Partners in improving local health

Type 2 Diabetes Guidelines for the DECENT Network

(Diabetes Education Care & Evaluation North of Tees)

Quick Reference Guide

Hartlepool and Stockton-on-Tees CCG

North of England Commissioning Support

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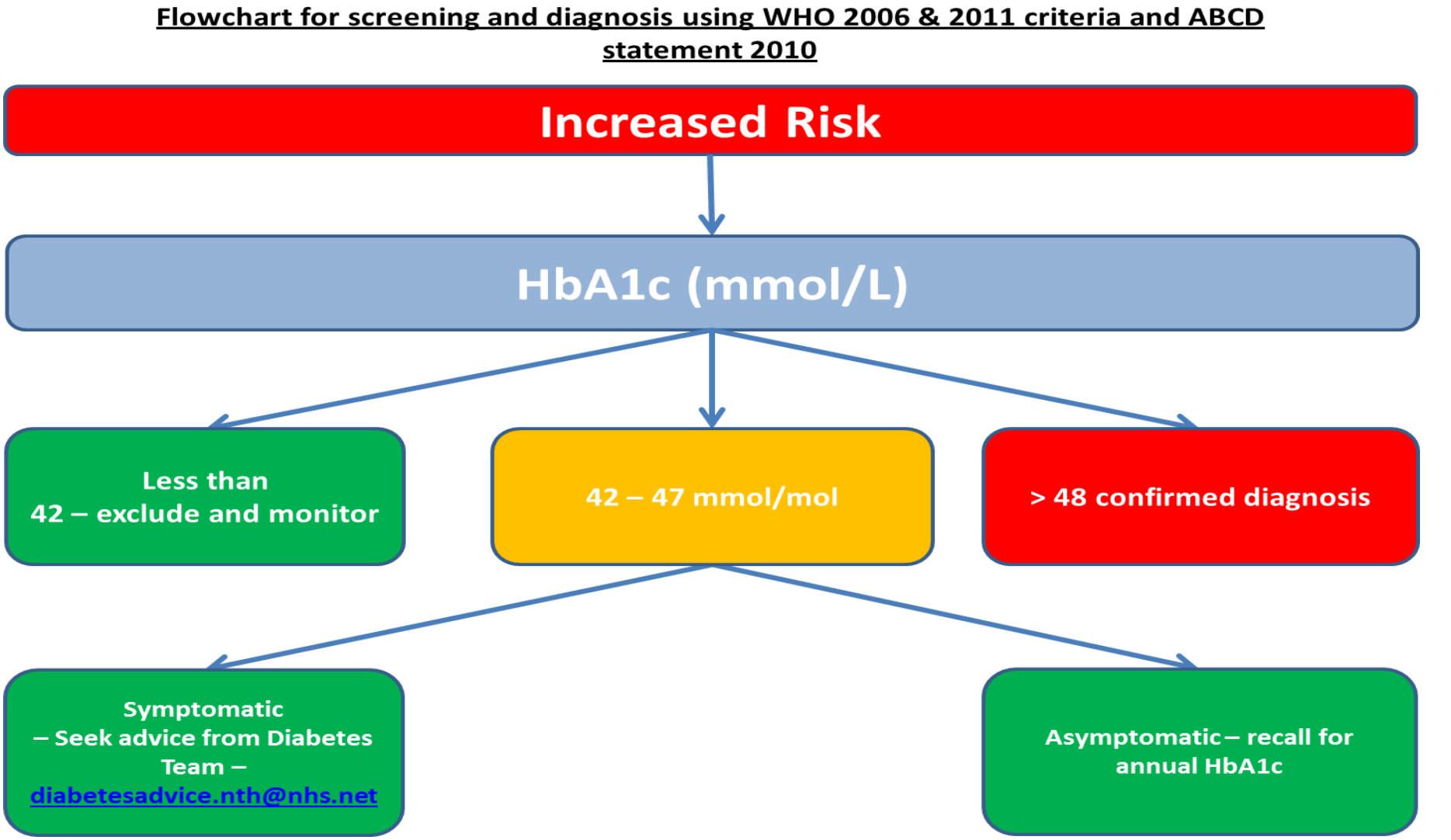
Table of Contents

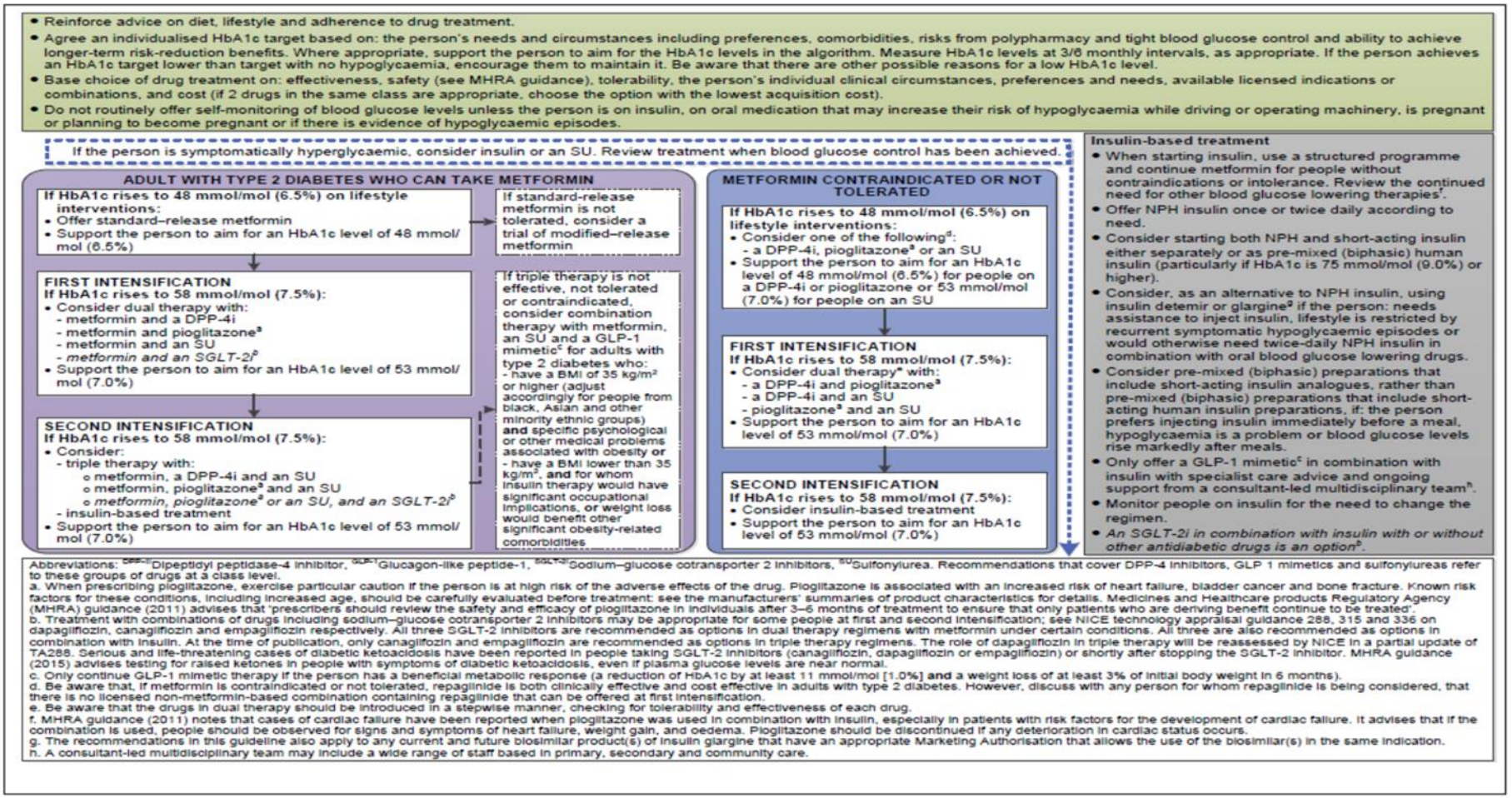
1. Flowchart for screening and diagnosis using WHO 2006 & 2011 Criteria and ABCD statement 2010



