### STOP DKA Protocol

**Symptomatic** (e.g. lethargy, loss of appetite, nausea, abdominal pain) → **STOP SGLT**

**Test** ketones* and glucose every 2-4 hours
(even if blood glucose is not elevated)

**Oral** ingestion of fluid and carbohydrates
(250–500 mL fluid every 2 hours and up to 30–60 g of carbohydrates every 2-4 hours)

**Protocol** instructions for supplemental insulin and carbohydrates
(see STOP DKA table)

*Ketosis/DKA may occur without an elevated blood glucose

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**Recognize the symptoms of DKA**
- Nausea | vomiting | abdominal pain | malaise | worsening polyuria | polydypsia | shortness of breath

**Avoid very low carbohydrate and ketogenic diets**

**Avoid excess alcohol**

**Exert caution with extreme exercise**

**Stop SGLT inhibitor at least 3 days prior to a major surgery**

**Never stop taking insulin**

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**Sick-day management**
- Stop SGLT inhibitor
- If symptomatic, check blood ketones and glucose
- Consult the **STOP DKA** table for supplemental bolus insulin and carbohydrate recommendations even if blood glucose is normal

**Keep hydrated during acute illness**
- Ingest at least 250–500 mL of sugar-free and/or carbohydrate-containing fluids every 2–4 hours

**Check insulin pump for potential delivery issue**
- Inject insulin subcutaneously if necessary

**Seek medical attention if**
- high levels of ketones persist despite extra insulin and/or increased carbohydrate intake over a 6–10 hours period
- vomiting
- unable to keep down fluids
- there are persistent symptoms of DKA

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**Source:** Sodium-glucose co-transporter inhibitors, their role in type 1 diabetes treatment and a risk mitigation strategy for preventing diabetic ketoacidosis: The STOP DKA Protocol. Diabetes Obes Metab. 2019;21:2192–2202

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**STOP DKA Considerations for Bolus Insulin and Carbohydrates**

(For moderate or higher ketones, consider increasing basal insulin by 20%-50% until ketones return to normal)

<table>
<thead>
<tr>
<th>KETONE level (mmol/L) and category</th>
<th>4.0–8.0 mmol/L (70–150 mg/dL)</th>
<th>8.1–14.0 mmol/L (151–250 mg/dL)</th>
<th>&gt;14 mmol/L (&gt;250 mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&lt;1.0 Normal or Mild</strong></td>
<td>• No extra insulin</td>
<td>• No extra insulin</td>
<td>• 5–10% TDD supplemental insulin or usual correction bolus plus usual bolus to cover carbohydrates</td>
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<tr>
<td></td>
<td>• Give usual bolus to cover carbohydrates plus usual correction</td>
<td>• Give usual bolus to cover carbohydrates plus usual correction</td>
<td></td>
</tr>
<tr>
<td><strong>1.0–1.4 Moderate</strong></td>
<td>• 5% TDD supplemental insulin plus usual bolus to cover carbohydrates</td>
<td>• 10% TDD supplemental insulin or 1.5x correction bolus plus usual bolus to cover carbohydrates</td>
<td>• 10% TDD supplemental insulin or 1.5x correction bolus plus usual bolus to cover carbohydrates</td>
</tr>
<tr>
<td></td>
<td>• 30–45 g carbohydrates every 2–4 h</td>
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<td>• 30–45 g carbohydrates every 2–4 h</td>
</tr>
<tr>
<td><strong>1.5–2.9 High</strong></td>
<td>• 10% TDD supplemental insulin plus usual bolus to cover carbohydrates</td>
<td>• 20% TDD supplemental insulin or 2x correction bolus plus usual bolus to cover carbohydrates</td>
<td>• 20% TDD supplemental insulin or 2x correction bolus plus usual bolus to cover carbohydrates</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td><strong>≥3.0 Extreme</strong></td>
<td>• 10% TDD supplemental insulin plus usual bolus to cover carbohydrates</td>
<td>• 20% TDD supplemental insulin or 2x correction bolus plus usual bolus to cover carbohydrates</td>
<td>• 20% TDD supplemental insulin or 2x correction bolus plus usual bolus to cover carbohydrates</td>
</tr>
<tr>
<td></td>
<td>• 45–60 g carbohydrates every 2–4 h</td>
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</tr>
</tbody>
</table>

⚠️ If symptoms are ongoing and/or you are unable to ingest fluids, go directly to the emergency department.

*Glucose values in mg/dL are not exact conversions from those in mmol/L to allow for round numbers. TDD = total daily insulin dose; usual bolus—usual bolus using insulin:carbohydrate ratio without correction. If supplemental insulin is calculated by both TDD and correction bolus methods, administer the amount that provides the higher dose of insulin.

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**Sources of 15 g Simple Carbohydrates (Fluid)**

- 150 mL (2/3 cup) regular soft drink
- 250 mL (1 cup) of sports drink
- 150 mL (~2/3 cup) of juice
- 125 mL (1/2 cup) of regular gelatin dessert
- 125 mL (1/2 cup) of apple sauce
- 75 mL (1 stick) of popsicle

**Sources of Sugar-free Fluids**

- Water
- Low or zero calorie drink mix
- Diet soft drink
- Tea
- Clear soup or broth

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