How Type 2 Diabetes Should Be Treated – The Law According to NICE May 2009

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Introduction

Introduction

Diabetes care is typically complex and time-consuming, drawing on many areas of healthcare management. The necessary lifestyle changes, the complexities of management, and the side effects of therapy make self-monitoring and education for people with diabetes central parts of management. This is reflected in the guideline recommendations.

Patient-centred care

Treatment and care should take into account patients' individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow patients to reach informed decisions about their care. Follow Department of Health advice on seeking consent if needed. If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

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Education

- Structured education should be offered to patients and carers
  - At the time of diagnosis, and then annually

Patient education

Structured education is an integral part of diabetes care, and patients and carers should be informed of this. Offer it, preferably through a group education programme, to every person and/or their carer at and around the time of diagnosis, with annual reinforcement and review. Offer an alternative of equal standard to people unable or unwilling to participate in group education sessions.

Patient education programmes

Programmes should:

- meet the quality criteria laid down by the Department of Health and Diabetes UK Patient Education Working Group (see 'Structured patient education in diabetes: report from the Patient Education Working Group'. Available from www.dh.gov.uk)
- meet the local cultural, linguistic, cognitive and literacy needs
- provide appropriate resources to support the educators, who should be properly trained and allowed time to develop and maintain their skills.

Ensure:

- all members of the diabetes healthcare team are familiar with local programmes
- programmes are integrated with the care pathway
- people with type 2 diabetes and their carers have the opportunity to contribute to the design and provision of local programmes.

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Diet

Dietary advice

	Include in discussion	Action	Special circumstances
• Provide in a form that is sensitive to the person's needs, culture and beliefs, being sensitive to their willingness to change, and effects on their quality of life. • Integrate with diabetes management plan, including other aspects of lifestyle modification, such as increasing physical activity.	• General advice for healthy eating: – include high-fibre, low-glycaemic-index sources of carbohydrate – include low-fat dairy products and oily fish – control the intake of foods containing saturated fats and trans fatty acids. • Limited substitution of sucrose-containing foods for other carbohydrate is allowable, but care should be taken to avoid excess energy intake. • Discourage use of foods marketed specifically for people with diabetes.	• Provide individualised and ongoing nutritional advice from a healthcare professional with specific expertise and competencies in nutrition. • Individualise recommendations for carbohydrate and alcohol intake, and meal patterns – aim to reduce risk of hypoglycaemia, particularly if using insulin or insulin secretagogues. • Initial body weight loss target = 5–10% in an overweight person: – lesser amounts are still beneficial – losing more weight in the longer term has metabolic benefits.	• A meal-planning system providing consistency in the carbohydrate content of meals should be implemented for inpatients with type 2 diabetes.

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HbA_1C

Setting a target HbA_{1c}

- When setting a target HbA_{1c}:
  - involve the person in decisions about their individual HbA_{1c} target level, which may be above that of 6.5% set for people with type 2 diabetes in general
  - encourage the person to maintain their individual target unless the resulting side effects (including hypoglycaemia) or their efforts to achieve this impair their quality of life
  - offer therapy (lifestyle and medication) to help achieve and maintain the HbA_{1c} target level
  - inform a person with a higher HbA_{1c} that any reduction in HbA_{1c} towards the agreed target is advantageous to future health
  - avoid pursuing highly intensive management to levels of less than 6.5%.

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HbA_1C

HbA_{1c}

Include in discussion	Action	Monitoring	Further investigation	Special circumstances
Individual HbA_{1c} target level, which may be above the general target of 6.5%. Encouragement to maintain target unless resulting side effects or efforts to achieve this impair quality of life. How any reduction in HbA_{1c} towards agreed target benefits future health.	Offer therapy (lifestyle and medication) to help achieve and maintain HbA_{1c} target. Measure using high-precision methods and report results in DCCT-aligned units. If HbA_{1c} remains above target, but pre-meal self-monitoring levels remain well controlled (< 7.0 mmol/litre), consider self-monitoring to detect postprandial hyperglycaemia (> 8.5 mmol/litre), and manage to below this level if detected.	2–6 monthly (according to individual needs) until stable on unchanging therapy[1]. 6-monthly once blood glucose level and blood glucose-lowering therapy are stable.	Seek advice from a team with specialist expertise in diabetes or clinical biochemistry if there are unexplained discrepancies between HbA_{1c} and other glucose measurements.	If HbA_{1c} result is invalid[2], estimate trends in blood glucose control using one of the following: • fructosamine estimation • quality-controlled plasma glucose profiles • total glycated haemoglobin estimation (if abnormal haemoglobins).

[1] Use measurements taken at intervals of < 3 months to indicate direction of change, rather than a new steady state.
[2] Disturbed erythrocyte turnover and abnormal haemoglobin type make HbA_{1c} results invalid.

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Monitoring

Self-monitoring

	Include in discussion	Action	Monitoring	Special circumstances
Self-monitoring of plasma glucose should be available: • to those on insulin treatment • to those on oral glucose-lowering medications to provide information on hypoglycaemia • to assess changes in glucose control resulting from medications and lifestyle change • to monitor changes during intercurrent illness • to ensure safety during activities, including driving.	The purpose of self-monitoring. How to interpret and act on the results.	Offer to a person newly diagnosed only as an integral part of self-management education.	Assess at least annually, and in a structured way: • self-monitoring skills • the quality and frequency of testing • how the results are used • the impact on quality of life • the continued benefit • the equipment used.	Discuss urine glucose monitoring if plasma monitoring is found to be unacceptable.

