Insulin Algorithm for Type 1 Diabetes Mellitus in Children and Adults

**Split-Mix Insulin Therapies**
1. Two shots: NPH + Reg or RAI
   - 2:1 ratio AM; 1:1 ratio PM
2. Three shots: AM: NPH + Reg or RAI
   - PM: Reg or RAI
   - HS: NPH
3. Two shots Premix
   - 2/3 AM + 1/3 PM

**Total Daily Insulin**: 0.3-0.5 units/kg/day, and titrate to glycemic targets

**Glycemic Goals**
- Individualize goal based on patient risk factors
- HbA1c <6% <7% <8%
- FPG ≤110 120 140 mg/dL
- 2h PP ≤130 180 180 mg/dL

**Intensive Insulin Therapy (IIT)**
- Premix: Glargine Qd or Detemir Qd-BID
- Bolus: RAI (or Reg) before each meal: If meal skipped, skip dose.

**Premeal insulin dose includes**:
1. Insulin to cover carbohydrate ingested; 1 unit RAI covers 500/tdi grams carbohydrate from meal
2. Additional insulin to correct for high SMBG; 1 unit RAI lowers PG by approximately 1800/tdi mg/dL. (Reg lowers PG by ~1500/tdi)
3. Consider adjustment for exercise

**Total Daily Insulin**: 0.3-0.5 units/kg/day and titrate to glycemic targets

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**Footnotes**

1. Consider referring all type 1 patients to pediatric/adult endocrinologist/comprehensive diabetes specialty team, and consider continuous glucose monitoring. If insulin pump therapy is considered—refer to Certified Pump Trainer.
3. Modern glucose meters give values corrected to plasma glucose.
4. Most type 1 patients need IIT to attain glycemic targets; IIT may be by SQ multiple injection or by SQ continuous insulin pump.
5. Dosages may differ in children and adolescents.
6. Twice daily dosing may be required at low basal insulin doses.
7. Strongly recommend referral to Registered/Licensed Dietitian or Certified Diabetes Educator with experience in diabetes nutrition counseling.
8. Consider decreasing 1 unit for every 30 minutes of vigorous physical activity.
9. IMPORTANT: See package insert for dosing.

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**Abbreviations**

- **BASAL**: Glargine or Detemir
- **BOLUS (Prandial)**:
  - Reg: Regular Insulin (peak action 3-4 hrs)
  - RAI: Rapid Acting Insulin = Aspart, Glulisine, or Lispro (peak action 1-1 ½ hrs)
- **PPG**: Post-Prandial Glucose
- **SMBG**: Self-monitored blood glucose
- **TDI**: Total daily insulin dosage in units

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**Pramlintide**
- Consider as adjunct therapy to insulin in patients unable to stabilize PPG.