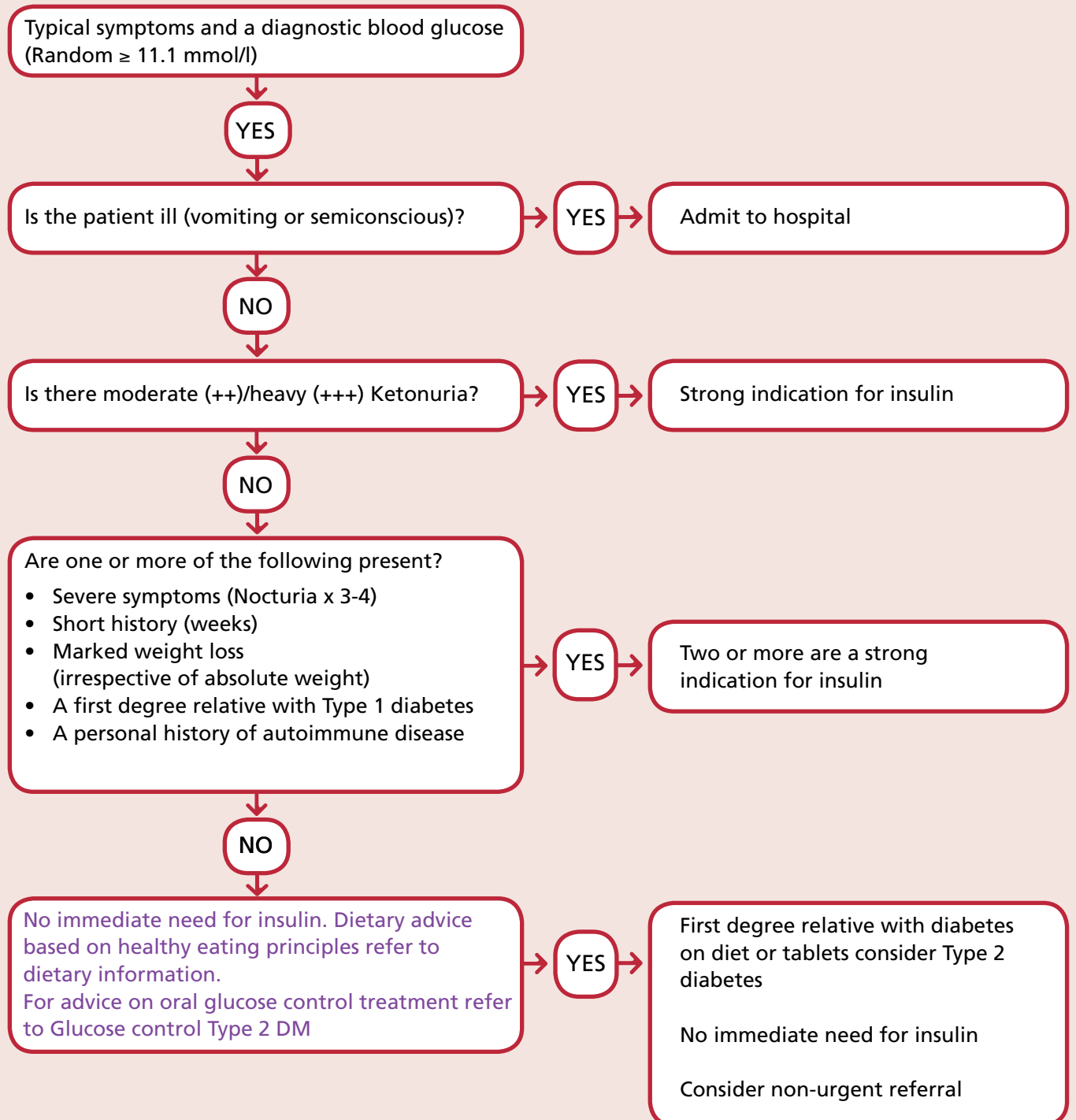
High risk of developing diabetes

HbA1c between 42 – 47 mmol/mol (6.0 – 6.4%)

- Patients with IGT/IFG should receive lifestyle advice – weight loss of 5kg and 30 minutes of moderate exercise 5 times weekly reduces progression to Type 2 diabetes by almost 60%. Metformin may be considered in younger, more overweight patients
- or high risk of developing diabetes

2. MANAGEMENT OF NEWLY DIAGNOSED DIABETES

2.1 DOES YOUR PATIENT NEED INITIATION OF INSULIN AT DIAGNOSIS OF DIABETES?



2. MANAGEMENT OF NEWLY DIAGNOSED DIABETES

2.2 INITIAL INFORMATION PROVISION

Initial information provision

At diagnosis and during annual review, signpost local peer support and patient/carer/parent support groups. Contact details for them can be found in the Contacts section.

In addition, all patients should be signposted to the [15 measures checklist](#).

Diabetes UK

The care you should receive

Having the right care is essential for the wellbeing of all people with diabetes. There is a minimum level of healthcare that every person with diabetes deserves and should expect. Here are the **15 essential checks and services you should receive**. If you aren't getting all the care you need, take this checklist to your diabetes healthcare team and discuss it with them.

- 1 Get your blood glucose levels measured** at least once a year. An HbA1c blood test will measure your overall blood glucose control and help you and your diabetes healthcare team set your own target.
- 2 Have your blood pressure measured** and recorded at least once a year, and set a personal target that is right for you.
- 3 Have your blood fats (cholesterol) measured** every year. Like blood glucose levels and blood pressure, you should have your own target that is realistic and achievable.
- 4 Have your eyes screened** for signs of retinopathy every year. Using a specialised digital camera, a photo of each eye will be taken and examined by a specialist who will look for any changes to your retina (the seeing part at the back of your eye).
- 5 Have your legs and feet checked** – the skin, circulation and nerve supply of your legs and feet should be examined annually. You should be told if you have any risk of foot problems, how serious they are and if you should be referred to a specialist podiatrist or specialist foot clinic.
- 6 Have your kidney functions monitored** annually. You should have two tests for your kidneys: urine test for protein (a sign of possible kidney problems) and a blood test to measure kidney function.
- 7 Have your weight checked** and have your waist measured to see if you need to lose weight.
- 8 Get support if you are a smoker** including advice and support on how to quit. Having diabetes already puts people at increased risk of heart disease and stroke, and smoking further increases this risk.

- 9 Receive care planning to meet your individual needs** – you live with diabetes every day so you should have a say in every aspect of your care. Your yearly care plan should be agreed as a result of a discussion between you and your diabetes healthcare team, where you talk about your individual needs and set targets.*
- 10 Attend an education course** to help you understand and manage your diabetes. You should be offered and have the opportunity to attend courses in your local area.
- 11 Receive paediatric care if you are a child or young person.** You should receive care from specialist diabetes paediatric healthcare professionals. When the time comes to leave paediatric care, you should know exactly what to expect so you have a smooth change over to adult health services.
- 12 Receive high quality care if admitted to hospital.** If you have to stay in hospital, you should still continue to receive high-quality diabetes care from specialist diabetes healthcare professionals, regardless of whether you have been admitted due to your diabetes or not.
- 13 Get information and specialist care if you are planning to have a baby** as your diabetes control has to be a lot tighter and monitored very closely. You should expect care and support from specialist healthcare professionals at every stage from preconception to post-natal care.
- 14 See specialist diabetes healthcare professionals** to help you manage your diabetes. Diabetes affects different parts of the body and you should have the opportunity to see specialist professionals such as an ophthalmologist, podiatrist or dietitian.
- 15 Get emotional and psychological support.** Being diagnosed with diabetes and living with a long term condition can be difficult. You should be able to talk about your issues and concerns with specialist healthcare professionals.

Checks and services for children. The 15 checks and services may not all apply to children. Children should have more frequent HbA1c measurements and generally do not have formal screening for complications (eg blood pressure, blood fats, eyes, feet and kidneys) until they are 12 years old. However, their weight, height and general health will be regularly monitored by the healthcare team.

Do you want to make a difference to diabetes services and care? Help us change lives and futures at www.diabetes.org.uk/get-involved

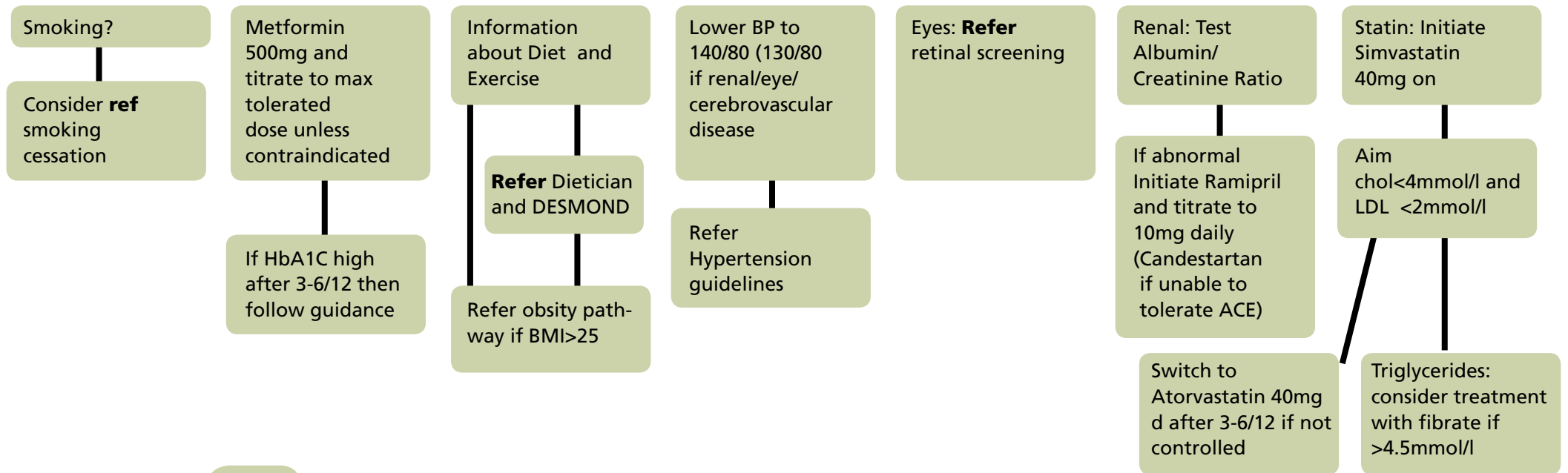
For more information and support call Diabetes UK Careline on 0845 120 2960

*If you live in Northern Ireland, care planning is different. Talk to your diabetes healthcare team.

2. MANAGEMENT OF NEWLY DIAGNOSED DIABETES

2.3 HELP FOR PATIENTS NEWLY DIAGNOSED WITH TYPE 2 DM

S M I L E R S



2. MANAGEMENT OF NEWLY DIAGNOSED DIABETES

2.4 INITIAL MANAGEMENT OF PATIENTS WITH TYPE 1 DIABETES MELLITUS (T1DM)

T1DM is an autoimmune disease triggered by an interaction between the immunosystem, susceptibility genes (HLA linked) and environmental factors. The incidence of T1DM peaks in the age group 10-14. However the speed of beta-cell destruction in the genetically susceptible individual varies greatly and hence T1DM can present **at any age**.

- *Short history*
- *Polyuria and polydypsia*
- *Weight-loss*
- *Tiredness/lethargy*

Corroborative features include history of other autoimmune diseases or family history of T1DM/autoimmune diseases.

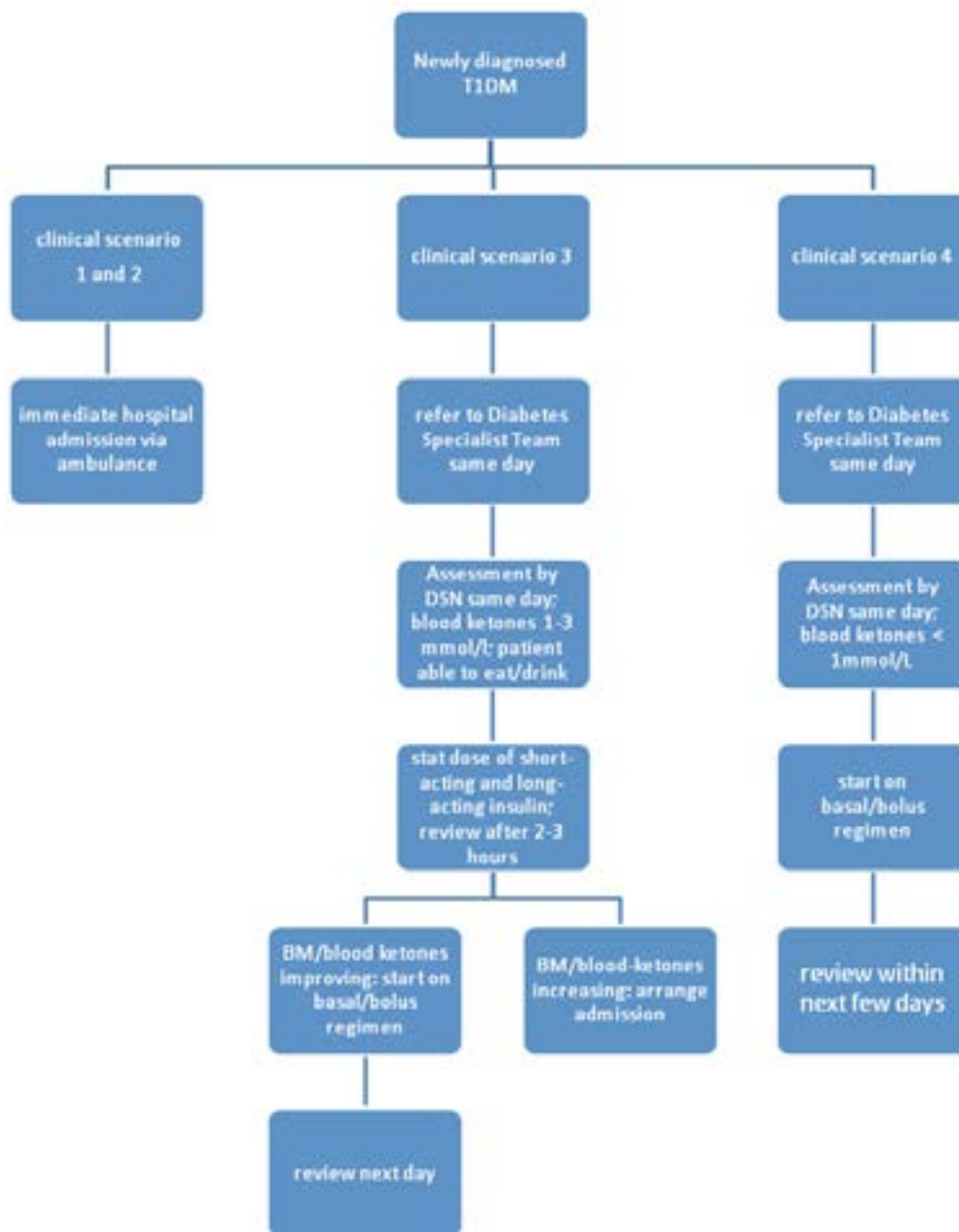
The diagnosis is confirmed by raised random plasma glucose (> 11 mmol/l) and ketonuria ($\geq ++$) or raised blood ketones (≥ 1 mmol/L) (where available). However the absence of ketonuria or raised blood ketones does not exclude the diagnosis of T1DM. In practice patients will have their capillary blood glucose ("BM") measured which needs to be confirmed as soon as feasible by a venous plasma glucose.

Measurement of fasting plasma glucose is rarely necessary and only recommended when patients are relatively well (e.g no ketonuria/ketonaemia) and the delay in the diagnosis does not pose any risk to the patient.

The algorithm on the next page explains how to manage the patient with new onset of T1DM in the following clinical scenarios:

1. *Patient vomiting or semiconscious with high RPG and significant ketonuria ($\geq +++$) / ketonaemia (≥ 3 mmol/l)*
2. *Patient unwell with high RPG and significant ketonuria ($\geq +++$)/ketonaemia (≥ 3 mmol/l) (conscious and not vomiting)*
3. *Patient with typical symptoms and able to eat/drink (see above), raised RPG and mild ketonuria ($\leq ++$)/ketonaemia (between 1-3 mmol/l)*
4. *Patient with typical symptoms, raised RPG and no ketonuria/ketonaemia*

2. MANAGEMENT OF NEWLY DIAGNOSED DIABETES



The majority of patients with T1DM benefit from a basal/bolus regimen (e.g short-acting insulin with meals and snacks and long-acting insulin od or bd). All patients on a basal/bolus regimen need to be educated about carbohydrate counting. Patients will be encouraged to attend the local DAFNE course within the first year of their diagnosis.

DAFNE graduates who despite implementation of the DAFNE principle do not achieve satisfactory glycaemic control (HbA1c \geq 69 mmol/mol) or experience disabling hypoglycaemic episodes (see Nice TAG 57) should be considered for continuous subcutaneous insulin infusion (insulin pump therapy).

Although in the classical presentation of T1DM the diagnosis is straightforward, an increasing proportion of patients cannot be easily classified as T1DM or T2DM. In doubtful cases we would advise a referral to the Diabetes Specialist Team.

3. TOP TIPS FOR REFERRAL

The table below is an aide memoire for escalation of care (including when to refer to a specialist). In a number of the scenarios, the primary care team needs to check that tasks have been completed (usually provision of information or referral for structured education or retinal screening) and only take action if they haven't.

NEW DIAGNOSIS

Trigger	Check-list	Timescale to be seen
New diagnosis of diabetes in a child	Refer to on-call Paediatric Registrar or Children's Assessment Unit	ASAP
New diagnosis of Type 1 or 2 DM in an adult – vomiting or semi-conscious	Admit to hospital under diabetologist Ensure provided with advice about condition & 15 steps Ensure signposting of local DUK groups Ensure signposting of driving advice Ensure referral to retinal screening Ensure referral to structured education	ASAP < 3 months As clinically necessary
New diagnosis of Type 1 or 2 DM in an adult – moderate or heavy ketonuria ++/+++	Discuss case with specialist team Refer to specialist team Provide advice about condition and 15 steps Ensure signposting of driving advice Ensure signposting of local DUK groups Ensure referral to retinal screening	Same day As per triage < 3 months
New diagnosis of Type 2 DM in an adult	Provide advice about condition and 15 steps Initial management plan Signpost local DUK groups Signpost driving advice Refer for dietetics assessment Refer for retinal screening Refer for structured education (DESMOND, CHO counting) Note: Referral to specialist team not usually necessary	< 3 months As clinically necessary

PRE-CONCEPTION CARE AND PREGNANCY

Trigger	Check-list	Timescale to be seen
Diabetes in pregnancy	Advise to take 5mg folic acid od Refer to diabetes antenatal clinic	< 1 week
Woman with diabetes planning pregnancy	Advise to take folic acid Refer to diabetes antenatal clinic	< 4 weeks

3. TOP TIPS FOR REFERRAL

GLUCOSE CONTROL

Trigger	Check-list	Timescale to be seen
Uncontrolled Type 1 DM (HbA1c > 64 mmol/mol) Frequent hyperglycaemia Unscheduled hospital admission	Reinforce lifestyle behaviour change (diet, weight, smoking, drinking) Re-assess psychological needs Consider referral to Specialist Team / review insulin regime	As per triage
Tightly controlled Type 1 DM (HbA1c < 42 mmol/mol) Poor hypo awareness Frequent hypos Unscheduled hospital admission	Signpost driving advice Reinforce lifestyle behaviour change (diet, weight, smoking, drinking) Re-assess psychological needs Consider referral to Specialist Team	As per triage
Uncontrolled Type 2 DM (HbA1c > 64 mmol/mol) Frequent hyperglycaemia Unscheduled hospital admission	Reconsider whether HbA1c target is clinically appropriate Reinforce need for weight loss/management Reinforce dietary advice Re-assess psychological needs Review medication Monitor every 3 months to assess response Consider referral to Specialist Team	As per triage
Tightly controlled Type 2 DM (HbA1c < 42 mmol/mol) Poor hypo awareness Frequent hypos	Reconsider whether HbA1c target is clinically appropriate Review medication especially if on SU or insulin and consider de-escalating therapy Monitor every 3 months to assess response Signpost driving advice Investigate cause of (if any) weight loss Consider referral to Specialist Team	As per triage
Not had structured education	Provide advice about condition and 15 steps Signpost DUK group Refer to Specialist Team for DAFNE (Type 1 DM) or DESMOND (Type 2 DM)	As clinically necessary

FOOT PROBLEMS

Trigger	Check-list	Timescale to be seen
Patient systemically unwell with foot care emergency	Admit to hospital for review by multidisciplinary Foot care team	ASAP
Foot care emergencies: new foot ulceration, diabetic foot infection, acute Charcot foot	Liaise and refer to multidisciplinary Foot care team for review within 24 hours (if out-of-hours consider referral to A&E/B1 if clinically indicated)	Within 24 hours
Foot problem (increased and high risk) see appendix 11.3	Refer to community podiatry	As per triage

3. TOP TIPS FOR REFERRAL

OUT-PATIENT CLINIC DETAILS

CLINIC	ROTHERHAM HOSPITAL		HOW TO REFER
General Diabetes Adult Paediatric	Dr S Muzulu Dr B Franke Dr S El-Refee	Wednesday p.m. (new & follow-up) Thursday 9.00 a.m. (new & follow-up) Paediatric clinics are held on a weekly basis in children's outpatient department. Children and young people are offered 4 appointments a year one of which is an annual review appointment	Referral letter or form send to integrated diabetes team
Elderly	Dr Abdelhafiz	Friday 1.30 p.m. (new & follow-up)	
Diabetes Renal Clinic	Dr S Muzulu Dr B Franke	4th Wednesday p.m. alternate months 4th Wednesday p.m. alternate months	Referral letter or form send to integrated diabetes team
Diabetes Foot Clinic	Dr B Franke and vascular surgeon 1.30 - 2.30 p.m. 4th Tuesday monthly		Referral letter or form send to integrated diabetes team
Erectile Dysfunction	Urology Clinic		Referral letter or form send to integrated diabetes team
Diabetes Antenatal Clinic	Dr S Muzulu Miss S Rutter	Wednesday a.m. (new and follow-up)	Referral letter or form send to integrated diabetes team
Transitional clinic (16-18 year olds)	Dr S El-Refee and Dr B Franke Wednesday or Friday pm, monthly		Direct Letter to Clinic
Young people clinic (18-25 year olds)	Dr B Franke	Wednesday am, monthly	Referral letter or form send to integrated diabetes team
Diabetic Retinopathy Ophthalmology Clinic	Mr Jabir	Wednesday p.m.	Referral letter or form send to integrated diabetes team
Insulin pump clinic	Dr B Franke	Wednesday pm, bi-monthly	Referral letter or form send to integrated diabetes team

Refer to contacts for telephone number

3. TOP TIPS FOR REFERRAL

DIABETES TOP TIPS

Hypoglycaemia	<p>Patients under report episodes, ensure you ask the patients the following during reviews:</p> <p>Ask whether patients experience any symptoms of hypoglycaemia and how frequent At what level of blood glucose patients develop the symptoms Ensure patients know what a 'hypo' is and what to do if they have one</p>
HbA1c control	<p>Consider individualized HbA1c control in the elderly appropriate to their circumstances – very tight control may not be in their best interest</p>
High HbA1c	<p>Patients with a regularly high HbA1c should be referred within 6/12 to the Diabetes Integrated Specialist Team if the patient is on maximum tolerated oral therapy</p>
Sulphonylureas	<p>Elderly are especially prone to episodes of hypoglycaemia. Consider reducing dose of SUs if having episodes of hypoglycaemia with good HbA1c control</p>
Blood Glucose monitoring	<p>Where monitoring is appropriate please check patients have a machine, appropriate testing strips and they know how to use it. See http://bit.ly/16LPwK7 for BGM guideline</p>
T1DM	<p>These patients should have urine ketostix or blood ketone stix to use if unwell and hyperglycaemic</p>
Newly diagnosed T1DM patients	<p>Newly diagnosed well T1DM does not require admission if less ++ketonuria and if not vomiting. Refer to Integrated Specialist Team to be seen on the same day</p>
Sick day rules	<p>Remind appropriate patients about sick day rules as part of the annual review</p>
Foot Ulcers	<p>Refer all new diabetic foot ulcers to the MDT diabetic foot team within 24 hrs for assessment and management in order to reduce risk of further complications and hospital admission</p>
Lead Consultant	Dr Bernd Franke, Consultant Endocrinologist, Dr Jason Page, GP Champion Diabetes
Lead GP	Dr J Kitlowski, Clinical Commissioning Group, NHSR
Date Approved	27 June 2012
Review Date	27 June 2014

4. GESTATIONAL DIABETES (GDM) RISK FACTORS AND DIAGNOSIS

RISK FACTORS WHICH NECESSITATE OFFERING A GTT

- Previous gestational diabetes/impaired glucose tolerance – REFER ASAP TO DIABETES SPECIALIST MIDWIFE (DSM) – see below– TELEPHONE IF NECESSARY 01709 424347
- Previous macrosomic baby (90th centile for gestational age - approx 4kg at term (if unsure check against centile charts in ANC for each sex)
- Previous stillbirth
- Family history (1st degree relative with diabetes ie father, mother, sibling))
- Obesity (BMI ≥ 30)
- Polycystic Ovarian Syndrome
- Ethnicity other than white Caucasian
- On long term oral steroids for ≥ 3 months

CURRENT PREGNANCY

- Large for dates (90th centile or above) / Polyhydramnios on antenatal USS
- If a woman presents with excessive thirst and /or polyuria a GTT may be indicated – REFER URGENTLY TO DIABETES SPECIALIST MIDWIFE (By telephone/ fax)

SPECIAL CIRCUMSTANCES

- GDM CAN OCCUR AT ANY TIME BUT GTT SHOULD NOT BE PERFORMED AFTER 32 weeks gestation- the case should be discussed with a member of the antenatal diabetes team who will decide on whether home blood glucose monitoring is appropriate and review by the team .
- REPEATED GTTs ARE NOT ADVISED IN THE SAME PATIENT
- Women who have had bariatric surgery - refer to the Diabetes Specialist Midwife for a capillary blood glucose profile to be performed instead of GTT as bariatric surgery women cannot undertake GTT.

