Treatment Algorithm for blood glucose control in adults with type 2 diabetes in primary care

See next page for notes and treatment algorithm in patients if metformin is not tolerated / contra-indicated

Lifestyle intervention is crucial

If HbA1c ≥ 48 mmol/mol (6.5%) with lifestyle alone

First line monotherapy: Start METFORMIN (if eGFR >45ml/min, ser Creat <130 micromol/l)
- Titrate dose every 2 weeks to maximum tolerated dose to reduce incidence of side-effects. See Surrey PAD advice
- If not tolerated, try metformin MR

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

First intensification (dual therapy) 3:
Consider using a patient decision aid to guide choice of treatment
METFORMIN + SULPHONYLUREA or
METFORMIN + GLIPTIN or
METFORMIN + SGLT-2* or
(*) if sulphonylurea contraindicated/not tolerated, or patient at risk of hypo/s
METFORMIN + PIOGLITAZONE

➢ Aim for HbA1c ≤ 48 mmol/mol (6.5%) or individualised target

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

Second intensification (triple therapy or insulin) 3:
METFORMIN + GLIPTIN + SULPHONYLUREA or
METFORMIN + SULPHONYLUREA + PIOGLITAZONE or
METFORMIN + SGLT-2 + SULPHONYLUREA or
METFORMIN + PIOGLITAZONE + SGLT-2* or
(∗ except dapagliflozin)
METFORMIN + INSULIN THERAPY (isophane insulin 1st line) (review the need for other blood glucose lowering therapy)

➢ Aim for HbA1c ≤ 53 mmol/mol (7%) or individualised target

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

Further intensification:
METFORMIN + INSULIN BASED INTENSIFICATION
(Review the need for other blood glucose lowering therapy)
or
If triple therapy contraindicated, not tolerated, or not effective AND meet strict criteria for use consider:
METFORMIN + SULPHONYLUREA + GLP-1 mimetic

➢ Aim for HbA1c ≤ 53 mmol/mol (7%) or individualised target

Specialist initiation only:
GLP-1 mimetic + INSULIN THERAPY

Criteria for GLP-1 use:
✓ BMI ≥35 AND weight related co-morbidities psychological issues
✓ BMI ≥35 AND insulin would have significant occupational implications
OR
Weight loss would improve other weight related co-morbidities

Continue only: If 3% fall in weight AND 11mmol/mol fall in HbA1c by 6 months

Preferred choices:
• SULPHONYLUREA = gliclazide
** GLIPTIN (or DPP-4i) = sitagliptin, (linagliptin in patients with deteriorating renal function where there is a risk that dose reduction of sitagliptin may not take place)
• SGLT-2 = empagliflozin
• GLP-1 mimetic = lixisenatide, liraxglutide (dualaglutide if once weekly injection needed)

Safety reminder:
✓ Check MHRA contraindications and warning for pioglitazone, SGLT-2s, DPP-4s (gliptins) and GLP-1s
✓ Use SGLT-2 initiation checklist on Surrey PAD

Adopt an individualised approach to treatment and HbA1c targets

Symptomatic hyperglycaemia
(and/or weight loss)
Test urine ketones, initially or at any stage, consider:
SULPHONYLUREA Or early use of INSULIN
Review once blood glucose controlled

Monitoring:
✓ Check HbA1c after patient been on maximum tolerated dose for 3 months; intensify if HbA1c >target
✓ Check 6 monthly once HbA1c and blood glucose lowering treatment are stable
✓ Reassess needs and circumstances at each review, consider stopping treatments that are not working

At review:
✓ Check adherence to diet, lifestyle and medication
✓ Assess emotional and psychological needs
✓ Review and consider stopping treatments that are not working
✓ Consider substituting with an alternative hypoglycaemic agent
✓ Review HbA1c target
✓ Assess hypoglycaemia risk
✓ Reinforce importance of diet and lifestyle changes
✓ CV risk managed
✓ Retinopathy screening
✓ Check feet
✓ Kidney function – eGFR and albumin:creatinine ratio (ACR)

