ADA 2019: T2DM Glycemic Goals & Glucose-Lowering Guidelines

Silvio E. Inzucchi MD
Yale School of Medicine
New Haven, CT
Presenter Disclosure Information

In compliance with the accrediting board policies, the American Diabetes Association requires the following disclosure to the participants:

Silvio E. Inzucchi MD

**Research Support:** NINDS, NIDDK, Boehringer-Ingelheim*, AstraZeneca*, Novo Nordisk*, Sanofi/Lexicon*, Eisai (TIMI Group*) (*clinical trial steering, executive or publications committees)

**Employee:** ---

**Board Member/Advisory Panel:** Astra Zeneca, VTV Therapeutics, Zafgen

**Stock/Shareholder:** ---

**Consultant:** ---

**Other:** Boehringer-Ingelheim (lectures)
Annually updated, the “Standards” intends to provide clinicians, patients, researchers, payers, and other interested individuals with the components of diabetes care, general treatment goals, and tools to evaluate the quality of care.
Management of Hyperglycemia in Type 2 Diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)

https://doi.org/10.2337/dc18-0033
A1c Goals (Targets) Recommendations

6.4 A reasonable A1C goal for many nonpregnant adults is <7% (53 mmol/mol). A

6.5 Providers might reasonably suggest more stringent A1C goals (e.g., <6.5%) for selected individual patients if can be achieved without significant hypo or other treatment adverse effects (i.e., polypharmacy). Appropriate patients: those with short duration of DM, T2DM treated with lifestyle or metformin only, long life expectancy, or no significant CVD. C

6.6 Less stringent A1C goals (e.g., <8%) may be appropriate for patients with a h/o severe hypo, limited life expectancy, advanced micro-/macrovascular complications, extensive comorbidities, or long-standing DM in whom goal is difficult to achieve despite self-management education, appropriate SMBG, and effective doses of multiple glucose-lowering agents including insulin. B

6.7 Reassess glycemic targets over time based on criteria in Figure 6.1 or, in older adults, Table 12.1. E
**Individualizing Glycemic Targets**

<table>
<thead>
<tr>
<th>Patient / Disease Features</th>
<th>More stringent</th>
<th>Less stringent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risks potentially associated with hypoglycemia and other drug adverse effects</td>
<td>low</td>
<td>high</td>
</tr>
<tr>
<td>Disease duration</td>
<td>newly diagnosed</td>
<td>long-standing</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>long</td>
<td>short</td>
</tr>
<tr>
<td>Important comorbidities</td>
<td>absent</td>
<td>few / mild</td>
</tr>
<tr>
<td>Established vascular complications</td>
<td>absent</td>
<td>few / mild</td>
</tr>
<tr>
<td>Patient preference</td>
<td>highly motivated, excellent self-care capabilities</td>
<td>preference for less burdensome therapy</td>
</tr>
<tr>
<td>Resources and support system</td>
<td>readily available</td>
<td>limited</td>
</tr>
</tbody>
</table>

Figure 6.1—Depicted are patient and disease factors used to determine optimal A1C targets. Characteristics and predicaments toward the left justify more stringent efforts to lower A1C; those toward the right suggest less stringent efforts. A1C 7% = 53 mmol/mol. Adapted with permission from Inauchi et al. [40].
# Treating Older Individuals with Type 2 Diabetes

