Be aware

- EDUCATE patients to drive safely with diabetes
- DISCUSS POSSIBLE CAUSES and how to avoid future hypoglycemia
- CONSIDER medications with lower risk of hypoglycemia

Prevent

- EDUCATE on appropriate treatment and the need to have snacks nearby
- Keep fast-acting sugar within reach and other Prepare fast-acting sugar treatment available at all times

Recognize

- gliclazide, repaglinide:
- For patients using insulin or insulin secretagogues, e.g. glyburide, at risk of hypoglycemia
- Keeping patients safe when they are at risk
- ASSESS impact, including fear/intentional avoidance of lows

Act/Treat

- driving and treat if any symptoms appear during long drives. If BG is below 4 mmol/L, treat
- 40 minutes after hypoglycemia is resolved
- If a patient is unaware of symptoms of hypoglycemia, he/she must check their BG before driving and every 2 hours while driving, or
- Note: Brain function may not be fully restored until

Screen for complications:

- Other antihypertensive agents safe for pregnancy (Labetalol, nifedepine XL)
- Insulin if target A1C is not achieved on metformin and/or glyburide (type 2)
- Statins
- Non-insulin antihyperglycemic agents (except metformin and/or glyburide)

Stop:

- low, medium, or high?

Set personalized goals (see “individualized goal setting” panel)

A high level of importance will indicate that the person is ready to change.

If importance (motivation) is rated low, ask what would need to happen for importance to go up?

If their confidence is rated low, explore what needs to happen to increase their confidence. Usually this has to do with improving outcome here>

1. How important is it for you to
2. How confident are you in your ability to

For patients who are not making expected progress, try asking these 3 Quick questions to help your patients meet their goals

Examples

- low, medium, or high?
- A high level of importance will indicate that the person is ready to change.
- If importance (motivation) is rated low, ask what would need to happen for importance to go up?
- If their confidence is rated low, explore what needs to happen to increase their confidence. Usually this has to do with improving outcome here>

1. How important is it for you to
2. How confident are you in your ability to

Diabetes Canada | 1-800-BANTING (226-8464)
Screening and diagnosis of type 2 diabetes in adults

**Assess risk factors for type 2 diabetes ANNUALLY:**

- Family history (first-degree relative with type 2 diabetes)
- High risk populations (non-white, low socioeconomic status)
- History of GDM/prediabetes
- Cardiovascular risk factors
- Presence of end organ damage associated with diabetes
- Other conditions and medications associated with diabetes (see CPG Chapter 4, Screening for Diabetes in Adults, Table 1)

**Who to screen**

<table>
<thead>
<tr>
<th>Presence of risk factors</th>
<th>No risk factors</th>
<th>Age &lt;40 years or low-moderate risk*</th>
<th>Age ≥40 years or high risk* (33% chance of developing type 2 diabetes within 10 years)</th>
<th>No screen indicated</th>
<th>Screen every 3 years</th>
<th>Screen every 6 to 12 months</th>
</tr>
</thead>
</table>

**How to screen**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Dysglycemia category</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPG (mmol/L)</td>
<td>6.1 – 6.9</td>
<td>IFG</td>
</tr>
<tr>
<td></td>
<td>≥7.0</td>
<td>Diabetes</td>
</tr>
<tr>
<td>A1C (%)**</td>
<td>6.0 – 6.4</td>
<td>Prediabetes</td>
</tr>
<tr>
<td></td>
<td>≥6.5</td>
<td>Diabetes</td>
</tr>
</tbody>
</table>

If asymptomatic and A1C or FPG are in the diabetes range, repeat the same test (A1C or FPG) as a confirmatory test. If both FPG and A1C are available and only one is in the diabetes range, repeat the test in the diabetes range as the confirmatory test. If both A1C and FPG are available and are each in the diabetes range, diabetes is confirmed. If symptoms of overt hyperglycemia are present, diagnosis of diabetes can be determined with one test (A1C, FPG, 2hPG, random PG) in the diabetes range, see Chapter 3, CPG.