In order to make an informed decision about screening and testing for GDM women should be informed that:

- In most women GDM will respond to diet and exercise
- Some women between 10-20% will need oral hypoglycaemics/ insulin therapy if the above measures do not control the GDM
- If GDM is not detected and controlled there is a small risk of birth complications such as shoulder dystocia
- A diagnosis of GDM will lead to increased monitoring and intervention both antenatally and in labour.

IF PATIENT ACCEPTS THE ABOVE

REFER FOR OGTT IN GREENOAKS CLINIC AT 24-28 WKS GESTATION (IDEALLY 26WKS)

NB: If previous GDM – will need very early GTT and depending upon result further GTT as above – 26 weeks – REFER URGENT TO DSM

PROCEDURE FOR GTT

- *Baseline plasma glucose after a 9-12 hour fast (water only for comfort).*
- *Give 75g oral glucose equivalent to:*

394ml of Original Lucozade® Sparkling Glucose Drink (73kcal/100ml formulation) that has been allowed to go flat.

- *Repeat plasma glucose 2 hours later.*
- *Send sample to laboratory*
- *Women should refrain from smoking/exercise during the test.*

FOLLOW UP

- Women who have had GDM are at increased risk of Type 2 DM and are recommended to have annual FPG testing.

5. ANNUAL REVIEW

ANNUAL REVIEW FOR CHILDREN WITH DIABETES

The following is a list of areas which represents a full annual review for Children with Diabetes

1. Check of basic patient data e.g. address
2. Smoking status and referral as appropriate to smoking cessation
3. Alcohol intake and referral as appropriate
4. A review of dietary issues/ under dietician?
5. Is BM testing used appropriately
6. DVLA as appropriate
7. Height
8. Weight
9. BMI
10. BP> over 12 years
11. Injection sites (where appropriate)
12. Depression screen using appropriate questions
13. Discussion and recording of eye history, e.g. attendance at retinopathy screening or optician, and new visual symptoms, and any known pathology including any laser therapy and for pre/proliferative changes or maculopathy
14. Foot Examination to include:
 - a. Pulses:
 - i. Posterior Tibial
 - ii. Dorsalispedis
15. Microalbuminuria over 12 years
16. Has patient had annual flu jab
17. Has patient had pneumococcal jab and booster
18. Has patient accessed structure education?
19. Pre-conception issues, if appropriate, ask women if they are considering pregnancy; if they are, give advice re planning pregnancy/pre-conception care and if not, offer contraception.
20. Safety advice, e.g. driving
21. General Social Issues
22. a. Review of HbA1c result performed in clinic ,additional blood tests requested for U&E,LFT,TFT over 12 years, microalbuminuria over 12 years ,Coeliac disease ,type 1 only, annually.
23. Review of current medication and dose adjustment advised as needed.
24. A management plan based on above review and other aspects, agreed with the patient, and a plan for follow-up made.

5. ANNUAL REVIEW

ANNUAL REVIEW FOR ADULTS WITH DIABETES

The following is a list of areas which represents a full annual review for adults with Diabetes

1. Check of basic patient data e.g. address
2. Smoking status and referral as appropriate to smoking cessation
3. Alcohol intake and referral as appropriate
4. A review of dietary issues/ under dietician?
5. Is BM testing used appropriately
6. Episodes of hypoglycaemia and discussion whether assistance was needed and whether there were warning signs
Threshold of warning symptoms (e.g how low does BM need to fall before patients gets symptoms)
History of hypo-unawareness
DVLA: has patient notified DVLA about insulin treatment or any change of treatment which might affect his driving
7. Height
8. Weight
9. BMI
10. BP
11. Injection sites (where appropriate)
12. Depression screen using appropriate questions
13. Discussion and recording of eye history, e.g. attendance at retinopathy screening or optician, and new visual symptoms, and any known pathology including any laser therapy and for pre/proliferative changes or maculopathy
14. Foot Examination to include:
 - a. Pulses:
 - i. Posterior Tibial
 - ii. Dorsalispedis
 - b. 10g Monofilament testing
 - c. vibration sense and/or pinprick sensation
 - d. Hx of ulceration/ current ulceration and site
 - e. Callus formation
 - f. Prominent metatarsal heads
 - g. Risk score
 - h. Under podiatry?
 - i. Hx amputation
 - j. Charcot foot
 - k. Other deformity
15. Microalbuminuria testing
16. Are there new symptoms of CVD
17. CKD investigations
18. On ACE/ARB or contraindicated
19. Has patient had annual flu jab
20. Has patient had pneumococcal jab and booster
20. Has patient accessed structure education?
21. Has patient issues regarding Erectile dysfunction
22. Pre-conception issues, if appropriate, ask women if they are considering pregnancy; if they are, give advice re planning pregnancy/pre-conception care and if not, offer contraception.
23. Safety advice, e.g. driving
24. General Social Issues
25. A review of laboratory data
 - a. HbA1c
 - b. UEs
 - c. LFTs
 - d. TFT
 - e. Lipids
 - f. Microalbuminuria
 - g. Coeliac screen (Type 1 DM only)
26. A review of medication using the above data a r/v based on HbA1c, BMs and episodes of hypoglycaemia should occur to help decide on medications issues regarding glycaemic control. A decision regarding treatment of hypertension also needs to be made based on BP readings, and an algorithm is already available in the Diabetes guidelines. Statins are recommended for Diabetics over 40 unless there are contraindications. Other issues may come to light during the review that may need treatment according to guidelines.
27. A management plan based on above review and other aspects, agreed with the patient, and a plan for follow-up made.

5. ANNUAL REVIEW

ANNUAL REVIEW OF CHILDREN AND YOUNG PEOPLE WITH DIABETES UP TO THE AGE OF 19

The following are normally carried out by the Paediatric team:

- *Risk assessment (foot care and injection sites from diagnosis and hypertension and renal from age 12 years)*
- *Referral for retinal screening from age 12*
- *BP (from age 12)*
- *Microalbuminuria (from age 12)*
- *Coeliac disease (every three years)*
- *Thyroid disease (every three years)*

6. HEALTH PROMOTION AND PREVENTATIVE CARE

6.1 REFERRAL FOR DIABETIC EYE SCREENING

All people with diabetes aged 12 years and above are eligible for annual screening to detect diabetic retinopathy. Newly diagnosed patients and new registrations with an existing diagnosis of diabetes should be referred as soon as possible to the Barnsley and Rotherham DRS service.

The contact details for this service are: [Retinal Screening](#)

[For referral form please see 11.5](#)

6.2 PRE-CONCEPTION AND ANTENATAL CARE

As part of routine care, all women of child bearing age with diabetes should be advised about the effects of diabetes in pregnancy and encouraged to:

- *Take 5mg Folic Acid daily if planning to conceive or as soon as they become aware that they are pregnant*
- *Make contact with health services as soon as they become aware that they are pregnant so that they can be referred for specialist antenatal diabetes care*

Women planning to conceive need their diabetes to be well managed. Ideally, a HbA1c of 42 mmol/mol needs to be achieved and risk factors need to be managed. To facilitate this, a pre-conception clinic is available at Rotherham Foundation Trust.

Women who are booking in should be referred for antenatal diabetes care as soon as possible, referrals should be notified to:

[Dr Susan Rutter, Consultant in Obstetrics & Gynaecology](#)

6. HEALTH PROMOTION AND PREVENTATIVE CARE

6.3 SEASONAL FLU VACCINATION

People with diabetes are more at risk of complications arising as a result of infections such as influenza and pneumonia. Elevated blood glucose levels, as a response to infection, can lead to uncontrolled diabetes and the potential danger of Diabetic Ketoacidosis (DKA) or Hyperglycaemic Hyperosmolar State (HHS), both of which can be fatal if left untreated.

SEASONAL FLU

Vaccination should start after the age of six months and be repeated each year. None of the flu vaccines is licensed for use in children before the age of six months. The best way to protect children younger than six months who are in a clinical risk group such as people with diabetes, is to request members of their household and their caregivers be vaccinated. They may not qualify for a free flu vaccination on the NHS but the vaccination is available over the counter at most local pharmacies.

Up to the age of three the dose is half that of an older child or adult, and for children under the age of 13, if they have not previously been vaccinated, the dose should be repeated after 4 – 6 weeks for the first year.

Anything about adult immunisation dosage and schedule?

Vaccination should be postponed in patients with a feverish illness or infection.

Where an individual is known to have an allergy to eggs, the vaccine may have to be avoided; however, people with mild allergy could be vaccinated with a low egg albumen vaccine and in some years, for example 2011/12, the vaccine is egg free and could be given to people with any level of allergy; reference should be made to the guidance published for each season, predominantly the Seasonal Flu Chapter of the Green Book and the Summary of Product Characteristics (SPC) for individual products.

It is recommended that diabetics over the age of 6 months be vaccinated against seasonal flu. This advice to anyone with Type 1 diabetes, Type 2 diabetes requiring insulin or oral hypoglycaemic drugs and diet controlled diabetics.

PNEUMOCOCCAL

Invasive pneumococcal disease is a major cause of morbidity and mortality. It particularly affects the very young, the elderly, those with an absent or nonfunctioning spleen and those with other causes of impaired immunity. Recurrent infections may occur in association with skull defects, cerebrospinal fluid (CSF) leaks, cochlear implants or fractures of the skull.

Children receive pneumococcal vaccination as part of the routine schedule.

Adults with diabetes requiring insulin or oral hypoglycaemic drugs and anyone aged over 65 years are eligible for an offer of pneumococcal PPV vaccination. This is a single immunization; however, patients who are asplenic, have splenic dysfunction or who have chronic renal disease are recommended to have a booster every five years.

6. HEALTH PROMOTION AND PREVENTATIVE CARE

6.4 MANAGEMENT OF NON-HYPERGLYCAEMIC RISK FACTORS

All people with diabetes should be assessed for non-hyperglycaemic risk factors on diagnosis and at annual review and offered advice and referral as appropriate.

Smoking Cessation:

1. ASK and record smoking status

Smoker – ex-smoker – non-smoker

QOF Points

2. ADVISE patient of health benefits

Stopping smoking is the best thing you can do for your health

3. Record of asking

QOF Points

4. Record of advice

+/- referral to specialist stop smoking

Brief interventions and referral for smoking cessation

Typical interventions take between 5 – 10 mins

May include the following

- Simple opportunistic advice to stop to all smokers
- An assessment of the patient's commitment to quit
- An offer of pharmacotherapy and/or behavioural support
- Provision of self-help material and referral to more intensive support such as the NHS Stop Smoking Services
- Information should be recorded – smoking status, advice to stop, response to advice and referral if appropriate
- Everyone who smokes should be advised to quit
- If not ready they should be asked to consider the possibility and encouraged to seek help in the future
- If they present with a smoking related disease the advice should be linked to the medical condition
- Advice to stop should be sensitive to the individual's preferences, needs and circumstances

Very brief advice (AAA approach)

ASK and record the patient's smoking status

"Are you smoking at all these days?"

ADVISE the patient of health benefits of quitting

"Stopping smoking is the best thing you can do for your health".

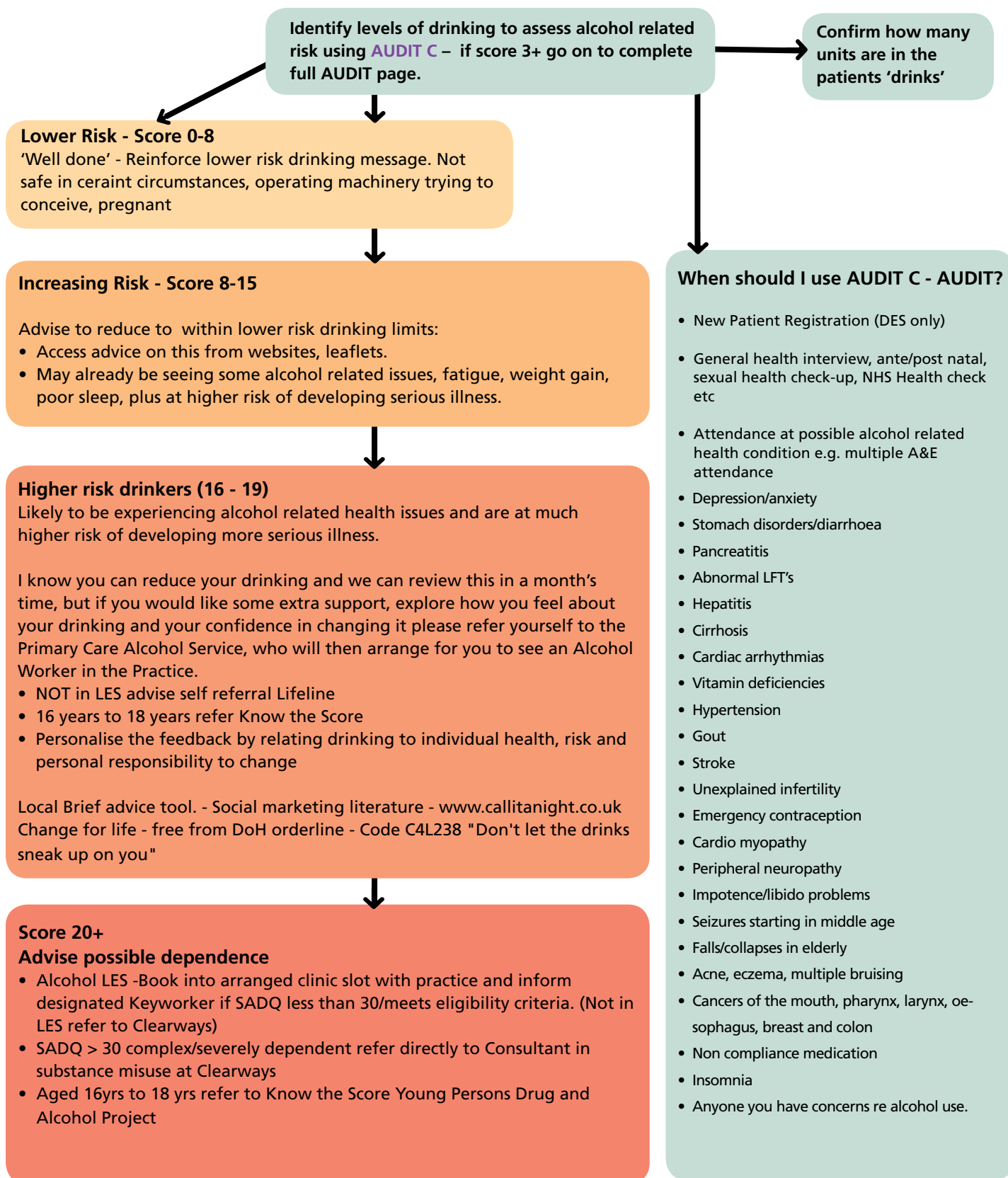
ACT on patient's response, including offering a referral to their local NHS Stop Smoking Service

"Lots of my patients are succeeding with support from the local NHS Stop Smoking Service and stop smoking medication. Would you like me to refer you to them for more advice?"

6. HEALTH PROMOTION AND PREVENTATIVE CARE

Alcohol:

Identification for alcohol related risk and treatment in Primary Care - 16 years +



6. HEALTH PROMOTION AND PREVENTATIVE CARE

WEIGHT MANAGEMENT – REFERRAL PATHWAY (ADULTS)

Patients should be referred into the Rotherham weight management services as appropriate.

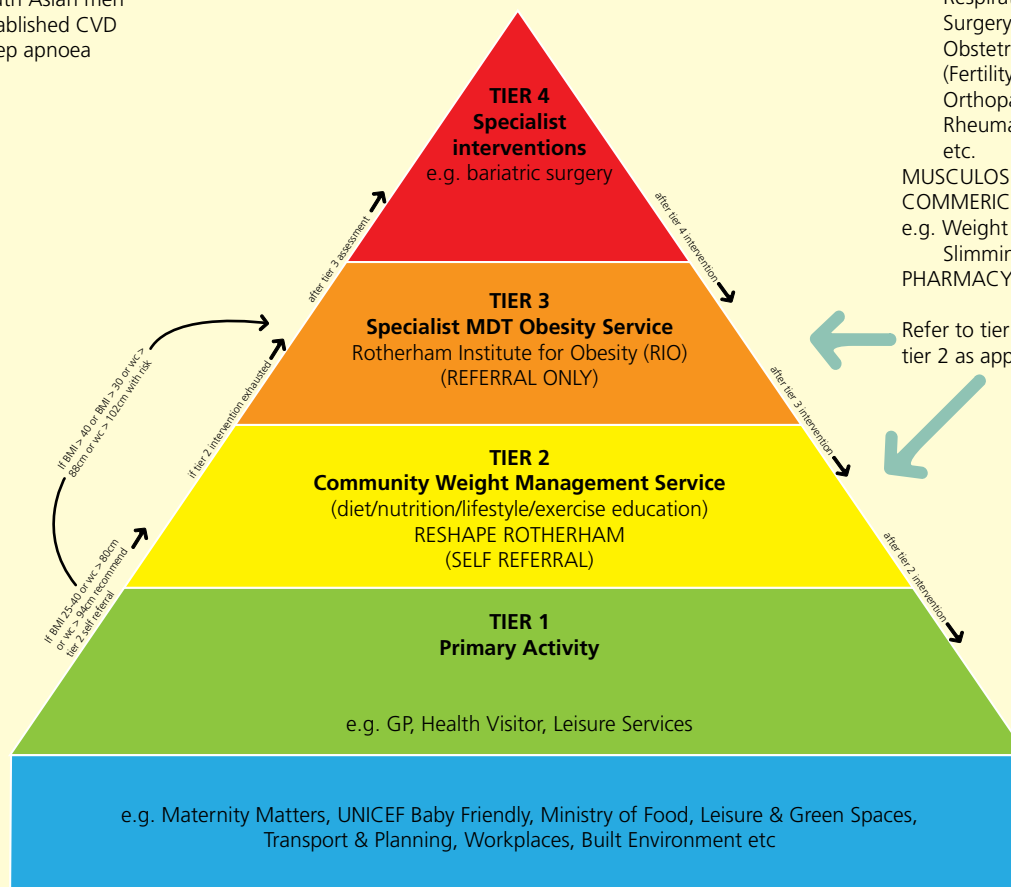
Adults with a BMI (kg/m²) between 25 and 40 can be referred to Reshape Rotherham (community weight management service). Adults with a BMI greater than 40 or greater than 30 with increased risk (eg Type 1 diabetes, tablet controlled Type 2 diabetes etc) should be referred to RIO (multidisciplinary team for obesity).

INCREASED RISK IN ADULTS

- e.g. Type 1 diabetes
- Tablet controlled T2DM
- Dyslipidaemia
- South Asian men
- Established CVD
- Sleep apnoea
- etc

SECONDARY CARE

- e.g. Cardiology
- Diabetology
- Gastroenterology
- Respiratory
- Surgery
- Obstetrics/Gynaecology/Maternity (Fertility/PCOS)
- Orthopaedics
- Rheumatology
- etc.
- MUSCULOSKELETAL (physio/podiatry)
- COMMERCIAL SECTOR
- e.g. Weight Watchers
- Slimming World
- PHARMACY



Any TIER 3 patient requiring pharmacotherapy will be treated in TIER 3, and this will be reflected in the GP prescribing data for whom the patient is registered.

NB If patients are considered unsuccessful at any given tier, they automatically progress to the next tier of intervention.

After intervention, patients progress down through the tiers and back to primary activity (TIER 1) of monitoring and education (every 6-12 months).

