Glycemic Control Algorithm For Type 2 Diabetes Mellitus In Adults

**Glycemic Goals**
Individualize goal based on patient risk factors

<table>
<thead>
<tr>
<th>A1c</th>
<th>≤6%</th>
<th>&lt;7%</th>
<th>&lt;8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPG</td>
<td>≤110</td>
<td>120</td>
<td>140 mg/dL</td>
</tr>
<tr>
<td>2h PP</td>
<td>≤130</td>
<td>180</td>
<td>180 mg/dL</td>
</tr>
</tbody>
</table>

**Initial Intervention**
1. Diabetes Self-Management Education and
2. Self-monitored Blood Glucose and
3. Medical Nutrition, Weight Control, Exercise and
4. Monotherapy if A1c <1% above goal otherwise Dual Therapy (optimize therapy as tolerated)

**Goals not met after 3 months of optimized therapy**

If A1c < 1% above goal:
- If on monotherapy → add second agent (oral or GLP-1)
- If on dual therapy → add third agent (oral or GLP-1 or insulin)

If A1c ≥ 1% above goal:
- If on monotherapy → add second agent +/- once-daily insulin OR add two non-insulin agents (oral or GLP-1)
- If on dual therapy → add third agent (oral or GLP-1) OR add insulin

**Goals Achieved**
Continue Therapy
A1c every 3-6 months

**Recommended Options for Dual Therapy**
- Metformin
  - TZD or DPP-4 or SU or GLP-1 or Meglitinide or colesevelam

**Recommended Options for Triple Therapy**
- Metformin
  - TZD or SU
  - GLP-1 or DPP-4 or AGi or colesevelam

**Abbreviations**
- AGi: Alpha-glucosidase inhibitors
- DPP-4: Dipeptidyl peptidase-4 Inhibitor
- FPG: Fasting plasma glucose
- GLP-1: Glucagon-like peptide-1 agonist
- PP: Postprandial
- SU: Sulfonylurea
- T2D: Thiazolidinedione

**Footnotes**
1. **Intensify management if:** Absent/stable cardiovascular disease, mild-moderate microvascular complications, intact hypoglycemia awareness, infrequent hypoglycemic episodes, recently diagnosed diabetes.
2. **Less intensive management if:** Evidence of advanced or poorly controlled cardiovascular and/or microvascular complications, hypoglycemia unawareness, vulnerable patient (ie, impaired cognition, dementia, fall history). Refer to TDC “A1c Goal” treatment strategy for further explanation. A1c is referenced to a non-diabetic range of 4-6% using a DCCT-based assay. ADA Clinical Practice Recommendations. Diabetes Care 2010;33(suppl 1):S19-20.
3. If initial A1c on presentation is ≥10%, consider the use of insulin, with or without oral agents, as the initial intervention (see Insulin Algorithm). Other agents may be introduced as glycemic control improves. If ketoacidosis or recent rapid weight loss, consider Type 1 diagnosis.
4. These interventions should be maintained life-long; (refer to Medical Nutrition, Weight Loss, and Exercise Algorithms).
5. If a SU is selected, low dose glipizide ER or glimepiride are recommended because they have a lower incidence of hypoglycemia than glyburide.
6. Refer to Insulin Algorithm for Type 2 Diabetes Mellitus in Children and Adults / Initial Insulin Therapy for Type 2 Diabetes Mellitus in Children and Adults: A Simplified Approach.
GLYCEMIC CONTROL BIBLIOGRAPHY

Recent Review Articles


Dual Therapy

Metformin or Sulfonylurea + Acarbose

Metformin + Pioglitazone

Metformin + Rosiglitazone

Sulfonylurea + Pioglitazone

Sulfonylurea + Rosiglitazone

Metformin or Sulfonylurea + Exenatide


Nateglinide or Repaglinide + Metformin

Repaglinide + Metformin

Nateglinide + Metformin

Nateglinide + Thiazolidinedione


Repaglinide + Thiazolidinedione

Liraglutide + Metformin

Liraglutide + Sulfonylurea
Marre M, Shaw J, Brändle M, Bebakar WM, Kamaruddin NA, Strand J, Zdrevakov M, Le Thi TD, Colagiuri S; LEAD-1 SU study group. Liraglutide, a once-daily human GLP-1 analogue, added to a sulphonylurea over 26 weeks produces greater improvements in glycaemic and weight control compared with adding rosiglitazone or placebo in subjects with type 2 diabetes (LEAD-1 SU). Diabet Med. 2009 Mar;26(3):268-78.

Triple Therapy
Sulfonylurea + Metformin + Alpha glucosidase inhibitors


Sulfonylurea + Metformin + Thiazolidinedione

**Sulfonylurea + Metformin + Exenatide**


**Liraglutide + Metformin and TZD**

**Liraglutide + Metformin and Sulfonylurea**

**Colesvelam**