*Assuming a validated risk calculator (e.g., CANRISK)

**Use a standardized, validated assay. Be aware of factors that affect A1C accuracy (see CPG Chapter 9, Table 1)
**Use a standardized, validated assay. Be aware of factors that affect A1C accuracy (see CPG Chapter 9, Table 1).**

† see Diabetes in Older People chapter, p. S283

* based on class of antihyperglycemic medication(s) utilized and the person's characteristics

---

### Targets for glycemic control

<table>
<thead>
<tr>
<th>A1C%</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤6.5</td>
<td>Adults with type 2 diabetes to reduce the risk of CKD and retinopathy if at low risk of hypoglycemia*</td>
</tr>
<tr>
<td>≤7.0</td>
<td>MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES</td>
</tr>
<tr>
<td>7.1</td>
<td>Functionally dependent*: 7.1-8.0%</td>
</tr>
<tr>
<td>8.5</td>
<td>Recurrent severe hypoglycemia and/or hypoglycemia unawareness: 7.1-8.5%</td>
</tr>
<tr>
<td></td>
<td>Limited life expectancy: 7.1-8.5%</td>
</tr>
<tr>
<td></td>
<td>Frail elderly and/or with dementia*: 7.1-8.5%</td>
</tr>
<tr>
<td></td>
<td>Avoid higher A1C to minimize risk of symptomatic hyperglycemia and acute and chronic complications</td>
</tr>
</tbody>
</table>

---

End of life: A1C measurement not recommended. Avoid symptomatic hyperglycemia and any hypoglycemia.

* based on class of antihyperglycemic medication(s) utilized and the person's characteristics

† see Diabetes in Older People chapter, p. 5283
**Blood glucose-lowering therapies (type 2 diabetes)**

### At diagnosis of type 2 diabetes

- **HbA1C <15.0% above target**
  - Start healthy behaviors intervention (lifestyle therapy, weight management, physical activity)
  - **Insulin** may be required at any point for symptomatic hyperglycemia/metabolic decompensation

- **HbA1C ≥15.0% above target**
  - Start metformin immediately
  - Consider a second concurrent antihyperglycemic agent

- **HbA1C ≥7.0% above target**
  - Initiate insulin +/- metformin

- **HbA1C ≤6.5%**
  - A1C measurement not recommended
  - Avoid symptomatic hyperglycemia

### Targets for glycemic control

<table>
<thead>
<tr>
<th>A1C% Targets</th>
<th>Class</th>
<th>Effect on CVD outcomes</th>
<th>Weight Relative to Metformin</th>
<th>Other therapeutic considerations</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤6.5</td>
<td>Yes</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
<td>$35</td>
</tr>
<tr>
<td>6.5-7.0</td>
<td>Neutral</td>
<td>Hypoglycemia</td>
<td>Rare</td>
<td>Hypoglycemia/gastrointestinal discomfort</td>
<td>$35</td>
</tr>
<tr>
<td>7.1-8.5</td>
<td>Yes</td>
<td>Glucagon-like activity</td>
<td>Rare</td>
<td>Antagonists: Nausea</td>
<td>$35</td>
</tr>
<tr>
<td>≥8.5</td>
<td>Neutral</td>
<td>Hypoglycemia</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
<td>$35</td>
</tr>
</tbody>
</table>

### Add additional antihyperglycemic agent best suited to the individual by prioritizing patient characteristics

**Clinical Considerations**
- Patient characteristics (age, sex, family history, comorbid conditions)
- Risk factors for CVD

**Choice of Agent**
- Based on the following:
  - Hypoglycemic efficacy
  - GI side effects
  - Cost

**Add additional antihyperglycemic agent best suited to the individual based on the following:**

- **Clinical Considerations**
  - Patient characteristics (age, sex, family history, comorbid conditions)
  - Risk factors for CVD

- **Choice of Agent**
  - Hypoglycemic efficacy
  - GI side effects
  - Cost

---

**Add another antihyperglycemic agent from a different class and/or add/intensify insulin regimen**

- Multi-agent therapy (combination of different classes)
- Intensify insulin regimen

### Blood glucose-lowering therapies

<table>
<thead>
<tr>
<th>Class</th>
<th>Effect on CVD outcomes</th>
<th>Weight Relative to Metformin</th>
<th>Other therapeutic considerations</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPP-4 inhibitors</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>GLP-1 receptor agonists</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>SGLT2 inhibitors</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>Thiazolidinedi- ones</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>Alpha glucosidase inhibitors</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>Insulin</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>Sulfonylureas</td>
<td>Neutral</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
<tr>
<td>Weight loss agents</td>
<td>None</td>
<td>GI side effects: Nausea</td>
<td>Rare</td>
<td>Gastrointestinal discomfort</td>
</tr>
</tbody>
</table>
### Which cardiovascular protection medications are indicated for my patient?

