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

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

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

## Lifestyle intervention is crucial

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

**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

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

**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

**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 ≤ 53 mmol/mol (7%) 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
OR
✓ ***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

**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)

**Safety reminder:**

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

**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*, 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**

# 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**

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

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

**First line monotherapy** [1]:
SULPHONYLUREA *or*
GLIPTIN *or*
SGLT-2 (if sulphonylurea or piogllitazone is not appropriate)

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

**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)

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

**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)

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

**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 ≤ 53 mmol/mol (7%) or individualised target

**Symptomatic hyperglycaemia** initially or at any stage, consider:
SULPHONYLUREA Or 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
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- ✓ 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-2s, DPP-4is (gliptins) and GLP-1s
- ✓ Use SGLT-2 initiation checklist on Surrey PAD

**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-2therapy 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.

**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*, 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
(**Updated June 2022)