2. NICE Treatment Algorithm

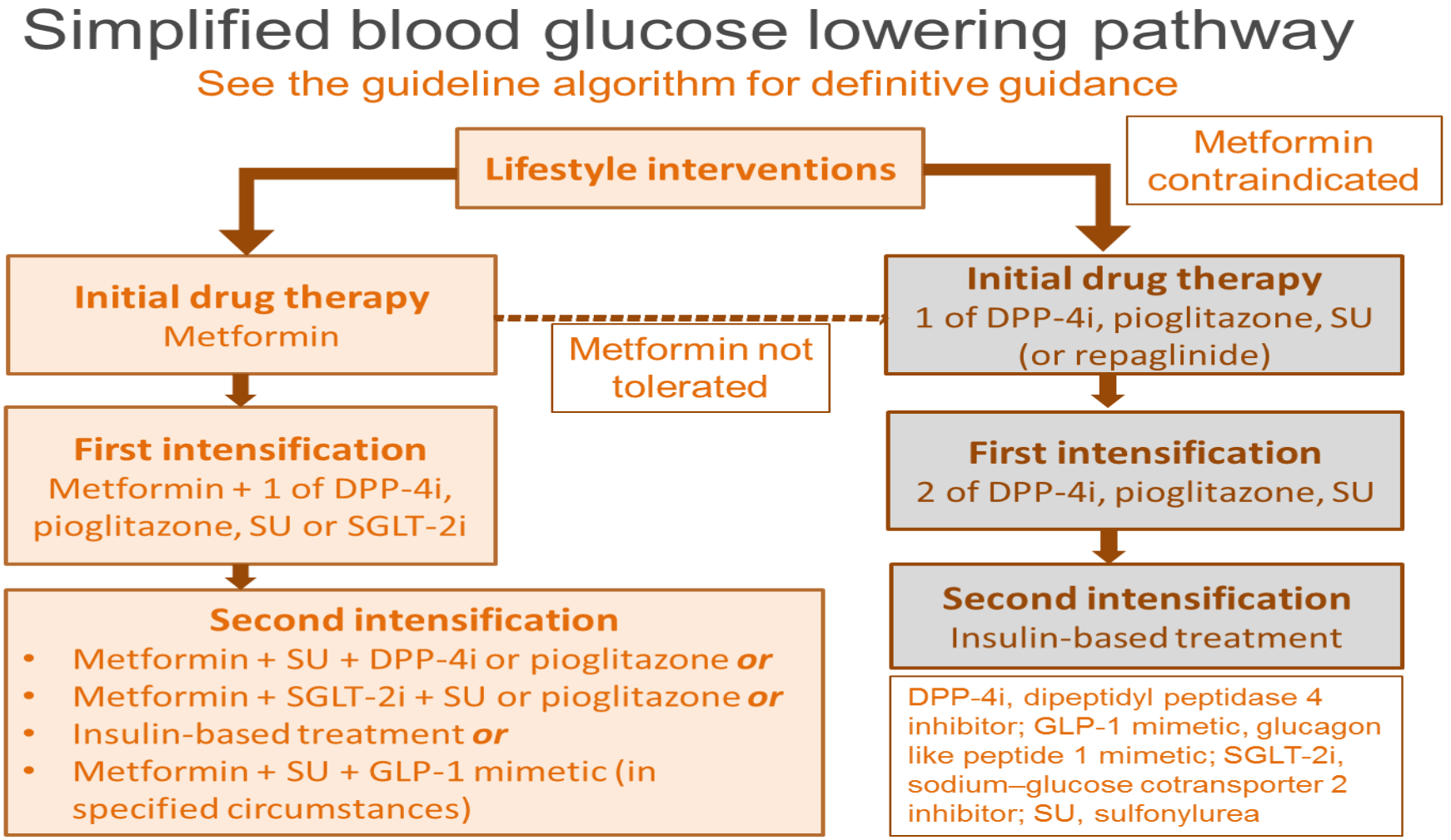
NICE National Institute for Health and Care Excellence

Algorithm for blood glucose lowering therapy in adults with type 2 diabetes



'Type 2 diabetes in adults: management', NICE guideline NG28 (December 2015)

