

# Transition Algorithm from I.V. to S.Q. Insulin for Patients with Diabetes or Hyperglycemia



**GOALS: NPO or PO**  
 FPG 100-130 mg/dL  
 2h pp <180 mg/dL  
 AC <140 mg/dL  
 Avoid hypoglycemia

**GOALS: TPN or Enteral**  
 <180 mg/dL  
 Avoid hypoglycemia

**Transition From I.V. to S.Q. Insulin<sup>1-4</sup>**

- Patient's Total Daily Dose (TDD) = Sum of the previous 4 hours x 5**  
 (This will provide ~80% of the current insulin infusion)  
*Note: If patient was nondiabetic and using <1 unit per hour, insulin can be discontinued*
- Give one-time injection of Basal Insulin<sup>5-7</sup> + Bridging Dose<sup>8</sup> of aspart, lispro or glulisine**  
 Basal dose = TDD  
 Bridge dose = 10% of TDD
- Stop IV insulin infusion**
- Start patient on pathway 1, 2, 3 or 4<sup>1-3</sup> depending on route or number of meals per day**

**1 Patient will not start eating**  
 Prandial<sup>8</sup> Insulin = None  
 Basal<sup>5</sup> Insulin = TDD q AM

**2 Patient eats <3 meals/day**  
 Each prandial dose = 10% TDD  
 Basal Insulin: 90%TDD if 1 meal  
 Basal Insulin: 80%TDD if 2 meals

**3 Patient will eat 3x per/day**  
 Prandial Insulin = 1/2TDD ÷ t.i.d. AC  
 Basal Insulin = 1/2TDD q AM

**4 TPN or Enteral Nutrition**  
 TPN: Use R insulin; Dose = 80% TDD  
 May add part or all to TPN bag  
 Tube feeding:  
 Continuous rate  
 Basal insulin = TDD  
 Intermittent feedings  
 Basal<sup>5</sup> insulin = 1/2 TDD  
 Prandial<sup>8</sup> insulin = 1/2 TDD ÷ t.i.d. AC

**Changing Basal<sup>5</sup> Insulin**  
 Adjust Each Morning

FPG	Insulin Change
<60 mg/dL	- 4 units
60-80	- 2
81-99	- 1
100-130	No Change
131-140	+ 2
141-160	+ 4
161-180	+ 6
>180	+ 8

**Changing Prandial<sup>8</sup> Insulin**

- Add/subtract to prandial dose if glucose is ↑/↓ before meal
- Use alone to correct any random high glucose

FPG	TDD	TDD	TDD
	<40 units/d	~40-80 units/d	>80 units/d
<60	- 2 unit	- 3 unit	- 4 unit
60-99	- 1	- 2	- 2
100-139		No Change	
140-199	+ 1	+ 1	+ 2
200-249	+ 2	+ 3	+ 4
250-299	+ 3	+ 5	+ 7
300-349	+ 4	+ 7	+10
>349	+ 5	+ 8	+12

**Changing Prandial or Basal Insulin**

Any glucose <80 ↓ insulin 20%  
 All glucose 80-179 No Change  
 Any glucose ≥180 ↑ insulin 10%

**Correcting Hyperglycemia**

- Use prandial insulin q4-6 h
- Dose: see "Changing Prandial Insulin"

**Footnotes:**

- www.diabetes.org/for-health-professionals-and-scientists/insulin-administration.jsp,
- Donaldson S, et al. Diabetes Educator. 2006;32:954
- Hirsch IB. Insulin. 2006;1(Suppl A):S18-24
- DeSantis AL, et al. Endocrine Practice. 2006;12:491-505
- Basal insulin = glargine or detemir
- If patient is transferred out of the unit in the later evening and will begin eating in the A.M. give half the basal dose and all of the bridging dose. Begin full basal dose the next morning.
- If NPH is used, then give 2/3 of the TDD and distribute as 2/3 in the morning and 1/3 at bedtime.
- Aspart, lispro or glulisine is recommended because the action profiles better approximate normal physiology. Regular insulin may be substituted.

**Reevaluate Total Daily Dose of Insulin**

- Recalculate the TDD every 1-2 days as the doses of insulin are adjusted.
- The ratio of basal to prandial insulin should be approximately 50:50