

Starting Insulin

What is the best insulin regimen to use?

Start with qhs insulin (NPH, glargine, detemir) as it is Effective, Convenient, Easy for the patient to accept and Easier to initiate than multiple daily doses.

Should oral therapy be continued?

Typically, combination therapy (metormin +/- sulfonylurea) can lead to improved glucose control with less weight gain than with insulin alone. **Insulin + metformin offers the greatest synergy for clinical effect and the lowest risk for weight gain and hypoglycemia.¹**

Should I use NPH, glargine or detemir?

All three have equal effects on glucose control in Type 2 DM. **Glargine and detemir may be associated with modest reductions in hypoglycemic events but are more costly.¹**

Why qhs insulin versus qam, meal-time or bid dosing with a short-acting/long-acting insulin combination?

The combination of short-acting/long-acting insulin is sometimes necessary (higher HbA1c values), but will cause more weight gain and hypoglycemia. It is easier to use these more complex regimens after patients have become comfortable with insulin and the associated monitoring.^{2, 3, 4, 5}

If HbA1c is > 7% but the FPG is < 7 mmol/L, NPH/glargine/detemir may need to be given qam or Regular/Lispro/Aspart may need to be given at mealtimes.

Tips for making it easier to start insulin.

1. Getting patient “buy-in” to use insulin.

- Start the insulin discussion early and work to change the perception that “insulin ≠ amputation, death or failure”
 - Provide information pertaining to the benefits of insulin therapy.
- Sell it as a “trial” or “temporary experiment” for a specified time-frame (e.g., 1 month)
- Give the patient time to get comfortable with loading and working the pen (preferred) or syringe before actually starting the injections.
- Link the patient to community support Certified Diabetes Educator (CDE) or collaborative support (RN, NP, pharmacist) in your office/community in case questions or concerns arise.

2. Before starting the injections, link the patient to a qualified person to help provide education on the injections and the meters.

- This can be a designate within your office (RN, NP, DM Case Manager, CDE), a referral to a local Diabetes Education Centre (wait-times are variable), a local CDE in the community (contact CDA for local pharmacist CDEs) and/or homecare assistance (CCAC).
- A pharmacist can also provide counseling on medication use and supplies.

3. Consider referring the patient to a dietician for nutritional counseling.

Getting started with insulin.^{6,7}

1. Refer to RN/NP/CDE for injection/meter teaching

2. Consider dietician for nutrition counselling

3. Consider CCAC for homecare assistance

- Continue oral therapy, especially metformin +/- sulphonylurea
- Start insulin at 10 units NPH, glargine or detemir⁸
- Patient should check pre-breakfast blood sugars every morning
- Increase by 1 unit per day if FPG > 7 mmol/L
 - The patient can be taught to do this on their own or can be advised by yourself or designate in your office (e.g., RN, NP, pharmacist) via periodic telephone follow-up.
- Continue increasing insulin dose until FPG consistently < 7 mmol/L or until desired target
- Repeat HbA1c in approximately 3 months
- If HbA1c still > 7%; consider the impact of other highs in the day:
 - ↑ PM blood sugars: may need bid regimen
 - ↑ Post-meal blood sugars: may need short-acting with meals

For certain patients, it may be safer to aim for “sub-optimal” ranges to avoid risk of hypoglycemia with tighter control. (e.g., high risk for hypoglycemic complications, poor awareness of hypoglycemia, unable to adhere to complicated regimens, unable to treat hypoglycemia)

| Insulin | Availability | Cost* |
|---------------------|----------------------------------|----------|
| Novolin NPH | 100 units/ml – 10 ml vial | \$23.99 |
| | NovoPen Penfill – 5 x 3ml | \$44.99 |
| Humulin NPH | 100 units/ml – 10 ml vial | \$21.99 |
| | StyloPen Penfill – 5 x 3ml | \$44.99 |
| Lantus** (Glargine) | 100 units/ml – 10 ml vial | \$71.99 |
| | Penfill – 5 x 3ml | \$139.99 |
| | Prefilled Solostar Pen – 5 x 3ml | \$139.99 |
| Levemir** (Detemir) | Penfill – 5 x 3 ml vial | \$139.99 |

* Costs are based on retail pharmacy drug prices per unit (1 vial or 1 box)
 ** Not an ODB benefit; ICR required

Prescription Example:

Novolin NPH Penfill 3ml
 100 units/ml cartridge
 Disp: 1 box (= 5 cartridges)
 3ml x 5
 Instructions: Use as Directed

Note: References for this tool can be accessed at www.effectivepractice.org (click on Projects)