3. NICE Simplified Blood Glucose Lowering Pathway



4. Medicines information

Notes on medicines other than insulin See local formulary for individual drug choices	
Metformin	Benefits of increasing doses of metformin above 2g daily are limited and the BNF recommends a daily max of 2g. Specialist advice may support doses above this range in individual patients. Only oral agent associated with reduced CV risk and weight reduction. ►Prescribe with caution for those at risk of sudden deterioration in kidney function and those at risk of eGFR falling below 45ml/min/1.73m2 ► Reduce dose if eGFR below 45ml/min/1.73m2 ► Stop if eGFR below 30ml/ min/1.73m2 Counsel patients to stop temporarily if acutely unwell, particularly with vomiting and diarrhoea Metformin MR – only if intolerant (GI side effects) on standard release metformin
Sulphonylurea	Consider if patient not overweight, if metformin not tolerated or contra- indicated or if rapid response required because of hyperglycaemic symptoms. Do not prescribe gliclazide MR or tolbutamide Treat osmotic symptoms rapidly Contraindicated in pregnancy Risk of hypoglycaemia so patients will have to undertake home glucose monitoring. Educate about risk. No need to check BM routinely unless hypoglycaemia or driving.
Thiazolidinedione (TZD)	Pioglitazone: Contraindications: heart failure, active bladder cancer or history of bladder cancer, un-investigated haematuria, pregnancy Cautions: Increased risk of bone fractures, particularly women Carries long term risk of limb fracture. Caution with liver disease. Rare reports of liver dysfunction – monitor liver function before and periodically during treatment. Start at 15-30mg daily and titrate to 45 mg daily according to response. NICE criteria: Discontinue if reduction in HbA1c is less than 0.5% (5.5 mmol/mol) after 6 months of treatment.
DPP4 inhibitors (Gliptins)	No long term safety data Low risk of hypoglycaemia – useful in patients at risk of hypoglycaemia. Appears to be weight neutral – useful if further weight gain would cause significant problems. Do not use in pregnancy and breastfeeding. Discontinue if symptoms of acute pancreatitis Consider stopping if NICE criteria for continuation not met. NICE criteria: Discontinue if reduction in HbA1c is less than 0.5% (5.5 mmol/mol) after 6 months treatment.
GLP-1 mimetics	Injected therapy Avoid in pregnancy and breastfeeding. Discontinue if pancreatitis suspected Main side effects GI disturbance (especially nausea) ~ 30% of patients Associated with weight loss GLP-1 used in combination with insulin **ONLY** in specialist care setting **NICE criteria: Add as part of triple therapy ONLY if BMI is ≥ 35kg/m2 in people of European descent (adjust for ethnic groups) and there are specific psychological or medical problems associated with high body weight, or BMI<35kg/m2 and insulin is unacceptable because of occupational implications or weight loss would benefit other co-morbidities.** **Can be considered in dual therapy with metformin or a sulfonylurea if either metformin, OR a sulfonylurea AND pioglitazone AND DPP-4 inhibitors contra-indicated or not tolerated (only liraglutide and prolonged release exenatide considered by NICE for dual therapy).** **Consider stopping if reduction in HbA1c is less than 1% (11 mmol/mol) and there is less than 3% weight loss after 6 months2 (only HbA1c reduction required for dual therapy)**
SGLT-2	Caution with thiazide or loop diuretic use. **Volume depletion** – Correct hypovolaemia before starting treatment Consider interrupting treatment if volume depletion occurs Determine renal function before treatment and annually thereafter. Dapagliflozin – avoid if eGFR <60ml/min/1.73m2 Canagliflozin - monitor renal function at least twice a year in moderate impairment; avoid initiation if eGFR less than 60 mL/minute/1.73 m2; avoid in combination with metformin if eGFR less than 60 mL/minute/1.73 m2; reduce dose to 100 mg once daily if eGFR falls persistently below 60 mL/minute/1.73m2 and existing canagliflozin treatment tolerated; avoid if eGFR less than 45 mL/minute/1.73m2 Empagliflozin - avoid initiation if eGFR below 60 mL/minute/1.73 m2; reduce dose to 10 mg once daily if eGFR falls persistently below 60 mL/ minute/1.73 m2; avoid if eGFR is persistently below 45 mL/minute/1.73 m2 NICE criteria: Dapagliflozin, canagliflozin or empagliflozin can be used in a dual therapy regimen in combination with metformin AND In combination with insulin with or without other antidiabetic drugs. Canagliflozin and empagliflozin can be used in a triple therapy regimen in combination with metformin and a sulphonylurea or a thiazolodinedione. Dapagliflozin in a triple therapy regimen is recommended as an option for treating type 2 diabetes in adults, only in combination with metformin and a sulfonylurea. Discontinue if reduction in HbA1c is less than 0.5% (5.5 mmol/mol) after 6 months treatment.
Repaglinide	Repaglinide is a short acting agent with rapid onset of action and short duration of activity, with similar pharmacological structure to SUs, it stimulates insulin secretion and is licensed for monotherapy or in combination only with metformin but has a limited indication

Introduction of Insulin for Type 2 diabetes for planned transfer via group sessions or 1:1	
Group approach structured education programme for Insulin start	
• Type 2 diabetes and insulin management • Lifestyle change and healthy eating • Management of Hypoglycaemia and Hyperglycaemia (Sick days) • Ongoing care • 2 or 4 sessions according to local arrangements	
Insulin regime based on individual considerations	
Option 1	Isophane insulin (basal) once or twice daily
Option 2	Pre-mixed insulin (human) twice daily. Most likely required initially if: Symptomatic Short history of diabetes BMI <25kg/m2 HbA1c >75mmol/mol (9.0%) Start premixed insulin with breakfast and evening meal

Insulin Dose: Start with 8 -10 units per dose
Titrate: Increase by 2 - 4 units per dose according to blood glucose profile every 3-7 days (provide written guide for dose titration)
Targets:
Needs to be individualised
HbA1c <53mmol/mol (7%)
Blood glucose target
Fasting: 4 – 7mmol/l
Pre-meals: 4 – 7mmol/l

Oral agents
Stop TDZ, DPP4 and SU but continue metformin

Long acting analogues plus oral agents
Can be used for elderly requiring community nursing support,
Or if problematic hypoglycaemia (use local guidelines)
NB Could also use twice daily isophane for elderly patients (stop Sulphonylurea)

Basal bolus regime
Not routinely used in the management of Type 2 diabetes – seek specialist advice

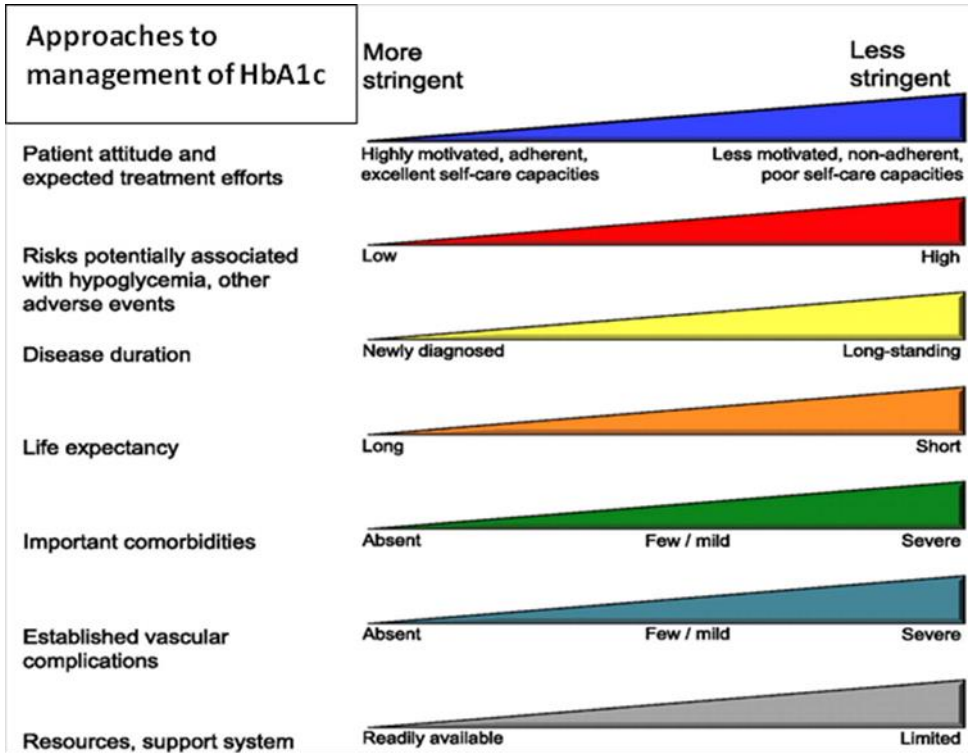
Isophane insulin	Premixed insulin	Long acting analogue
Insuman Basal **Humulin I** **Insulatard**	**Insuman Comb** **Humulin M3**	**Levemir (Detemir) Lantus (Glargine)**