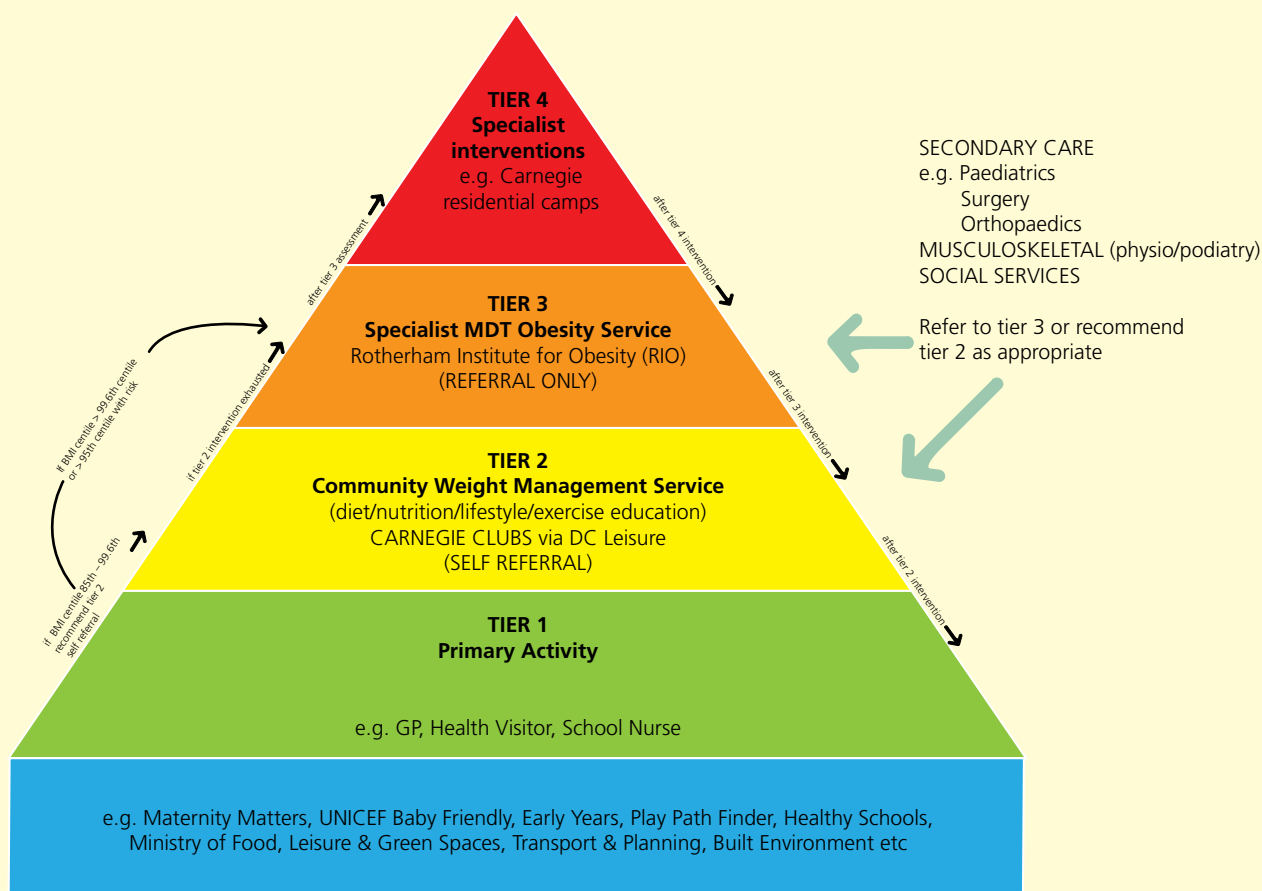
6. HEALTH PROMOTION AND PREVENTATIVE CARE

WEIGHT MANAGEMENT – REFERRAL PATHWAY (CHILDREN)

Children in the BMI 85th - 99.6th centile range can be referred to Carnegie Clubs (run by DC Leisure). Children with BMI greater than the 99.6th centile or greater than the 95th centile with increased risk (eg Type 1 diabetes, tablet controlled Type 2 diabetes etc) should be referred to RIO (multi disciplinary team for obesity).

INCREASED RISK IN CHILDREN

- e.g. Type 1 diabetes
- Tablet controlled T2DM
- Special circumstances



Any TIER 3 patient requiring pharmacotherapy will be treated in TIER 3, and this will be reflected in the GP prescribing data for whom the patient is registered.

NB If patients are considered unsuccessful at any given tier, they automatically progress to the next tier of intervention.

After intervention, patients progress down through the tiers and back to primary activity (TIER 1) of monitoring and education (every 6-12 months).

7. PATIENT EDUCATION

PATIENT EDUCATION

Education is essential to patient-centred care and is needed to ensure that individuals are empowered to make informed decisions about managing their diabetes.

Diabetes education needs to be specific to individual needs, and is best addressed on a one to one basis and in groups. It is important that the information given is accurate, clear, concise and not conflicting or ambiguous.

The following are a few points to consider when providing education to the patient with diabetes:

- *Allow sufficient time*
- *Avoid information overload. It is important to proceed at an appropriate pace for each patient. Be aware of the patient's saturation point*
- *Ensure that everyone is saying the same things*
- *Use information booklets but be aware of the contents. Written material should enhance teaching, not replace it*
- *Messages often need to be re-iterated several times. Much of what is said is forgotten, not heard or not understood*
- *Include a relative or friend where appropriate*
- *Be aware of language and cultural implications*
- *Record that the patient education has been given*
- *Education may have legal implications e.g. driving and hypoglycaemia, DVLA and insurance and employment*

WHY STRUCTURED EDUCATION?

Structured education is a planned and graded programme that is comprehensive in scope, flexible in content and adaptable to educational and cultural background (NICE 2003). <http://www.nice.org.uk>

It aims to improve knowledge, blood glucose control, weight, dietary management, physical activity and psychological well being. Structured education improves biomedical outcomes, quality of life and treatment satisfaction. It is recommended for maximising self-care, personal autonomy, skills and knowledge (NSF for Diabetes 2001).

<http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/>

7. PATIENT EDUCATION

A high quality structured education programme should:

- *Have a structured, written curriculum*
- *Have trained educators*
- *Be quality assured*
- *Be audited*

(Nsf 2001, Nice 2003).

For more details of criteria visit the National Diabetes support team at: www.cgsupport.nhs.uk/diabetes

STRUCTURED EDUCATION IN ROTHERHAM:

There are two national programmes for adults that currently meet the above suggested criteria. they are, Diabetes Education and Self Management for Ongoing and Newly Diagnosed (DesmOND) for people with Type 2 diabetes and Dose Adjustment for Normal eating (DAfNe) for people with Type 1 diabetes. both programmes are being delivered in Rotherham by the Diabetes specialist team"

Diabetes Education and Self Management for Ongoing and Newly Diagnosed (DESMOND):

WHAT THE PROGRAMME INVOLVES?

- 6 hrs education, as either:
 - 1 full day or 2 half days
- Groups of 6-10 + partners or friends
- Delivered by 2 DESMOND educators (Rotherham currently has 4 DESMOND educators, and there will soon be two more).

REFERRAL CRITERIA:

- Newly diagnosed or on-going Type 2 Diabetes.
- Able to speak & understand English
- Not housebound
- Patients can self refer or clinicians and professionals can refer using adult referral form to the Diabetes specialist Nurse service.

WHERE ARE THE COURSES RUN?

In the Diabetes education and Resource centre and also in several satellite centres in the community.

More information about DesmOND can be found at www.desmond-project.org.uk

Dose Adjustment For Normal Eating (DAFNE):

DAFNE has been established in Rotherham for 5 years. There are six DAFNE educators and two DAfNe trained doctors.

WHAT DOES IT INVOLVE?

- A 5-day training course delivered by 2 educators covering all aspects of diabetes and how to dose adjust insulin for the food eaten along with healthy lifestyle changes in accordance with taught DAFNE principles.
- Initial follow-up session (2.5 hours) within 8 weeks of completing the course
- Recurrent (12-18 months) top-up sessions (3– 3.5 hours)

7. PATIENT EDUCATION

REFERRAL CRITERIA:

- *People with Type 1 Diabetes who have been diagnosed at least 6 months prior to referral and are aged over 17 years*
- *Can speak and understand English*
- *No problems with vision or hearing*
- *No eating disorders*
- *No current severe mental health problems*
- *People who are willing to make changes to their diabetes management*

WHERE ARE THEY HELD?

This programme is being currently held at the Diabetes Education and Resource Centre, but there are plans for it to be delivered at other satellite centres in the community.

More information about DAFNE can be found at www.dafne.uk.com

LOCALLY DEVELOPED EDUCATION PROGRAMMES:

- *Carbohydrate awareness / counting group (for patients on insulin)*
- *Optimisation of control (for patients with insulin treated Type 2 diabetes)*
- *Diabetes and Weight Management Groups*

WHAT IS CARBOHYDRATE AWARENESS / COUNTING GROUP?

This is a programme that has been developed for

- *People with type 2 diabetes on basal bolus regime who would like to improve their diabetes control by matching their insulin to the amount of carbohydrate in their meal and*
- *As a stop-gap programme for people with type 1 diabetes on basal bolus regime, waiting to go on to the DAFNE programme.*

This programme is to give patients an understanding of what carbohydrates are and why they are important in the management of their diabetes. The programme consists of practical workshops to teach:

- *Which foods contain carbohydrates*
- *How to estimate the amount of carbohydrate in a given food*
- *How insulin works*
- *How to match the insulin to the food you eat*

WHERE ARE THE COURSES HELD?

In the Diabetes Centre at the Rotherham General Hospital and can also be organised in satellite centres in the community depending on the amount of interest.

HOW LONG IS THE COURSE?

The course is delivered over two mornings, three and half hours each (currently on a Tuesday).

WHO CAN GO ON IT?

People who are on a multiple insulin injection regime, i.e. when they inject a quick acting insulin for their meals and one or two injections of a background insulin, also called the 'Basal Bolus regime'.

7. PATIENT EDUCATION

HOW TO REFER PATIENTS TO THIS PROGRAMME?

Use the referral form for dietetics and mark for Diabetes Specialist Dietitians or the referral form for Diabetes Specialist Nurses.

o The referral should include:

- Patient details
- Weight
- Most recent HbA1c and Lipid profile
- Height
- Current Medication
- Any relevant past medical history

o Address to:

Kathy Winearls
Diabetes Education and Resource Centre
Rotherham General Hospital
Moorgate road
Rotherham
S60 2UD

OPTIMISATION OF BLOOD GLUCOSE CONTROL PROGRAMME

AIM

Improve knowledge and understanding of diabetes and insulin therapy in order to enable self-management.

REFERRAL CRITERIA:

- *People with Type 2 diabetes who are treated with insulin therapy either a once daily or twice daily regime.*
- *HbA1c > 53 mmol/mol.*
- *Anyone who wishes to learn more about their diabetes and improve their blood glucose control and are able to understand English and participate in group education.*

LEARNING OUTCOMES:

TO:

- *Have an understanding of the treatments used in Type 2 Diabetes*
- *Understand the benefits of improving glycaemic control in reducing the risk of developing potential long term complications associated with diabetes*
- *Understand how diet and activity affects blood glucose levels*
- *Understand blood glucose monitoring and HbA1c*
- *Understand and apply the '3 Day Rule' insulin adjustment concept*
- *Manage and prevent hypoglycaemia effectively*
- *Understand the importance of annual reviews*
- *Understand when and how to seek professional support*

TIMES:

1st session - 2 hours

2nd session - 2 hours

6 month follow up session - 2 hours

Optimise control groups are open to any patient with Type 2 Diabetes who meets the referral criteria. They consist of 5 to 10 participants and partners are welcomed. These sessions will be held at the Diabetes and Education Resource Centre or can be arranged in satellite centres in the community, according to demand.

7. PATIENT EDUCATION

PAEDIATRIC STRUCTURED EDUCATION PROGRAMME

- Newly diagnosed group session within 12 months of diagnosis.
- Primary school age young people annual session offered.
- Secondary school young people annual session offered.
- Transition age young people annual workshop offered.
- Diabetes burnout session offered annually.
- Pump Masterclass, offered annually to all pump users.

DIABETES AND WEIGHT MANAGEMENT PROGRAMME:

This programme has been specifically designed to support people with diabetes to make choices about their food and lifestyle, to enable them to lose weight and manage their diabetes. It is aimed at people who do not fit the criteria for Reshape Rotherham.

- *It is a six session programme delivered over twelve weeks. Each session lasts for 2 hours.*
- *This programme aims to give people more guidance on diets to help with*
 - *Weight management (specifically looking at calorie restriction) whilst taking into consideration*
 - *Reducing the risk of hypoglycaemia when altering dietary intake,*
 - *Altering diabetes medications to aid weight loss and prevent hypoglycaemia,*
 - *Increasing exercise and understanding alteration necessary to diabetes medication to enable this*
 - *Behaviour change, eating out, recipe ideas and goal setting.*

WHERE IS IT DELIVERED?

Two venues currently:

- Diabetes Education and Resource Centre, Rotherham General Hospital, Moorgate Road, Rotherham
- Highthorne Road Surgery, Kilnhurst, Rotherham.

REFERRAL CRITERIA:

- People with Type 1 or Type 2 Diabetes on Insulin or maximum Oral hypoglycaemic medication
- BMI over 27 and /or a waist circumference >102cm for men and >80cm for women
- Motivated to lose weight and willing to follow a calorie restricted diet plan
- Willing to attend all six sessions
- Ability to speak and understand English

HOW TO REFER?

By letter or dietetic referral card and please specify that the referral is for Diabetes Weight Management groups

The referral should include:

- *Patient details*
- *Weight*
- *Most recent HbA1c and Lipid profile*
- *Height*
- *Current Medication*
- *Any relevant past medical history*

Address to:

Kathy Winearls
Diabetes Education and Resource Centre
Rotherham General Hospital
Moorgate road
Rotherham
S60 2UD

8. GLUCOSE CONTROL

8.1 DIETARY INFORMATION

The aims of dietary treatment of diabetes are to:

- *Minimise symptoms of hyperglycaemia.*
- *Minimise the risk of hypoglycaemia.*
- *Minimise the long term macro- and microvascular complication of diabetes.*

To achieve this, dietary advice should aim to:

- *Minimise fluctuations of blood glucose to as near normal as possible.*
- *Promote weight loss in people who are overweight.*
- *Reduce the risk of cardiovascular disease.*

The dietary guidelines recommended for people with diabetes are similar to the UK healthy eating guidelines. Advice on diet should be offered following assessment of:

- *Lifestyle.*
- *Social circumstances.*
- *Current dietary intake.*
- *Readiness to make changes to diet and lifestyle.*
- *Current medication*

Dietary changes should be negotiated with each patient using the following general principles:

- *Existing eating habits should be modified rather than attempting to make major changes to the patient's pattern of eating.*
- *Total calorie intake should be restricted to that needed to achieve and then maintain an agreed target weight.*
- *About half of the energy intake should be from carbohydrates, with most of it in the form of medium to low Glycaemic Index (GI) food. E.g. oat based cereals, granary or multigrain bread, pulses and beans, new potatoes, pasta. For more information on GI visit www.glycaemicindex.com.*
- *Fruit and vegetables should be increased to at least 5 portions/day to achieve recommended antioxidant intake.*
- *The intake of sugary food and drinks should be reduced to <10% of total calorie requirements.*
- *Total fat should be reduced to <30% of total calorie requirements by restricting the following*
 - *Saturated fat to less than <10%*
 - *Polyunsaturated fat to less than <10% and*
 - *Monounsaturated fat for the rest of the allowance.*
- *Dietary salt should be reduced to <6g/day.*
- *Alcohol if taken, should be taken in moderation as per DH recommendations which is 2-3 units/day for women and 3-4 units/day for men with 2-3 alcohol free days.*
- *Special diabetic products are high in calories, and are likely to cause gastrointestinal upset and are not recommended. Options such as low calorie, low sugar, diet, healthy choices etc would be better.*

Please refer to a Dietitian for individualised advice (see below for referral pathway for dietitians).

Patients can be given stop gap information from the Nutritional Information Pack.

The pack is available online at:

<http://websrv.rotherhampct.nhs.uk/intranetapps/pctIntranet/departments/PageStyle2.asp?WebPageID=1743>

and also by contacting The Department of Nutrition & Dietetic Services, Oakwood Hall, Rotherham NHS Foundation Trust, Moorgate Road, Rotherham. S60 2UN. Telephone: 01709 304297

8. GLUCOSE CONTROL

REFERRAL GUIDANCE:

Referral to the Diabetes Specialist Nurses for:

People newly diagnosed with diabetes

- Type 2 – To refer within four weeks of diagnosis
- Type 1 for initial advice – to refer within 48 hours of Diagnosis. After initial consultation, patient will be referred to the specialist team for further management.
- Everyone who controls their diabetes with diet or tablet treatment should be offered dietetic review by a dietitian at their diabetic annual review.
- People starting with GLP-1 therapy or similar medications to help maximise the benefit of the drug in achieving weight loss.
- When being started on Sulphonylureas.
- People with Type 2 diabetes treated with diet or tablets and wanting to lose weight.

Referral to the Diabetes Dietetics Specialist Team for:

- People whose diabetes is poorly controlled even on maximum doses of medication.
- People who are wishing to lose weight but finding it difficult to manage due to diabetes medication.
- People who are having problems with hypoglycaemia or just erratic blood glucose control and you suspect this may be due to dietary issues.
- People who are commencing on insulin.
- People who would like to gain better understanding of relationship of carbohydrate, insulin and blood glucose levels.
- People with diabetes treated with insulin attending annual review for update on diet related issues.
- People with diabetes who are taking up exercise or who do competitive sport.
- People who want to manage their diabetes using carbohydrate counting.

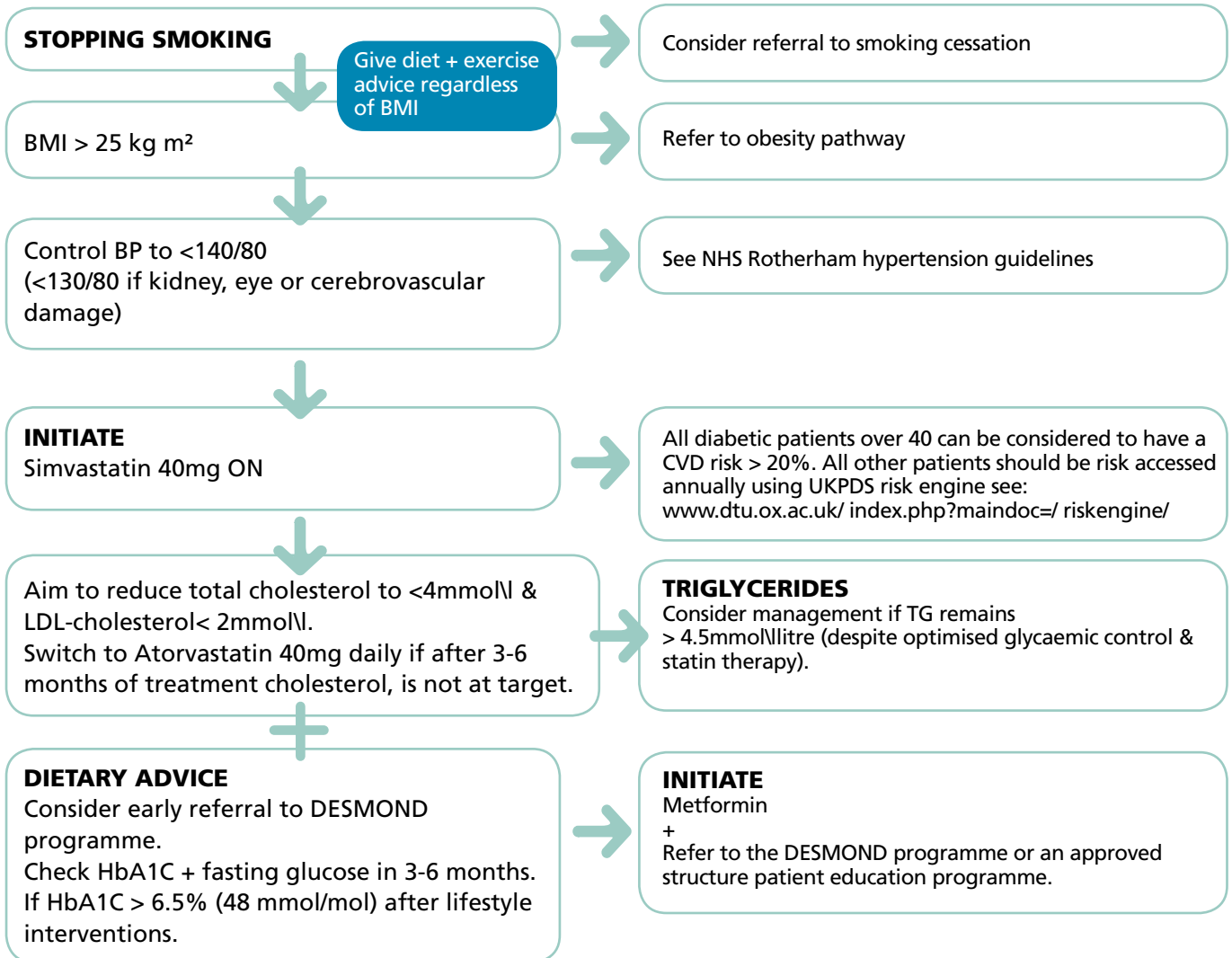
For more information on diet and diabetes please use the following link:

<http://websrv.rotherhampct.nhs.uk/?WebPageID=1721>

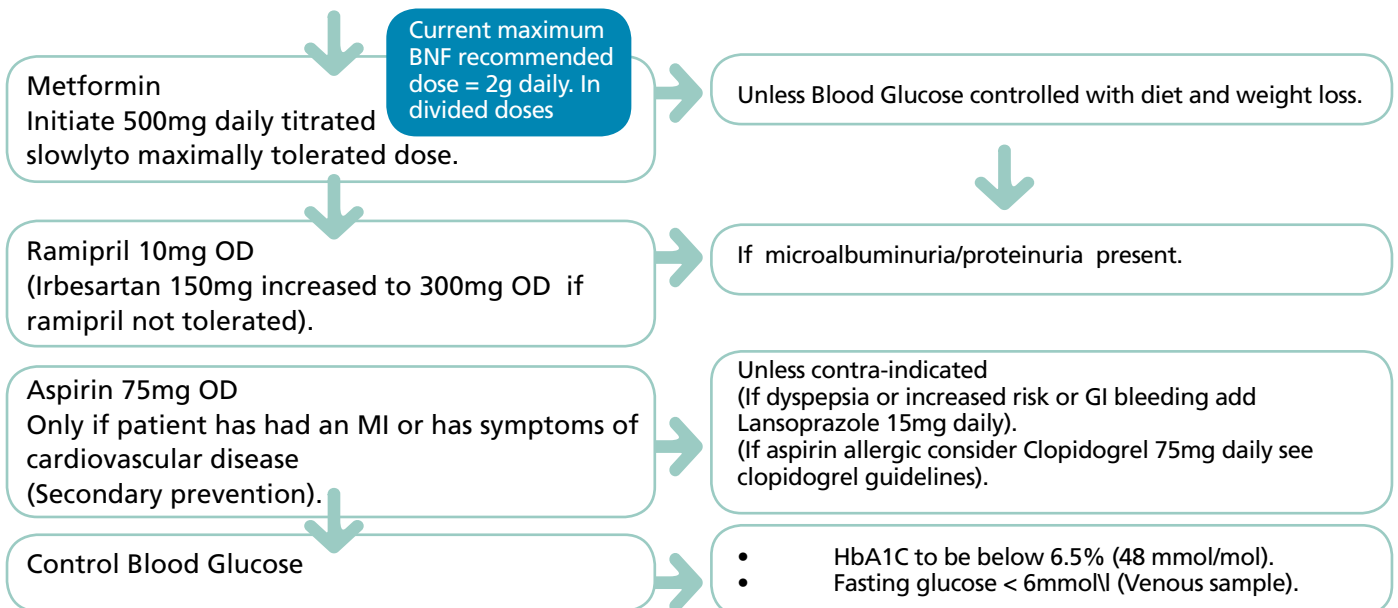
8. GLUCOSE CONTROL

8.2 TYPE 2 DIABETES PATIENT

OBJECTIVES



NEWLY DIAGNOSED TYPE 2 DIABETES PATIENT



8. GLUCOSE CONTROL

8.2 ORAL HYPOGLYCAEMICS AND GLP-1

OVERVIEW - CONTROLLING BLOOD GLUCOSE IN A PATIENT WITH TYPE 2 DIABETES

OBJECTIVES

- HbA1C to be below 7.5% (58. mmol/mol).
- Fasting glucose < 6mmol/l (venous sample)
- Patients must not experience frequent episodes of hypoglycaemia
- In the very elderly or frail, symptom control alone may be the priority

TREATMENT

Review HbA1c every 3-6 months if not at target, every 12 months once at target

DIET AND WEIGHT LOSS.

