

PALLIATIVE PEARLS

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Switching or Deprescribing Insulins: When & How June 2022

Diabetes therapy traditionally focuses on tight glycemic control to lower the long-term risk of developing complications such as retinopathy, kidney disease, and neuropathy. At the end of life, preventing long-term complications is no longer the goal, and tight glycemic control is not recommended because it places patients at risk of hypoglycemia. For patients remaining on insulin, it's important to continually assess and adapt insulin therapy accordingly.¹⁻³

WHEN SHOULD INSULIN BE ADAPTED FOR PATIENTS WITH ADVANCED DISEASE?

When eating habits becomes sporadic or meals are missed and/or capacity to administer injections changes, insulin therapy must be reassessed. Avoiding hypoglycemia requires familiarity with the patient's daily oral intake, support in the home for injections, and an understanding of the insulin's properties. Below you'll find guidance on the appropriate insulin type based on patient eating habits. It's important that patients continuing insulin therapy on hospice be assessed for capacity to administer frequent injections independently or with support in the home.

For patients with **sporadic eating habits** or those that miss meals due to nausea and/or vomiting or anorexia, use **rapid-acting insulin**.^{4,5}

- Onset: 10-30 minutes; Duration: 3-5 hours
- Insulin lispro (Humalog[®], Admelog[®] & Lyumjev)
- Insulin aspart (NovoLog[®] & Fiasp[®])
- Insulin glulisine (Apidra[®])

For patients with **variable oral intake** (or in whom oral intake is diminishing), use **short-acting (i.e., regular) insulin**.^{4,5}

- Onset: 30 minutes; Duration: 8 hours
- Human insulin (rDNA origin) 100 units/ml (Humulin[®] R, Novolin[®] R)
- Human insulin (rDNA origin) 500 units/ml (Humulin[®] R)

For patients with **stable oral intake** and a history of glucose control on rapid-acting or short-acting insulins, use **intermediate-acting (i.e., NPH) insulin**.^{4,5}

- Onset: 90 minutes; Duration: up to 24 hours
- Human (rDNA) isophane (Humulin[®] N, Novolin[®] N)

...or long-acting insulin:^{4,5}

- Onset: 60-120 minutes; Duration: ≥24 hours
- Insulin glargine 100 units/ml (Lantus[®], Basaglar[®], Semglee[®])
- Insulin glargine 300 units/ml (Toujeo[®])
- Insulin detemir (Levemir[®])
- Note: Long-acting insulins may cause less hypoglycemia as they have no significant peak effect

Place in therapy for hospice patients has not been established for **ultra long-acting insulin** (insulin degludec (Tresiba[®])). **Insulin mixtures** (Novolog Mix[®] 70/30, Humalog Mix[®] 75/25, Humalog Mix[®] 50/50, Humulin[®] 70/30, Novolin[®] 70/30) are typically initiated in treatment-naïve patients. Patients on hospice may be maintained on these therapies while stable, however, it is rare to convert other insulin therapies into an insulin mixture regimen.

HOW TO MAKE THE SWITCH

Switching insulins must be performed with prescriber approval and close monitoring. Blood glucose monitoring may or may not be a part of the patient's care plan so it's important that both the clinician and patient/caregiver recognize the signs and symptoms of hypoglycemia in the absence of this measure (See Enclara's [Management of Hypoglycemia: Quick Facts](#) and [Understanding Hypoglycemia: Signs & Symptoms](#)).

Insulin is a biologic and switching between biologic products, even different brands of the same type of insulin, may require the pharmacist to contact the prescriber first for authorization.

The below insulin switching guidance is classified by clinical scenario (e.g., patient is currently using NPH insulin, and we want to switch to a long-acting insulin is summarized with the title, "From NPH to Long-acting"). For simplicity, this discussion will not include guidance on concentrated insulins (e.g., Human insulin (rDNA origin) 500 units/ml (Humulin[®] R), insulin glargine 300 units/ml (Toujeo[®]) nor the management of insulin pumps.

Rapid-acting TO/FROM Rapid-acting⁶

- NovoLog[®], Fiasp[®], Apidra[®], Humalog[®], Admelog[®] or Lyumjev[®] TO/FROM NovoLog[®], Fiasp[®], Apidra[®], Humalog[®], Admelog[®] or Lyumjev[®]
 - Convert unit-per-unit

Regular TO/FROM Regular⁶

- Humulin[®] R or Novolin[®] R TO/FROM Humulin[®] R or Novolin[®] R
 - Convert unit-per-unit

Regular TO/FROM Rapid-acting⁶

- Humulin[®] R or Novolin[®] R TO/FROM NovoLog[®], Fiasp[®], Apidra[®], Humalog[®], Admelog[®] or Lyumjev[®]
 - Convert unit-per-unit