Local preferred choices are found here

- Type 2 diabetes and insulin management
- Lifestyle change and healthy eating

KEY POINTS

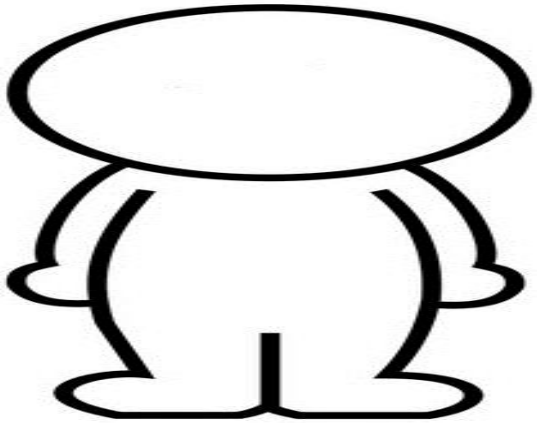
- HbA1c targets and glucose-lowering therapies must be individualized.
- Diet, exercise, and education remain the foundation of any type 2 diabetes treatment program.
- Unless there are prevalent contraindications, metformin is the optimal first-line drug.
- After metformin, there are limited data to guide us. Combination therapy with an additional 1–2 oral or injectable agents is reasonable, aiming to minimize side effects where possible.
- Ultimately, many patients will require insulin therapy alone or in combination with other agents to
- maintain glucose control.
- All treatment decisions, where possible, should be made in conjunction with the patient, focusing on his/her preferences, needs, and values.
- Comprehensive cardiovascular risk reduction must be a major focus of therapy.



5. Case Studies

Remember – the newer drugs have been tested mainly in short term trials, looking at proxy end points and against other new drugs or placebo rather than against the established proven therapies such as Metformin or Insulins; evidence proving reduction in mortality or morbidity is awaited and none are better than conventional treatments at controlling blood sugar; **Ask yourself, would this new drug be better than an older drug?**

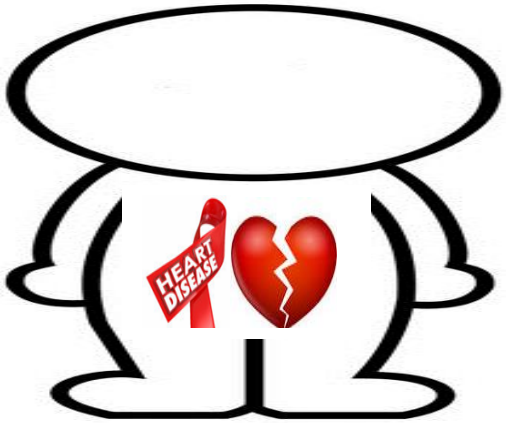
T2DM/Obese



Options	Drugs	Comments
Initial Drug therapy	Metformin	Start slow and go slow
First intensification	Metformin & Gliptin	GLP-1 mimetics are not cost effective at 1st intensification
Second intensification	Metformin & gliptin & flozin	
or	Metformin & GLP1 (incretin mimetic)	**Do not combine GLP1 & gliptin**

Drugs to avoid	Reason
Sulphonylurea	Weight gain
Pioglitazone	Weight gain

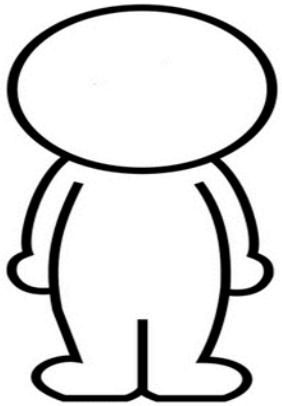
T2DM Heart failure/IHD



Options	Drugs	Comments
Initial Drug therapy	Metformin	
First intensification	Gliptin	**Caution some evidence of increased HF admissions with saxagliptin**
Consider Insulin earlier		

