Once the person is feeling better and able to eat and drink for 24–48 hours, these medications should be restarted.

### SADMAN rules: There are several classes of drugs that should be temporarily stopped in conditions that could lead to complications

<table>
<thead>
<tr>
<th>Letter</th>
<th>Drug Class</th>
<th>Risk</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>SGLT2 inhibitors</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing euglycaemic DKA</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>ACE inhibitors</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI due to reduced renal efferent vasoconstriction</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Diuretics</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Metformin</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing lactic acidosis</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>ARBs</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>NSAIDs</td>
<td>If taken during an acute illness that can lead to dehydration, there is an increased risk of developing AKI due to reduced renal afferent vasodilation</td>
<td></td>
</tr>
</tbody>
</table>

Once the person is feeling better and able to eat and drink for 24–48 hours, these medications should be restarted.

### Signs of diabetic ketoacidosis
- Excessive thirst
- Polyuria
- Dehydration
- Shortness of breath and laboured breathing
- Abdominal pain
- Leg cramps
- Nausea and vomiting
- Mental confusion and drowsiness
- Ketones can be detected on the person’s breath (pear-drop smell) or in the blood or urine

**DKA occurs in type 1 diabetes and can occur in type 2 diabetes at times of severe illness or, rarely, in those on SGLT2 inhibitor therapy. It requires urgent hospital admission.**

### Signs of hyperosmolar hyperglycaemic state
- Typically seen after several days with glucose levels consistently above 30 mmol/L
- Disorientation or confusion
- Polyuria
- Thirst and dry mouth
- Nausea
- In the later stages, the person becomes drowsy and gradually loses consciousness

**HHS is potentially life-threatening and requires urgent admission to hospital.**

About this series
The aim of the “How to” series is to provide readers with a guide to clinical procedures and aspects of diabetes care that are covered in the clinic setting.

What and why
People with diabetes do not necessarily experience illness more often than those without; however, if the diabetes is not managed well during illness it can escalate and result in more serious conditions, such as diabetic ketoacidosis, hyperosmolar hyperglycaemic state and acute kidney injury, which will require emergency hospital admission. It is, therefore, vital that the right advice is given to manage the initial illness. The aims of managing a person with diabetes during intercurrent illness are to:
- Manage blood glucose levels
- Ensure adequate calorie intake and hydration with fluid replacement
- Test for and manage (if present) ketones
- Recognise when further medical attention is required

### Conditions that should trigger advice
Any intercurrent illness can cause glucose levels to rise. The following list of such illnesses is not exhaustive:
- The common cold
- Influenza
- Diarrhoea and vomiting
- Urinary tract infection
- Chest infection
- Pneumonia
- Abscess
- Injury (e.g. fracture)

**Author**
Su Down, Nurse Consultant
– Diabetes, Somerset Partnership NHS Foundation Trust, Somerset

**Citation:** Down S (2020) How to advise on sick day rules. Diabetes & Primary Care 22: 47–8
**Useful reading and leaflets**
- NICE CG169 - Acute kidney injury: prevention, detection and management
- TREND-UK – What to do when you are ill. Type 1 diabetes | Type 2 diabetes
- “Sick day” guidance in patients at risk of Acute Kidney Injury: A Position Statement from the Think Kidneys Board

**Advice for people on insulin**

**Feeling unwell?**

- **Type 2 diabetes?**
  - Test blood glucose at least 4 times a day.
  - Blood glucose less than 11 mmol/L
    - Take insulin as normal. Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)
  - Blood glucose more than 11 mmol/L
    - Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)

- **Type 1 diabetes?**
  - Test blood glucose and ketones every 4–6 hours, including through the night.
  - Blood glucose less than 11 mmol/L, and no ketones
    - Take insulin as normal. Take carbohydrates as a meal replacement and sip sugar-free liquids (at least 100 mL/hour if able)
  - Blood glucose more than 11 mmol/L and/or ketones present
    - (trace urine ketones or <1.5 mmol/L on blood ketone meter or ++/+ on urine ketones)
    - Test blood glucose level and blood/urine ketones every 2 hours, including through the night
  - Blood glucose more than 11 mmol/L and either no or low ketones (trace urine ketones or <1.5 mmol/L on blood ketone meter)

**Blood ketones greater than 1.5 mmol/L indicate high risk of diabetic ketoacidosis. Consider urgent hospital assessment**

- Urine ketones + to ++
  - (1.5–3.0 mmol/L on blood ketone meter)
- Urine ketones +++ to ++++
  - (>3.0 mmol/L on blood ketone meter)

**Blood glucose less than 11 mmol/L**
- **Type 1 diabetes?**
  - Add 2 extra units to each dose
- **Type 2 diabetes?**
  - Add 6 extra units to each dose

**Blood glucose more than 11 mmol/L and ketones present?**

- **Type 1 diabetes?**
  - Add 4 extra units to each dose
- **Type 2 diabetes?**
  - Add 2 extra units to each dose

**Blood glucose more than 11 mmol/L and either no or low ketones**

- **Type 1 diabetes?**
  - Add 4 extra units to each dose
- **Type 2 diabetes?**
  - Add 2 extra units to each dose

**Blood glucose more than 11 mmol/L**

- **Type 1 diabetes?**
  - Add 6 extra units to each dose
- **Type 2 diabetes?**
  - Add 4 extra units to each dose

**Total daily insulin dose**

<table>
<thead>
<tr>
<th>Total daily insulin dose</th>
<th>Give an additional 10% of rapid-acting or mixed insulin every 2 hours</th>
<th>Give an additional 20% of rapid-acting or mixed insulin every 2 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 14 units</td>
<td>1 unit</td>
<td>2 units</td>
</tr>
<tr>
<td>15–24 units</td>
<td>2 units</td>
<td>4 units</td>
</tr>
<tr>
<td>25–34 units</td>
<td>3 units</td>
<td>6 units</td>
</tr>
<tr>
<td>35–44 units</td>
<td>4 units</td>
<td>8 units</td>
</tr>
<tr>
<td>45–54 units</td>
<td>5 units</td>
<td>10 units</td>
</tr>
</tbody>
</table>

**If you start vomiting, are unable to keep fluids down or are unable to control your blood glucose or ketone levels, SEEK URGENT MEDICAL ADVICE**

**DO NOT STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT**

**Abbreviations**
- ACE=angiotensin-converting enzyme; ARB=angiotensin receptor blocker; DKA=diabetic ketoacidosis; HHS=hyperosmolar hyperglycaemic state; NSAID=non-steroidal anti-inflammatory drug; SGLT2=sodium–glucose cotransporter 2

Adapted from: TREND-UK (2018) Type 1 diabetes: What to do when you are ill; and TREND-UK (2020) Type 2 diabetes: What to do when you are ill