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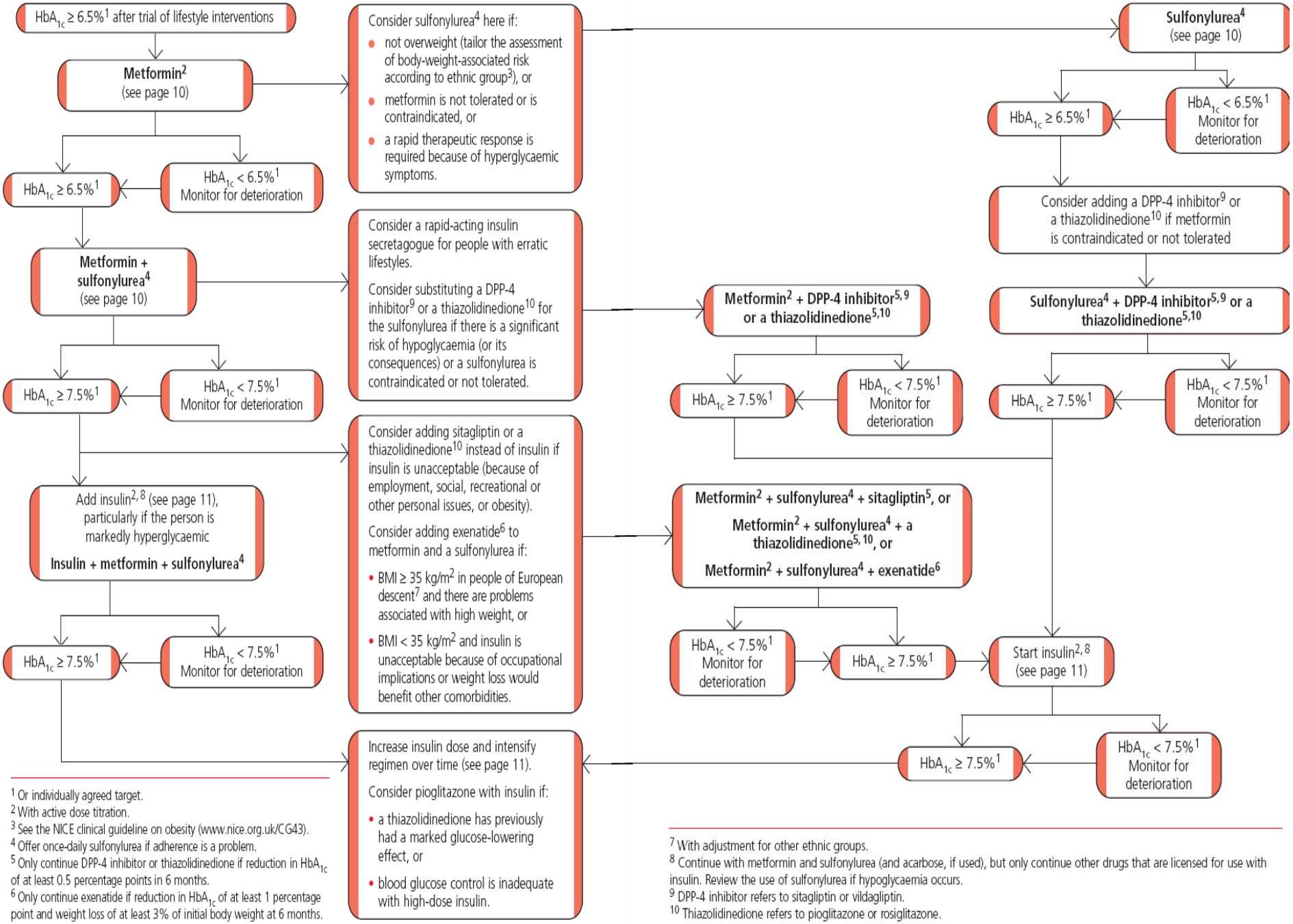
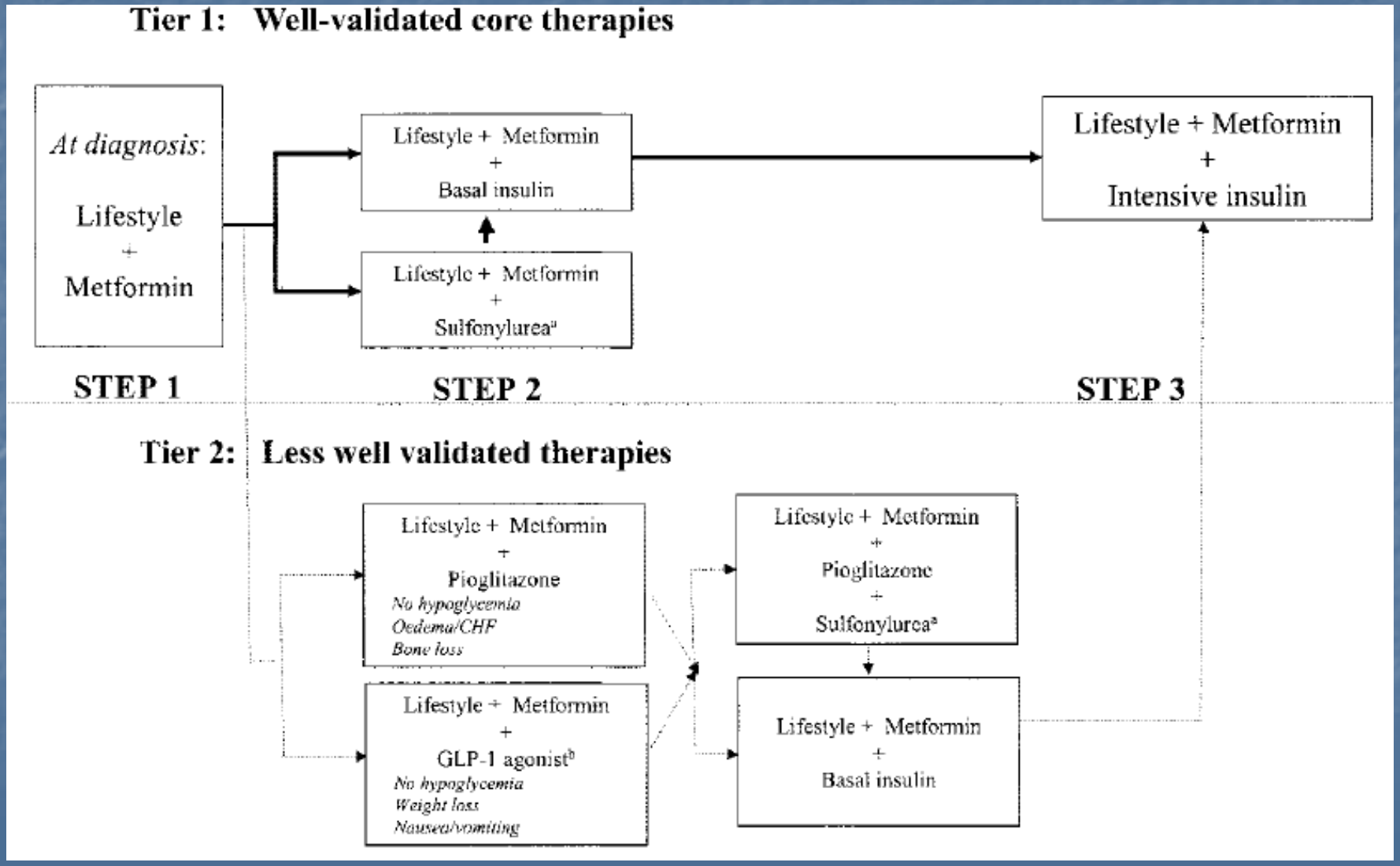
Blood-glucose-lowering therapy