Drugs to avoid	Reason
Sulphonylarea	Weight gain
Pioglitazone	Worsens HF

T2DM/BMI <30



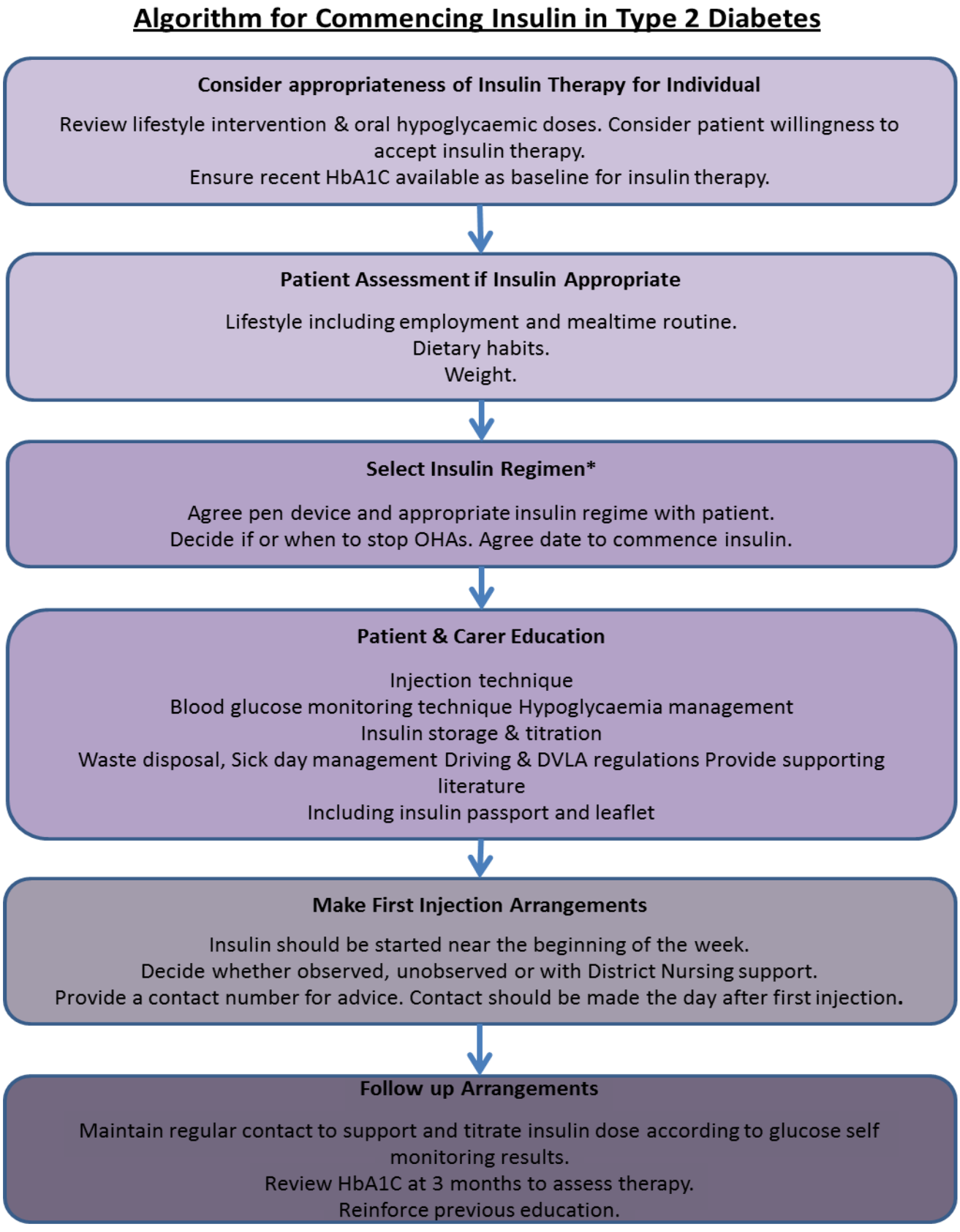
Options	Drugs	Comments
Initial Drug therapy	Metformin	**Even if BMI normal & not obese**
First intensification	Metformin & SU	**Consider Insulin early**
Second intensification	Metformin & SU & Pioglitazone	**Unless Contraindicated**
Third intensification	Metformin & SU & Pioglitazone & Gliptin	

Caveats

Metformin:	• Consider even in non-obese individuals • Continue Metformin even if eGFR is 30 but be cautious if concomitant alcohol excess which can lead to increased risk of lactic acidosis • Consider monitoring vitamin B12 if unexplained anaemia.
Sulphonylureas:	• Hypoglycaemia is a risk especially with drop in eGFR (urinary infection / other infections) • Anticipate drop in blood sugar control / hypoglycaemia in patients started on Trimethoprim if control is very good and eGFR is low • Avoid starting sulphonylurea in newly diagnosed obese patients (options are weight neutral drugs such as DPP4 inhibitors, SGLT2 inhibitors and GLP1 agonist to supplement Metformin)
DPP4 Inhibitors:	• Consider as a weight neutral option • Avoid if previous incidence of pancreatitis or recurrent gall stone cholangitis. • Review results in 6 months to one year and if compliance is good and control is not improving, especially in patients with greater than 10 years of type 2 diabetes, stop DPP4 inhibitors as it is highly likely that beta cell function is very limited.
GLP1 Agonist:	• Monitor progress at 4 months and 6 months and ensure control has improved from start of therapy (6 months,HbA1c improvement by 1% and weight loss 3% from baseline) • Avoid in history of pancreatitis, significant alcohol excess and history of gallstone disease • Document advice given to patient especially symptoms of pancreatitis, namely pain abdomen, vomiting which can mimic the side effects of the drug itself
Glitazone:	• Pioglitazone only currently available drug • Avoid if history of heart failure (NYHA 3 or more), osteoporosis and fracture and bladder malignancy including haematuria • Increased fracture risk, particularly in elderly women
SGLT2 Inhibitors:	• Ensure eGFR is greater than 60 ml/min/1.73 • Avoid if history of recurrent genital and urinary tract infections • Inform patient the side effects as this will improve compliance • Inform and document in notes the increased incidence of DKA recently linked with use of SGLT2 inhibitors. • Inform the patient of the possibility of DKA even with blood sugar less than 20

6. Algorithm for Commencing Insulin in Type 2 Diabetes

North Tees and Hartlepool NHS
NHS Foundation Trust



7. Insulin Adjustment and Problem Solving

There are some general guidelines to help you to adjust your insulin doses and resolve problems with your blood glucose levels. **These guidelines relate to 2 injections each day.**

You should only change insulin doses if there is a trend of three or more high or low blood glucose levels. It is important to only change one of the doses of insulin at a time and to wait for 2-3 days before making any further changes. If the blood glucose levels do not respond as you expected, please ring a member of the Diabetes Team for advice.

Problem	Solution
High blood sugar Pre **Breakfast**	Put **pm** insulin **up** by: 1-2 units
Low blood sugar Pre **Breakfast**	Put **pm** insulin **down** by: 1-2 units
High blood sugar Pre **Lunch**	Put **am** insulin **up** by: 1-2 units
Low blood sugar Pre **Lunch**	Put **am** insulin **down** by: 1-2 units
High blood sugar Pre **Tea**	Put **am** insulin **up** by: 1-2 units
Low blood sugar Pre **Tea**	Put **am** insulin **down** by: 1-2 units
High blood sugar Pre **Bed**	Put **pm** insulin **up** by: 1-2 units
Low blood sugar Pre **Bed**	Put **pm** insulin **down** by: 1-2 units
Low blood sugar Pre **Bed** and during night, then **High** Pre **Breakfast**	Put **pm** insulin **down** by: 1-2 units
Hypo – after or during exercise	Give extra sugary snack before exercise, extra starch afterwards and possibly reduce insulin by 1-2 units if exercise is very strenuous
Blood glucose going up and down – no pattern	Major food and insulin changes. Make earlier clinic appointment. Contact Diabetes Team.
Blood glucose high after meals then zooming down low. Hypos with no pattern or reason	Try changing the injection site and reduce the insulin. Contact the Diabetes Team

8. Insulin used in North Tees and Hartlepool

Insulin Names	Clear/Cloudy	Specific to meal times	Disposable pen device	Cartridge and Insulin pen
Actrapid	Clear	No – For use with IV therapy only	No 10 ml vial only	No
ASPART/ Novorapid®	Clear	Yes, just before or just after breakfast, lunch and evening meal	Yes FlexpenFlextouch	Yes Novopen
LISPRO/Humalog®	Clear	Yes, just before or just after breakfast, lunch and evening meal	Yes KwikPen	Yes Savvio Pen
Novomix 30	Cloudy	Yes, just before breakfast and evening meal	Yes Flexpen	Yes Novopen
Humalog Mix 25 Humalog Mix 50	Cloudy	Yes, just before breakfast and evening meal	Yes KwikPen	Yes Savvio
Humulin M3	Cloudy	Yes **20-30 mins before** breakfast and evening meal	Yes KwikPen	Yes SavvioPen
Humulin S	Clear	Yes,15-30 mins before breakfast, lunch and evening meal	No	Yes AutoPen Classic or Savviopen
Humulin I	Cloudy	No	Yes KwikPen	Yes AutoPen Classic or SavvioPen
Abasaglar (glargine)	Clear	No	Yes KwikPen	Yes Autopen Classic
DETEMIR/Levemir ®	Clear	No	Yes Flexpen	Yes Novopen
GLARGINE/Lantus ®	Clear	No	Yes SoloStar	Yes Clickstar
Insulatard	Cloudy	No	Yes Innolet	Yes Novopen