Consider referral to the DESMOND programme

If HbA1C above 7.5%, (58.5mmol/mol) fasting glucose above 6mmol/l and/or BMI >25 initiate metformin.

ORAL TREATMENT TO LOWER BLOOD GLUCOSE

Step 1

METFORMIN

See note 1

Step 2

GLICLAZIDE

**SITAGLIPTIN/
LINAGLIPTIN**

See note 3

Step 3

**SITAGLIPTIN/
LINAGLIPTIN**

See note 3

GLICLAZIDE

**EXENATIDE /
LIRAGLUTIDE**

(See note 4 & 5)

PIOGLITAZONE

See note 6

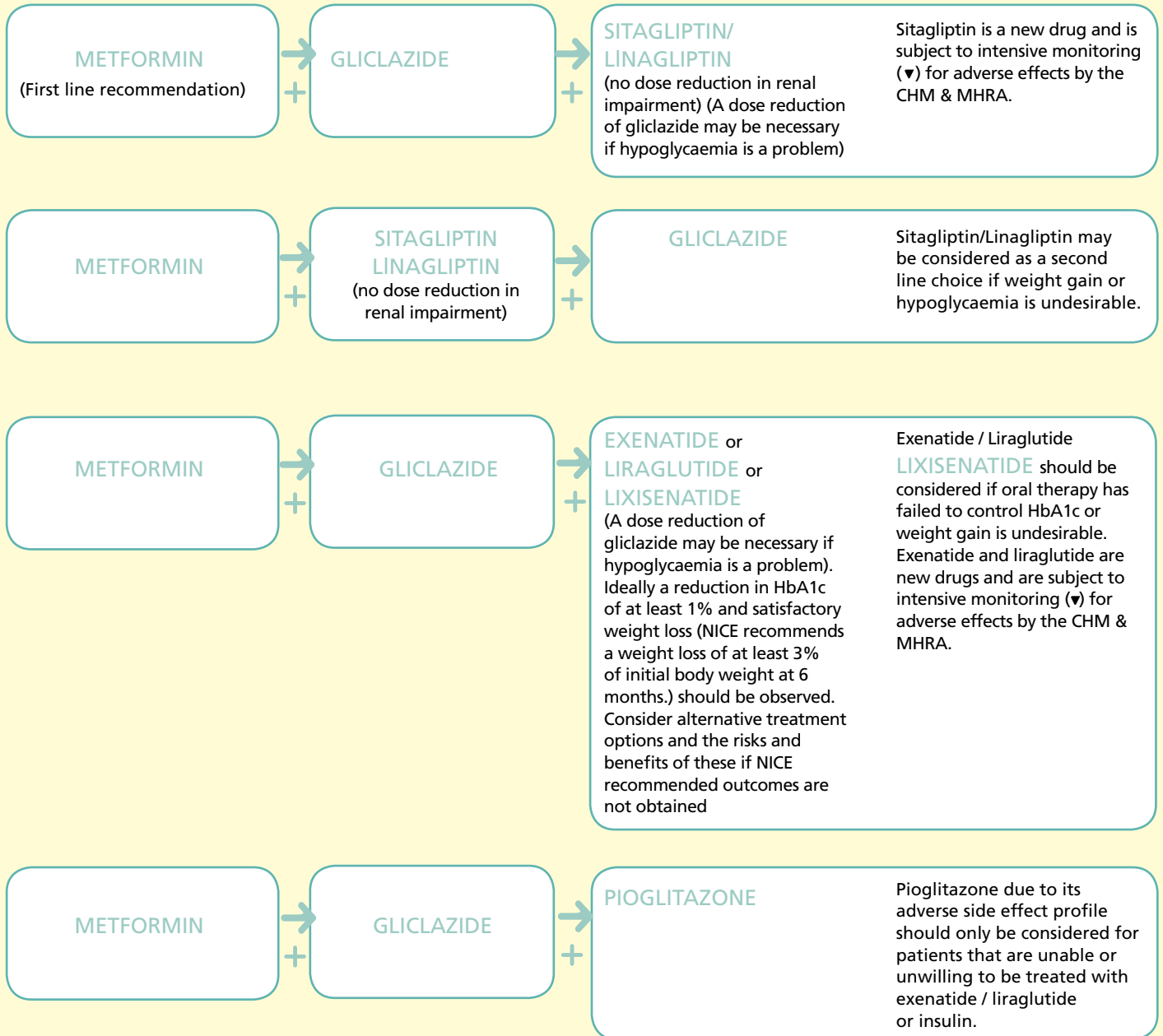
NOTES

1. Go to Step 2 if Metformin is not tolerated or contra indicated
2. Avoid if patient susceptible to hypoglycaemia.
3. Sitagliptin/Linagliptin are new drugs and subject to intensive monitoring for adverse effects by the CHM and MHRA. They may be considered as a second line choice if weight gain or hypoglycaemia is undesirable.
4. Exenatide /liraglutide / lixisenatide should be considered if oral therapy has failed to control HbA1c or weight gain is undesirable. Exenatide / liraglutide is a new drug and is subject to intensive monitoring for adverse effects by the CHM and MHRA.
5. The concomitant use of Exenatide or liraglutide or lixisenatide and Sitagliptin/Linagliptin is outside the licence of both drugs.
6. Pioglitazone due to its adverse side effect profile should only be considered for patients that are unable or unwilling to be treated with Exenatide or insulin.

Dapagliflozin has received a positive TA from NICE and is now green lighted. Its position in the guidelines will be decided before the next update in November 2013

8. GLUCOSE CONTROL

ORAL DIABETES TREATMENT PATHWAYS



8. GLUCOSE CONTROL

Step 1 - TREATMENT OF TYPE 2 DIABETES: METFORMIN

AIMS OF TREATMENT

- HbA1C to be below 7.5% (58 mmol/mol)
- Fasting glucose < 6mmol/l (venous sample)
- In the very elderly or frail, symptom control alone may be the priority

If diet + weight loss has failed to maintain HbA1C to below 6.5% (48 mmol/mol)

INITIATE METFORMIN

- Start with 500mg daily for 1-2 weeks, then 500mg twice a day for 1-2 weeks then increase to 500mg TDS (unless glycaemic target is reached)
- Then titrate every 1-3 months to achieve glycaemic target or maximum dose is prescribed (2g daily in divided doses)
- Tablets should be taken with or immediately after a meal
- Diarrhoea occurs in up to 20%, this usually resolves after 3-5 days or may be dose dependent and may resolve on dose reduction
- Consider FBC if any signs of B12 deficiency

AVOID METFORMIN

- In patients with creatinine >150 micromol/l, eGFR ≤ 30 ml/min/1.73-m²
- Hepatic impairment
- Respiratory failure
- Recent MI < 6 weeks
- Sepsis
- History of ketoacidosis

Caution Review dose

- In patients with creatinine > 130 micromol/l, eGFR ≤ 45 ml/min/1.73-m²

METFORMIN FOR ALL

UKPDS 34 found that 10 years of treatment in obese patients, metformin reduced rates of MI, diabetes related deaths and mortality. For every 14 patients treated with metformin, one of them would have their life extended. A recent study found metformin was as effective for non-obese diabetic patients. Therefore metformin should be first line for all Type 2 diabetic patients.

REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum, or maximum tolerated metformin dose

Check compliance - Consider adding Gliclazide or Sitagliptin

Consider titrating more slowly or a prolonged release formulation for patients unable to tolerate metformin due to GI problems

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1c is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Blood Glucose Monitoring

Patient blood glucose monitoring may not be necessary at this stage. Patients are very unlikely to experience hypoglycaemia on Metformin, consider blood glucose monitoring if the patient reports hypoglycaemia like symptoms. Effectiveness can be monitored using HbA1C measurements.

8. GLUCOSE CONTROL

Step 2 - TREATMENT OF TYPE 2 DIABETES; GLICLAZIDE (Sulphonylurea)

PATIENT HAS

- A contraindication to metformin
- Failure to tolerate metformin despite a reasonable trial and a slow initiation
- Failure of metformin to control diabetes

DIABETES CONTROL

- HbA1C below 7.5% (58 mmol/mol)
- Fasting glucose < 6mmol/l (venous sample)
- Patients must not experience frequent episodes of hypoglycaemia

- In the very elderly or frail, symptom control alone may be the priority

INITIATE GLICLAZIDE

- 40mg-80mg daily with breakfast and subsequently with evening meal
- Titrate by 40-80mg steps, every 1-3 months to achieve glycaemic target or until
 - Maximum daily dose is reached = 320mg daily, given as 160mg BD
 - Or maximum tolerated dose is reached

SIDE EFFECTS are generally mild and infrequent and include hypoglycaemia, gastro-intestinal disturbances, such as nausea, vomiting, diarrhoea and constipation. Hypersensitivity occurs rarely and usually in the first 6-8 weeks of therapy, and usually manifest as allergic skin reactions.

AVOID GLICLAZIDE

- Avoid if patient susceptible to hypoglycaemia
- Severe hepatic disease
- Severe renal impairment eGFR ≤ 30 ml/min/1.73-m²
- Porphyria
- Pregnancy and Breast feeding
- Presence of ketoacidosis

Weight Gain

A 2-4kg weight gain is recognised as a consequence of sulphonylurea therapy; in some patients this may exceed 10kg. Patients should re-assessed and dietary compliance reaffirmed before initiation.

REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum, or maximum tolerated meformin and/or gliclazide dose

Check compliance - Consider adding Exenatide, Sitagliptin if not added at step 2 or pioglitazone if alternatives inappropriate.

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

Step 2 OR 3 - TREATMENT OF TYPE 2 DIABETES: SITAGLIPTIN

Sitagliptin as a third line agent to metformin and gliclazide if the patient has:

- Failure of metformin and/or gliclazide to control diabetes

Sitagliptin should be considered as a second line agent in addition to metformin if the patient:

- Is at significant risk of hypoglycaemia or its consequences, consider work and social circumstances (E.g. older person, people working with machinery or at heights or living alone)
- Has a contraindication or cannot tolerate gliclazide
- Further weight gain would be undesirable

Sitagliptin can be used in combination with gliclazide as a second line agent if the patient:

- Has a contraindication or cannot tolerate metformin despite a reasonable trial

DIABETES CONTROL

- HbA1C below 7.5% (58 mmol/mol)
- Fasting glucose < 6mmol/l (venous sample)
- Patients must not experience frequent episodes of hypoglycaemia

- In the very elderly or frail, symptom control alone may be the priority

INITIATE SITAGLIPTIN

- 100mg once daily
- The dose of metformin to be maintained
- The dose of gliclazide may need lowering if hypoglycaemia is a concern.
- No dose adjustment is required for patients with mild renal insufficiency, mild to moderate hepatic insufficiency or in the elderly.
- In patients with moderate renal impairment (eGFR ≥ 30 to <50 ml/min/1.73m²) the sitagliptin dose is 50mg once a day.
- In Patients with severe renal impairment (eGFR < 30 ml/min/1.73m²) or with end stage renal disease requiring haemodialysis or peritoneal dialysis the sitagliptin dose is 25mg once daily..

SIDE EFFECTS Hypersensitivity reactions include anaphylaxis, angioedema, and exfoliate skin conditions and stevens-johnson have been reported usually in the first 3 months of treatment. Nausea, flatulence and constipation have been reported when used in conjunction with other hypoglycaemic agents pancreatitis.

AVOID SITAGLIPTIN

- Moderate or worse renal failure
- Pregnancy

Sitagliptin is a new drug and is subject to intensive monitoring by the CHM and MHRA its adverse effect profile may not fully known.

REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum Or maximum tolerated metformin and/or sitagliptin/gliclazide dose
Check compliance - Consider adding exenatide or initiating insulin or pioglitazone

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

Step 2 OR 3 - TREATMENT OF TYPE 2 DIABETES: LINAGLIPTIN

Linagliptin can be used in combination with gliclazide as a second line agent if the patient;

- If the patient is unable to take metformin due to renal impairment
- Has a contraindication or cannot tolerate metformin despite a reasonable trial

Linagliptin as a third line agent to metformin and gliclazide if the patient has;

- Failure of metformin and/or gliclazide to control diabetes

Linagliptin should be considered as a second line agent in addition to Metformin if the patient;

- Is at significant risk of hypoglycaemia or its consequences, consider work and social circumstances (e.g., older person, people working with machinery or at heights or living alone).
- Has a contraindication or cannot tolerate gliclazide.
- Further weight gain would be undesirable.

- DIABETES CONTROL
- HbA1C below 7.5% (58 mmol/mol)
 - Fasting glucose < 6mmol/l (venous sample)
 - Patients must not experience frequent episodes of hypoglycaemia

INITIATE LINAGLIPTIN

- 5mg once daily
- No dose adjustment is required for renal impairment.

If using as a third line agent;

- The dose of metformin is to be maintained
- The dose of gliclazide may need lowering if hypoglycaemia is a concern.
- No dose adjustment is required for patients with mild renal insufficiency, mild to moderate hepatic insufficiency or in the elderly.

SIDE EFFECTS Cough, nasopharyngitis pancreatitis.

AVOID LINAGLIPTIN

- Pregnancy

Linagliptin is a new drug and is subject to intensive monitoring by the CHM and MHRA its adverse effect profile may not fully known

REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum Or maximum tolerated metformin and/or sitagliptin/gliclazide dose
Check compliance - Consider adding exenatide or initiating insulin or pioglitazone

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

Step 3 - TREATMENT OF TYPE 2 DIABETES;(GLP-1) EXENATIDE/LIRAGLUTIDE

Exenatide/liraglutide should be considered as a third line agent in addition to metformin and gliclazide if there is a;

- Failure of metformin and/or gliclazide/sitagliptin to control diabetes
- Weight loss is desirable ($BMI \geq 35 \text{ kg/m}^2$)
- $BMI \leq 35 \text{ kg/m}^2$, and therapy with insulin would have significant occupational implications or weight loss would benefit other significant obesity-related co-morbidities

- DIABETES CONTROL
- HbA1C below 7.5% (58 mmol/mol)
 - Fasting glucose < 6mmol/l (venous sample)
 - Patients must not experience frequent episodes of hypoglycaemia

- In the very elderly or frail, symptom control alone may be the priority

	EXENATIDE	EXENATIDE Once Weekly	LIRAGLUTIDE
Dose	5 micrograms twice daily increasing to 10 micrograms twice daily if necessary.	2mg once weekly	0.6mg daily, increased after one week to 1.2mg daily and to maximum of 1.8mg daily if necessary
Route	S/C Injection	S/C Injection	S/C Injection
When	Within 1 hour before 2 main meals and at least 6 hours apart.	Once a week on the same day each week.	Once daily at any time independent of meals.
HbA1c control	Mean reduction 0.4-0.6% for 5 microgram twice daily and 0.8-0.9% for 10 microgram twice daily	Mean reduction in HbA1c 0.67% (-0.94%, -0.39%)	Mean reductions of between 0.8 to 1.5% across dose range 1.2 and 1.8mg daily.
Weight	Mean weight loss 1.4kg for 5 microgram twice daily -1.9 Kg for 10 microgram twice daily	Mean weight loss 2.9kg to 5.2kg with nausea, 2.2kg to 2.9kg without nausea	A mean weight loss -1.1kg (1.2mg) and a weight loss -1.3kg (1.8mg) (figures adapted from SPC)
Injection device	Pre-filled pen		Pre-filled pen
	Co-prescribed with		
Metformin	✓ (Can also be used in combination with a sulphonylurea)	✓ (Can also be used in combination with a sulphonylurea)	✓ (Can also be used in combination with a sulphonylurea)
Sulphonylurea	✓ (Can also be used in combination with a metformin)	✓ (Can also be used in combination with a metformin)	✓ (Can also be used in combination with a metformin)
Sitagliptin	X	X	X
Pioglitazone	✓ in combination with metformin	✓ in combination with metformin	✓ in combination with metformin



REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum, or maximum tolerated metformin and/or gliclazide and/or pioglitazone dose

Check compliance - Consider initiating insulin or pioglitazone

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

Step 3 - TREATMENT OF TYPE 2 DIABETES; (GLP-1): LIXISENATIDE

Lixisenatide should be considered as a third line agent in addition to metformin and gliclazide if there is a;

- Failure of metformin and/or gliclazide/sitagliptin to control diabetes
- Weight loss is desirable ($BMI \geq 35 \text{ kg/m}^2$)
- $BMI \leq 35 \text{ kg/m}^2$, and therapy with insulin would have significant occupational implications or weight loss would benefit other significant obesity-related co-morbidities
- Lixisenatide can be co-prescribed with basal insulin and could be considered if a reduction in insulin dosage is desirable.

- DIABETES CONTROL
- HbA1C below 7.5% (58 mmol/mol)
 - Fasting glucose < 6mmol/l (venous sample)
 - Patients must not experience frequent episodes of hypoglycaemia

- In the very elderly or frail, symptom control alone may be the priority



Dose	Initiating dose 10 micrograms once daily for 14 days Maintenance dose 20 micrograms daily from day 15 onwards
Route	Subcutaneous injection in the thigh, abdomen or upper arm.
When	Dose is to be administered within the prior to the first meal of the day or the evening meal
HbA1c control	0.35-0.66% when used in combination with metformin, a sulphonylurea or basal insulin
Weight	0.32-1 kg when used in combination with metformin, a sulphonylurea or basal insulin
Injection device	Pre-filled pen
Co-prescribed with	
Metformin	✓ (Can also be used in combination with a sulphonylurea and or pioglitazone)
Sulphonylurea	✓(Can also be used in combination with a metformin and or pioglitazone)
Pioglitazone	✓ in combination with metformin and or a sulphonylurea)
Sitagliptin / Linagliptin	×



Insulin	✓ in combination with basal insulin to be initiated by secondary care, continued in primary care
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REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum Or maximum tolerated metformin and/or sitagliptin/gliclazide dose
Check compliance - Consider adding exenatide or initiating insulin or pioglitazone

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol Excellent	7.0-8.0% =53-64 mmol/mol Acceptable	8.0-9.0% =64-75 mmol/mol Poor	>9.0% = 75 mmol/mol Very Poor
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If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

Step 3 - TREATMENT OF TYPE 2 DIABETES; PIOGLITAZONE

Pioglitazone should only be considered if

- There is a failure to tolerate metformin and/or gliclazide despite a reasonable trial
- The patient considers human insulin and or exenatide to be an unacceptable option

- DIABETES CONTROL
- HbA1C below 7.5% (58 mmol/mol)
 - Fasting glucose < 6mmol/l (venous sample)
 - Patients must not experience frequent episodes of hypoglycaemia

- In the very elderly or frail, symptom control alone may be the priority

INITIATE PIOGLITAZONE

- 15-30mg once daily
- Increased to 45mg once daily according to response (it takes several weeks (up to 6 months) before the full therapeutic effect becomes obvious)

SIDE EFFECTS Gastro-intestinal disturbances, weight gain, oedema, fractures at atypical sites, anaemia, headache, visual disturbances, dizziness, arthralgia, hypoaesthesia, haematuria, impotence, macular oedema

LESS COMMONLY

hypoglycaemia, fatigue, insomnia, vertigo, sweating, altered blood lipids, proteinuria,

AVOID PIOGLITAZONE

- Hepatic impairment
- Heart failure
- Pregnancy
- Breast feeding
- In patients considered to be at high risk of fractures.

Liver Toxicity - Due to rare reports of liver dysfunction. Liver function should be checked before and after initiation and at all reviews.

REVIEW 3-6 MONTHS AFTER INITIATION AND FOLLOWING A DOSE INCREASE

If glycaemic targets **MET** - Review in 6-12 months

If glycaemic targets **NOT MET** - Patient is taking the maximum, or maximum tolerated meformin and/or gliclazide and/or pioglitazone dose

Check compliance - Consider initiating insulin

TARGETS FOR GLYCAEMIC CONTROL

HbA1c Control (QOF Targets)	< 7.0% =53 mmol/mol DM23 achieved Excellent	7.0-8.0% =53-64 mmol/mol DM 24 achieved Acceptable	8.0-9.0% =64-75 mmol/mol DM 25 achieved Poor	>9.0% = 75 mmol/mol Outside QOF targets Very Poor
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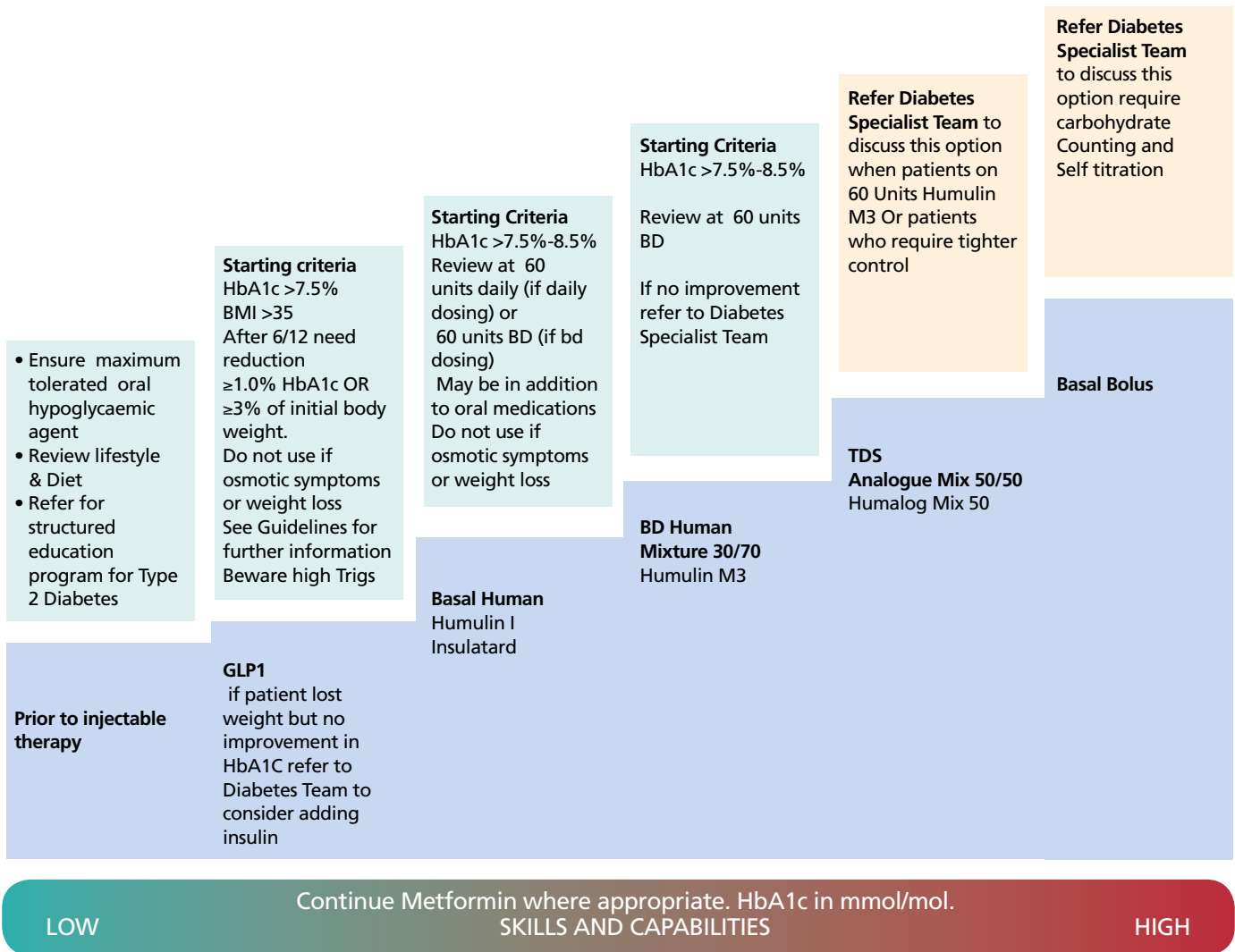
If HbA1C is 1% above a patient's individual target consider whether an adjustment in diet or medication is needed to restore optimal glucose control.