FROM Regular TO NPH or Long-acting⁶

- Humulin[®] R/Novolin[®] R TO Humulin[®] N/Novolin[®] N or Levemir[®]/Lantus[®]/Basaglar[®]/Semglee[®]
 - Add up the total daily dose of regular insulin and start with 50% of the dose as NPH (divided twice daily) or long-acting (once daily)

FROM NPH TO Long-acting⁶

- Humulin[®] N or Novolin[®] N TO Levemir[®]
 - Convert unit-per-unit
- Humulin[®] N or Novolin[®] N TO Lantus[®], Basaglar[®] or Semglee[®]
 - Using NPH once daily: convert unit-per-unit
 - Using NPH twice daily: reduce total daily dose by 20% and give long-acting insulin once daily

FROM Long-acting TO NPH⁶

- Levemir[®] or Lantus[®] TO Humulin[®] N or Novolin[®] N
 - Convert unit-per-unit, or reduce dose by 20%, and give NPH twice daily (e.g., 50:50 or 2/3 in AM and 1/3 before dinner or at bedtime)
- Basaglar[®] or Semglee[®] TO Humulin[®] N or Novolin[®] N
 - No specific information to guide Basaglar[®] or Semglee[®] to NPH switch. Consider same conversion as Lantus[®], given Lantus[®]/Basaglar[®]/Semglee[®] dose equivalency.

FROM Long-acting TO Long-acting⁶

- Lantus[®] TO/FROM Basaglar[®] or Semglee[®]
 - Convert unit-per-unit
- Levemir[®] TO/FROM Lantus[®], Basaglar[®] or Semglee[®]
 - Convert unit-per-unit

FROM NPH or Long-acting TO Premixed⁶

- Humulin[®] N/Novolin[®] N or Levemir[®]/Lantus[®]/Basaglar[®] TO Humulin[®] 70/30, Novolin[®] 70/30, Humalog Mix[®] 75/25, or NovoLog Mix[®] 70/30
 - Switch to premix twice daily. Give same total daily dose as NPH or Long-acting but give 2/3 in the morning and 1/3 with dinner, or give half with breakfast and half with dinner.
- No specific information to guide switch from Semglee[®]. Consider conversion as for other NPH/long-acting products, given Semglee[®] dose equivalency to other insulin glargine 100 unit/mL products.

FROM Premixed TO NPH⁶

- Humulin[®] 70/30, Novolin[®] 70/30, Humalog Mix[®] 75/25, or NovoLog Mix[®] 70/30 TO Humulin[®] N or Novolin[®] N
 - Add up the total units used per day and give 70% to 75% as NPH or reduce total dose by 20%. Give NPH twice daily (e.g., 50:50 or 2/3 in AM and 1/3 before dinner or at bedtime).
 - Give 25% to 30% of each premix dose as prandial insulin (regular or rapid-acting analog) before meal(s)

FROM Premixed TO Long-acting⁶

- Humulin[®] 70/30, Novolin[®] 70/30, Humalog Mix[®] 75/25, or NovoLog Mix[®] 70/30 TO Levemir[®], Lantus[®], or Basaglar[®]
 - Add up the total units for each dose and give 70% to 75% as long-acting insulin, or reduce dose by 20%. Give long-acting insulin once daily or divided twice daily (Levemir[®]).
 - Give 25% to 30% of each premix dose as prandial insulin (regular or rapid-acting analog) before meal(s)
 - No specific information to guide switch to Semglee[®]. Consider conversion as for other long-acting products, given Semglee[®] dose equivalency to other insulin glargine products.

Premixed Human (NPH/Regular) TO/FROM Premixed Analog (Protamine/Rapid-Acting)⁶

- Humulin[®] 70/30 or Novolin[®] 70/30 TO/FROM Humalog Mix[®] 75/25 or NovoLog Mix[®] 70/30
 - Convert unit-per-unit, or reduce dose by 20%
 - Premix analogs have a faster onset, but similar duration compared to human premixes

DISCUSSING CHANGES IN THERAPY

When indicated and based upon patient's goals, recommend reducing dose or changing non-insulin hypoglycemic and/or insulin therapy to prevent hypoglycemia. Use positive language and offer options as described in the sample scripts below:

"We often find that persons with diabetes and advanced illness may not benefit from their diabetic medication like they once did. I'm concerned that you are at risk for low blood sugars because of changes in your medications and diet. I'd like to review how to recognize and treat low blood sugar..."

"I'm worried that your mom's blood sugar is running low, and her eating habits are irregular. Let's discuss changing some of her diabetes medications."

"It sounds like it's hard for you to consider stopping your dad's diabetes medications. Can I share what my experiences have been?"

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