High concentration insulins	**Not yet considered for local use**			
Degludec – **not yet considered for local use**	Clear	No	Yes Flextouch	No

The NICE Guideline Development Group agreed that there was strong evidence to indicate that insulin degludec was not cost-effective and therefore was confident that this option should not be recommended in T2DM.

9. Algorithm for Management of Hypertension in Type 2 Diabetes

Algorithm for Management of Hypertension in Type 2 Diabetes

Target <130/80 mmHg with retinopathy, cerebrovascular disease or microalbuminuria

Other patients Target <140/80 mmHg

Safety considerations:

- These drugs are contraindicated in pregnancy
- Before commencing anti-hypertensive therapy the possibility of pregnancy must be discussed and contraceptive advice given as appropriate to women of child bearing potential
- Seek specialist advice for pre-pregnancy planning or pregnancy management
- Allow individualised targets and a slower rate of change if necessary, particularly in the elderly
- Intensive therapy increases the risk of postural hypotension
- Allow up to 4 weeks for full response to changes in therapy
- ACE inhibitors are contra-indicated in severe bilateral renal artery stenosis, therefore caution in severe PVD
- NSAIDs should be avoided in patients taking an ACE inhibitor due to risk of irreversible renal failure
- Dry cough is a common side- effect of ACE inhibitors, if intolerable for the patient consider A2RB
- If amlodipine results in peripheral oedema diltiazem can be substituted. Note caution if on a beta-blocker
- **See BNF or SPC for full prescribing information**

Potassium Levels

- Hypokalaemia noted at baseline or readily induced by low- dose diuretic, should prompt referral for further investigation
- Hyperkalaemia is a common problem with ACEI and A2RBs If chronic it may require loop diuretic therapy or potassium reduced diet. Acute hyperkalaemia may require in-patient management
- Potassium based dietary salt replacement must be avoided when ACEI / A2RB / potassium sparing diuretics prescribed

Beta-blockers:

- Are no longer first-line therapy for hypertension but consider their use second line where there is intolerance or contra- indication to ACEI or A2RBs or where there is increased sympathetic drive
- Avoid where possible if metabolic syndrome
- Beta-blockers should still be used where there is a compelling indication e.g. angina or MI

Aspirin
Once BP < 145/90 mmHg CONSIDER aspirin dispersible 75mg daily - assess individual balance of benefits & risks

Lipids
10-year CVD risk ≥ 20% start statin
Refer to separate prescribing guidance

Smoking Cessation
Refer to separate prescribing guidance

If BP above target repeat measurement within
1month if >150/90 mmHg
2 months if >140/80
2 months if >130/80 and complications

BP above target

Advise on lifestyle measures
Weight, activity, alcohol, smoking, salt intake

BP above target

Start ACE inhibitor
Titrate dose up to maximum tolerated.
Check U&E's and renal function: before starting, 1-2 weeks after starting treatment and after each dose change, then every 6-12 months.
DO NOT COMBINE RAS DRUGS

BP above target

Add **Indapamide** 2.5mg daily
Monitor U&E's and renal function after 4-6 weeks then every 6-12 months
OR
Add Amlodipine (5-10mg daily)
Continue monitoring renal function 6-12 monthly
If BP above target with first choice add second choice of these agents

BP above target

Add Beta-blocker **Bisoprolol** (2.5-10mg daily)
OR
Alpha-blocker **Doxazosin** (1-16mg daily)
Continue monitoring renal function 6 -12 monthly
If BP above target with first choice add second choice of these agents

BP above target

Consider potassium sparing diuretic
but
significantly increases risk of electrolyte disturbance or renal failure