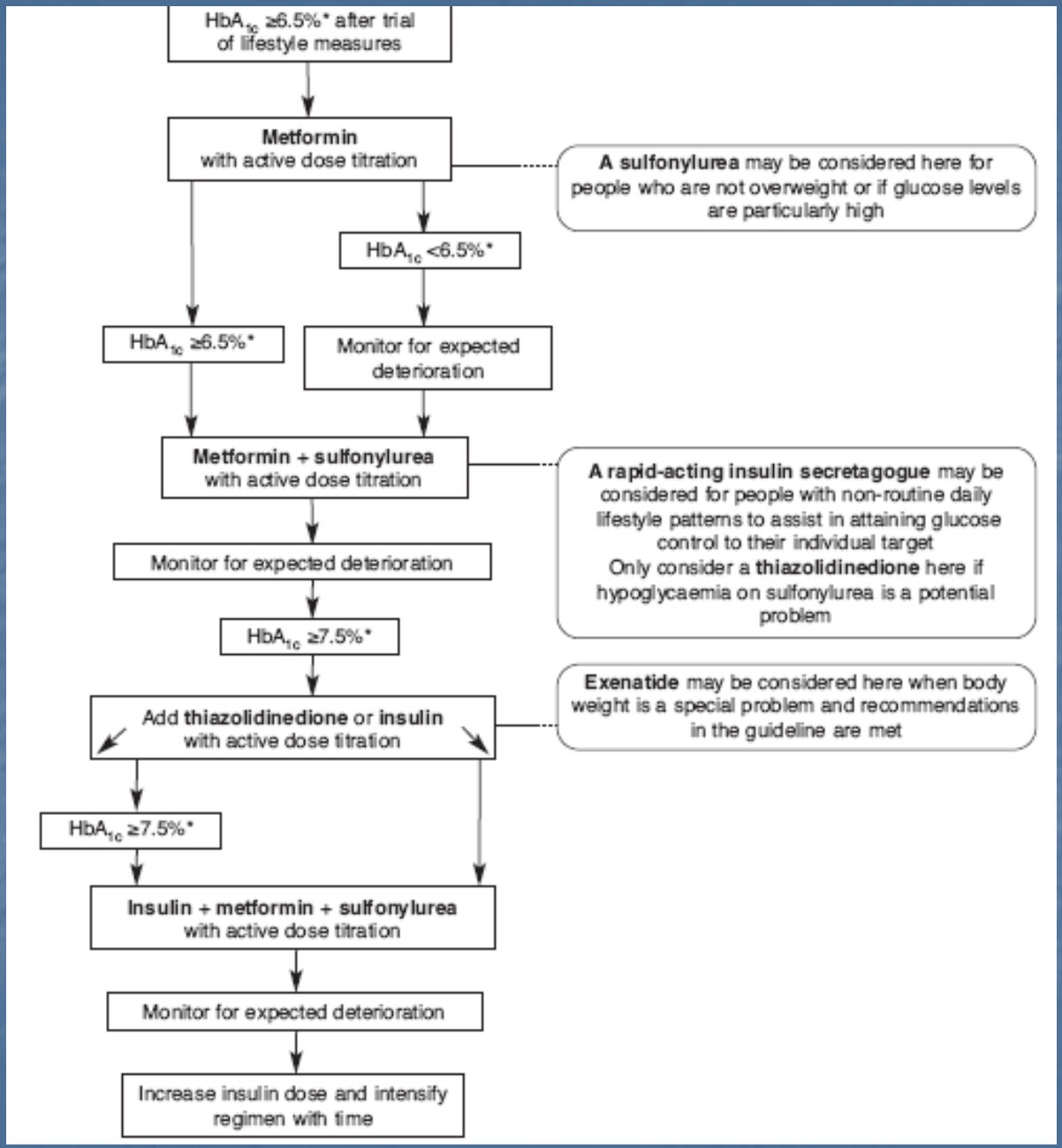


[1] Or individually agreed target.
[2] With active dose titration.
[3] See the NICE clinical guideline on obesity (www.nice.org.uk/CG43).
[4] Offer once-daily sulfonylurea if adherence is a problem.
[5] Only continue DPP-4 inhibitor or thiazolidinedione if reduction in HbA_{1c} of at least 0.5 percentage points in 6 months.
[6] Only continue exenatide if reduction in HbA_{1c} of at least 1 percentage point and weight loss of at least 3% of initial body weight at 6 months.
[7] With adjustment for other ethnic groups.
[8] Continue with metformin and sulfonylurea (and acarbose, if used), but only continue other drugs that are licensed for use with insulin. Review the use of sulfonylurea if hypoglycaemia occurs.
[9] DPP-4 inhibitor refers to sitagliptin or vildagliptin.
[10] Thiazolidinedione refers to pioglitazone or rosiglitazone.

