



INSULIN INITIATION AND INTENSIFICATION PATHWAY FOR TYPE 2 DIABETES MELLITUS

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given above, is: Dr Edel Casey

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Insulin Initiation and intensification pathway

When to start Insulin:

When other measures no longer achieve adequate blood glucose control to HbA1c <59mmol/mol (7.5 %) or other higher level agreed with the individual, discuss the benefits and risks of insulin therapy. Start insulin therapy if the patient agrees.¹

Strong indications for insulin therapy include: 2

- symptoms of hyperglycaemia such as polyuria, thirst, recurrent fungal infections (especially genital thrush) or bacterial infections (especially urine infections)
- pregnancy or planning pregnancy
- oral hypoglycaemic treatments not tolerated/contra-indicated
- weight loss without dieting in someone of low or normal weight

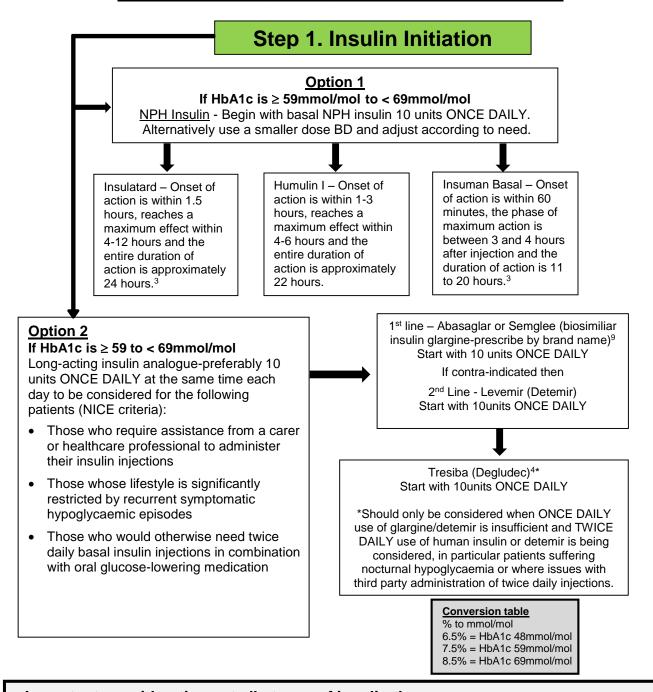
Possible indications for insulin therapy include:

- unsatisfactory glycaemic control even with the maximum tolerated dose of oral hypoglycaemic agents (OHAs) (HbA1c higher than 59mmol/mol, self blood glucose monitoring results higher than 7mmols before meals or 9mmols two hours after meals)
- personal preference
- painful neuropathy
- foot ulceration and infection

When starting insulin therapy, use a structured programme employing active insulin dose titration that encompasses: ¹

- structured education
- continuing telephone support
- frequent self-monitoring
- dose titration to target
- dietary understanding
- management of hypoglycaemia
- management of acute changes in plasma glucose control
- support from an appropriately trained and experienced healthcare professional.
- Ensure appropriate local arrangements are in place for the disposal of sharps.
- Offer education to a person who requires insulin about using an injection device (usually a
 pen injector and cartridge or a disposable pen) that they and/or their carer find easy to use. If
 a person has a manual or visual disability and requires insulin, offer an appropriate device or
 adaptation that can be used successfully
- Issue insulin passport (where available)

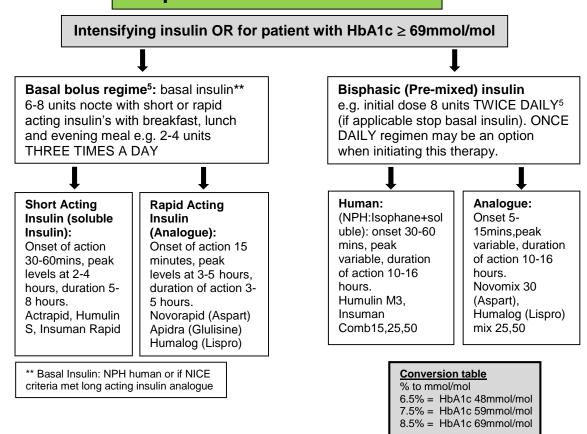
Insulin Therapy for Type 2 Diabetes Mellitus