OR

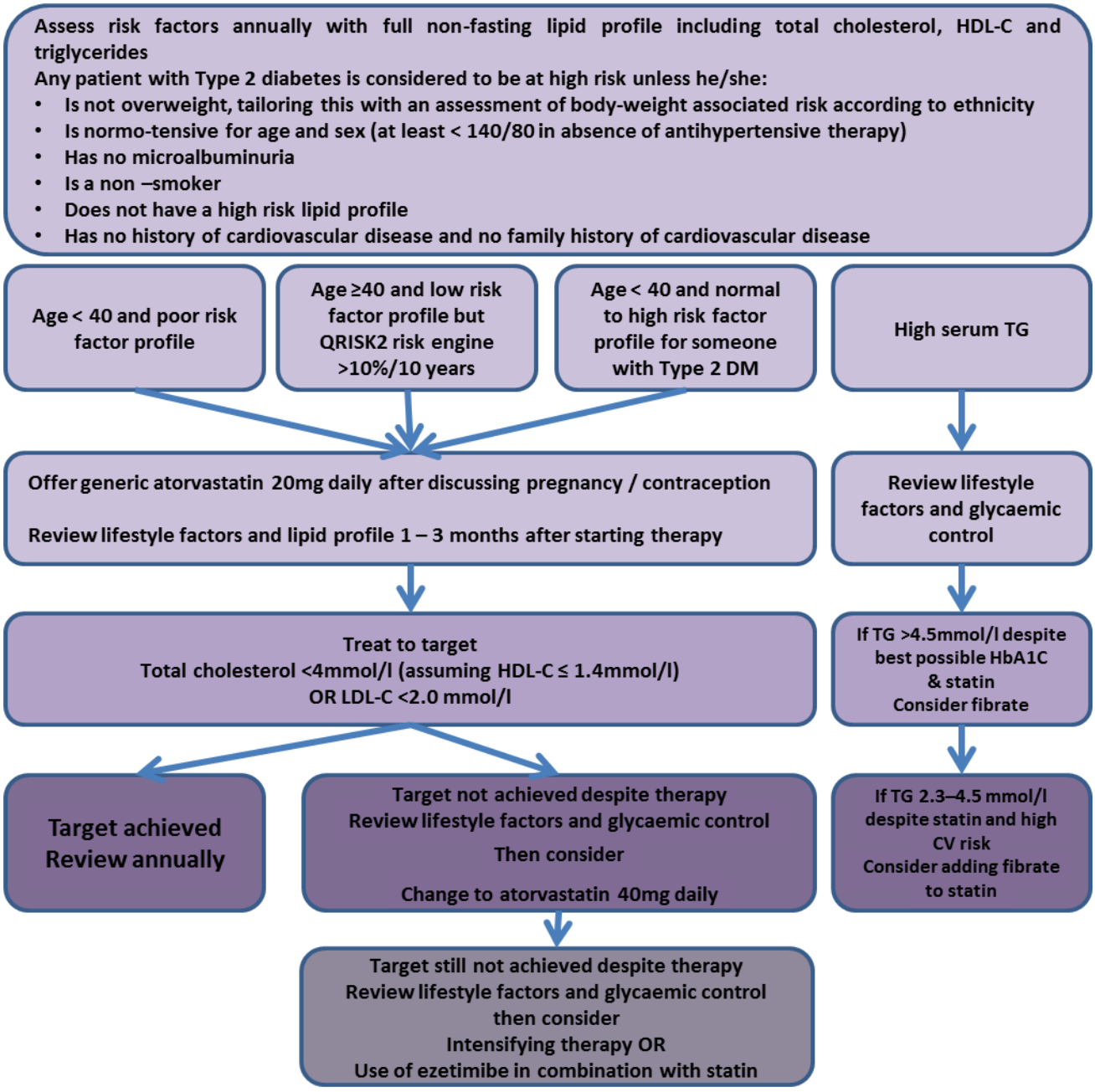
Consider referral for Specialist advice

Maintain lifestyle measures
Monitor BP 1-2 monthly until consistently below target

10. Algorithm for Management of Blood Lipids in Type 2 Diabetes

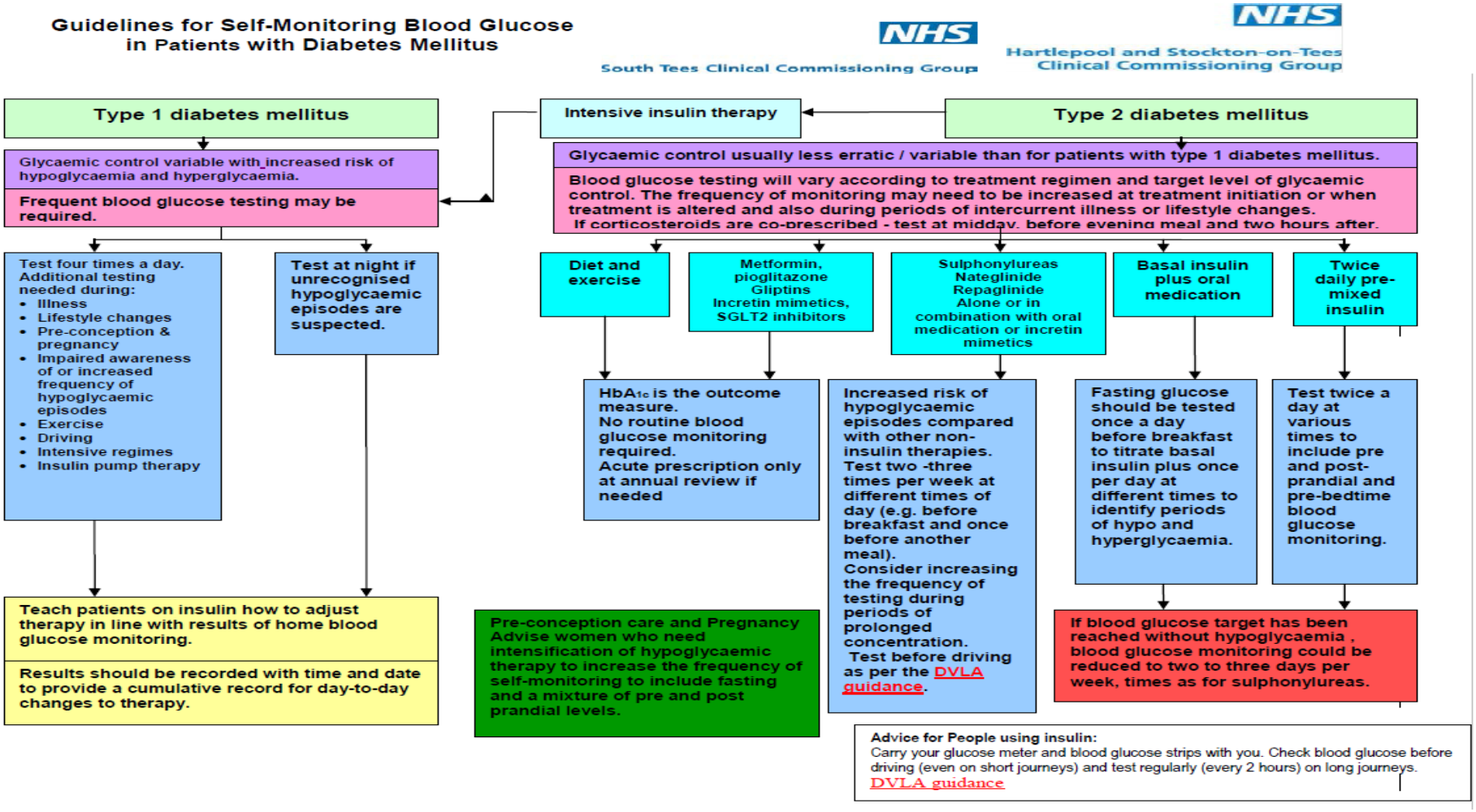
Algorithm for Management of Blood Lipids in Type 2 Diabetes

Targets Total cholesterol <4.0 and LDL cholesterol < 2mmol/l, Triglyceride <2.3 mmol/l (or >40% reduction in non-HDL cholesterol) in patients at high premature cardiovascular risk for their age



Consideration of high intensity statin should take into account co-morbidities, wishes of patient and risk/ benefit assessment. Myopathy occurs in <1% of patients but is dose related and may progress to rhabdomyolysis, a cause of renal failure and death. If myopathy is diagnosed or suspected and creatine kinase is >5 times the upper level of normal, the statin should be stopped. Asymptomatic elevations of liver enzymes occur in about 1-2% of patients. Caution is needed with heavy alcohol consumption. Drug interactions may increase the plasma levels of statins. Combination with fibrates increases myopathy risk. Liver function tests (LFTs) should be monitored prior to therapy after 3-6 months,12 months but not again unless clinically indicated. Treatment should be stopped if serum transaminases rise to and persist at 3 times the upper limit of normal. Hypothyroidism should be adequately managed before statin therapy commenced. Evidence base for newer agents is limited compared to simvastatin or atorvastatin in diabetes. Ezetimibe is currently licensed for primary hypercholesterolemia.