The ADA / EASD Guideline



Nathan DM et al Diabetes Care 22/10/08 epub online



And to the RCP Guideline

RCP Management of Type 2 diabetes – May 2008 Accessed 12.6.08 http://www.rcplondon.ac.uk/pubs/contents/14f051f1-8fa4-4d0b-9385-9f2e77edc2ca.pdf

Metformin

- Build up the dose slowly – use the MR version if necessary
- Review if creatinine >130 µmol/L (eGFR <45 ml/minute/1.73-m^2)
- Stop if creatinine >150 µmol/L (eGFR <30 ml/minute/1.73-m^2)
- If mild / moderate liver disease or CCF discuss options

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Sulfonylureas

- SU's can be considered first line if
  - The person is not overweight
  - The person does not tolerate metformin (or it is contraindicated)

or

  - A rapid response to therapy is required because of hyperglycaemic symptoms

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DPP-4 Inhibitors

- Continue these only if there has been an HbA_1C drop of ≥ 0.5% in 6 months

- Consider:
  - if weight gain caused by a TZD would cause problems
  - TZD contraindicated
  - Poor response to TZD

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Glitazones

- Continue these only if there has been an HbA_1C drop of ≥ 0.5% in 6 months
- Use a TZD in preference to a DPP-4 if:
  - Very insulin insensitive
  - DPP-4 contraindicated or poor response previously
- DO NOT start a TZD if someone has heart failure or is at higher risk of fractures

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Exenatide

- Continue only if a beneficial response - at least 1.0% HbA_1C reduction in 6 months and a weight loss of at least 3% at 1 year

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Insulin

- Start if other agreed appropriate measures fail to keep HbA_1C <7.5% (or other appropriate target)
- Start with night-time or twice daily NPH insulin
- Or use once daily long acting analogues if
  - Injecting needs help and bd is inconvenient
  - Recurrent hypos
  - Unable to use the device for NPH insulin

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Insulin

- Consider biphasic, pre-mixed human insulin especially if $HbA_1C > 9.0\%$
- Consider analogue pre-mixed insulin if
  - Immediately pre-meal injections are preferred
  - Hypos are a problem
  - Significant post-prandial hyperglycaemia

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Insulin

- Consider switching from NPH to a long acting analogue if:
  - Recurrently hypos prevent HbA_1C target being reached
  - Significant recurrent hypos regardless of HbA_1C
  - Unable to use delivery device
  - Need to reduce the numbers of injections given per day

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Lipids

Review CV risk status annually:

- assess risk factors, including features of metabolic syndrome and waist circumference
- note changes in personal or family CV history
- perform full lipid profile (including HDL-C and TG) – also perform after diagnosis and repeat before starting lipid-modifying therapy.

If history of elevated serum TG, perform full fasting lipid profile (including HDL-C and TG).

Consider to be at high CV risk **unless** all of the following apply:

- not overweight (tailor with body-weight-associated risk assessment according to ethnic group)
- normotensive (< 140/80 mmHg in absence of antihypertensive therapy)
- no microalbuminuria
- non-smoker
- no high-risk lipid profile
- no history of CV disease
- no family history of CV disease.

Estimate CV risk from UKPDS risk engine annually if assessed as not at high CV risk (see www.dtu.ox.ac.uk).

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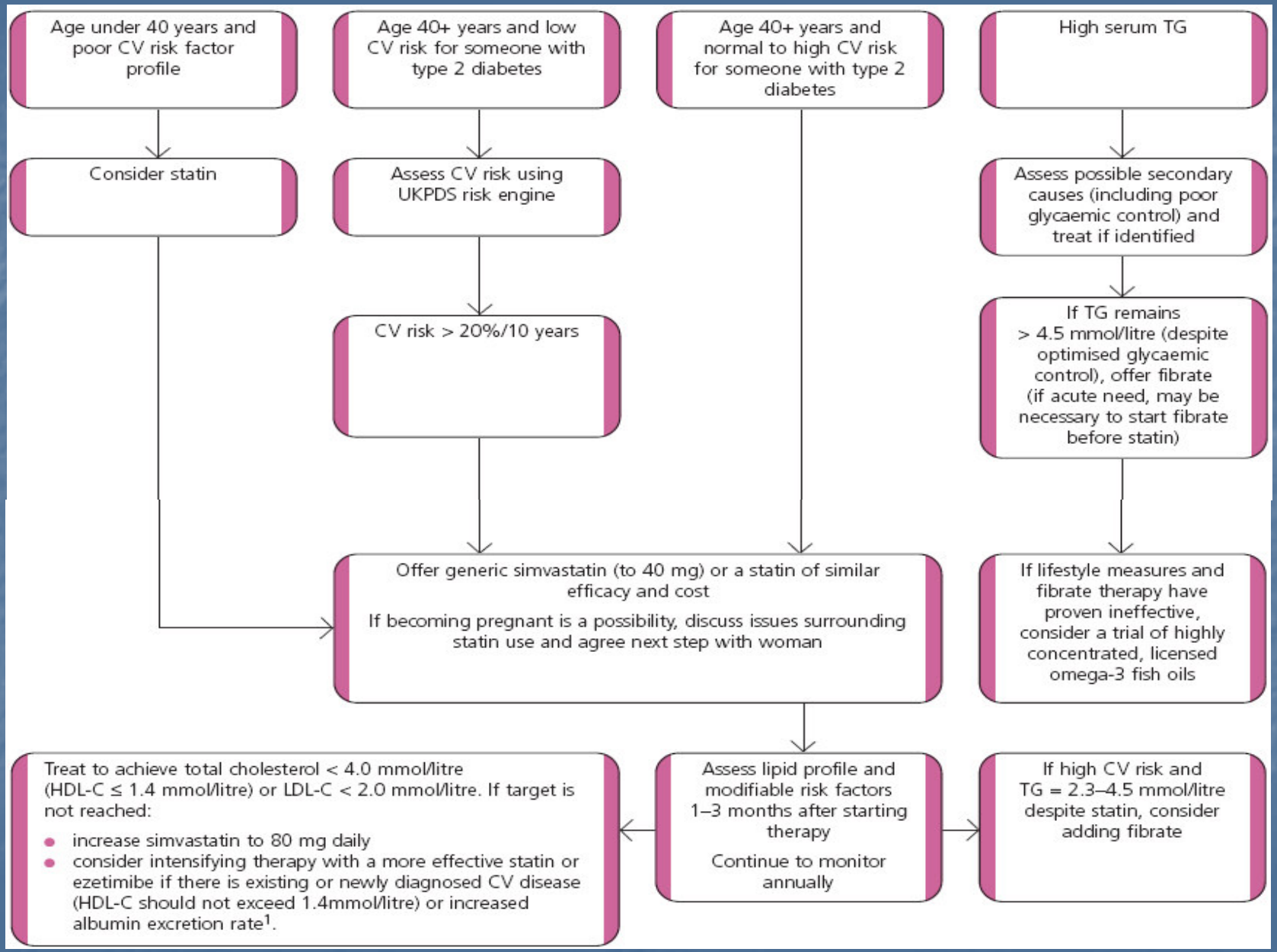