<table>
<thead>
<tr>
<th>Does the patient have cardiovascular disease?</th>
<th>Statin&lt;sup&gt;1&lt;/sup&gt; + ACEi/ARB&lt;sup&gt;2&lt;/sup&gt; + ASA&lt;sup&gt;3&lt;/sup&gt; or Liraglutide, Empagliflozin or Canagliflozin&lt;sup&gt;4&lt;/sup&gt; (only for patients with type 2 diabetes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES: Cardiac ischemia (silent or overt)</td>
<td></td>
</tr>
<tr>
<td>YES: Peripheral arterial disease</td>
<td></td>
</tr>
<tr>
<td>YES: Cerebrovascular/carotid disease</td>
<td></td>
</tr>
<tr>
<td>NO: AND if the patient is NOT at glycemic target</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does the patient have microvascular disease?</th>
<th>Statin&lt;sup&gt;1&lt;/sup&gt; + ACEi/ARB&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES: Retinopathy</td>
<td></td>
</tr>
<tr>
<td>YES: Kidney disease (ACR ≥2.0)</td>
<td></td>
</tr>
<tr>
<td>YES: Neuropathy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is the patient:</th>
<th>Statin&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES: age ≥55 with additional CV risk factors?</td>
<td></td>
</tr>
<tr>
<td>NO: age ≥40?</td>
<td></td>
</tr>
<tr>
<td>NO: age ≥30 and diabetes &gt;15 years?</td>
<td></td>
</tr>
<tr>
<td>NO: warranted for statin therapy based on the Canadian Cardiovascular Society Lipid Guidelines?</td>
<td></td>
</tr>
</tbody>
</table>

---

1 Dose adjustments or additional lipid therapy warranted if lipid target (LDL-C <2.0 mmol/L) not being met.
2 ACE-inhibitor or ARB (angiotensin receptor blocker) should be given at doses that have demonstrated vascular protection (e.g., perindopril 8 mg once daily [EUROPA trial], ramipril 10 mg once daily [HOPE trial], telmisartan 80 mg once daily [ONTARGET trial]).
3 ASA should not routinely be used for the primary prevention of cardiovascular disease in people with diabetes. ASA may be used for secondary prevention. Consider clopidogrel if ASA-intolerant.
4 Canagliflozin: avoid in people with prior lower extremity amputation.
Keeping patients safe when they are at risk of hypoglycemia

For patients using insulin or insulin secretagogues, e.g. glyburide, gliclazide, repaglinide:

**Recognize**
- ASK at each visit
- ASSESS impact, including fear/intentional avoidance of lows
- SCREEN for hypoglycemia unawareness

**Act/Treat**
- EDUCATE on appropriate treatment and the need to have fast-acting sugar treatment available at all times

**Prevent**
- CONSIDER medications with lower risk of hypoglycemia
- DISCUSS POSSIBLE CAUSES and how to avoid future hypoglycemia

**Reduce Driving Risk**
- EDUCATE patients to drive safely with diabetes
- Prepare Keep fast-acting sugar within reach and other snacks nearby
- Be Aware of blood glucose (BG) before driving and every 4 hours during long drives. If BG is below 4 mmol/L, treat
- Stop driving and treat if any symptoms appear
- After treating a low, wait until BG is above 5 mmol/L to start driving again. Note: Brain function may not be fully restored until 40 minutes after hypoglycemia is resolved

If a patient is unaware of symptoms of hypoglycemia, he/she must check their BG before driving and every 2 hours while driving, or wear a real-time continuous glucose monitor
Keeping patients safe when they are at risk of dehydration (vomiting/diarrhea)

**Re-hydrate** appropriately (water, broth, diet soft drinks, sugar-free Kool-Aid™, diet Jell-O™, avoid caffeinated beverages).