<table>
<thead>
<tr>
<th>Patient characteristic and health status</th>
<th>Rationale</th>
<th>Reasonable A1C goal†</th>
<th>Fasting or preprandial glucose</th>
<th>Bedtime glucose</th>
<th>Blood pressure</th>
<th>Lipids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy (few coexisting chronic illnesses, intact cognitive and functional status)</td>
<td>Longer remaining life expectancy</td>
<td>&lt;8.5%‡</td>
<td>90–130 mg/dL (5.0–7.2 mmol/L)</td>
<td>90–150 mg/dL (5.0–8.3 mmol/L)</td>
<td>&lt;140/90 mmHg</td>
<td>Statin unless contraindicated or not tolerated</td>
</tr>
<tr>
<td>Complex/Intermediate (multiple coexisting chronic illnesses* or ≥2 instrumental ADL impairments or mild-to-moderate cognitive impairment)</td>
<td>Intermediate remaining life expectancy, high treatment burden, hypoglycemia vulnerability, fall risk</td>
<td>&lt;8.0%</td>
<td>90–150 mg/dL (5.0–8.3 mmol/L)</td>
<td>100–180 mg/dL (5.6–10.0 mmol/L)</td>
<td>&lt;140/90 mmHg</td>
<td>Statin unless contraindicated or not tolerated</td>
</tr>
<tr>
<td>Very complex/poor health (IOTC or end-stage chronic illnesses** or moderate-to-severe cognitive impairment or ≥2 ADL dependencies)</td>
<td>Limited remaining life expectancy makes benefit uncertain</td>
<td>&lt;7.5%</td>
<td>100–180 mg/dL (5.6–10.0 mmol/L)</td>
<td>110–200 mg/dL (6.1–11.1 mmol/L)</td>
<td>&lt;150/90 mmHg</td>
<td>Consider likelihood of benefit with statin (secondary prevention more so than primary)</td>
</tr>
</tbody>
</table>

This represents a consensus framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes. The patient characteristic categories are general concepts. Not every patient will clearly fall into a particular category. Consideration of patient and caregiver preferences is an important aspect of treatment individualization. Additionally, a patient’s health status and preferences may change over time. A lower A1C goal may be set for an individual if achievable without recurrent or severe hypoglycemia or undue treatment burden. *Coexisting chronic illnesses are conditions serious enough to require medications or lifestyle management and may include arthritis, cancer, congestive heart failure, depression, emphysema, falls, hypertension, incontinence, stage 3 or worse chronic kidney disease, myocardial infarction, and stroke. **Multiple means at least three, but many patients may have five or more (54). †The presence of a single end-stage chronic illness, such as stage 3–4 congestive heart failure or oxygen-dependent lung disease, chronic kidney disease requiring dialysis, or uncontrolled metastatic cancer, may cause significant symptoms or impairment of functional status and significantly reduce life expectancy. ‡A1C of 8.5% (69 mmol/mol) equates to an estimated average glucose of ~200 mg/dL (11.1 mmol/L). Looser A1C targets above 8.5% (69 mmol/mol) are not recommended as they may expose patients to more frequent higher glucose values and the acute risks from glycosuria, dehydration, hyperglycemic hyperosmolar syndrome, and poor wound healing. ADL, activities of daily living.
Glucose-Lowering Meds in T2DM: Overall Approach

**ESTABLISHED ASCVD OR CKD**

**ASCVD PREDOMINANT**

- GLP-1 RA with proven CVD benefit

**WHEN LIVER DISEASE PRESENT**

- DPP-4i
- GLP-1 RA
- SGLT2i

**IF HbA1c ABOVE TARGET**

- SGLT2i
- OR
- TZD

**CONTINUE WITH ADDITION OF OTHER AGENTS AS OUTLINED ABOVE**

**COMPELLING NEED TO MINIMISE HYPOGLYCAEMIA**

- GLP-1 RA with good efficacy for weight loss

- **EITHER/ OR**

- SU

**COST IS A MAJOR ISSUE**

- Insulin therapy basal insulin with lowest acquisition cost
- Consider DPP-4i OR SGLT2i with lowest acquisition cost
HbA1c target is generally <7% but should be individualized based on a variety of patient and disease factors.

Lifestyle and metformin first.

If additional glucose lowering therapy needed, choose 2\textsuperscript{nd} (and 3\textsuperscript{rd}) agent based on prevalent comorbidities/concerns:

- If ASCVD \rightarrow GLP-1RA or SGLT2i
- If HF or CKD \rightarrow SGLT2i
- If hypo would be a serious problem \rightarrow non-hypo med
- If weight is a big concern \rightarrow med that promotes weight loss
- If cost is a major issue \rightarrow generic med
ADA 2019: T2DM Glycemic Goals & Glucose-Lowering Guidelines

Silvio E. Inzucchi MD
Yale School of Medicine
New Haven, CT