Refer to Rotherham PCT Blood Glucose Monitoring Guidelines

8. GLUCOSE CONTROL

8.3 ROTHERHAM – GUIDELINES FOR INJECTABLE THERAPY IN TYPE 2 DIABETES

For further help contact Diabetes Specialist Team Service on 01709 307910 If on basal analogue and poor glycaemic control/ osmotic symptoms move to BD Human Insulin



8. GLUCOSE CONTROL

STEP 1 – PRIOR TO INJECTABLE THERAPIES

- Review and intensify current oral diabetes medication (see Section 8 Glucose Control).
- Refer to diabetes specialist dietitian (consider referral to Diabetes Reshape if raised BMI).
- Discuss lifestyle choices/increasing activity levels (if appropriate).
- Encourage attendance at structured education programme (Desmond)
- Assess patient understanding of progression of Type 2 diabetes and progression of treatment to injectable therapy.
- Check symptom profile – e.g. Unexplained weight loss, osmotic symptoms (to enable correct entry point on treatment pathway)
- Assess ability of patient to self-manage injectable therapy
(In the very old or frail, symptom control alone may be the priority)

STEP 2 – GLP-1 THERAPY

CONSIDER EXENATIDE (BYETTA) / EXENATIDE MODIFIED RELEASE (BYDUREON)
OR LIRAGLUTIDE (VICTOZA) IN ADDITION TO ORAL THERAPY IF:

- Metformin and Gliclazide and /or Sitagliptin have failed to control the blood glucose levels
- Weight loss is desirable (BMI > 35 kg/m²)
- BMI < 35 kg/m² and initiation of insulin therapy would have significant occupational restrictions
- BMI < 35 kg/m² and initiation of insulin may cause further weight gain increasing risk of obesity-related co-morbidities

CONTRA-INDICATIONS

GLP-1 therapy should not be considered in:

- suspected Type 1 diabetes
- patients with overt osmotic symptoms
- patients with a previous episode of / history of pancreatitis
- patients at risk of developing pancreatitis (triglyceride level > 10)
- patients with severe gastro-intestinal disease

RENAL IMPAIRMENT

EXENATIDE (BYETTA) - standard release twice daily injection (5mcg or 10mcg):

- use with caution if eGFR 30 – 50mL/min
- avoid if eGFR < 30mL/min

EXENATIDE (BYDUREON) – modified release once weekly injection (2mg):

- avoid if eGFR < 50mL/min

LIRAGLUTIDE (VICTOZA) – once daily injection (0.6mg or 1.2mg):

- avoid if eGFR < 60mL/min

COUNSELLING

Patients/carers should be taught how to recognise the signs and symptoms of acute pancreatitis (persistent, severe abdominal pain - possibly radiating into the back, nausea, vomiting) and advised to seek urgent medical advice. Patients should be advised re increased risk of thyroid neoplasm with Liraglutide.

CONTINUATION OF GLP-1 TREATMENT

NICE currently recommends treatment is continued beyond 6 months **only if:**

- HbA1c concentration is reduced by 11mmol/mol (1%)
- AND** • there is a weight loss of at least 3% of initial body weight at 6 months

However, the Diabetes Integrated Specialist Team would suggest that continuation of GLP-1 therapy should be considered if the HbA1c target has been achieved (see Rotherham Diabetes Management Guidelines). If only the target for weight loss has been achieved please discuss with Specialist Team.

If patient has had a substantial weight loss but HbA1c hasn't improved/remains suboptimal, refer to diabetes specialist service for consideration of adding insulin to GLP-1.

8. GLUCOSE CONTROL

INSULIN LADDER STEP 3 – ADDITION OF BASAL INSULIN (TYPE 2 DIABETES)

The addition of basal insulin to existing oral hypoglycaemic agents is recommended for the treatment of Type 2 diabetes (NICE CG 87).

BEFORE INITIATING INSULIN THERAPY

- Refer to dietitian
- Teach or review self blood glucose monitoring technique
- Assess ability of patient to self-manage insulin therapy (see pre-insulin guidelines)
- Review and intensify oral medication to maximum tolerated dose
- **Always use** clinical judgement and consider patient's individual circumstances in all cases

SUGGESTED CRITERIA

One or more of the following:

- No osmotic symptoms
- HbA1c 58 – 69mmol/L
- When optimal glucose control is not appropriate (e.g. terminal illness, inability to self manage)
- Patient choice

STARTING BASAL INSULIN

- Start once daily basal insulin – **initially 10 units at bedtime** (or in the morning if preferred) via an appropriate insulin delivery device
- Continue oral hypoglycaemic agents but monitor for hypoglycaemia (dose may need to be reduced)
- Ensure patient has been taught how to recognise and treat hypoglycaemia (see guidelines)

Active dose titration needs to take place

- Patients able to self-titrate should be taught the '3 day rule' (see guidelines).
- Frequent telephone contact from an appropriately skilled health care professional is required to titrate the dose if patient unable to self-manage

Review appropriateness of insulin regime if a dose of 60 units once daily is reached and individual glucose targets not achieved

Refer to/contact Diabetes Specialist Nurse Service for further advice

Occasionally a twice daily basal insulin regime is appropriate – if unsure contact DSN service

8. GLUCOSE CONTROL

STEP 4 – TWICE DAILY HUMAN BIPHASIC INSULIN (MIXTURE)

Commencing twice daily biphasic insulin is recommended as an option in the treatment of Type 2 diabetes (NICE CG 87)

BEFORE INITIATING INSULIN;

- Refer to dietitian to minimise risk of weight gain
- Review and intensify oral medication if not already done
- Assess patient's readiness /ability to manage insulin therapy (see guidelines)
- Teach patient to monitor blood glucose levels (review technique if already self-monitoring)

Always use clinical judgement and consider patient's individual circumstances in all cases

SUGGESTED CRITERIA

One or more of the following:

- Osmotic symptoms
- Unplanned weight loss
- HbA1c greater than 69mmol/mol
- Intolerance /maximum tolerated dose of OHA's
- Optimal glucose control is required and multiple injection therapy is not acceptable

STARTING TWICE DAILY BIPHASIC INSULIN

- Stop sulphonylureas
- Stop glitazone/gliptin
- Continue Metformin

Start biphasic human insulin –

- Initial starting dose: **10 units before breakfast // 10 units before evening meal** via an appropriate insulin delivery device
- Ask patient to inject insulin 20-30 minutes before eating
- Advise patient that BG levels may initially be high until active titration begins

Active dose titration is needed

- If patient able to self-manage teach insulin adjustment using '3 day rule' (see guidelines)
- Frequent telephone contact from an appropriately skilled health care professional will be required if patient unable to self-titrate
- Teach prevention and management of hypoglycaemia (see guidelines)

Review appropriateness of insulin regime if dose reaches 60 units b.d. and individual glucose targets not achieved

If unsure contact diabetes specialist nurse service for further advice.

8. GLUCOSE CONTROL

8.4 INSULIN THERAPY - TYPE 1 DIABETES (NICE CG 15)

Prescribe the types of insulin that allow the person with Type 1 diabetes the most independence.

MULTIPLE INJECTION THERAPY (MIT) OR BASAL BOLUS REGIMES –

NB/ (this is the preferred option in Type 1 diabetes)

- These offer the most lifestyle flexibility and should be the chosen option if the patient is agreeable.
- These regimes need to be started as part of an integrated package of specialist care including education, dietetic assessment and support, skills training in self-monitoring and adjustment of insulin doses.

CONSIDER TWICE DAILY INSULIN REGIMES :

- For those who are unable to commit to a multiple injection regime
- For those who prefer to have two injections per day
- For those who may require assistance with their injections

MULTIPLE INJECTION THERAPY (BASAL BOLUS)

Mealtime insulin – (BOLUS)

- Use rapid-acting insulin analogues (preferred choice)
- Novorapid or Humalog or Apidra - {Unmodified (soluble) insulin such as Humulin S or Actrapid is not as frequently used in Type 1 diabetes but still available}

Rapid-acting insulin analogues will avoid the need for regular snacks, post-prandial glucose surges and late inter-prandial hypoglycaemia.

BASAL / BACKGROUND INSULIN - (BASAL) - (THIS IS NEEDED IN ADDITION TO THE MEALTIME INSULIN DOSES)

LONG ACTING ANALOGUE INSULIN

Insulin Glargine (Lantus) is recommended as a treatment choice for people with Type 1 diabetes (NICE TA 53)

- (duration 20-24 hours – once daily injection)
- Inject at the same time each day (usually bedtime)

INSULIN DETEMIR (LEVEMIR)

- (duration 16-20 hours – once or twice daily injection)
- Inject at bedtime (once daily)
- Inject morning and evening (usually breakfast and bedtime)

ISOPHANE (NPH) INSULIN

- (duration 10 – 14 hours with a distinct peak of action between 4 – 8 hours)

HUMULIN I OR INSULATARD OR INSUMAN BASAL

- given at bedtime as a once daily or twice daily if needed (morning and evening)

NB - Isophane (NPH) insulins are 'cloudy' in appearance and need to be resuspended before each injection.

LOCAL GUIDANCE

The Diabetes specialist team in Rotherham prefers to use the following Insulin regime to treat type 1 Diabetes:

BASAL BOLUS (MULTIPLE INJECTION THERAPY) USING:

RAPID - ACTING ANALOGUE INSULIN AT MEALTIMES

LONG - ACTING ANALOGUE INSULIN AT BEDTIME (OR TWICE DAILY)

8. GLUCOSE CONTROL

8.5 SELF-MONITORING OF BLOOD GLUCOSE

In keeping with recommendations contained within NICE Clinical Guideline CG 87 self monitoring of blood glucose should only be provided routinely to people with Type 2 diabetes not treated with insulin or sulphonylureas where there is an agreed purpose or goal to testing.

THESE GUIDELINES DO NOT APPLY IN:

- *Patients using insulin either alone or in combination with oral medication*
- *Pregnancy*
- *Children*

1. People with diabetes should have their HbA1c measured at 2-6 month intervals (6 monthly if blood glucose levels are stable).
2. Blood glucose monitoring is not necessary unless the patient is going to act upon the result, by adjusting their dose or food intake. The **patient with stable** non-insulin controlled **diabetes** will, therefore, require limited monitoring in normal circumstances.
3. If treated with tablets patients do not need to do daily readings but should be advised to do regular readings when:
 - *They are feeling unwell and not able to eat. E.g. common colds, chest infections, GI infections*
 - *They have hypoglycaemic symptoms: dizziness, nausea, sweating, feeling faint, confusion and disorientation*
 - *Circumstances such as travel, or working hours have resulted in a change to the daily routine and meal times*

Patients should act if blood glucose levels are less than 4mmol/l by consuming a high calorific snack and re-measuring blood glucose levels. See 'Management of Hypoglycaemia' section.

4. Patients are advised to do occasional blood glucose readings to ensure familiarity with the equipment and that all equipment is in good working order and that blood glucose sticks are in date.
5. Patients should be encouraged to do regular readings 2-4 times a week at different times of the day when hypoglycaemic drug therapy has been modified, until it is recognised that blood glucose levels have stabilised on the new drug regime.
6. Patients should be encouraged to do regular readings 2-4 times a week at different times of the day if they undertake any major modifications to their regular diet until it is recognised that blood glucose levels have stabilised.
7. Patients who are reluctant to dispense with regular monitoring should be encouraged to check their blood glucose no more than 2-4 times a week at irregular intervals.

8. GLUCOSE CONTROL

8.6 URINE GLUCOSE TESTING

- Occasionally some patients may express a preference for urine testing
- Urine tests are inexpensive relative to SMBG
- Urine tests are non-invasive
- Urine tests are an unreliable guide to the current blood glucose level and may therefore be misleading
- Urine tests are influenced by a high (often seen in the elderly and patients with renal impairment) or a low renal threshold (as seen in pregnancy)
- Urine tests identify hyperglycaemia but not hypoglycaemia

Advantages and disadvantages of each of the currently available urine test strips are shown below:

Test strip	RANGE	TIMES (S)	COMMENT	RELATIVE COST
BHR Medi-test	Up to 55.5 mmol/l	30-60	<ul style="list-style-type: none">• Accurate and sensitive.• Also allows testing for protein, ketones and leucocytes	Cheapest
Diabur Test 5000	Up to 5%	120	<ul style="list-style-type: none">• Accurate and sensitive.• Scale rather elaborate.• Can be read after 120 sec with no loss of accuracy	Mid-range
Diastix	Up to 2%	30	<ul style="list-style-type: none">• Difficult to distinguish between 0.5, 1 and 2% in poor light.• Must be read at 30 seconds for accurate result.• Colour change inhibited by heavy ketonuria	Mid-range
Clinistix	Low/medium/high	10	<ul style="list-style-type: none">• Not quantitative, useful only as a screening test	Most expensive

8. GLUCOSE CONTROL

8.7 SICK DAY RULES

If a person with Type 2 diabetes becomes unwell it is likely that this will affect their blood glucose control. Everyday illnesses or infections nearly always cause hyperglycaemia as the natural response to illness is the release of stress hormones and additional glucose from the stores in the liver. As a result, even if the patient is vomiting and unable to eat or drink, the blood glucose levels may still rise.

Common illnesses include:

- Cold or flu viruses
- Stomach upset (diarrhoea and /or vomiting)
- Infections e.g. urine, chest or skin.
- Sore throats
- Illnesses where steroid tablets or injections are needed will also raise blood glucose levels.

Patients should be advised to contact/see their doctor if an infection is suspected.

ADVICE FOR PATIENTS TO FOLLOW WHEN UNWELL:

- Never stop taking your tablets or insulin, even if you are not eating.
- If you usually test your blood glucose levels, continue to check at least every 4 hours.
- Keep drinking and eat if you are able to. Try to drink approximately 3 to 4 litres per day (one glass over one hour) of sugar free fluids such as water, diet soft drinks or diet cordial to prevent dehydration. Aim to drink at least a glass of fluid over 1 hour period.
- If you are unable to eat your normal meals, replace them with alternatives such as milky drinks, soup, ice cream or fruit juice.
- Make sure you have some Lucozade/ Glucose tablets or full sugar cola/lemonade available. If your blood glucose level falls below 4mmol/L you will need these to return your glucose level to normal again. (see management of hypoglycaemia section)
- If you live alone, let someone know that you are unwell so they can check on you.
- If you are not well enough to follow the above guidelines then please contact your GP or diabetes health professional.
- Remember to rest as much as possible.

MONITORING BLOOD GLUCOSE LEVELS DURING ILLNESS AND MAKING ADJUSTMENTS TO TREATMENT

(Advice for patients being managed at home)

TABLETS

- If your blood glucose level is **less than 15mmol/L** continue with your usual medication and test before each meal.
- If your blood glucose level is **between 15-20mmol/L** and you take **tablets** for your diabetes, continue as normal and re-test before each meal or within 4 hours.

If you start to feel worse or start to vomit, contact your GP or an appropriate healthcare professional for further advice.

8. GLUCOSE CONTROL

INSULIN

- If your blood glucose level is **more than 15mmol/L** for more than 12 hours and you have **twice daily insulin injections** add **4 extra units** to each dose.
- If you have a **basal bolus regime** (quick acting insulin with meals/long acting insulin in the evening [+/- in the morning] add 2 - 4 extra units to each of your quick acting insulin doses.
- If your illness continues for a few days and your blood glucose levels continue to be high, you may need to **add 2 - 4 extra units** to your long acting insulin doses as well
- If your condition does not start to improve or you feel worse or start to vomit, you must seek advice from your GP/Practice nurse or diabetes health professional.
- If your blood glucose levels are persistently **above 20mmol/L** contact your doctor or diabetes health professional for individual advice.
- **Reduce** any insulin doses back to normal when you are feeling better and your blood glucose levels have started to return to their usual levels.

If you have a different insulin regime to those already described please seek individual advice from your diabetes health professional.

CHECKING FOR KETONES

People with Type 2 diabetes are **not usually** susceptible to ketoacidosis therefore do not normally need to test for ketones. However, as part of the assessment of your patient during acute illness a test for ketonuria should be performed routinely.

People with Type 2 diabetes may be directed to test for ketones during illness by a member of the specialist diabetes team, especially if they are under 40 years of age.

GLP-1 therapy - Exenatide (Byetta), Liraglutide (Victoza), Bydureon (extended release Exenatide)

You do not need to increase the dose to treat a raised blood glucose level during illness. Monitor your blood glucose levels 4 hourly (if able to) and as long as you are able to eat, you should continue to inject your treatment as usual.

If you are unable to eat, do not inject your treatment and contact your health professional for advice.

Remind patients - If your blood glucose levels remain over 20mmol/L for more than 24 hours, contact your GP or diabetes team for further advice

It may be useful to get patients to keep a record of who to contact when they are ill (example below)

CONTACT NUMBERS:

GP's name

GP's telephone number.....

Diabetes Specialist Nurse/Dietitian.....Contact number 01709 427910

Rotherham District General Hospital 01709 820000

Rotherham Community Health Centre 01709 423000

FOR FURTHER INFORMATION CONTACT:

NHS Direct 0845 46 47

Diabetes UK www.diabetes.org.uk

8. GLUCOSE CONTROL

MANAGING DURING EPISODES OF ILLNESS – TYPE 1 DIABETES MELLITUS (DM)

This guidance is more commonly referred to as '**SICK DAY RULES**'

KEY POINTS (for health professionals)

Intercurrent illness may lead to deterioration in blood glucose control and an increased risk of developing decompensated diabetes (diabetic ketoacidosis - DKA)

Checking both the blood glucose and urine (or blood) ketone level is an **essential** part of the assessment of any patient with Type 1 DM who is unwell.

WHAT IS THE SIGNIFICANCE OF KETONES?

- Ketones are acids produced during the breakdown of body fat
- Ketone production is controlled by the presence of insulin
- Ketones can be detected in the urine using test strips such as Ketostix
- Ketone levels of moderate (++) or large (+++) in the urine of a patient with Type 1 diabetes indicates the need for more insulin - even when the patient isn't eating
- Early intervention can help to prevent the development of DKA

WHEN TO CHECK FOR KETONES

The urine should be checked for the presence of ketones with any of the following:

- Any unexpected high blood glucose level (>13 mmol/L)
- Generally feeling unwell (even if the blood glucose level is within normal ranges)
- High temperature –indicating signs of infection
- Vomiting or abdominal pain
- Excessive thirst/increased urinary frequency

NB: Most people with Type 1 diabetes will have instructions on testing for ketones.

- They should have a supply of urine ketone testing strips (Ketostix).

NB/Patients with Type 1 diabetes who actively self-manage their condition or those who may be more at risk of developing ketoacidosis should have been shown how to test their blood ketone levels.

- They will have been provided with the appropriate meter (Freestyle Optium Xceed) and test strips (Freestyle Optium - ketone strips are used at the moment).

There are separate guidelines for patients who have been shown how to test blood ketone levels.

ADVICE TO BE GIVEN TO PATIENTS FOR MANAGING DURING EPISODES OF ILLNESS (TYPE 1 DM) (For people with Type 1 diabetes who are being managed at home)

NEVER STOP INSULIN INJECTIONS – even if unable to eat

- If appetite is poor, suggest replacing normal meals with fluids eg. Soup, milk- based drinks, yogurt, custard, ice cream etc. and continue to take your insulin injections.
- If the blood glucose level falls below **4 mmol/L**, advise to drink Lucozade (100mls), Jelly Babies (3-4) or have 5-6 glucose tablets with a drink of water. (see hypoglycaemia guidelines)
- Advise to continue to drink plenty of sugar-free fluids – suggest 100-200mls (1 glass) every hour and encourage sipping over a 1 hour period rather than trying to drink all at once, especially if feeling sick.
- If able - small amounts of carbohydrate should be eaten to prevent starvation ketones.

NB/ All patients with Type 1 DM should have access to supplies of quick-acting insulin regardless of their usual insulin type

8. GLUCOSE CONTROL

SELF-MONITORING AND INSULIN DOSES

- Measure blood glucose (BG) levels at least four (4) times daily - (suggest before breakfast, lunch, tea and at bedtime)
- Check urine for the presence of ketones (at least daily even if BG level is normal (not the first sample of the day))

NO KETONES PRESENT

- **If BG less than 11mmol/L** - continue with usual doses of insulin
- **If BG between 11 - 14mmol/L** – give an additional 2 units of quick-acting insulin before each meal and at bedtime (if needed)
- **If BG between 14 - 17mmol/L** – give an additional 4 units of quick-acting insulin before each meal and at bedtime (if needed)

If you experience frequent hypoglycaemia while implementing this regime, reduce the amount of additional insulin by 2 units.

IN THE PRESENCE OF KETONES

(BG level usually above 13mmol/L but can be normal)

- **++ (MODERATE KETONURIA)**

Give an additional 4 units of quick-acting insulin every 4 hours (independent of food and even if not eating)
Recheck BG and ketone level every 4 hours

- **+++ (SEVERE KETONURIA)**

Give an additional 6 units of quick-acting insulin every 2 hours
Recheck BG and ketone level every 2 hours

IMPORTANT

If ketones are present at bedtime, the patient must continue to monitor BG and ketone levels every 2-4 hours throughout the night and give additional insulin doses as previously suggested.