**Hold SADMANS meds. Restart** once able to eat/drink normally.
- S sulfonylureas, other secretagogues
- A ACE-inhibitors
- D diuretics, direct renin inhibitors
- M metformin
- A angiotensin receptor blockers
- N non-steroidal anti-inflammatory drugs
- S SGLT2 inhibitors

**Special considerations for women with type 1 or type 2 diabetes**

Pregnancy should be planned, with the following steps taken prior to conception:
- **A1C** 7% or less, but strive for ≤6.5% (ensure contraception until at personalized target)
- **Stop:**
  - Non-insulin antihyperglycemic agents (except metformin and/or glyburide)
  - Statins
  - ACEi/ARB prior to pregnancy, but if overt nephropathy exists, continue until detection of pregnancy
- **Start:**
  - Folic acid 1 mg per day x 3 months prior to conception
  - Insulin if target A1C is not achieved on metformin and/or glyburide (type 2)
  - Other antihypertensive agents safe for pregnancy (Labetalol, nifedepine XL) if hypertension control needed
- **Screen for complications:**
  - Eye appointment, serum creatinine, urine ACR, blood pressure
  - Aim for **healthy BMI**
  - Ensure appropriate **vaccinations** have occurred
  - **Refer** to diabetes clinic
3 Quick questions to help your patients meet their goals

For patients who are not making expected progress, try asking these questions to identify a path forward:

1. **How important is it for you to** <insert self-management goal> - low, medium, or high?
   (Goal examples: increase levels of physical activity, reduce weight, improve A1C, lower BP)
   If importance (motivation) is rated low, ask what would need to happen for importance to go up?
   A high level of importance will indicate that the person is ready to change.

2. **How confident are you in your ability to** <insert target outcome here> - low, medium, or high?
   If their confidence is rated low, explore what needs to happen to increase their confidence. Usually this has to do with improving knowledge, skills or resources and support.
   A high level of confidence indicates that the person is ready to change.

3. **Can we set a specific goal for you to try before the next time we meet? What steps will you take to achieve it?**
   Encourage S.M.A.R.T. Goals:
   - Specific
   - Measurable
   - Achievable
   - Realistic
   - Timely
### Individualized goal setting

<table>
<thead>
<tr>
<th>Potential Self-management Goals</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eat healthier</td>
<td>See a dietitian to help develop a healthy eating plan.</td>
</tr>
<tr>
<td>Be more active</td>
<td>Increase physical activity with the goal of getting to 150 minutes aerobic activity/week and resistance exercise 2-3 times/week. Choose physical activity that meets preferences/needs.</td>
</tr>
<tr>
<td>Lose weight</td>
<td>Use strategies (e.g., reduce calories or portions) to lose 5-10% of initial weight.</td>
</tr>
<tr>
<td>Take medication regularly</td>
<td>Taking medication will help to improve symptoms and take control of your life. Consider using a pillbox or setting a timer.</td>
</tr>
<tr>
<td>Avoid hypoglycemia</td>
<td>Recognize the signs of hypoglycemia and take action to prevent it.</td>
</tr>
<tr>
<td>Check blood glucose</td>
<td>Establish a routine and act accordingly.</td>
</tr>
<tr>
<td>Check feet</td>
<td>Do a daily self-check and follow-up with a health-care provider if anything is abnormal.</td>
</tr>
<tr>
<td>Manage stress</td>
<td>Screen for distress (depressive and anxious symptoms) by interview or a standardized questionnaire (e.g., PHQ-9 <a href="http://www.phqscreeners.com">www.phqscreeners.com</a>).</td>
</tr>
<tr>
<td>Reduce or stop smoking</td>
<td>Identify barriers to quitting and develop a plan to address each of these.</td>
</tr>
</tbody>
</table>
## ABCDES of diabetes care

<table>
<thead>
<tr>
<th></th>
<th>GUIDELINE TARGET (or personalized goal)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>A1C targets</strong></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>BP targets</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
<td><strong>Cholesterol targets</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>Drugs for CVD risk reduction</strong></td>
</tr>
<tr>
<td><strong>E</strong></td>
<td><strong>Exercise goals and healthy eating</strong></td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>Screening for complications</strong></td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>Smoking cessation</strong></td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>Self-management, stress, other barriers</strong></td>
</tr>
</tbody>
</table>

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