Summary of NICE type 2 diabetes guidelines (2015)

Diagnosis

Fasting glucose ≥7 on two separate occasions

OR

HbA1c ≥48mmol/mol (6.5%) on two separate occasions two weeks apart

(Don't use HbA1c if rapid rise in blood sugar/increased red cell turnover/pregnancy/anaemia/haemoglobinopathies)

Oral glucose tolerance test? Limited role except in pregnancy. Complex, expensive, less reproducible (NEJM 2012;367:542)

Management

BP target	Cholesterol target	HbA1c target
140/80 (130/80 if cerebrovascular/renal/eye complications)	Primary prevention: **fire & forget** Secondary prevention of CVD: **40% fall in non-HDL chol**	**Intensify treatment if HbA1c above:** **48/6.5%** (lifestyle alone) **58/7.5%** (all others)
QOF target 140/80 for max. points	*QOF target <5 for all*	*QOF target 58/7.5 for max. points*

Lifestyle	• Refer to structured education programme at diagnosis. Reinforce diet/lifestyle annually. • **If overweight aim to reduce weight by 5–10% (but any weight loss is beneficial).** • **Erectile dysfunction:** ask men about this annually. Review and optimise CVD risk factors including lifestyle. Offer PDE5 inhibitor (e.g. sildenafil) & other treatments if this is ineffective.	
BP	**Follow NICE hypertension guidance but use ACE inhibitor first line regardless of age.**	
	1st line:	ACE inhibitor (because of renal benefits). If intolerant of ACE try an ARB. African/Caribbean origin: ACE AND either a thiazide-like diuretic OR CCB. Women who may become pregnant: calcium channel blocker.
	2nd line:	ADD calcium channel blocker (CCB) OR thiazide-like diuretic (indapamide).
	3rd line:	ACE + CCB + thiazide-like diuretic (indapamide).
	4th line:	Add alpha-blocker/beta-blocker/potassium sparing diuretic. If this fails, refer.
Lipids	Primary prevention:	Atorvastatin 20mg if QRISK2 ≥10%. **NICE target:** fire and forget.
	Secondary prevention:	Atorva 80mg. **NICE target:** reduce non-HDL cholesterol by 40%.
	Aspirin/antiplatelets:	Do NOT use unless known cardiovascular disease.
Glycaemic control	**Intensify treatment if HbA1c greater than:**	48/6.5% on lifestyle alone. 58/7.5% on any drug therapy.
	Target after intensifying treatment:	48/6.5% if on monotherapy with metformin/gliptin/piogitazone. 53/7% for those on other treatments.
	BUT tailor targets to individual's needs. Beware consequences of hypos especially if drives/at risk of falls. Relax targets if patient unlikely to live long enough to gain benefit. ***Lifestyle crucial!*** **Self-monitoring:** only if on insulin or good indication (such as driving/occupation).	
Foot care	• **Annual examination for risk factors and stratification of risk:** ○ Neuropathy (use 10g monofilament). ○ Evidence of ischaemia. ○ Ulceration, callouses, infection or gangrene. ○ Deformity, Charcot's arthropathy (warm, red, swollen, deformed join, often painful). **If anything other than low risk (i.e. 1 or more of the above):** refer.	
Autonomic neuropathy	• Reduced hypo awareness. • Unexplained bladder emptying. • GI tract symptoms: gastroparesis (bloating, vomiting, erratic blood sugars), unexplained diarrhoea, especially at night. Gastroparesis can be treated with erythromycin (unlicensed).	
Peripheral neuropathy	• Remember tight glycaemic control reduces progression of neuropathy! • Treat as per NICE guidelines on peripheral neuropathy (start with amitriptyline).	
Renal	• Follow NICE CKD guidelines. Remember BP target is lower in renal disease: 130/80.	
Eyes	• Annual eye screening. Remember BP target is lower in those with eye problems: 130/80.	

NICE recommendations for glycaemic control in type 2 diabetes (NICE 2015, NG 28)

TOP STAIRCASE: FIRST LINE THERAPY FOR THE MAJORITY

SU= sulphonylurea (use ordinary release, modified release not recommended)

Pio = pioglitazone. ***If using pioglitazone, note contraindications, below.***

MONOTHERAPY

Move to this step if HbA1c rises above 48/6.5% with lifestyle alone

START metformin

(if not tolerated try modified release metformin)

Aim to get HbA1c to 48/6.5%

FIRST INTENSIFICATION

(dual therapy)

Move to this step if HbA1c ≥58/7.5% (or individualised target not met)

ADD second drug:

Metformin + any TABLET EXCEPT repaglinide

Options therefore are:

Metformin + SU

Metformin + gliptin

Metformin + pioglitazone

Metformin + gliflozin

(only if SU not tolerated/ contraindicated)

Aim to get HbA1c to 53/7%

SECOND INTENSIFICATION

(triple therapy or insulin)

Move to this step if HbA1c ≥58/7.5% (or individualised target not met)

ADD third drug

Metformin + SU + gliptin

Metformin + SU + pio

Metformin + SU + gliflozin

Metformin + pio + gliflozin

OR

Consider insulin therapy

(see separate article on insulins)

Aim to get HbA1c to 53/7%

FURTHER INTENSIFICATION

Insulin intensification

OR

if triple therapy contraindicated, not tolerated or not effective

AND

meet strict criteria for use, (see below) consider:

Metformin + SU + GLP-1 mimetic

BOTTOM STAIRCASE: USE IF MEFORMIN CONTRAINDICATED OR NOT TOLERATED

If metformin contraindicated or not tolerated

MONOTHERAPY

(without metformin)