IF BLOOD GLUCOSE / KETONE LEVELS DO NOT IMPROVE OR DETERIORATE IN SPITE OF 2 ADDITIONAL CORRECTION INSULIN DOSES AND/OR VOMITING DEVELOPS/WORSENS THERE IS A HIGH RISK OF DKA AND THE PATIENT SHOULD BE ADMITTED TO HOSPITAL IMMEDIATELY.

PEOPLE WITH TYPE 1 DIABETES WHO HAVE ATTENDED A DAFNE COURSE OR WHO ARE CONFIDENT WITH MULTIPLE INJECTION THERAPY INSULIN DOSE ADJUSTMENT WILL USE SICK DAY RULES WITH INSULIN CORRECTION DOSES OF 10% TOTAL DAILY DOSE (TDD) AND 20% TDD.

8. GLUCOSE CONTROL

HYPOGLYCAEMIA

8.8 MANAGEMENT OF HYPOGLYCAEMIA

Hypoglycaemia, defined as blood glucose levels (BGL) $<4\text{mmol/l}$ is a possible consequence of some diabetes treatments. It affects people's work, relationships, ability to drive and their quality of life. Hypoglycaemia should be prevented where possible and when it does occur, should be treated fast and effectively. It is also important to guide patients to identify the cause of their hypoglycaemia and take appropriate steps to avoid recurrence.

For treatment flowchart Community Hospital

WHAT CAN CAUSE A HYPO? COMMON CAUSES IN THE COMMUNITY

- Eating less carbohydrate (starchy food) than normal, or missing or being late with a snack or a meal
- Doing more activity than normal without taking extra carbohydrate (starchy or sugary food) or adjusting their insulin prior to the activity
- Taking too much insulin or too large a dose of sulphonylureas e.g. gliclazide, glimepiride and prandial glucose regulators e.g. nateglinide, repaglinide
- Drinking too much alcohol, especially on an empty stomach when on insulin or sulphonylureas.

COMMON CAUSES IN THE HOSPITAL

Mis-calculation of sliding scale insulin dose:

Over correcting high BGLs

Over estimating patients dietary intake

Time delay in receiving a meal after insulin being given

Missed meals due to:

- Lack of appetite
- Away from bed when meal arrives
- Disliking hospital meals
- Investigation procedures – nil by mouth
- Wrong meal delivered
- No bedtime snack available

CAN HYPO SYMPTOMS OCCUR AT BLOOD GLUCOSE LEVELS ABOVE 4 MMOL/L?

- Yes. This may happen when there has been a period of poor control (i.e. when blood glucose levels have been in double figures) and when this is corrected and blood glucose levels begin to drop to normal levels (BMs between $4\text{-}7\text{mmol/l}$)
- This is not a true hypo

WHAT CAN BE DONE WHEN THERE ARE HYPO SYMPTOMS BUT BLOOD GLUCOSE IS ABOVE 4MMOL/L?

- Advise patient to sit down and have a non-sugary drink if wishes to, and let the symptoms settle. If the person feels desperate to have something to eat, advice to keep to a small snack such as 1 small biscuit, 1/2 a piece of toast, or a small portion of fruit etc.
- It is not advisable to treat them as hypo, as it will not give the body a chance to adapt to normal glucose levels
- Explain to patient why it has happened and why not to treat it as hypo.

WHAT IF SYMPTOMS DON'T SETTLE?

- Investigate other causes

8. GLUCOSE CONTROL

PREVENTION AND MANAGEMENT

- *Educate patients and carers on*
 - *Causes of hypos (please see above) and how to avoid them*
 - *Blood glucose monitoring and how to interpret the results*
 - *Eat extra carbohydrate or reduce hypoglycaemic medication if doing increased activity*
 - *Carrying identification*
 - *Educating friends and family on what is a hypo and how to treat it fast / effectively*
 - *Give 'Hypoglycaemia' A4/A5 sheet (both available in diabetes information pack) to be kept at an easily accessible place*
- *Review oral hypoglycaemic medication/insulin doses regularly, especially if patient is on a weight-reducing programme or has increased their activity level*
- *Remember patients will need more input if they have irregular meal patterns, exceptionally active life style, poor appetite, gastroparesis, or also has Coeliac disease*
- *Make referrals to the relevant members of the diabetes specialist team if further input is required.*

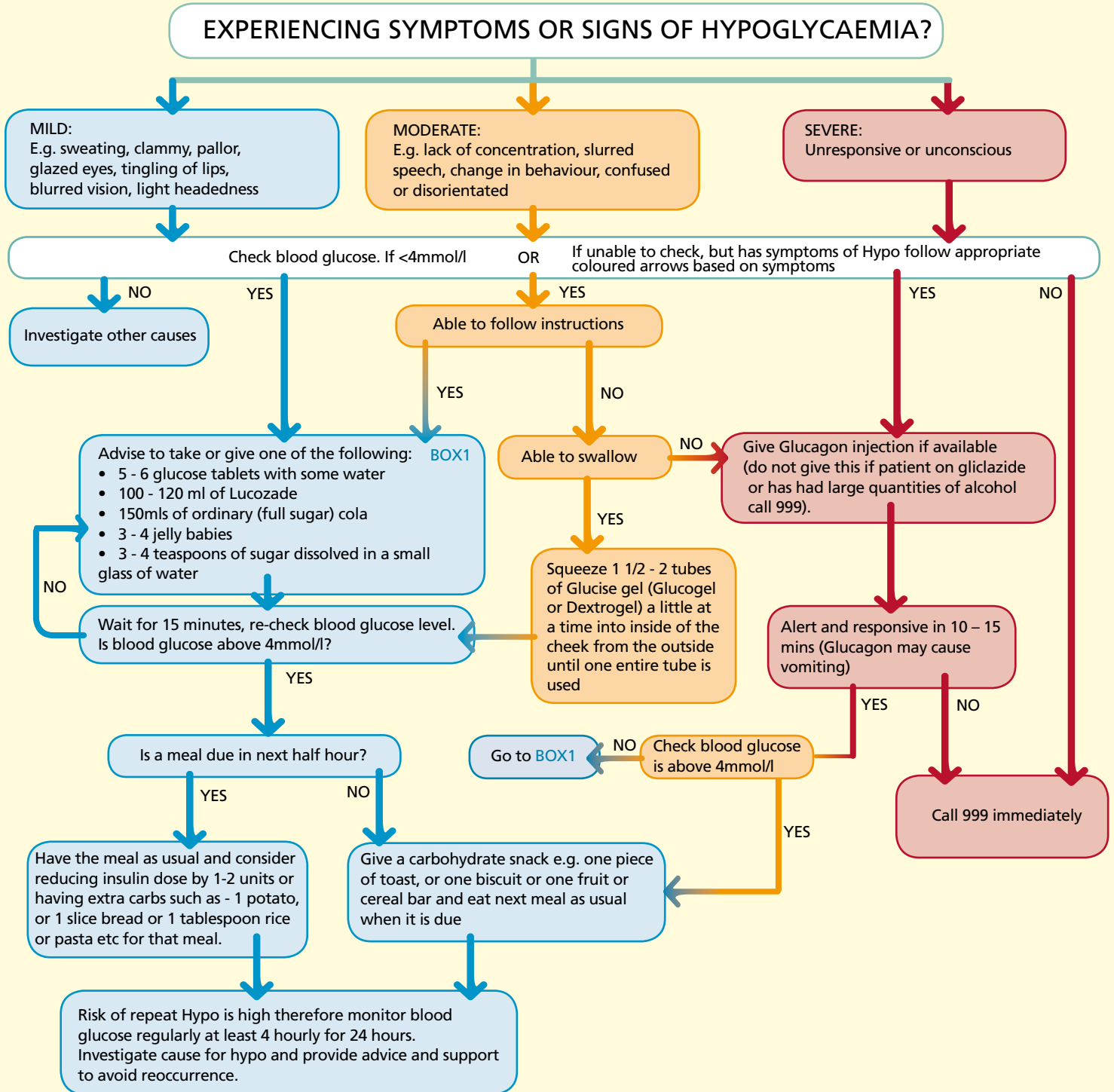
For treatment flowchart

Hospital

Community

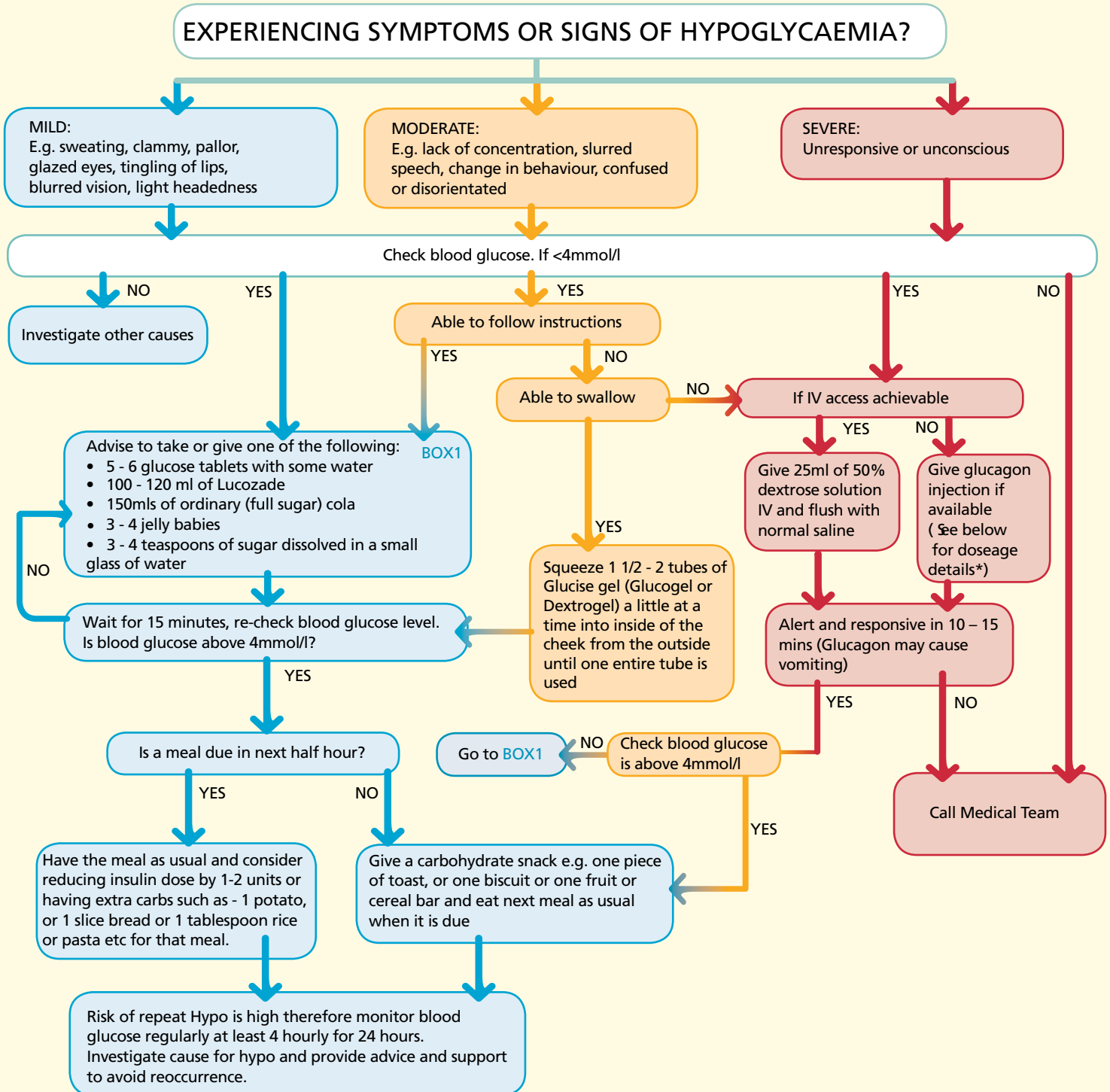
8. GLUCOSE CONTROL

8.8 MANAGEMENT OF HYPOGLYCAEMIA (HYPO) – COMMUNITY



8. GLUCOSE CONTROL

8.8 MANAGEMENT OF HYPOGLYCAEMIA (HYPO) – HOSPITAL



8. GLUCOSE CONTROL

8.8 MANAGEMENT OF HYPOGLYCAEMIA – ADDITIONAL INFORMATION

GLUCAGON DOSE:

ADULTS AND CHILD OVER 8YRS (OR BODY WEIGHT OVER 25KG) – 1MG.

CHILD UNDER 8YRS (OR BODY WEIGHT UNDER 25KG) – 500 MICROGRAMS.

ROUTE OF DELIVERY: SUBCUTANEOUS, INTRAMUSCULAR, OR INTRAVENOUS INJECTION.

WHAT CAN CAUSE A HYPO?

- *Eating less carbohydrate (starchy food) than normal, or missing or being late with a snack or a meal*
- *Doing more exercise than normal without taking extra carbohydrate (starchy or sugary food) or adjusting their insulin prior to the activity*
- *Taking too much insulin or too large a dose of sulphonylureas e.g. gliclazide, glimepiride and prandial glucose regulators e.g. nateglinide, repaglinide*
- *Drinking too much alcohol, especially on an empty stomach*

CAN HYPO SYMPTOMS OCCUR AT BLOOD GLUCOSE LEVELS ABOVE 4 MMOL/L?

- *Yes. This may happen when there has been a period of poor control (i.e. when blood glucose levels have been in double figures) and when this is corrected and blood glucose levels begin to drop to normal levels (BMs between 4-7mmol/l)*
- *This is not a true hypo*

WHAT CAN BE DONE WHEN THERE ARE HYPO SYMPTOMS BUT BLOOD GLUCOSE IS ABOVE 4MMOL/L?

- *Advise patient to sit down and have a non-sugary drink if wishes to, and let the symptoms settle*
- *It is not advisable to treat them as hypo as it will not give the body a chance to adapt to normal glucose levels*
- *Explain to patient why it has happened and why not to treat it as hypo.*

WHAT IF SYMPTOMS DON'T SETTLE?

- *Investigate other causes*

PREVENTION:

HOW CAN HYPOS BE PREVENTED?

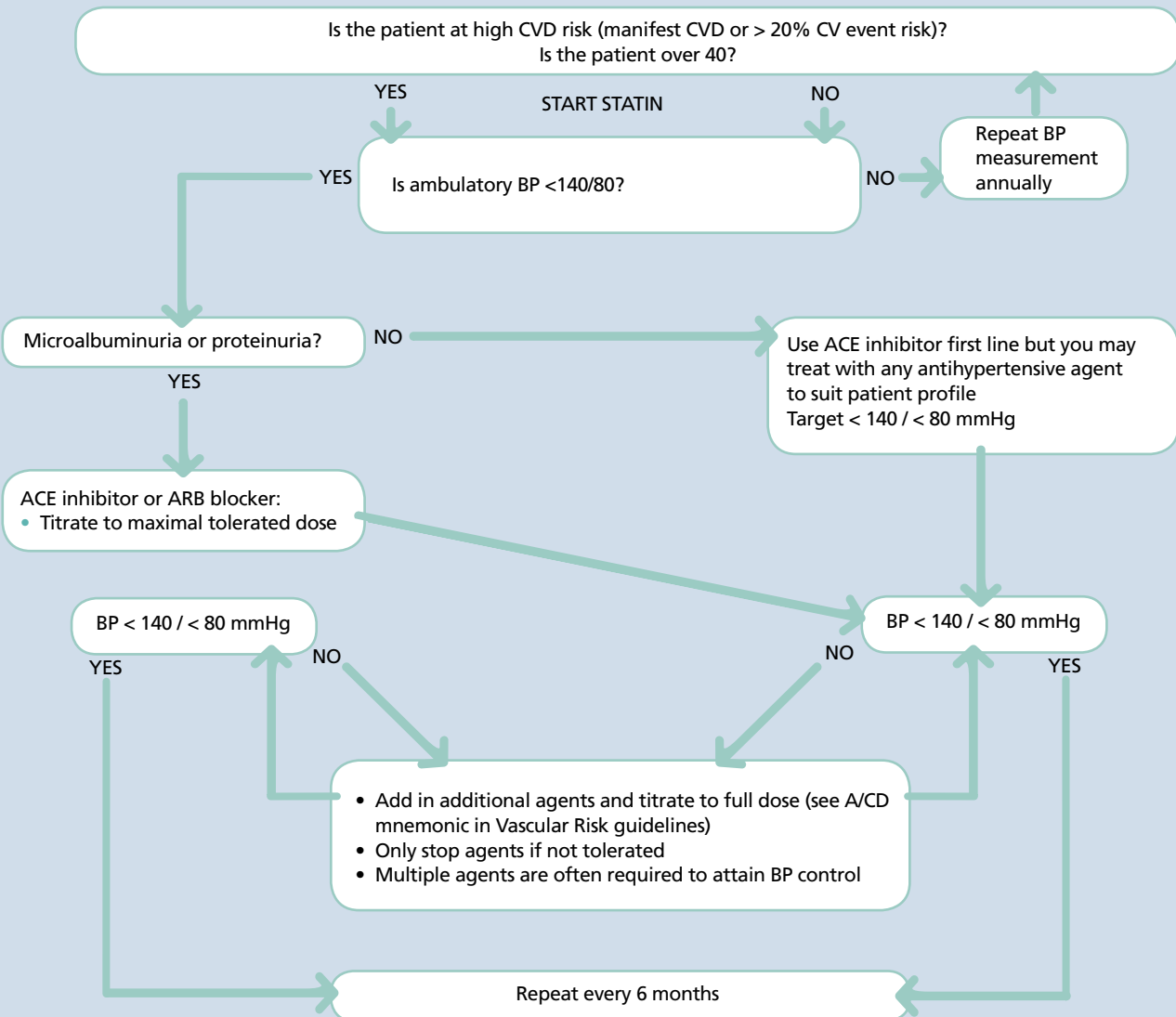
- *Educate patients and carers on*
 - *Causes of hypos (please see above) and how to avoid them*
 - *How to treat them (see flow charts above) and what to carry with them*
 - *Blood glucose monitoring and how to interpret the results*
 - *Carrying identification*
 - *Informing friends and family*
 - *Give 'Help with hypo' booklet by Novo Nordisk, and 'Hypoglycaemia' A4/A5 sheet (both available in diabetes information pack) to be kept at an easily accessible place*
- *Review oral hypoglycaemic medication/insulin doses regularly, especially if patient is on a weight-reducing programme or has increased their activity level*
- *Remember patients will need more input if they have irregular meal patterns, exceptionally active life style, poor appetite, gastroparesis, or Coeliac disease*
- *Make referrals to the relevant members of the diabetes / education and resource centre if further input is required*

9. RISK FACTOR MANAGEMENT

9.1 HYPERTENSION

TREATMENT THRESHOLD	CLINIC BP (MMHG) ≥ 140 systolic AND/OR ≥ 80 diastolic	AMBULATORY/HOME BP (MMHG) ≥ 130 systolic AND/OR ≥ 75 diastolic
TARGETS		
• No microvascular complications	< 140 / < 80	< 130 / < 75
• Microvascular/ Cerebro vascular complications	< 130 / < 80	< 120 / < 75

9.1 HYPERTENSION IN DIABETES - MANAGEMENT ALGORITHM



9. RISK FACTOR MANAGEMENT

9.1 HYPERTENSION IN DIABETES - TREATMENT OPTIONS

LIFESTYLE MODIFICATION

- Weight loss
- Increase physical activity
- Reduce alcohol intake to less than 2 units per day
- No added salt diet
- Stop smoking
- '5 a day' (portions of fruit/vegetables)

ACE INHIBITOR

- Drug of first choice in patients with microalbuminuria or proteinuria
- Titrate to maximal tolerated dose
- Adequate contraception advised if used in women of child bearing age. ACE inhibitors must be stopped in the event of pregnancy
- Combination with diuretic (bendroflumethazide 2.5mg, spironolactone 25mg if potassium <4.5 mmol/l) can be useful
- U&E and creatinine should be checked before and 7-14 days after dose change after starting an ACE inhibitor and after every dose adjustment

BETA-BLOCKERS

- Use cardioselective agents (eg atenolol 25-100mg od or Bisoprolol 2.5-10mg od)
- Greater cardiovascular protective effects in diabetic patients with IHD than in non-diabetics
- Useful in patients with anginal/post myocardial infarction
- Cheap/effective: equal efficacy with Captopril in UKPDS trial
- Use with care in heart failure/severe peripheral vascular disease; avoid in asthma
- May cause erectile dysfunction

CALCIUM ANTAGONISTS

- Useful in patients with co-existent angina
- Long acting agents recommended
- Suggest diltiazem XL 90-360 mg od or amlodipine 5-10mg od
- Use as second line agent or as part of combination therapy
- Metabolically neutral
- Avoid short acting dihydropyridine calcium channel blockers such as nifedipine

ETHNIC CONSIDERATIONS

- People of African-Caribbean descent may respond poorly to ACEI, Alpha blockers and beta-blockers
- Consider Ca channel blockers or an ACEI with a diuretic as alternatives

ANGIOTENSIN RECEPTOR BLOCKER

- Useful in patients who do not tolerate ACE inhibitors due to cough
- Equal first line agents in Type 2 diabetes with microalbuminuria/proteinuria
- U&E and creatinine should be checked before and 7-14 days after starting an ARB and after every dose adjustment
- Candesartan is the recommended AT2 blocker in diabetes

DIURETICS

Thiazides, e.g. bendroflumethazide 2.5mg od

- Inexpensive and effective
- Unlikely to have adverse metabolic effects when used at low dose
- May cause erectile dysfunction
- Use when serum creatinine is normal

Spironolactone if Potassium <4.5

- Check U&Es within 7-14 days of starting
- Beware use with ACE I or ARB

ALPHA BLOCKERS

- Doxazosin 1-16 mg daily (or mlr 4-8mg od)
- Use as second line agent or as part of combination therapy
- Metabolically neutral
- Safe in renal impairment
- Check lying and standing blood pressure before starting alpha-blocker

THE BRITISH NATIONAL FORMULARY GIVES DETAILS OF DOSAGES, SIDE EFFECTS, DRUG INTERACTIONS AND MONITORING OF ALL ANTI-HYPERTENSIVE DRUGS.

