

Diabetes

Type 1: Pancreas is not producing insulin so they will need insulin. Only 5% of diabetics are type I.

Type 2: Decreased peripheral responsiveness to insulin. Weight reduction through diet and exercise can be used to improve glycemic control.

Med	Route	Onset (hours)	Peak (hours)	Duration (hours)
Novolog	Subcu	0.2-0.3	1-3	3-5
Lantus	Subcu	3-4	No peak	24 hours or more
Levemir	Subcu	3-4	3-9	6-23 (dose dependent)

- **Hemoglobin A1C** measures the average blood sugar over the past three months. A reasonable treatment goal includes an A1C of 7 or less (154 average, while 9 = 212, 11 = 269, 13 = 326. Goes up by about 29 per one increase in A1C).
- **Metformin:** A good first line agent for type II diabetics that works by increasing peripheral responsiveness to insulin, decreases GI glucose absorption, and decreases hepatic glucose production. Mainly excreted in urine, watch for LA in those with renal disease or receiving contrast.
- **Glycemic control** by itself will reduce only microvascular complications (renal failure, retinal photocoagulation) but not macrovascular (CVA, MI). However, the behavioral modifications that lead to tighter glycemic control will lower macrovascular complications as well.
- **DKA vs HHS:** The major difference is the acidosis (VBG is sufficient and the pH is within 0.03 of ABG) that is present in DKA and there is a larger fluid deficit in HHS. If you see elevated anion gap and elevated blood sugar please ensure we are addressing the hyperglycemia.
- **Potassium:** Patients with hyperglycemia can quickly become K deficient (especially those in HHS/DKA). We do not want to start IV insulin gtt's if K is below 3.3. It is not abnormal to supplement these patients with K even if it is in the normal range, especially in DKA (many will provide K if less than 5.3 for DKA). As potassium becomes deficient so does magnesium.
- **IVF:** Hyperglycemia will lead to an osmotic diuresis as the kidney tries to eliminate sugar. IVF can significantly lower the sugar and allow the kidney to continue to filter sugar out of the body.
- **Question:** Are there different high and low limits of when a patient should notify their doctor? For highs, this will differ for every patient depending on their control. I would say regardless of how poorly controlled they are any sugar > 300 should be recorded (if someone traditionally has very good control they may want to make their doctor aware of > 250 or even >200 at their next appointment). For lows, certainly any low that causes symptoms (the more frequent a patient experiences symptoms, the lower their sugar will need to get to experience symptoms). The patient should ultimately ask their private physician what numbers should be their alert numbers.