

Appendix D: Insulin Types

This chart has been updated and replaces the chart on pages 72 and 73 of the original guideline.

Insulin Type (trade name)	Onset	Peak	Duration	Considerations	Insulin Compatibility
Rapid-acting analogue (clear) Humalog (insulin lispro) NovoRapid (insulin Aspart) Apidra (insulin glulisine)	10 – 15 min 10 – 15 min 10 – 15 min	1 – 2 h 1 – 1.5 h 1 – 1.5 h	3.5 – 4.75 h 3 – 5 h 3 – 5 h	Client should eat within 10–15 minutes of injection.	Rapid-acting insulin can be mixed with N, NPH. Mixture should be given within 15 minutes of a meal.
Short-acting (clear) Humulin R Novolin ge Toronto	30 min	2-3 h	6.5 h	Should be given 30 to 45 minutes prior to meals	
Intermediate-acting (Cloudy) Humulin N Novolin ge NPH	1 – 3 h	5 – 8 h	Up to 18 h	Must be adequately re-suspended before injecting	N or NPH & short-acting insulin may be mixed & used immediately or stored, refrigerated, for future use. Pre-filled syringes should be stored in the fridge, with needle tips up. They are stable for 1 month. NPH or N cannot be mixed with Lantus or Levemir insulin.
Long-acting analogues (Clear) Lantus (insulin glargine) Levemir (insulin detemir)	90 min	Not applicable	Up to 24 h (glargine 24 h, detemir 16 – 24 h)	Lantus is available in vials, cartridges & pre-filled disposable pens (SoloStar). Levemir is only available in cartridges. Both Lantus and Levemir are clear. Clients must be alerted to the potential danger of confusing Lantus or Levemir with other clear insulins (rapid or short-acting insulins). Use of pre-filled syringes are not recommended	Glargine and Levemir cannot be mixed with any other insulin or solution.
Premixed (cloudy) A single vial contains a Fixed ratio of insulin (% rapid or short-acting to % of intermediate acting insulin)	See rapid or short	See intermediate		Must be adequately re-suspended before injecting. If using a rapid-acting mixture, client must eat within 15 minutes of injecting. If using a short acting mixture, client should eat within 30 minutes of injecting.	Should not be mixed with any other insulin

**Action times are “estimates” only. Action times depend on the individual, the injection site & the type of insulin used. There can be approximately a 45% variation in daily absorption from the same site in the same person with intermediate- acting insulin (Weiland & White, 2002).

Pre-filled syringes should be stored in the fridge, with needle tips up. They are stable for one month and need to be re-suspended prior to use. Allow insulin to get to room temperature prior to injecting to avoid a “cold” sensation.

Additional Literature:

Canadian Diabetes Association Clinical Practice Guidelines Expert Committee, 2008
Novo Nordisk Canada Inc., 2008
Sanofi-Aventis Canada, 2009