Important considerations at all stages of insulin therapy:

- Reassess psychological issues and any lifestyle changes (diet & exercise). Reassess medication if BMI is ≥ 35 (patient is likely to be insulin resistant). Refer to Diabetes Team
- Give/obtain appropriate support, discuss and agree treatment change to insulin
- Prescribe insulin by brand name only
- Include dose information on all insulin prescriptions
- Adjust dose daily using self-monitoring blood glucose titration chart to achieve target fasting blood glucose (4.0-7.0mmol/ L) weekly or twice weekly. Postprandial (1-2 hours after meals) aim up to 8.0-9.0mmol/L⁵
- Continue treatment with Metformin (please ensure creatinine < 150umol/l and eGFR > 30 ml/minute/1.73m2)⁵
- Glitazones (if wish to continue, please discuss risks with patient and Diabetes Team) *Note:* Risk of heart
 failure, weight gain, fluid retention, anaemia, risk of bladder cancer (check urine for blood at least twice yearly,
 if positive, stop Glitazones, rule out infection and consider referral to urologist.)
- Review or substitute other medications (GLP1, Gliptins, SGLT2) and/or interventions as appropriate i.e. Refer
 to obesity clinic. Be aware of the risk of euglycaemic DKA if starting an SGLT-2i.
- Review the use of sulphonylurea if hypoglycaemia occurs: preferably discontinue use or reduce dose.

Step 2. Insulin Intensification



Intensifying Insulin

Intensification of insulin therapy can cause weight gain which may be avoidable.

Note:

- 1. Insulin doses are for guidance only and should be adjusted as per patient's requirements.
- 2. If patients insulin requirement is >1 unit / kg please refer to secondary care possible insulin resistance and worsening metabolic syndrome
- 3. NICE recommends beginning with human NPH insulin.
- 4. Patients on animal (pork, bovine) insulin if well controlled may continue.
- 5. Please be aware that some human insulins may not be available in pen or cartridge form.
- 6. If any concerns please refer to GPwSI / DSN or secondary care

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Step 3. Referral to Secondary Care

Further intensifying insulin OR for patient with HbA1c ≥ 69mmol/mol



- Patient requires single dose of insulin > 60 units
 OR total daily dose > 200 units
 - Patient BMI>35

Initiation by Hospital Consultant Only and to be continued in primary care.

- Xultophy (combination of insulin degludec and liraglutide)⁶
- Tresiba (Insulin degludec 200 units/ml) ⁴
- Toujeo (Insulin glargine 300units/ml)⁷
- Exenatide (used in combination with Insulin)1
- Dulaglutide (used in combination with or without Insulin)⁸

Key to abbreviations used:

BMI - Body Mass Index

DSN - Diabetes Specialist Nurse

GPwSI – General Practitioner with Specialist Interest

NPH - Neutral protamine Hagedorn (intermediate acting insulin)

DKA - Diabetic ketoacidosis

SGLT2i- Sodium Glucose Co-transporter 2 inhibitor e.g. dapagliflozin

GLP 1 - Glucagon-like Peptide-1 receptor agonists e.g. exenatide

References:

- 1. NICE guideline NG28 (2015) www.nice.org.uk
- 2. Starting injectable treatment in adults with Type 2 diabetes RCN guidance for nurses
- 3. http://www.medicines.org.uk
- 4. NICE Evidence summary ESNM25 (2013), www.nice.org.uk
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- 6. NICE Evidence summary ESNM60 (2015), www. Nice.org.uk
- 7. NICE Evidence summary ESNM65 (2015), www.nice.org.uk
- 8. NICE Evidence summary ESNM59 (2015), www.nice.org.uk
- 9. NICE Evidence summary ESNM64 (2015), www.nice.org.uk