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Aspirin

- 75 mg daily to a person who is 50 years old or over, if blood pressure is below 145/90 mmHg
- 75 mg daily, to a person who is under 50 years old and has significant other cardiovascular risk factors
- Use clopidogrel for aspirin intolerance

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Blood Pressure

- Measure annually at least
- Targets
  - 140/80 for most
  - 130/80 is there is eye, kidney or cerebrovascular damage

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BP Treatment

- 1st line are ACE inhibitors (except in Afro-Caribbean's or women who might become pregnant)
  - Use an ARB in those who are ACE intolerant
- In people of Afro-Caribbean descent use an ACE plus a diuretic or CCB
- In women who might become pregnant use a CCB

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BP Treatment

- If BP still high with an ACE, use a diuretic (BDZ 2.5 mg) or a CCB
- If still high, add the other agent
- If still high, add an α-blocker, β-blocker, or K^+ sparing diuretic (monitor K^+)

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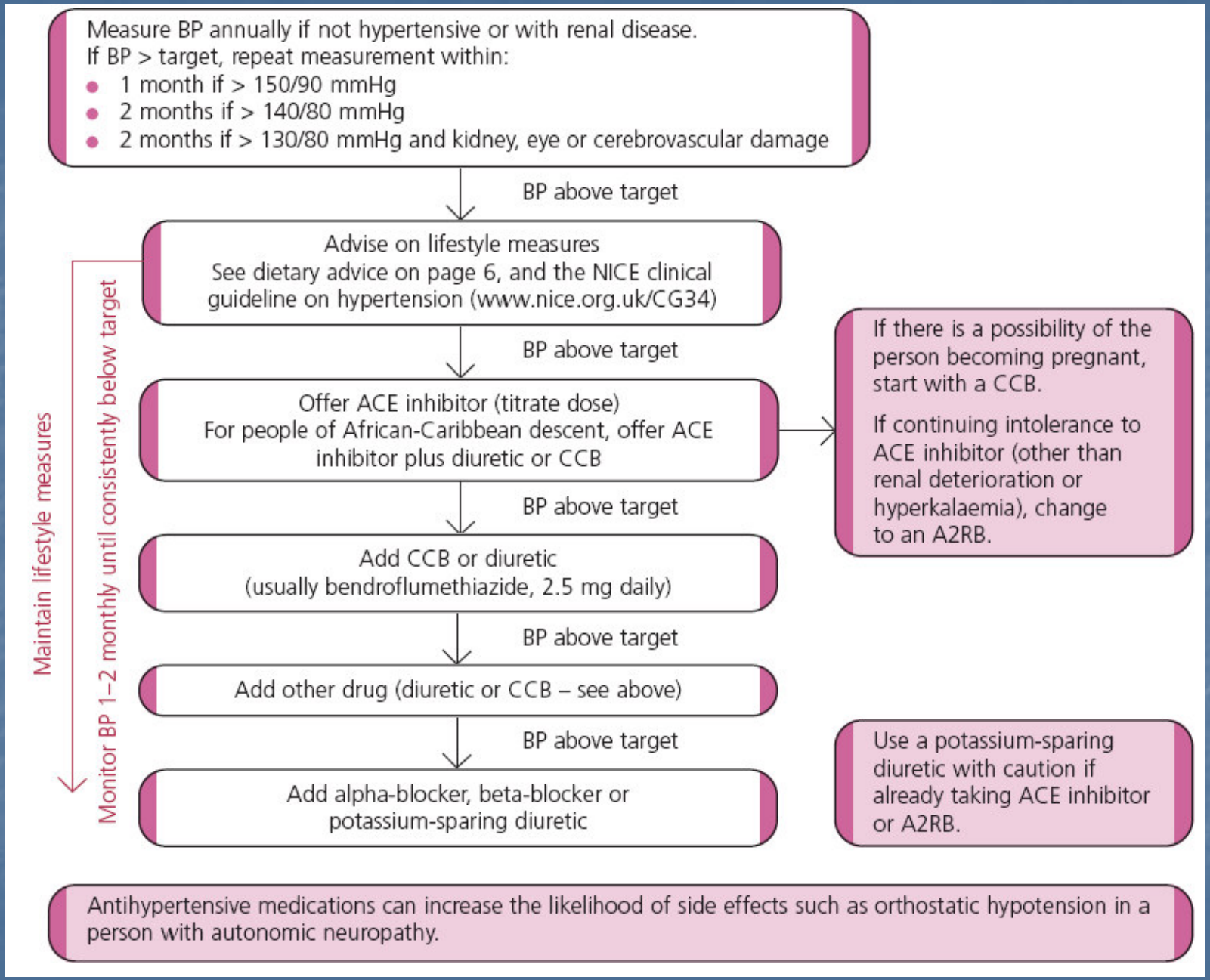