11. Guidelines for Self-Monitoring Blood Glucose in Patients with Diabetes Mellitus



NICE Guidance states:

Self-monitoring of plasma glucose should be offered to people with Type 2 diabetes only as an integral part of self-management education. **Purpose, interpretation and action required should be agreed in advance.**

It should be recognised that frequent blood testing by all patients may be wasteful and not based on evidence & can impair quality of life.

Unnecessarily frequent blood testing can lead to anxiety and is a waste of limited NHS resources; whilst inappropriately infrequent testing may lead to a worsening of control. Long term management is best monitored by HbA1c results.

HbA1c:

May be a more meaningful determinant of long term glucose control. Patients should be involved in decisions about their HbA1c target level, which should usually be 48-58mmol/mol highly intensive management to levels of less than 48mmol/mol should be avoided. Modifying other cardiovascular risk factors (such as smoking status, blood pressure, lipids) are just as important, if not more important, than blood glucose control. [3, 4]

NICE Pathway recommends self-monitoring should be assessed in a structured way to at the diabetes annual review [6]

- 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. Consider documenting within the clinical record target setting, frequency of testing and duration of monitoring agreed.

Guidance quantities of Testing Strips, Needles and Lancets to be prescribed:

	Quantities / Packs of		
Patients with	**Testing Strips packs of 50**	**Lancets (packs of 100)**	**Needles (packs of 100)**
Type 1 diabetes	3 packs every month **Additional test strips and lancets maybe required in certain situations .Please see box overleaf.**	1-2 packs every month	1-2 packs every month
Type 2 diabetes using insulin	1-2 packs every month	1 pack every two months	1 every 2 months
Type 2 diabetes using Sulphonylureas	1 pack every three-four months. **Additional test strips and lancets will be required for drivers to comply with DVLA guidance.** DVLA guidance	1 pack every six to eight months	0

- These are average quantities as a guide; clinical judgement should be used in assessing individual requirements.
- Special situations like pregnancy, hypoglycaemic awareness or pump therapy will require more frequent testing.
- Expiry dates, should also be taken into account.
- **Consider prescribing as an acute therapy at clinic review rather than a repeat prescription.**
- Finger prick devices and lancets are generally meter specific.
- **Patients should be encouraged to help reduce waste by using up test strips before ordering more or changing meters.**
- **Additional test strips and lancets will be required for drivers to comply with DVLA guidance.**

Class of different Type 2 antidiabetic medication	Biguanides	Sulphonylureas	Glitazones (Thiazolidinediones)	Rapid acting insulin secretagogues (Glinides, Prandial glucose regulators)	Dipeptidyl peptidase 4 inhibitors (Gliptins)	Incretin mimetics (GLP-1 mimetics)	SGLT2 inhibitors
Examples	Metformin	Gliclazide Glipizide Glimepiride Tolbutamide	Pioglitazone	Nateglinide Repaglinide	Sitagliptin Vildagliptin Saxagliptin Linagliptin	Exenatide Liraglutide	Dapagliflozin Canagliflozin

[1]National Institute for Clinical Excellence. Management of Type-2 diabetes: management of blood glucose. New NICE Guideline CG66 (Updated May 2008).
[2]Diabetes UK statement on SMBG
[3]Shaughnessy AF and Slawson DC What happened to the valid POEMs? A survey of review articles on the treatment of type 2 diabetes BMJ, 2003; 327: 266
[4]MeReC: Type 2 diabetes
[5]NICE pathway-Blood glucose lowering therapy for type 2 diabetes- October 13

Reproduced with thanks to Wrexham LHB and Darlington and Durham PCT Adopted by South Tees CCG and Hartlepool and Stockton CCG October 2014 review date September 2016

12. Complications Management

12.1. Diabetic Renal Disease

Monitoring frequency as dictated by eGFR		
Normal	> 90 ml/min	Annual check
Mild impairment	60 – 89 ml/min	Annual check
Moderate impairment	30 – 59 ml/min	6 monthly check
	Consider referral to specialist care if progressing or other concern e.g. BP	
Severe impairment	15 – 29 ml/min	3 monthly check
	Referral to specialist	
Established	< 15 ml/min	3 monthly check
	Referral to specialist	

13. Referral to Specialist Services

There are no fixed rules for referral to the specialist team. The following suggestions are a guide and individual practitioners may wish to refer for various reasons including patient concerns, drug reactions limiting therapeutic options or variations in the competencies /capacities of practice teams. Referral to the specialist team does not necessarily mean referral for consultant review – referrals may be directed to other members of the multi-professional team as appropriate to shorten the patient journey. Patients may be referred via Choose and Book or direct to the Specialist Teams in UHNT or UHH. NTHFT are piloting a diabetes email helpline for non-urgent advice (diabetesadvice.nth@nhs.net). Advice on appropriate referral routes is included in Choose and Book criteria.

13.1.1. Priority referrals to Diabetes Team (telephone, fax, letter)

- People under 25 years old with no ketonuria but confirmed diabetes
- Women who are contemplating pregnancy
- People who develop severely at risk feet
- People who develop persistent proteinuria or elevated ACR without significant cardiovascular disease
- People who develop renal impairment should generally be referred to Diabetes not directly to Nephrology
    - Serum creatinine >150 OR eGFR < 60 and deteriorating OR eGFR < 30 ml/min/1.73m^2
    - Rapid decline in renal function (eGFR or creatinine)
    - Absence of other evidence of microvascular disease e.g. no retinopathy on screening

13.1.2. Routine referral to Diabetes Team or request for advice (telephone, fax, letter or email diabetesadvice.nth@nhs.net)

- People in whom insulin transfer is being considered or is necessary
- People in whom novel therapies are being considered
- People who develop recurrent hypoglycaemia or poor glycaemic control
- Hypertension requiring multiple therapies
- Dyslipidaemia with poor response to, or intolerance of, 'statin therapy
- Painful peripheral or troublesome autonomic neuropathy, mononeuropathy or amyotrophy
- Morbid obesity with poor control or complications.

13.2. Referral to Other Specialist teams

13.2.1. Same day referral to other specialist team (telephone, fax)

- **Ophthalmology** – People who have a sudden loss of vision, pre-retinal or vitreous haemorrhage or retinal detachment
- **Vascular Surgeons** – People who develop acute (not chronic) vascular insufficiency with cold, pale, pulseless extremity

13.2.2. Priority referrals to other specialist team (telephone, fax, letter)

- **Nephrology** – *Serum creatinine >150* µmol/l *or eGFR < 30 ml/min with features of other renal disease e.g. haematuria without infection*
- **Ophthalmology –** People who develop sight threatening retinopathy
- **Cardiology Rapid Access Chest Pain Clinic** – People who develop new onset angina (within previous 4 weeks). People who develop significant worsening of existing angina (over the previous 12 weeks).

13.2.3. Routine referral to other specialist team or request for advice (telephone, fax, letter) Urology

- **Erectile dysfunction** – patients should be referred to for specialist counselling and treatment.