9. RISK FACTOR MANAGEMENT

GENERAL COMMENTS ON HYPERTENSION MANAGEMENT IN TYPE 2 DIABETES

- *The UKPDS trial showed clear benefit of lowering blood pressure to 142/84 mmHg in middle-aged patients with Type 2 diabetes and hypertension*
- *To achieve this approximately one third of patients required one anti-hypertensive agent, one third needed two and one third needed three or more agents*
- *A target of 140/80 or less may be difficult, impossible or unnecessary to achieve in certain patients (i.e. the elderly). **Individual targets should be established for each patient***
- *Systolic hypertension is common in diabetes and the recommended targets may be difficult to attain. Aim to lower the systolic pressure by 20 mmHg in the first instance and then review*
- *Aim to minimise ALL vascular risk factors, especially in patients with established end-organ damage*

In the UKPDS each 10 mmHg decrease in mean systolic blood pressure was associated with risk reductions of:

12% for any diabetes-related complication

15% for diabetes related deaths

11% for myocardial infarction

13% for microvascular complications

NO THRESHOLD OF RISK WAS OBSERVED FOR ANY END POINT

9. RISK FACTOR MANAGEMENT

9.2 CARDIOVASCULAR DISEASE

INITIAL ASSESSMENT

- Take a full clinical history, including any history of cardiovascular disease (myocardial infarction, angina, CABG, angioplasty or heart transplant, peripheral vascular disease, atherosclerotic cerebrovascular disease).
- Identify people with adverse lipid profile secondary to conditions other than diabetes mellitus:
 - ask about alcohol consumption and manage accordingly
 - check thyroid function tests to exclude hypothyroidism
 - check liver function tests to exclude liver disease
 - check serum creatinine and urine protein to exclude renal disease
- Review and discuss other modifiable risk factors, particularly smoking
 - offer smoking cessation advice where appropriate and/or refer to smoking cessation clinic
 - for individuals who are overweight or obese, encourage weight loss and increased physical activity

LIPID LOWERING DRUGS

Two classes of lipoprotein regulating drugs are recommended. The British National Formulary gives details of dosages, side effects, drug interactions and monitoring.

- **Statins:** The statins (atorvastatin, fluvastatin, pravastatin, simvastatin and rosuvastatin) are more effective than other classes of drugs in lowering LDL-cholesterol but less effective than the fibrates in reducing triglycerides and raising HDL-cholesterol
- **Fibrates:** Bezafibrate, ciprofibrate, fenofibrate, and gemfibrozil can be regarded as broad-spectrum lipid-modulating agents. They decrease serum triglycerides, reduce LDL-cholesterol and raise HDL-cholesterol. Fibrates have been shown to reduce the risk of coronary heart disease events in those with low HDL-cholesterol or raised triglycerides

Other lipid-regulating drugs are available, but are less commonly used (e.g. ezetimibe, nicotinic acid derivatives and fish oils).

- All adult patients, unless assessed as lower risk (10 year CV risk <20%), should be offered treatment with a statin (unless contraindicated)
- Those with a fasting triglyceride level ≥ 10.0 mmol/l should normally be treated with a fibrate as drug of first choice. Consider referral of such patients to lipid or diabetes clinic, particularly if a statin-fibrate combination may be necessary

9.2 CARDIOVASCULAR DISEASE – TARGETS FOR TREATMENT

PRIMARY AND SECONDARY PREVENTION

Total cholesterol	≤ 4.0 mmol/l	HDL cholesterol	≥ 1.4 mmol/l
LDL cholesterol	≤ 2.0 mmol/l	Triglycerides	≤ 2.3 mmol/l

9. RISK FACTOR MANAGEMENT

9.3 KIDNEY DISEASE

MICROALBUMINURIA:

- Excess albumin in the urine but not detectable using protein dipstick
- The earliest indicator of renal disease (nephropathy)
- Is predictive of total mortality, cardiovascular mortality and cardiovascular

MICROALBUMINURIA LABORATORY SCREENING

10 ml early morning 'first pass' urine sample in a 'Universal' specimen container. Clinical chemistry form for albumin/creatinine ratio ('ACR') in mg/mmol.

Male	Female	INTERPRETATION	ACTION
<2.5	<3.5	Normal	Repeat in 1 year
≥2.5	≥3.5	Possible microalbuminuria	Exclude infection, then repeat once or twice within 4 months to confirm.

PROTEINURIA:

- Is an important finding in people with diabetes
- Represents progression of urine albumin excretion from microalbuminuria
- Is associated with a high probability of progressive renal impairment due to diabetic nephropathy and an increased risk of macrovascular disease

RENAL MONITORING FOR PATIENTS WITH DIABETES

- Annual urine dipstick test for protein (Boehringer 5L or Albustix test strips)
- If urine dipstick negative for protein measure urinary albumin creatinine ratio (ACR)
- Annual serum creatinine/eGFR

RENAL MANAGEMENT FOR PATIENTS WITH DIABETES

Normal albumin excretion

- Maintain good blood glucose control (HbA1c < 53 mmol/mol if possible)
- Maintain good blood pressure control (target < 140/80 mmHg)
- Stop smoking

Persistently raised ACR or proteinuria

- Maintain good blood glucose control (HbA1c < 53 mmol/mol if possible)
- Maintain good blood pressure control (target < 130/80 mmHg)
- Start ACE inhibitor of choice for CV/renal protection – see BP guidelines
- Use combination antihypertensive therapy to reach target. Manage CV risk factors aggressively – see lipid/aspirin guidelines

DISCUSS WITH A DIABETOLOGIST OR NEPHROLOGIST IN THE FOLLOWING CIRCUMSTANCES:

If non-diabetic renal disease is suspected because of:

- Heavy proteinuria/nephrotic syndrome +/- raised creatinine with
- Short duration diabetes
- Haematurial/microscopic haematuria
- Possible systemic illness – e.g. vasculitis/myeloma
- Little or no retinopathy
- Raised creatinine with little or no proteinuria
- Acute renal failure

For management of:

- Persistent fluid retention
- Hypertension

For management of advancing renal failure

(eGFR 30-60 ml/min)

9. RISK FACTOR MANAGEMENT

9.4 ANTITHROMBOTICS (Aspirin/Clopidogrel)

ASPIRIN (75 MG OD)

SECONDARY PREVENTION

- For people with manifest cardiovascular disease, offer 75 mg aspirin daily

ASPIRIN INTOLERANCE

- Consider clopidogrel 75mg daily in those patients who are intolerant of aspirin

PRIMARY PREVENTION

Aspirin is not licensed for primary prevention of vascular events. If aspirin is used for primary prevention the balance of benefits and risk should be considered for each individual, particularly the presence of risk factors for vascular disease (including conditions such as Diabetes) and the risk of gastrointestinal bleeding"

***NICE guidance has not been updated since recent evidence suggesting avoiding aspirin in people with Diabetes unless they have established CVD. We would currently advise avoiding aspirin in patients without CVD, however an individual patient approach is needed.**

9. RISK FACTOR MANAGEMENT

9.5 NEUROPATHY AND FOOTCARE

On diagnosis of diabetes, and at annual review thereafter, trained personnel should examine patients' feet to detect risk factors for ulceration.

ASSESSMENT SHOULD INCLUDE:

- Testing of sensation using 10g monofilament and/or vibration
- Palpation of dorsalis pedis and posterior tibial foot pulses
- Inspection for any foot deformity
- Inspection of footwear
- Inspection for callus
- Note of previous ulceration
- Note of previous amputation

CLASSIFY FOOT RISK AS:

- At low current risk (normal sensation, palpable pulses)
- At increased risk (neuropathy or absent pulses or other risk factors)
- At high risk (neuropathy or absent pulses plus deformity or skin changes or previous ulcer)
- Foot care emergency (ulceration, infection, acute charcot foot)

FURTHER REFERENCES:

Diabetic Foot care – see NICE Guideline 10

Diabetic foot pathway of care – see NICE Pathway of Care

These can be found on the NICE Guidance Website at: www.nice.org.uk

9. RISK FACTOR MANAGEMENT

9.5 NEUROPATHY AND FOOTCARE – DIABETES FOOT ASSESSMENT TOOL

TEST

EQUIPMENT

GUIDELINES

SENSATION monofilament 10g

- Avoid areas of callus or damaged tissue



- Place the monofilament on the foot for 1-2 seconds until it buckles
- Ask the patient to say “yes” every time they feel it
- Recommended testing areas are 1, 3 and 5 metatarsal heads and 1st toe apex
- Failure to perceive this sensation may indicate large nerve fibre damage

VIBRATION

128Hz tuning fork

- Tuning fork should be held below the two prongs. Do not use a hard surface to start vibration



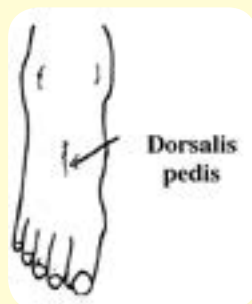
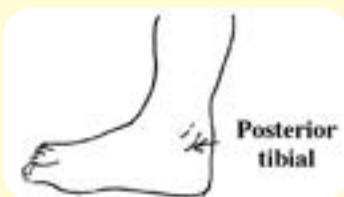
- Place the tuning fork on the patients hand or elbow, so the patient knows what to expect
- Ask the patient to close their eyes
- Vibrate the tuning fork and apply to the bony part of the medial side at the base of the big toe joint. It should be applied at a 90 degree angle with a constant pressure
- Ask the patient to tell you if the vibration feels the same, or absent when compared with the sensation they felt on their elbow, and can they say when it stops

PALPATION

None

- Peripheral arterial disease is classified as the inability to palpate both arteries in one or both feet. Other signs of vascular disease may include thin shiny skin, loss of subcutaneous tissue, dusky red or cyanosed skin
- Intermittent claudication = pain in calf muscles when walking any distance

- Posterior tibial and dorsalis pedis pulses



Refer to Foot Assessment form 11.4

9. RISK FACTOR MANAGEMENT

9.6 MENTAL HEALTH AND DIABETES

RECOGNITION

- Depression is 2-3 times more likely in a person suffering a chronic physical health problem and 20% of people with a chronic illness will suffer from depression
- Mental health problems may impact on an individual's capacity to accept their diagnosis and manage their condition.
- It should not be accepted as "normal" that an individual with a chronic illness feels low in mood or anxious.
- Treating depression in patients with a chronic illness has the potential to increase their quality of life and life expectancy.
- Patients with diabetes may benefit from local or national peer support eg Diabetes UK Rotherham Branch or Diabetes UK peer support line 0843 353 8600

SCREENING AND DIAGNOSIS

- NICE advises screening at annual review using two questions:
 - During the last month, have you often felt bothered by feeling down, depressed or hopeless?
 - During the last month, have you often been bothered by having little interest or pleasure in doing things?
- If the patient answers "yes" to either question a comprehensive assessment that includes, but does not rely solely upon, a symptom count (eg PHQ9) should be conducted; it should take into account any history of co-morbid mental health, physical impairment/disability and social/cultural factors.
- In making an assessment beware that patients who are symptomatic or who suffer complications may score highly on questions 3&4 of the PHQ9.
- Patients should be diagnosed using DSM-IV criteria but patients with persistent (more than 2 years) sub-threshold depressive symptoms may also benefit from treatment.

TREATMENT

Psychological Interventions

- There is no evidence that mental health issues require different treatments in diabetes but treatment may need to be tailored to the patient's needs and capabilities if they suffer disability/impairment from complications of diabetes. Any practitioner to whom the patient is referred should, with the patients consent, be made aware of their condition.
- For persistent sub-threshold or mild to moderate depression psychological interventions should be used as first line as per Rotherham PCMHS.
- Patients with co-existing mental health problems should be treated as normal but their mental health practitioners should, with the patients consent, be informed of their diagnosis.

Drug treatments

- There is no evidence to support the use of specific medications in patients with diabetes to treat depression or other mental health problems.
- A majority of patients with diabetes will be taking other medications both for diabetes and other co-morbidities so interactions may be more common and influence the use of commonly prescribed medications
- The following may be useful to consider when prescribing antidepressants:
 - Citalopram and sertraline have a lower propensity for interactions
 - Avoid SSRIs when taking NSAIDs because of an increased risk of GI bleeds. Consider mirtazapine, trazodone, mianserin or reboxetine. If there is no suitable alternative offer gastroprotection.

9. RISK FACTOR MANAGEMENT

- Do not normally offer SSRIs to patients taking warfarin or heparin because of their antiplatelet effect. Consider mirtazipine (but note INR may increase slightly).
- Use SSRIs with caution in patients taking aspirin. Consider safer alternatives – mirtazipine, trazodone, mianserin, reboxetine. If no suitable alternative offer gastroprotection.
- Do not offer SSRIs to patient receiving “triptan” drugs for migraine. Consider mirtazipine, trazodone, mianserin or reboxetine.
- Do not normally offer SSRIs at the same time as MAO-B inhibitors (eg selegiline, rasagiline). Consider mirtazipine, trazodone, mianserin or reboxetine
- Do not offer fluvoxamine to patients taking theophylline, clonazapine, methodone or tizamindine. Offer citalopram or sertraline.
- In patients taking flecanide or propafenadone offer sertraline (mirtazipine or moclobemide as alternatives)
- In patients taking atomoxetine do not offer fluoxetine or paroxetine. Other SSRIs are suitable.

9. RISK FACTOR MANAGEMENT

9.7 ERECTILE DYSFUNCTION

Erectile dysfunction – the inability to obtain and sustain an erection suitable for intercourse

Are there clues to psychogenic or organic origin?

SUGGESTS PSYCHOGENIC

- Sudden onset
- Early collapse of erection
- Good quality spontaneous / self stimulation / waking erections
- Premature ejaculation or inability to ejaculate
- Relationship problems
- Major life events
- Psychological problems

CONSIDER PSYCHOSEXUAL THERAPY

Contact: Jan Farrell - Urology

SUGGESTS ORGANIC

- Gradual onset
- Lack of tumescence
- Normal ejaculation
- Normal libido
- Risk factors
- Operations / radiotherapy or trauma to pelvis / scrotum
- Current medication
- Smoking
- Alcohol

RECOMMENDED INVESTIGATIONS

- Glucose/HbA1c
- Creatinine
- 9am LH/FSH and testosterone
- Prolactin

REFERRAL FOR ENDOCRINE OPINION IF TESTOSTERONE OR PROLACTIN ABNORMAL

IS PHYSICAL TREATMENT APPROPRIATE / DESIRED?

DISCUSS TREATMENT OPTIONS

Arrange a trial of

- Sildenafil/tadalafil/vardenafil *
- Sublingual apomorphine*
- Vacuum device
- Urethral alprostadil
- Intracavernosal alprostadil

In surgery or after referral to diabetes erectile dysfunction clinics

* HSC 99/115 and 99/148 include men with diabetes in list of patients to whom GPs may prescribe

POOR RESPONSE/NOT TOLERATED – TRY ALTERNATIVE CHOICE

9. RISK FACTOR MANAGEMENT

9.8 CONTRACEPTION

As with all patients seeking contraception, discussion should be in the context of what attributes will best suit the need of the patient and condom use is encouraged to help prevent (sexually transmitted infections).

COMBINED ORAL CONTRACEPTIVES

- Generally safe in younger patients with Type 1 diabetes
- Patients with two or more risk factors (i.e. diabetes plus any one of the following: age > 35yrs, hypertension, vascular disease, obesity (BMI > 30 kg/m²), smoking) should not use the combined contraceptive pill
- Low dose combined pills with gestodene or desogestrel (3rd generation) have a minimal effect on carbohydrate and lipid metabolism but a higher thromboembolic risk
- Low dose combined pills containing levonorgestrel (2nd generation) have a greater effect on carbohydrate and lipid metabolism but a lower thromboembolic risk
- Low dose combined pills are especially suited to the young patient

PROGESTOGEN ONLY PILL

- Metabolically neutral but less reliable than low dose combined contraceptive pill
- Safe in patients with diabetes

DEPO PROVERA

- Injectables may alter the dosage requirements for diabetic control, but these are suitable for use in patients with diabetes

IMPLANON

- Suitable for patients with diabetes

IUCD/IUS

- As safe in diabetic as non-diabetic women but avoid in women with multiple sexual partners

BARRIER METHODS

- Safe but less reliable than hormonal contraceptives - but encourage use in all patients in addition to main method for safer sex

HORMONE REPLACEMENT THERAPY

- Very little trial evidence with HRT and patients with diabetes
- Recommendation to use HRT in patients with diabetes based on extrapolation of benefits from non-diabetic population. There appears to be little or no role for HRT in cardiovascular disease prevention
- Preparations using non-androgenic progestogens (Premique and Tridestra) have better cardiovascular risk profile than those containing norethisterone (Climagest and Estrapak) or levonorgestrel (Prempak-C)
- Patient tolerability is likely to play a major part in selection of suitable HRT
- Measure triglycerides a month after starting HRT

9. RISK FACTOR MANAGEMENT

SUMMARY

Consider switch from combined pill to progestogen only pill if other cardiovascular risk factors present.

UNDER 35 YEARS CHOOSE FROM

- *Combined oral contraceptives*
- *IUCD/IUS*
- *Depo Provera*
- *Barrier*
- *POP*
- *Implanon*

OVER 35 YEARS CONSIDER

- Switch from combined pill to progestogen only pill if other cardiovascular risk factors present
- IUCD/IUS or sterilisation if family complete
- Implanon

10. PAEDIATRIC DIABETES SERVICES

DIABETES DIAGNOSIS

Children are mainly presenting with Type 1 Diabetes, however children are beginning to present with Type 2 Diabetes.

Early or prompt diagnosis for children and young people is vital. The presenting symptoms would be:

SYMPTOMS FOR BOTH TYPE 1 AND 2

- Polyuria
- Polydipsia
- Lassitude/Lethargy

ADDITIONAL SYMPTOMS FOR TYPE 1

- Usually not obese, recent weight loss
- Blurred vision
- Thrush type infection (repeated episodes)
- Presence of Ketones at diagnosis with about 35% presenting with Ketoacidosis

ADDITIONAL SYMPTOMS FOR TYPE 2

- Overweight at diagnosis, little or no weight loss
- Negative for Ketones (generally)
- Thrush type infection (repeated episodes)
- May have areas of dark skin pigmentation (acanthosis nigricans), which are most often found between the fingers and toes and on the back of the neck ("dirty neck") and in axillary creases.

TYPICAL HIGH RISKS FACTORS

- Family history
- South Asian/Black African /Caribbean

Please obtain urine sample and test for glycosuria. If positive and symptomatic refer as stated below. to Children's Assessment area, contact on call registrar to arrange review as soon as possible.

NOTE: Guidelines for the care of Children and Young People with Type 1 Diabetes issued by Rotherham General Hospital Paediatrics Department are available on the Hospital Intranet.

REPEAT PRESCRIPTIONS FOR DIABETES MEDICATION AND EQUIPMENT

Please note families are issued with a complete list of repeat prescription items which is also faxed to their GP. They are advised to only access what they need however all items need to remain available for them to access as needed. (Current practice appears to be that items not accessed for 6 months are removed which creates problems for the families when these items are required as they have to contact the specialist nurse and a repeat fax has to be sent to the practice.)

INSULIN PUMP THERAPY

Please communicate with the paediatric diabetes team, if any requests for an Insulin Pump Therapy are made as there are set procedures in place.

REFERRAL PROCEDURE

Please see section 3

10. PAEDIATRIC DIABETES SERVICES

PAEDIATRIC DIABETES SERVICES

REFERRAL PROCEDURE – DR EL-REFEE

The normal referral procedure for youngsters with newly diagnosed diabetes is that after a GP refers to or contacts the department, arrangements are made for the child/teenager to attend Children's Assessment Unit as soon as possible. This will usually be straight away if parents are able to bring them to hospital.

Upon discharge from the Unit, arrangements are made for them to be seen by [Dr El-Refée](#) within 6-8 weeks in one of his Diabetes Clinics. In the meantime, they will have the continuing support of the Paediatric Diabetes Specialist Nurse Team.

NOTE: Guidelines for the care of Children and Young People with Type 1 Diabetes issued by Rotherham General Hospital Paediatrics Department are available on the Hospital Intranet.

11. REFERRAL FORMS

11.1 DIABETES EYE SCREENING REFERRAL FORM

Bold Fields mandatory – we may have to return the form if they are not completed

Name

Address

Postcode

Date of Birth NHS No Hospital No

Telephone Contact Home Work

Mobile

GP

GP Address

NEW PATIENTS

Date of Diagnosis

Symptomatic at diagnosis YES NO

Fasting blood sugar at diagnosis

Or diagnosis by GTT YES NO

KNOWN DIABETES

Year of diagnosis

Previously screened YES NO

Under Ophthalmology YES NO

ALL PATIENTS

Most recent Hba1c

Most recent BP

On Rx for Blood Pressure YES NO

Diabetes Type Type 1 Type 2 MODY Other

Diabetes treatment

Patient has given consent for screening and sharing of information to relevant health professionals

YES NO

Signed

Date

Name

Designation

FOR INFORMATION REGARDING INELIGIBILITY OR OPTING OUT.

PHONE DIABETES CENTRE 01226 434576/434577 FAX 01226 434406

11. REFERRAL FORMS

11.3 FOOT ASSESSMENT FORM (SAMPLE)

DIABETIC FOOT ASSESSMENT



Rotherham

Patient Name:

NHS No:

Address:

Date:

G.P.

Neuropathic Assessment and Vascular Assessment

+ present			- absent					
10g monofilament	R	L	Foot Pulses	R	L	Vibration	R	L
Hallux (1 st toe)			Dorsalis Pedis			1 st Metatarsal Phalangeal Joint		
1 st Met head			Posterior Tibial					
3 rd Met head			Intermittent Claudication					
5 th Met head			Colour/Temperature -					

*Neuropathy = 2 or more sites absent for monofilament

*Peripheral Arterial Disease = no pulse in one foot

Risk Factors

+ present - absent

	R	L		R	L		Y	N
Presence of foot deformity			Amputation			Poor Footwear		
Previous foot ulceration			Painful neuropathy			Smoker		
Current foot ulceration			Night/Rest pain			Poor diabetes control		
Callus/Corn								

Risk Classification

LOW RISK	Normal Sensation Palpable Pulses	Basic foot care advice Annual foot assessment Refer to Podiatry Department only if patient has a clinical need for podiatry treatment (not routine simple nail care)	Useful Numbers Podiatry Rotherham Community Health Centre 423227 Podiatry Diabetes Centre 427917 Diabetes Specialist Nurses 427910 Tissue Viability Specialist Nurses 423358
INCREASED RISK	Peripheral Neuropathy or Absent Pulses or Deformity/Callus or Presence of risk factor	Refer to Podiatry Department At risk foot care advice by health care professional Regular review (3-6 monthly)	
HIGH RISK	Neuropathy or absent pulses Plus deformity or callus Previous foot ulceration or Amputation	Refer to Podiatry Department Refer to Orthotics Department via GP At risk foot care advice Arrange review within 3 months	
FOOT CARE EMERGENCY	Current Foot Ulceration Infection Acute charcot foot	Liase and refer to multidisciplinary Foot care team within 24 hours (if out-of-hours consider referral to A&E/B1 if clinically indicated)	

LA/dm/R-DFAT
12.05.05

ADULT WEIGHT MANAGEMENT SELF REFERRAL FORM

So, you're thinking about losing weight, we can help you.

Reshape Rotherham is a new adult (over 17 years old) weight management programme. It's FREE, fun and friendly. It consists of 10 weekly, hour long group sessions and will help you to make long-term changes towards a healthier diet and lifestyle. The programme is delivered in community venues around the Rotherham area such as health centres, church halls etc. Please fill in and return the referral form below. We look forward to meeting you.

YOUR DETAILS

Name:..... **Gender:** M/F.....

Address:.....

..... **Postcode:**.....

Home tel no:..... **Mobile tel no:**.....

DOB:..... **Height:**..... **Weight:**.....