Move to this step if HbA1c rises above 48/6.5% with lifestyle alone

Start ONE of:

Sulphonylurea
Gliptin
Pioglitazone
Repaglinide

Aim to get HbA1c to:

48/6.5% if on gliptin/pio

53/7% if on SU/repaglinide

FIRST INTENSIFICATION

(dual therapy without metformin)

Move to this step if HbA1c ≥58/7.5% (or individualised target not met)

Use any 2 of the following drugs:

Sulphonylurea

Gliptin

Pioglitazone

Stop repaglinide, if using

(licensed only as monotherapy or with metformin)

Aim to get HbA1c to 53/7%

SECOND INTENSIFICATION

(without metformin)

Move to this step if HbA1c ≥58/7.5% (or individualised target not met)

Consider INSULIN

(see separate article on insulins)

Contraindications for pioglitazone (more in section 'An overview of the drugs used in diabetes')

- Uninvestigated frank haematuria/risk of/PMH of bladder cancer
- Heart failure/risk of failure
- Fractures
- Care in elderly (fracture/failure/cancer risk increased)

NICE remind about MHRA guidance: review effectiveness of pioglitazone 3–6m into therapy and stop if control not achieved.

Criteria for GLP-1 mimetic

- BMI ≥35 AND weight-related co-morbidities/psychological issues.
- BMI <35 AND EITHER insulin would have significant occupational implications OR weight loss would improve other weight-related co-morbidities.
- **Continue GLP-1 mimetics only if over first 6m of use 3% fall in weight AND 11mmol/1% fall in HbA1c is achieved.**

Comparing diabetic drugs

Costs are based on 1m at maximum dose.

(Acarbose not included: NICE found insufficient evidence for its use/evidence of ineffectiveness).

Drug	Risk of hypos	Weight change	Safety issues (including use in renal impairment)
Metformin *<£2* *Modified release £17*	None	Loss	• **Cardiovascular benefits.** • **In renal impairment:** ○ eGFR<45: review dose. ○ eGFR<30: stop.
Pioglitazone *<£2*	Rare	Gain	• **Use with care in the elderly, where all risks detailed below are more significant.** • **Bladder cancer concerns** (Drug Safety Update 2011;5(1):A1): ○ Contraindicated if PMH bladder cancer. ○ Assess for known risks of bladder cancer before starting: age, smoking, exposure to some occupational chemotherapeutic agents, pelvic irradiation. Large cohort study confirmed this risk. Dose and duration dependent. Absolute risk increase small (32/100 000 person years) (BMJ 2016;352:i1541). • **Heart failure** (Drug Safety Update 2011;4(6):A2): ○ Absolutely contraindicated in heart failure. ○ Use with care if at risk of heart failure (especially elderly). • **Fractures** (Lancet 2009;373:2125, BMJ 2009;339:b4731) ○ Women only? Arm or distal leg fractures. Cause unclear. • In renal impairment: safe.
Sulphonylureas (gliclazide) *<£5*	Yes	Gain	• **No significant concerns identified.** • **Increased risk of hypos especially in those on warfarin.** • **In renal impairment: increased risk of hypoglycaemia.**
Repaglinide *<£6*	Yes	Gain	• **No significant concerns identified.** • **Avoid in liver disease: excreted in bile.** • In renal impairment: safe.
Gliptins (DPP4 inhibitors) *(also called incretins)* *£31–34*	Rare	Neutral	• **Pancreatitis: warn all patients of symptoms:** persistent severe abdominal pain sometimes radiating to the back. Risk 1 in 100 to 1 in 1000 (Drug Safety Update 2012;6(2):A3). • No increased risk **of pancreatic cancer (BMJ 2016;352:i581).** • **Liver toxicity: rare.** • **Heart failure: possible small increased risk of admission with heart failure:** around 8/1000 people/5y (confidence intervals mean that could be between 0 and 16 extra cases/1000/5y (meta-analysis BMJ 3016;352:i610). Although another meta-analysis showed no increased risk (NEJM 2016;374:1145). • **In renal impairment:** linagliptin safe, reduced dose for other gliptin (see SPC).
Gliflozins (SGLT-2 inhibitors) *Around £36*	Rare	Loss	• **Life-threatening diabetic ketoacidosis (DKA) AT ONLY MODERATELY RAISED BLOOD SUGARS (<14mmmol/l).** MHRA advises: ○ Inform **all patients of symptoms and signs of DKA** (nausea, vomiting, anorexia, abdominal pain, excessive thirst, difficulty breathing, confusion, fatigue, sleepiness). ○ Clinicians to test for ketones in patients presenting with these symptoms, even if blood sugar is only mildly elevated. • **Possible CV and renal benefits and risk of amputation discussed later.** • **In renal impairment:** ○ Dapagliflozin: GFR<60: do not use. ○ Cana and empagliflozin: do not start if eGFR<60. If stable on drug and eGFR drops to 45–6, may continue it (see SPC).
GLP-1 mimetics *(also called incretins)* *£50–70*	Rare	Loss	• **No significant concerns identified.** • Because of cost, NICE sets strict criteria for use (see later). • **In renal impairment:** ○ Liraglutide: eGFR<30: do not use. ○ Exenatide and lixisenatide: eGFR 30-50 use with caution. eGFR<30: do not use.

Based on SPC, BNF, NICE guidance, MHRA data DTB (2013;51(9):98) NEJM (2015;373:232) and BMJ (2012;344:e1213)