Prescribing Clinical Network for Surrey and Crawley, Horsham and Mid-Sussex CCGs

Refer to appendix for information on drug combinations and use in renal and hepatic impairment
Treatment Algorithm for blood glucose control in adults with type 2 diabetes in primary care - if metformin is not tolerated / contra-indicated

**Lifestyle intervention is crucial**

If HbA1c ≥ 48 mmol/mol (6.5%) with lifestyle alone

First line monotherapy 1:
- SULPHONYLUREA or GLIPTIN or SGLT-2 (if sulphonylurea or pioglitazone is not appropriate)

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

First intensification (dual therapy) 2,3:
- Consider using a patient decision aid to guide choice of treatment
- SULPHONYLUREA + GLIPTIN or SULPHONYLUREA + PIOGLITAZONE or GLIPTIN + PIOGLITAZONE or SGLT-2 + INSULIN THERAPY (isophane insulin 1st line)

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

Second intensification (insulin therapy) 3:
- INSULIN THERAPY (isophane insulin 1st line)
  (Review the need for other blood glucose lowering therapy)

If HbA1c ≥ 58 mmol/mol (7.5%) or individual target not met

Further intensification:
- INSULIN BASED INTENSIFICATION
  (Review the need for other blood glucose lowering therapy)
- Consider + SGLT-2
  (NICE recommend adding SGLT-2 as an option)

- Aim for HbA1c ≤ 48 mmol/mol (6.5%) if on glititin or SGLT-2
- Aim for HbA1c ≤ 53 mmol/mol (7%) if on sulphonylurea or individualised target

Notes:
1. Repaglinide is a clinically effective and cost-effective alternative for monotherapy, however is not licensed with non-metformin combinations at first intensification. No recommendation is made in the guidelines, as there is little usage in Surrey.
2. NICE does not make a recommendation on the place of SGLT-2 therapy at first intensification in non-metformin pathway, due to absence of studies.
3. GLP-1s are not recommended by NICE at first or second intensification because of their high cost. There is an absence of studies using GLP-1s other than with metformin and sulphonylureas.
4. There is limited evidence for treatment intensification options for people for whom metformin is contraindicated or not tolerated.

**Adopt an individualised approach to treatment and HbA1c targets**

Symptomatic hyperglycaemia initially or at any stage, consider:
- SULPHONYLUREA or INSULIN
  Review once blood glucose controlled

**Monitoring:**
- Check HbA1c after patient been on metformin pathway, due to absence of studies.
- Review individualised goals.
- Reassess needs and circumstances at each review, consider stopping treatments that are not working.

**At review:**
- Check adherence to diet, lifestyle and medication
- Assess emotional and psychological needs
- Review and consider stopping treatments that are not working
- Consider substituting with an alternative hypoglycaemic agent
- Review HbA1c target
- Assess hypoglycaemia risk
- Reinforce importance of diet and lifestyle changes
- CV risk managed
- Retinopathy screening
- Check feet
- Kidney function – eGFR and albumin:creatinine ratio (ACR)

**Safety reminder:**
- Check MHRA contraindications and warning for pioglitazone, SGLT-2
- Use SGLT-2 initiation checklist on Surrey PAD

**Preferred choices:**
- SULPHONYLUREA = gliclazide
- **GLIPTIN (or DPP-4) = sitagliptin,** (linagliptin, in patients with deteriorating renal function where there is a risk that dose reduction of sitagliptin may not take place)
- SGLT-2 = empagliflozin
- GLP-1 mimetic = lixisenatide, liraglutide ( dulaglutide if once weekly injection needed)
- cost-effective choice in italics

Refer to appendix for information on drug combinations and use in renal and hepatic impairment

Agreed by Surrey PCN Feb 2018; review date Feb 2021
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