PLEASE TICK BOX IF ANY APPLY:

- | | |
|--|--|
| <input type="checkbox"/> Type 1 Diabetes (insulin controlled) | <input type="checkbox"/> Post bariatric surgery |
| <input type="checkbox"/> Type 2 Diabetes (diet or tablet controlled) | <input type="checkbox"/> Coeliac disease/ Crohn's disease |
| <input type="checkbox"/> Dyslipidaemia | <input type="checkbox"/> Food Allergy (not been seen by a Dietitian) |
| <input type="checkbox"/> Established cardiovascular disease | <input type="checkbox"/> Pregnant or Breastfeeding |
| <input type="checkbox"/> Established sleep apnoea | <input type="checkbox"/> Diagnosed mental health condition |
| <input type="checkbox"/> South Asian Male | <input type="checkbox"/> please specify..... |
| | <input type="checkbox"/> Other - please specify..... |

How did you hear about Reshape Rotherham?
.....

Were you referred to Reshape Rotherham during a NHS Health Check by your GP or Practice Nurse?
 YES NO

If coming to Reshape Rotherham, please choose your preference:
 Daytime Evening (after 5pm)

Preferred area in Rotherham (e.g. Maltby, Town Centre, Wath etc)

GENERAL PRACTITIONERS DETAILS (YOU MUST BE REGISTERED WITH A ROTHERHAM GP)

Name of GP:.....

GP Address:..... **Postcode:**.....

Send or fax this form to:
Reshape Rotherham, Nutrition & Dietetic Department
Rotherham NHS Foundation Trust
Oakwood Hall, Moorgate Road
Rotherham, S60 2UD
Fax Number: 01709 307947

Signature: **Date:**

Aged 17 or under?

Carnegie Club is a 12 week weight management programme for overweight & obese children aged 8-17 & their families. Carnegie Clubs are FREE of charge, run at Rotherham Leisure Complex and Aston-cum-Aughton Leisure Centre. For more information please contact Natalie Dunn on 01709 722555/ 07525 702784/ visit www.carnegiweightmanagement.com/rotherham



NHS ROTHERHAM WEIGHT MANAGEMENT REFERRAL FORM

All patients **MUST** be motivated to lose weight

FOR ADULTS: (BMI = Body Mass Index, WC = waist circumference)

- Consider direct referral to Reshape Rotherham (weight management programme)
If BMI 25 - 40 (NB adults can self-refer to Reshape Rotherham on 01709 307694)
- Consider direct referral to RIO (specialist MDT)
If BMI > 30 (or WC > 102cm male or > 88cm female) with increased risk, or BMI > 40 without

FOR CHILDREN: (using appropriate child growth charts for BMI centiles)

- Consider direct referral to Carnegie Clubs (via DC Leisure)
If BMI > 85th centile (NB children (8-17years) can be self-referred on 01709 722555)
- Consider direct referral to RIO (specialist MDT)
If BMI > 95th centile with increased risk, or > 99.6th without increased risk

PATIENT DETAILS

Name:..... Gender: M/F.....

Address:.....

Postcode:.....

Home tel no:..... Mobile tel no:.....

DOB:..... Height:..... Weight:..... BMI:.....

Name of parent/guardian (for child referral):..... Contact tel no:.....

Address (if different from above):.....

Postcode:.....

PLEASE TICK BOX IF ANY APPLY:

- | | |
|--|--|
| <input type="checkbox"/> Type 1 Diabetes (insulin controlled) | <input type="checkbox"/> Post bariatric surgery |
| <input type="checkbox"/> Type 2 Diabetes (diet or tablet controlled) | <input type="checkbox"/> Coeliac disease/ Crohn's disease |
| <input type="checkbox"/> Dyslipidaemia | <input type="checkbox"/> Food Allergy (not been seen by a Dietitian) |
| <input type="checkbox"/> Established cardiovascular disease | <input type="checkbox"/> Pregnant or Breastfeeding |
| <input type="checkbox"/> Established sleep apnoea | <input type="checkbox"/> Diagnosed mental health condition |
| <input type="checkbox"/> South Asian Male | <input type="checkbox"/> please specify..... |
| | <input type="checkbox"/> Other - please specify..... |

GENERAL PRACTITIONERS DETAILS (PATIENT MUST BE REGISTERED WITH A ROTHERHAM GP)

Name of GP:.....

GP Address:..... Postcode:.....

REFERRER DETAILS (PLEASE TICK BOX THAT APPLIES TO YOU)

Internal referrals:

- Reshape Rotherham
- Carnegie Clubs via DC Leisure
- RIO
- Carnegie International Camp
- Bariatric Surgical Service
- Other

External referrals:

- GP / Practice Nurse / During CVD/HealthCheck
- Consultant (specify department).....
- Dietitian
- Health Visitor
- Pharmacist

Print Name..... Signature:..... Date:.....

Send completed form to relevant address or fax number given below:

Reshape Rotherham, Dept of Nutrition and Dietetic Services, Oakwood Hall, Moorgate Road Rotherham S60 2UD
Tel 01709 307725 Fax 01709 307947

Natalie Dunn, DC Leisure, Rotherham Leisure Complex, Effingham Street, Rotherham S66 1BL
Tel 01709 722555. Fax 01709 722557. Mobile 07525 702784

RIO, Clifton Medical Centre, The Health Village, Doncaster Gate, Rotherham, S651DA
Tel 08444773622 or Fax 08444773831

ALCOHOL - AUDIT C



Pint Lager: ABV 5.2% Bottle

3 Units



Lager: ABV 5.2%

1.7 Units



Single Gin & Tonic: ABV 40%

1 Unit



White Wine (175ml) : ABV 13%

2.3 Units



Bottle of Wine: ABV 13.5%

10 Units

Please answer these Questions before you go in for your appointment.

Questions	Scoring system					Your Score
	0	1	2	3	4	
How often do you have a drink containing alcohol?	Never	Monthly or less	2 - 4 times per month	2 - 3 times per week	4+ times per week	
How many units of alcohol do you drink on a typical day when you are drinking?	1 - 2	3 - 4	5 - 6	7 - 8	10+	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
Total						

Scoring:

A score of 2 or less? Congratulations this indicates lower risk drinking (see overleaf)

A score of 3 or more? Please answer the following 7 questions:

Questions	Scoring system					Your Score
	0	1	2	3	4	
How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you failed to do what was normally expected from you because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
Have you or somebody else been injured as a result of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?	No		Yes, but not in the last year		Yes, during the last year	
Total						

Please turn over for scoring & next steps

ALCOHOL - AUDIT C

SCORING: If you have completed both sets of questions add your scores together;

AUDIT C _____ + AUDIT _____ =

Based on your total score you will fall into one of the following categories, please read the guidance below and consider; how this has made you feel, the options outlined for further information and where to go for help and advice.

Scored 0-7? You are at 'Lower risk'	This level of drinking means that in most circumstances you have a low risk of causing yourself future harm from your alcohol use. It is called 'lower-risk', rather than 'safe', because drinking alcohol is never completely safe. Even drinking below these levels will not be advisable in some circumstances. Any drinking can still be too much if you're driving, operating machinery, about to go swimming or engaging in strenuous physical activity. Pregnant women or women trying to conceive should not drink alcohol. Too much exposure to alcohol can seriously affect your baby's development.
Scored 8-15? You are at 'Increasing risk'	Drinking at this level increases the risk of damaging your health. Alcohol affects all parts and systems of the body, and it can play a role in numerous medical conditions. If you're drinking at around these levels, your risk of developing a serious illness is higher compared to non-drinkers. At these drinking levels, you might already be suffering from alcohol-related problems, such as fatigue or depression, weight gain, poor sleep and sexual problems.
Scored 8-15? You are at 'Increasing risk'	If you're in this group, you're at an even higher risk of damaging your health compared to increasing risk drinkers. Alcohol affects the whole body, and it can play a role in numerous medical conditions. You're at a much higher risk of developing alcohol-related health problems. Your body has probably suffered some damage already, even if you're not yet aware of it. You may be sleeping poorly or having sexual problems. And, like increasing-risk drinkers but possibly more so, you're almost definitely in worse physical shape than you would be otherwise, whatever your age or gender. You could also suffer from high blood pressure.
Scored 8-15? You are at 'Increasing risk'	If you have scored 20+ we strongly advise you to see your GP or get in touch with Lifeline on the number below as soon as possible. Your alcohol may be significantly effecting your health as well as your day to day life. You should take medical advice before stopping, please don't just stop drinking as you may physically withdraw, with symptoms such as shaking, sweating and feelings of anxiety. There is a lot of support to help you either cut down gradually or eventually stop completely. If you think you are suffering physical withdrawal symptoms seek medical attention immediately.

There are lots of ways you can reduce your alcohol intake, try keeping a drinks diary and see which drinks you can cut out, if you drink at home measure your units, plan an activity at times you usually drink. For more advice and information on how to reduce your alcohol use;

**See your GP for a referral to the Primary Care Alcohol Workers
or call or pop in to Lifeline on 01709 423507,
77 Sheffield Road, Rotherham, S60 1DA**

A score of 2 or less? Congratulations this indicates lower risk drinking (see overleaf)

A score of 3 or more? Please answer the following 7 questions:



www.callitanight.co.uk

SHOULD NOT REGULARLY EXCEED	
MEN	WOMEN
3-4	2-3
<small>UNITS DAILY</small>	<small>UNITS DAILY</small>

11. REFERRAL FORMS

Referral Form To Primary Care Alcohol Service
Fax number 01709 324363

Name	Date of Birth
Male / Female	

Address	GP Address
---------	------------

Telephone No
OK to Contact Yes No

If No - how would patient like to be contacted?

Referral Source Details

Name and Contact No of Referrer

Safeguarding children / vulnerable adult concerns Yes No

Comments

Has the patient consented to the Referral?

Yes No

11. REFERRAL FORMS

Any Risk Identified?

Daily Units

SADQ Score

AUDIT Score

Reason for referral

To be completed by Primary Care Service

ACTIONS:

12. CONTACTS

USER/CARER/PARENT SUPPORT GROUPS:

Diabetes UK. The most up-to-date contact details are available from their website www.diabetes.org.uk, by emailing northyorks@diabetes.org.uk or phoning 01325 488606; the following contacts were checked on 2 February 2012:

Mr Terence Nougher-Fuller	Secretary/Treasurer and Diabetes Service Champion Rotherham Diabetes UK Group "Park Hill" Hooton Lane, Ravenfield, ROTHERHAM S65 4NQ	01709 852057 tnougherfuller@btinternet.com
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Mavis Skipper	Wath Upon Dearne Diabetes UK Group (Families with Diabetes & Carers)	01709 585758 nanne30@blueyonder.co.uk
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Rotherham Young Diabetes Association:
www.ryda.org.uk

UK Children with Diabetes Advocacy Group.
For parents of and children with diabetes: www.childrenwithdiabetesuk.org

INTEGRATED SPECIALIST TEAM (ADULTS):

Dr Bernd Franke	Consultant Physician, Diabetes & Endocrinology	01709 424157
Dr Solomon Muzulu	Consultant Physician, Diabetes & Endocrinology	01709 424155
Dr Ahmed Hafiz	Consultant Physician	01709 427576
Fiona Smith	Diabetes Specialist Nurse Team Leader	01709 427926
Lynda Astbury	Senior Diabetes Specialist Nurse	01709 427923
Carol Roebuck	Diabetes Specialist Nurse	01709 427920
Karen Carnall	Diabetes Specialist Nurse	01709 427925
Dawn Cunningham	Diabetes Education and Support Worker	01709 427922
Sri Kakarlapudi	Lead Dietician for Diabetes Services	01709 427916
Sarah Veitch	Diabetes Specialist Dietician	01709 427916
Sarah Groom	Specialist dietician for Obesity and Diabetes	01709 424297
Trevor Pilling	Diabetes Lead Podiatrist	01709 427917
Fiona Crawford	Specialist Podiatrist	01709 427917
Lisa Watson	Specialist Podiatrist	01709 427917
Janice Wooten	Podiatry Assistant	01709 427917

DIABETIC EYE SCREENING:

Mr Darren Howlett	Programme Manager	01226 432086
	Appointments/General Admin Enquires	01226 434576/7
	Fax (Safehaven)	01226 434579

12. CONTACTS

OBSTETRICS/ANTENATAL CLINIC:

Miss Susan Rutter	Consultant Obstetrician	01709 424239
Dr Radhika Gosakan	Consultant Obstetrician	01709 424234
Claire Heeley	Lead Midwife for Diabetes	01709 424239

PAEDIATRIC TEAM:

Dr Sherif El-Reftee	Consultant Paediatrician	01709 424577
Terrye Hyde	Diabetes Specialist Nurse	01709 427924 / 07798 668815
Sharon Gamble	Diabetes Specialist Nurse	01709 427910 / 07979 770101
Lauran Sanderson	Diabetes specialist nurse	
Janet Gomm	Paediatric Diabetes Specialist Dietician	01709 427916

DIABETES EDUCATION AND RESOURCE CENTRE:

Claire Keightley	Manager	01709 427919
Janet Bell	DAFNE/DESMOND Co-ordinator	01709 427913
Kathy Winearls	Administration Officer	01709 427913
Theresa Ridgeway	Receptionist	01709 427910
	Fax (Safehaven)	01709 427911

SPECIALISTS:

Dr Rangasamy Muthusamy	Consultant Cardiologist (RDGH)	01709 424158
Mr Mohamad Jabir	Consultant Ophthalmologist and Clinical Director of Specialist Surgery (RDGH)	01709 427095
Dr Bisher Kawar	Consultant Renal Physician (NGH)	0114 2714018/4663
Jan Farrell	CNS Urology Psycho-sexual Therapy	01709 427468
Mr Shah Nawaz	Vascular Surgeon	01709 424762

GP LEAD COMMISSIONER FOR DIABETES:

Dr Jason Page	GP Diabetes Champion and CCG lead for Prescribing Jason.Page@Rotherham.nhs.uk	01709 52853
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12. CONTACTS

DIABETES EDUCATION & RESOURCE CENTRE

GENERAL INFORMATION

- The Diabetes Education & Resource Centre opened in early May 2005
- The Centre is on the Rotherham General Hospital site and is jointly managed by the NHS Rotherham and the Hospital Foundation Trust
- It provides an education and resource facility for patients, their families and healthcare professionals and houses Rotherham's Retinal Screening Service
- The facility is staffed by a multidisciplinary team including Diabetes Specialist Nurses, Podiatrists and Dieticians who run specialist clinics from the centre. The centre is currently open from 9 am to 5 pm Monday to Friday, and appointments are available through Choose and Book

SERVICES PROVIDED

- Diabetes triage
- Optimisation of glucose control
- Initiation of insulin therapy (for types 1 and 2)
- Hypoglycaemia management
- Planning a diabetic pregnancy
- Structured education programmes (DESMOND, DAFNE, carbohydrate counting/awareness sessions)

13 . APPENDICES

13 .1 ROTHERHAM HEALTHY WEIGHT REFERRAL PATHWAY - ADULTS (ADDITIONAL INFORMATION)

SPECIALIST TERTIARY SERVICE - TIER 4

Bariatric surgery.

RIO (ROTHERHAM INSTITUTE FOR OBESITY) - TIER 3

The Rotherham Institute for Obesity (RIO) is a specialist centre for the management of obesity. It has a multidisciplinary team approach to tackling weight by providing specialists including; Obesity Specialist Nurses (OSNs), healthcare assistants (HCAs) with specialist weighing and measuring equipment, dietetics input for complex dietary needs, group work and cooking skills education in our on-site kitchen, talking therapists for psychological and counselling input, a physical activity specialist with on-site gym facilities, a General Practitioner with a specialist interest in obesity (GPwSI) for any prescribing issues, and access to local bariatric surgeons and other secondary care specialists if meeting appropriate criteria. It provides all the pre-op assessment for adults who may be suitable for surgery.

CONTACT: Lynn Senior, RIO Supervisor, Rotherham Institute for Obesity (RIO)

Clifton Medical Centre, The Health Village, Doncaster Gate, Rotherham, S65 1DA Tel: 08444773622 or Fax: 08444773831

RE SHAPE ROTHERHAM - TIER 2

A free service available to all local residents registered to a Rotherham GP, with a BMI of over 25. Reshape Rotherham consists of a series of 10 weekly, hour long sessions designed to help people make long term changes towards a healthier diet and lifestyle.

People can either self refer by telephoning 01709 307694 or can be referred into the service by visiting their GP or Practice Nurse.

For more information on Reshape Rotherham, please contact Vanessa Quarmby on vanessa.quarmby@rothgen.nhs.uk or 01709 307121.

PRIMARY ACTIVITY – TIER 1

Primary activity includes health promoting brief interventions to encourage lifestyle changes. These can be provided by a range of staff including GPs, Leisure Services, Health Visitors etc

13 . APPENDICES

ROTHERHAM HEALTHY WEIGHT REFERRAL PATHWAY - CHILDREN (ADDITIONAL INFORMATION)

The Weight Management Services working with children and young people have signed up to Rotherham's Children and Young People's Overarching Information Sharing Protocol

CARNEGIE INTERNATIONAL CAMP - TIER 4

The residential summer camp is designed for 8-17 year olds and is the most intensive weight management programme available with the exception of surgery; it is primarily focused on the most obese children (>85th percentile for age and gender related BMI), although it is effective for all levels of overweight/obesity.

The camp is multidisciplinary and includes guidance on dietary restriction and modification, physical activity promotion, lifestyle change and the development of social skills whilst providing a fun and supportive environment for weight loss. All components adhere fully to NICE guidance and activities are aligned to key stages in the National Curriculum and other national health campaigns such as Change4Life.

VISIT: www.carnegieweightmanagement.com or 0113 8125 233.

RIO (ROTHERHAM INSTITUTE FOR OBESITY) - TIER 3

The Rotherham Institute for Obesity (RIO) is a specialist centre for the management of obesity. It has a multidisciplinary team approach to tackling weight by providing specialists including: Obesity Specialist Nurses (OSNs), healthcare assistants (HCAs) with specialist weighing and measuring equipment, dietetics input for complex dietary needs, group work and cooking skills education in our on-site kitchen, talking therapists for psychological and counselling input, a physical activity specialist with on-site gym facilities, a General Practitioner with a specialist interest (GPwSI) in obesity for any prescribing issues, and access to local bariatric surgeons and other secondary care specialists if meeting appropriate criteria. It provides triage of children who may be suitable for Carnegie Camps.

CONTACT: Lynn Senior, RIO Supervisor, Rotherham Institute for Obesity (RIO) Clifton Medical Centre, The Health Village, Doncaster Gate, Rotherham, S65 1DA Tel: 08444 773622 or Fax: 08444 773831.

CARNEGIE CLUB- TIER 2

Carnegie Club is a 12 week weight management programme for overweight and obese children aged 8-17 and their families to help them become fitter, healthier and happier. DC Leisure is working in partnership with NHS Rotherham and Carnegie Weight Management (CWM) to deliver the Carnegie Clubs FREE of charge at Rotherham Leisure Complex and Aston-cum-Aughton Leisure Centre

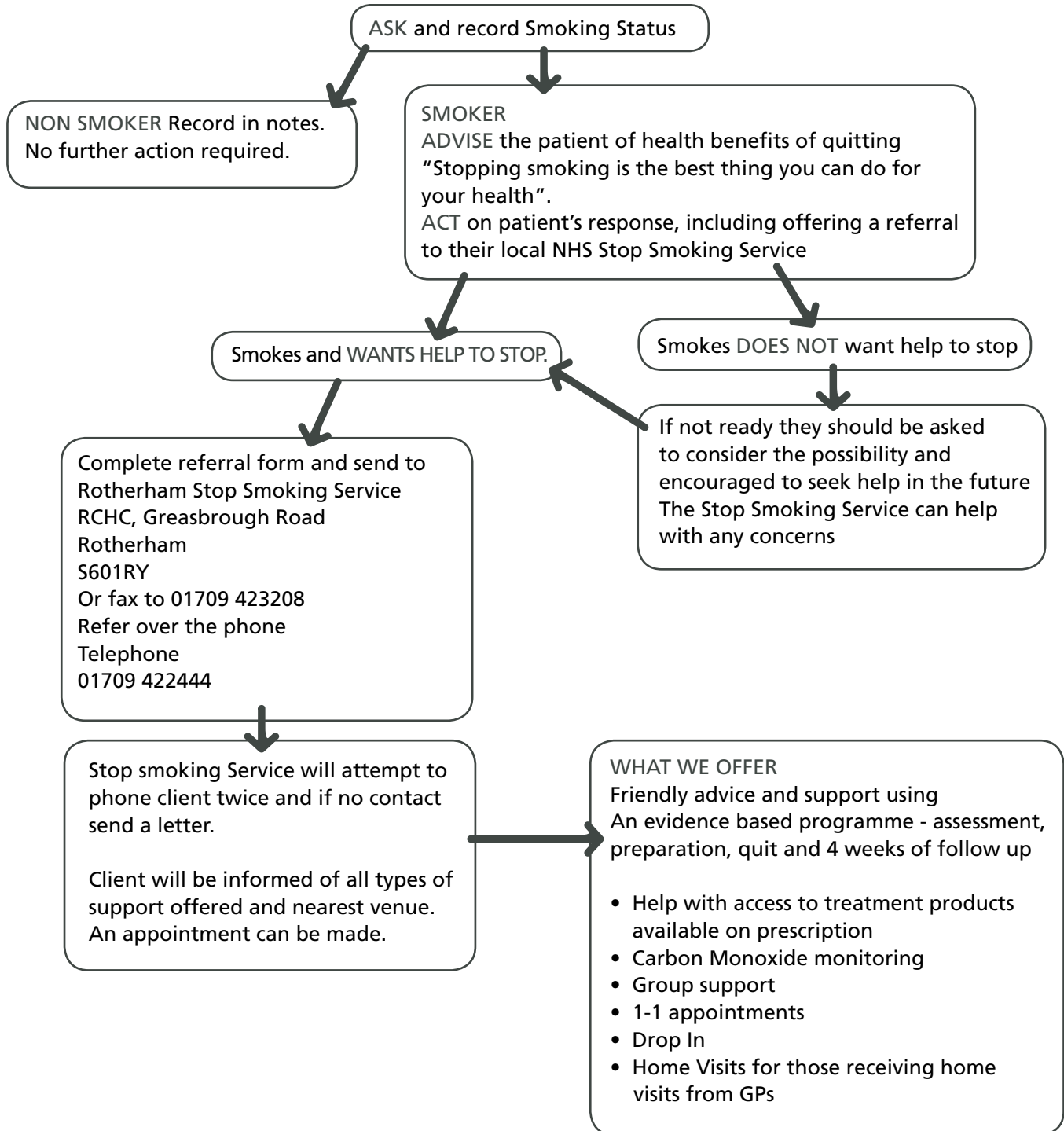
Visit: www.carnegieweightmanagement.com/rotherham or call the programme manager on 07525 702784.

PRIMARY ACTIVITY – TIER 1

Primary activity includes health promoting brief interventions to encourage lifestyle changes. These can be provided by a range of staff including GPs, Leisure Services, Health Visitors, Teachers, School Nurses etc.

13 . APPENDICES

13.2 SMOKING CESSATION REFERRALS



13 . APPENDICES

13.3 REFERENCES

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