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| **Drug treatment of type 2 diabetes in primary care- SUMMARY SHEET****Please see** [**Surrey PAD**](http://pad.res360.net/PAD/Search) **for full treatment guidance (based on NICE NG28)** |

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| **Symptomatically hyperglycaemic** (initially or at any stage of treatment):* Consider insulin initiation or a sulphonylurea. Review drug treatment once blood glucose controlled

**Monitoring (check summary of product characteristics for the medication before initiating-**[**https://www.medicines.org.uk/emc/**](https://www.medicines.org.uk/emc/)**) :*** 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 treatments are stable
* Each review- **Re-inforce lifestyle interventions**, consider adherence and stopping treatments that are not working
* \*\*\*\*REMEMBER\*\*\*\* - [MHRA contraindications and warnings for pioglitazone, SGLT-2s, DPP-4is, exenatide](https://www.gov.uk/drug-safety-update?therapeutic_area%5B%5D=endocrinology-diabetology-metabolism)
* **\* INDIVIDUALISE TREATMENT for all PATIENTS \*( frail elderly usually have higher targets than those below)**
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| **Abbreviation** | **Other name** | **PREFERRED CHOICES** |
| SU | Sulphonylurea | **Gliclazide** |
| Gliptins | DPP-4i | **Sitagliptin, alogliptin and if severe renal impairment use linagliptin**  |
| SGLT-2 | Gliflozins | **Empagliflozin (See** [**Surrey PAD advice**](http://pad.res360.net/Content/Documents/SGLT2%20inhibitors%20-%20initiation%20checklist%20-%20Jan%2016.xlsx) **for initiation checklist)** |
| GLP-1 mimetics  |  | **Liraglutide, lixisenatide and dulaglutide** |

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| 1. **Treatment pathway if metformin tolerated**
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|  |  | Move to this step if HbA1c ≥ 58 mmol/mol (7.5%) or individualised target not met | **Further intensification** |
|  |  | **Metformin plus**:**Insulin based intensification**(isophane insulin 1st line)± other **oral medications***Or* , consider:**Metformin + SU + GLP-1**If triple therapy contraindicated, not tolerated, or not effective ***AND***Patient meets criteria for use* 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 mimetic ONLY if 3% fall in weight AND 11 mmol/mol (1%) fall in HbA1c achieved in 6 months |
|  | Move to this step if HbA1c ≥ 58 mmol/mol (7.5%) or individualised target not met | **Second intensification**(insulin or triple therapy) |
| Move to this step if HbA1c ≥ 48 mmol/mol (6.5%) with lifestyle alone | **First intensification**(dual therapy) | **Metformin plus**:**SU + Pioglitazone***Or***SU + Gliptin***Or***SU+ SGLT-2***Or***Pioglitazone + SGLT-2***Or* A Cautioned use with pioglitazone due to potential increased bladder cancer risk.**Insulin therapy** (isophane insulin 1st line)**±oral medications** |
| **Monotherapy** | **Metformin plus**:**SU***Or***Gliptin***Or***Pioglitazone***Or***SGLT-2** (if SU contra-indicated/not tolerated or patient at risk of hypos) |
| **Start Metformin**Titrate dose every 2 weeks to maximum tolerated dose to reduce incidence of side-effects. [See Surrey PAD advice](http://pad.res360.net/Content/Documents/Metformin_titration%20guidance%20-%20Apr%202016.pdf)**If not tolerated, try metformin MR before considering alternative therapy** |
| *Target HbA1c ≤ 48 mmol/mol (6.5%) or individualised target* | Target HbA1c ≤ 53 mmol/mol (7%)or individualised target |  |
| 1. **Treatment pathway if metformin contra-indicated/not tolerated**
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|  |  | Move to this step if HbA1c ≥ 58 mmol/mol (7.5%) or individualised target not met | **Further intensification** |
|  |  | **Insulin intensification**(isophane insulin 1st line)± **oral medications** |
|  | Move to this step if HbA1c ≥ 58 mmol/mol (7.5%) or individualised target not met | **Second intensification**(insulin therapy) |
| Move to this step if HbA1c ≥ 48 mmol/mol (6.5%) with lifestyle alone | **First intensification**(dual therapy) | **Insulin based therapy**(isophane insulin 1st line)± **oral medications** |
| **Monotherapy** | **SU plus pioglitazone***Or***SU + Gliptin***Or***Gliptin + Pioglitazone***Or***SGLT-2 + SU (or pioglitazone)** |
| **Start: SU***Or***Gliptin***Or***SGLT-2** (if SU or pioglitazone is not appropriate) A Cautioned use with pioglitazone due to potential increased bladder cancer risk. |
| *Target HbA1c: ≤ 48 mmol/mol (6.5%) (* ***If on SU ≤ 53 mmol/mol (7%) ) or individualised target*** | *Target HbA1c ≤ 53 mmol/mol (7%) or individualised HbA1c target* |

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| **Comparison of different classes of drugs for individualising therapy in type 2 diabetes** |

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| **Hypoglycaemic agent** | **Efficacy (↓HbA1c)** | **Hypoglycaemia** | **Weight** | **Side effects** | **Costs\*\*** |
| **Metformin** | **Reduces HbA1C by 5 - 11 mmol/mol (0.5 to 1%) on average** | Low risk | Loss (~ 0.5 – 2 kg) | GastrointestinalVitamin B12 deficiency,Lactic acidosis | Low |
| **Sulphonylureas (Gliclazide)** | Moderate risk | Gain (~1 - 3kg) | GastrointestinalHypoglycaemia | Low |
| **Pioglitazone A** | Low risk | Gain (~ 1.5–3.5kg) | Bone fracturesBladder cancerHeart failurePeripheral oedema | Low |
| **DPP-4 inhibitors (Gliptins)** | Low risk | Neutral | GastrointestinalPancreatitisSevere joint pain | Medium |
| **GLP-1 mimetics** | Low risk | Loss (~1 - 3kg) | GastrointestinalPancreatitis | High |
| **SGLT-2s inhibitors (Gliflozins)A** | Low risk | Loss (~ 1 – 3kg) | Genitourinary infections,DehydrationLife threatening diabetic ketoacidosis (with normal or moderately raised blood glucose)Lower limb amputation (with canagliflozin) | Medium |
| **Insulin** | Highest | High risk | Gain (~ 2 - 5kg)(weight gain can be minimised by managing eating) | Hypoglycaemia | Medium to high |

 **\*Costs:** Low< £100 per year ; Medium >£100 and <£500 per year ; High>£500 per year A see dapagliflozin summary of product characteristics: <https://www.medicines.org.uk/emc/product/2865/smpc>