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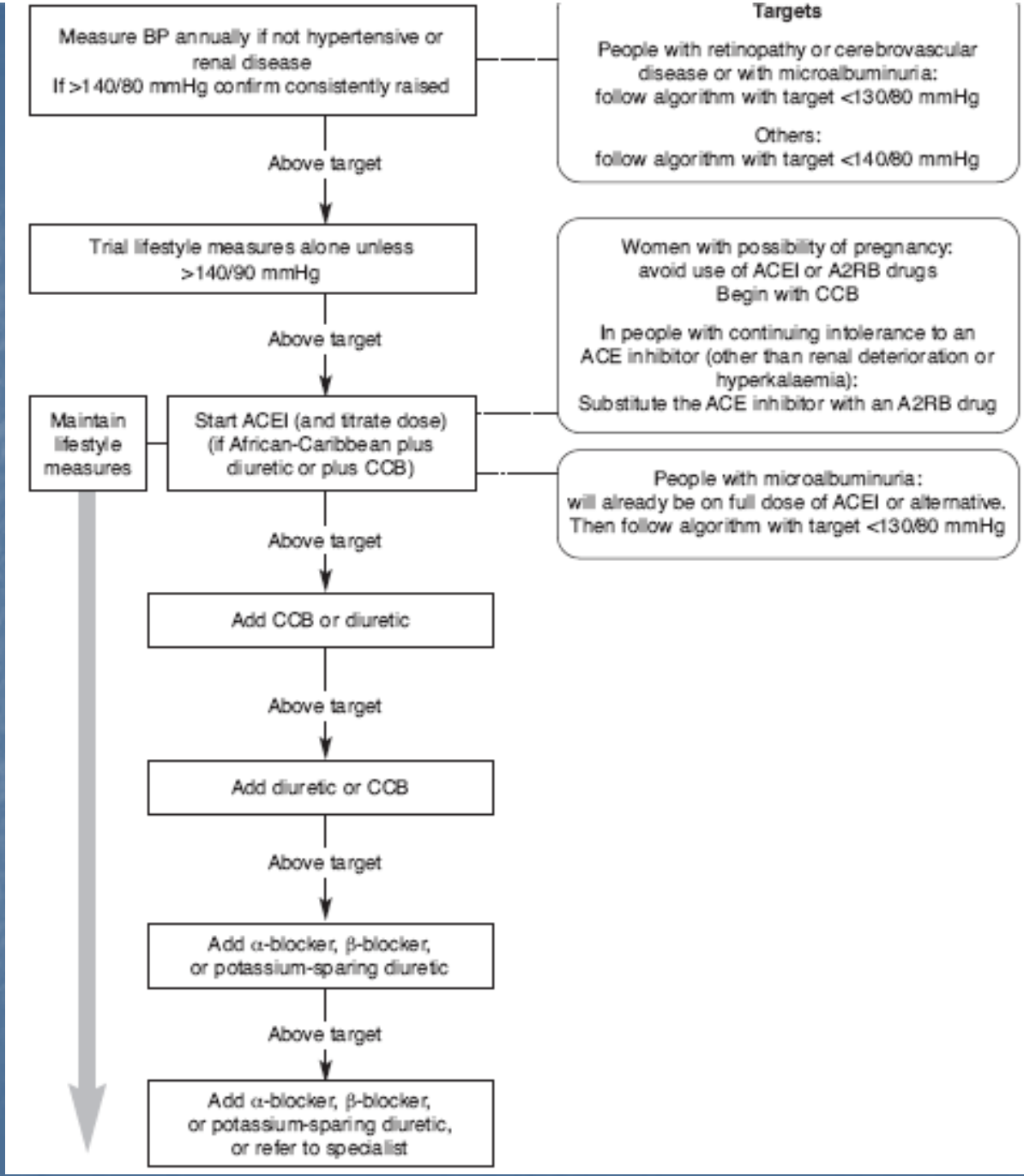

RCP Management of Type 2 diabetes – May 2008 Accessed 12.6.08 http://www.rcplondon.ac.uk/pubs/contents/14f051f1-8fa4-4d0b-9385-9f2e77edc2ca.pdf

Nephropathy

Monitoring	Further investigation	Interpretation	Action	Include in discussion
Annually, regardless of presence of nephropathy: • arrange ACR estimation on first-pass urine sample (or spot sample if necessary) • measure serum creatinine • estimate GFR.	If abnormal ACR[1] (in absence of proteinuria/UTI): • repeat test at next two clinic visits and within 3–4 months • microalbuminuria is confirmed if at least one out of two or more results is also abnormal[1].	Suspect renal disease other than diabetic nephropathy and consider further investigation/ referral if ACR is raised and: • no significant or progressive retinopathy, or • BP is particularly high or resistant to treatment, or • heavy proteinuria (ACR > 100 mg/mmol) but ACR previously documented as normal, or • significant haematuria, or • GFR has worsened rapidly, or • the person is systemically ill.	If diabetic nephropathy confirmed, offer ACE inhibitor with dose titration to maximum dose (unless not tolerated). Substitute an A2RB if ACE inhibitors are poorly tolerated. Maintain BP < 130/80 mmHg if abnormal ACR (see page 14).	Significance of abnormal AER and trend. If becoming pregnant is a possibility: relative risks and benefits of ACE inhibitor so an informed decision can be made.

ACR, albumin:creatinine ratio; AER, albumin excretion rate; A2RB, angiotensin II receptor blocker; BP, blood pressure; GFR, glomerular filtration rate; UTI, urinary tract infection.

[1] Abnormal ACR = ACR > 2.5 mg/mmol for men and > 3.5 mg/mmol for women.

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Retinopathy

- Retinal photography at the time of diagnosis and then annually

- Urgent referral to ophthalmology if:
  - Sudden loss of vision
  - Rubeosis iridis
  - Pre-retinal or vitreous haemorrhage
  - Retinal detachment
  - New vessel formation

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Retinopathy

- Refer to an ophthalmologist if:
  - There is maculopathy:
    - Exudate or retinal thickening within one disc diameter of the centre of the fovea
    - Circinate or group of exudates within the macula (the macula is defined here as a circle centred on the fovea, with a diameter the distance between the temporal border of the optic disc and the fovea)
    - Any microaneurysm or haemorrhage within one disc diameter of the centre of the fovea, only if associated with deterioration of best visual activity to 6/12 or worse

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Retinopathy

- Refer to an ophthalmologist if (contd):
  - Referable pre-proliferative retinopathy (if cotton wool spots are present, look carefully for the following features, but cotton wool spots themselves do not define pre-proliferative retinopathy):
    - Any venous beading
    - Any venous loop or reduplication
    - Any intraretinal microvascular abnormalities
    - Multiple deep, round or blot haemorrhages
  - Any unexplained drop in visual acuity

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Neuropathy

- Ask annually about symptoms
- Be alert to the psychological consequences of chronic, painful diabetic neuropathy and offer psychological support according to their individual needs

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Neuropathy

- Start with simple analgesia
- Then low dose tricyclics and titrate the dose up
- Then chose from duloxetine, gabapentin or pregabalin (which drug depends on price). Get to top dose, if one does not work, try another
- Try an opioid if anticonvulsants do not work

