AACE/ACE Diabetes Algorithm For Glycemic Control

**Lifestyle Modification**

- **A1C 6.5 – 7.5%**
  - **MonoTherapy**
    - MET
    - DPP4
    - GLP-1
    - TZD
    - AGI
    - 2 - 3 Mos.***
  - **Dual Therapy**
    - MET
    - GLP-1 or DPP4
    - TZD
    - Gilide or SU
    - Colesevelam
    - AGI
    - 2 - 3 Mos.***
  - **Triple Therapy**
    - MET
    - GLP-1 or DPP4
    - TZD
    - Gilide or SU
    - 2 - 3 Mos.***

- **A1C 7.6 – 9.0%**
  - **Dual Therapy**
    - MET
    - GLP-1 or DPP4
    - TZD
    - Gilide or SU
    - 2 - 3 Mos.***
  - **Triple Therapy**
    - MET
    - GLP-1 or DPP4
    - TZD
    - Gilide or SU
    - 2 - 3 Mos.***

- **A1C > 9.0%**
  - **Drug Naive**
    - Symptoms
    - No Symptoms
  - **Under Treatment**

AACE/ACE Algorithm for Glycemic Control

Cochairpersons:
Helena W. Rodbard, MD, FACP, MACE
Paul S. Jollinger, MD, MACE
Zachary T. Bloomgarder, MD, FACP, MACE
Jaime A. Davidson, MD, FACP, MACE
Daniel Einhorn, MD, FACP, FACE
Alan J. Garber, MD, PhD, FACE
James R. Gavin III, MD, PhD
George Grunberger, MD, FACP, FACE
Yehuda Handelsman, MD, FACP, FACE
Edward S. Horton, MD, FACE
Harold Lebovitz, MD, FACE
Philip Levy, MD, MACE
Elsa S. Moghissi, MD, FACP, FACE
Stanley S. Schwartz, MD, FACE

* May not be appropriate for all patients
** For patients with diabetes and A1C < 6.5%, pharmacologic Rx may be considered
*** If A1C goal not achieved safely
† Preferred initial agent
1 DPP4 if ↑ PPG and ↓ FPG or GLP-1 if ↑ PPG
2 TZD if metabolic syndrome and/or nonalcoholic fatty liver disease (NAFLD)
3 AGI if ↑ PPG
4 Gilide if ↓ PPG or SU if ↑ FPG
5 Low-dose secretagogue recommended
6 a) Discontinue insulin secretagogue with multidose insulin
b) Can use pramlintide with prandial insulin
7 Decrease secretagogue by 50% when added to GLP-1 or DPP-4
8 If A1C < 8.5%, combination Rx with agents that cause hypoglycemia should be used with caution
9 If A1C > 8.5%, in patients on Dual Therapy, insulin should be considered

Available at www.aace.com/pub

© AACE December 2009 Update. May not be reproduced in any form without express written permission from AACE
## Table 1: Summary of Key Benefits and Risks of Medications

Benefits are classified according to major effects on fasting glucose, postprandial glucose, and nonalcoholic fatty liver disease (NAFLD). Eight broad categories of risks are summarized. The intensity of the background shading of the cells reflects relative importance of the benefit or risk.*

<table>
<thead>
<tr>
<th>Medications*</th>
<th>Metformin (MET)</th>
<th>DPP4 Inhibitor</th>
<th>GLP-1 Agonist (Incretin Mimetic)</th>
<th>Sulfonylurea (SU)</th>
<th>Glinide**</th>
<th>Thiazolidinedione (TZD)</th>
<th>Colesevelam</th>
<th>Alpha-glucosidase inhibitor (AGI)</th>
<th>Insulin</th>
<th>Pramlintide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postprandial Glucose (PPG) - lowering</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderate to Marked</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Mild</td>
<td>Mild</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Fasting glucose (FPG) - lowering</td>
<td>Moderate</td>
<td>Mild</td>
<td>Mild</td>
<td>Moderate</td>
<td>Mild</td>
<td>Moderate</td>
<td>Mild</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Marked</td>
</tr>
<tr>
<td>Nonalcoholic fatty liver disease (NAFLD)</td>
<td>Mild</td>
<td>Neutral</td>
<td>Mild</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td><strong>Risks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Mild</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Gastrointestinal Symptoms</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Moderate</td>
</tr>
<tr>
<td>Risk of use with renal insufficiency</td>
<td>Severe</td>
<td>Reduce Dosage</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Mild</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Unknown</td>
</tr>
<tr>
<td>Contraindicated in Liver Failure or Predisposition to Lactic Acidosis</td>
<td>Severe</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>Heart failure / Edema</td>
<td>Use with caution in CHF</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Mild / Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral unless with TZD</td>
<td>Neutral</td>
</tr>
<tr>
<td>Weight Gain</td>
<td>Benefit</td>
<td>Neutral</td>
<td>Benefit</td>
<td>Mild</td>
<td>Mild</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Mild to Moderate</td>
<td>Benefit</td>
</tr>
<tr>
<td>Fractures</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>Drug-Drug interactions</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
</tbody>
</table>

* The abbreviations used here correspond to those used on the algorithm (Fig. 1).
** The term ‘glinide’ includes both repaglinide and nateglinide.