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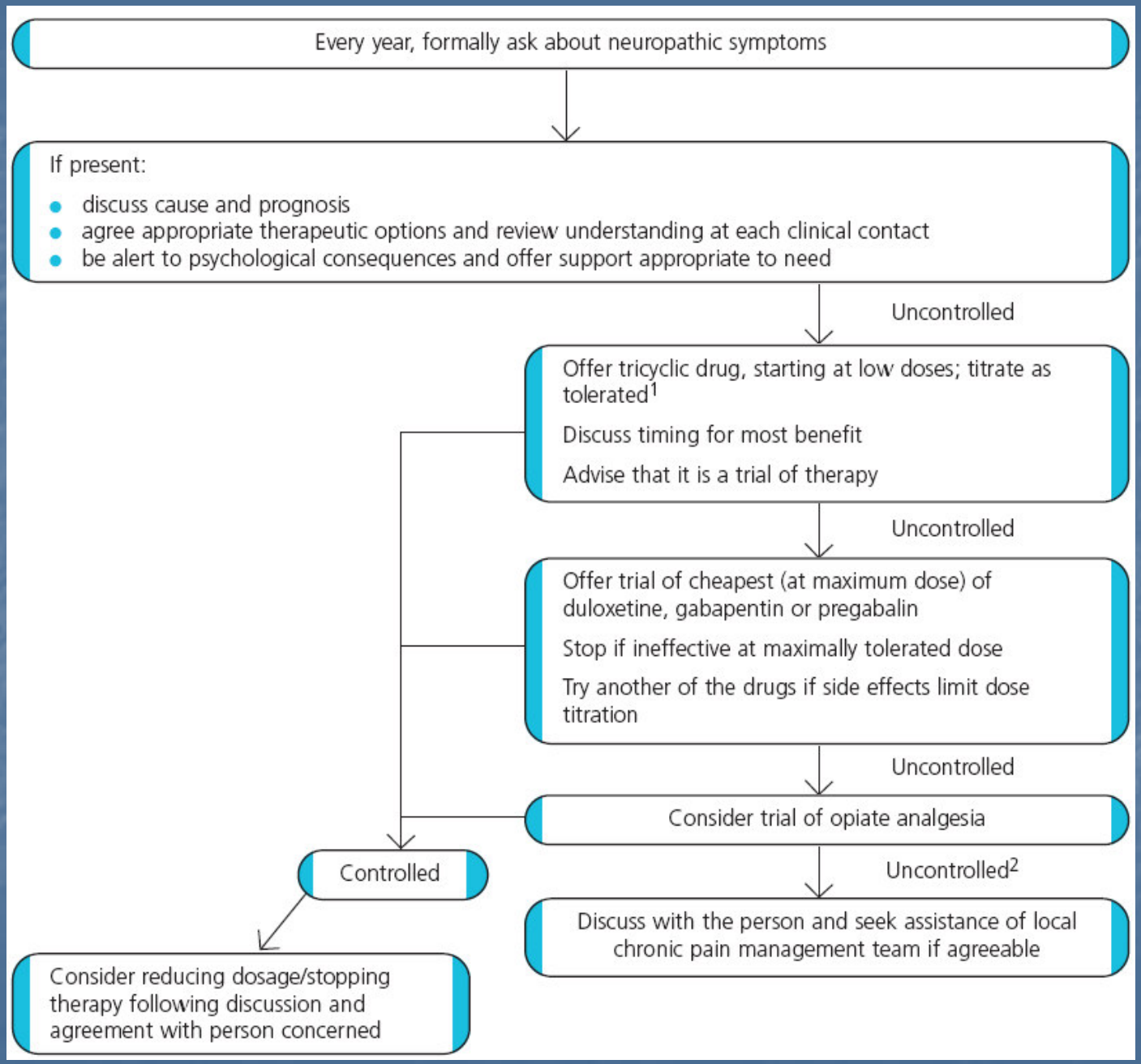
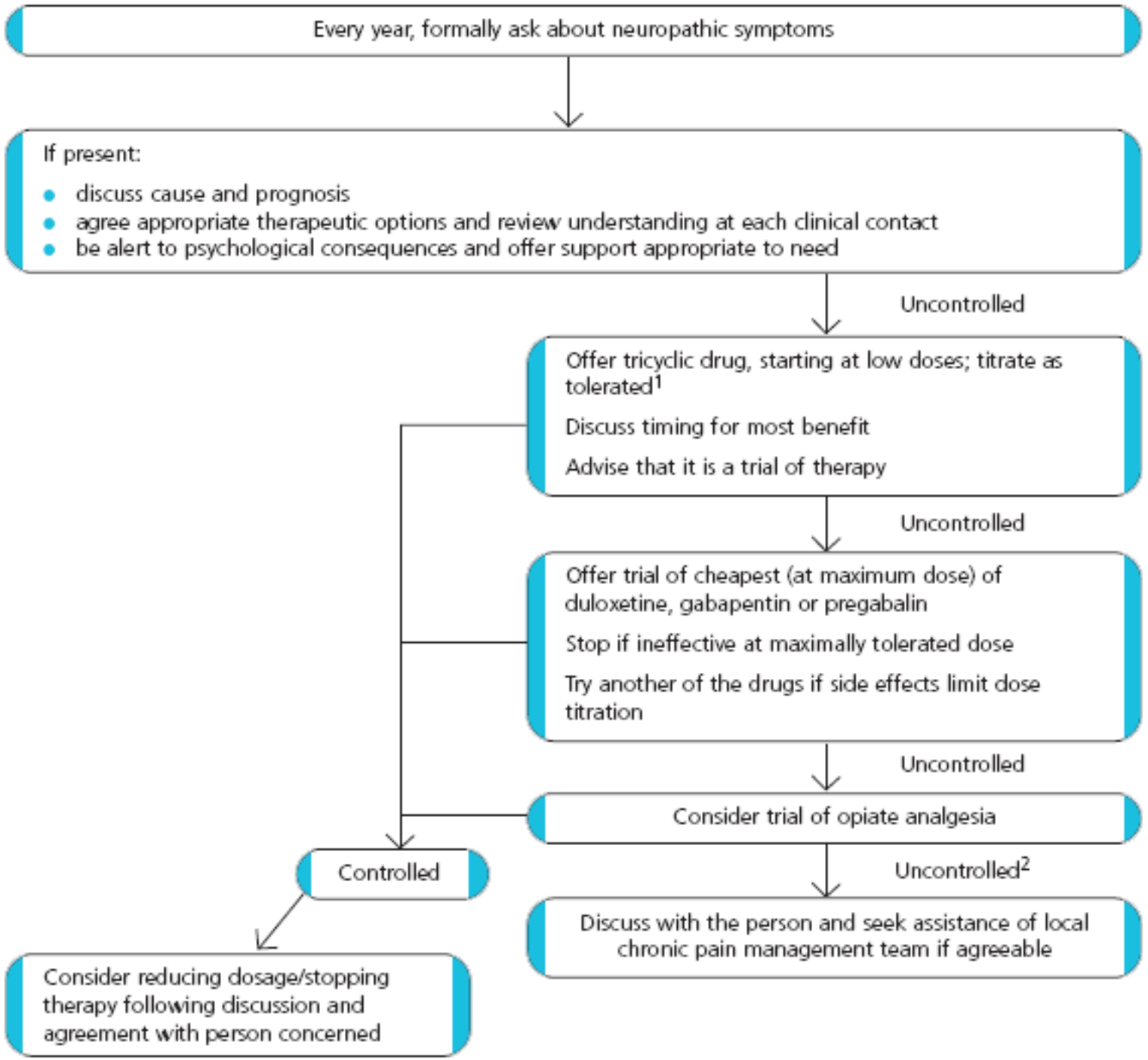

Every year, formally ask about neuropathic symptoms
If present:
discuss cause and prognosis
agree appropriate therapeutic options and review understanding at each clinical contact
be alert to psychological consequences and offer support appropriate to need
Uncontrolled
Offer tricyclic drug, starting at low doses; titrate as tolerated[1]
Discuss timing for most benefit
Advise that it is a trial of therapy
Uncontrolled
Offer trial of cheapest (at maximum dose) of duloxetine, gabapentin or pregabalin
Stop if ineffective at maximally tolerated dose
Try another of the drugs if side effects limit dose titration
Uncontrolled
Consider trial of opiate analgesia
Controlled
Uncontrolled[2]
Discuss with the person and seek assistance of local chronic pain management team if agreeable
Consider reducing dosage/stopping therapy following discussion and agreement with person concerned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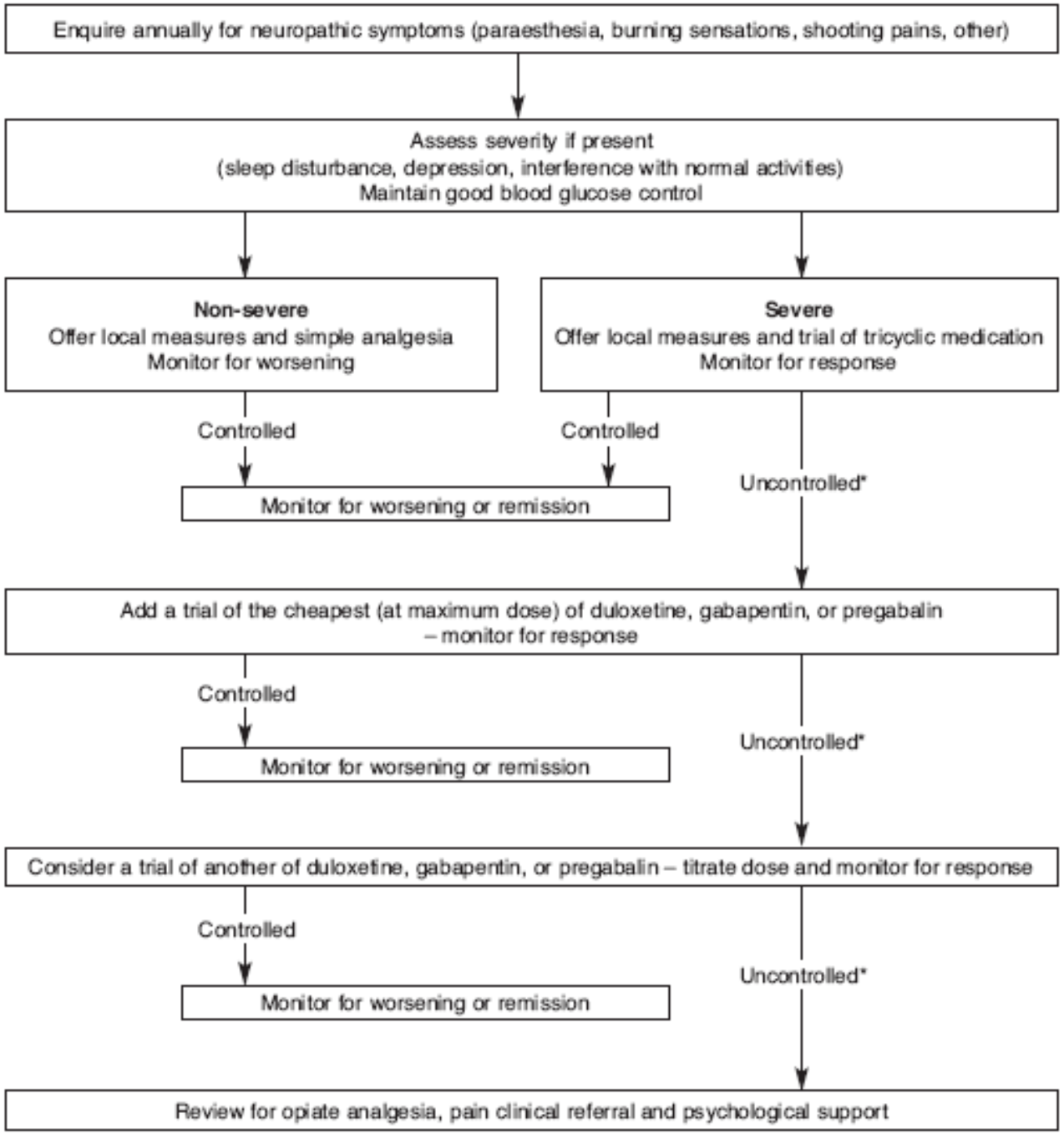

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Erectile Dysfunction

- Ask annually
- If there are no contraindications, offer a PDE 5 (lowest cost drug first)
- If unsuccessful, offer other medical, surgical, or psychological management

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Any Questions?