

Best Practice Message

December 2023

Managing medicines during 'sick days'

Dehydration and regular medicines

Dehydration from vomiting and diarrhoea or fever associated with gastroenteritis or other viral illness is common. It is often mild and managed by supportive measures and oral rehydration. However, in more severe cases dehydration (irrespective of the aetiology) can cause reduced blood perfusion to the kidneys leading to Acute Kidney Injury (AKI).

Although there are few medications which have direct toxic effects on the kidneys, several have the potential to impair renal function if the patient is severely unwell or dehydrated. Moreover, many medications are cleared via the kidneys, a loss of kidney function can cause these to accumulate. The result of this may be a further deterioration in kidney function or other adverse effects. Medications which can cause adverse events either by directly causing AKI or accumulation are identified using the SADMANS-GOLD acronym (see table below).

'Sick day' guidance, includes advising patients to pause medicines that increase the risk of AKI during acute intercurrent illness, until 48 hours after feeling better and eating and drinking normally. The guidance should be enacted when a person feels unwell with vomiting or diarrhoea (unless minor) or fevers, sweats and shaking.¹ Sick day guidance may help prevent adverse outcomes in patients with dehydration. However, there are potential harms associated with widespread provision of sick day guidance.

Underlying conditions influence the risk of a patient experiencing an AKI and adverse events from medications. The risk factors for AKI need to be considered against the risk factors for stopping medications. Advice should be tailored to individuals.

Patient factors to consider when stopping medicines:

1. What AKI risk factors does this patient have?

Underlying conditions which influence the risk of a patient experiencing an AKI and adverse event(s) from medication(s) include^{1,2}:

- History of AKI
- Heart failure and other cardiac conditions
- Diabetes
- Liver disease
- Malignancy
- Major surgery or trauma or medical procedure (e.g. contrast based imaging)
- Age over 65 years (likely younger for Māori and Pacific people)
- Other nephrotoxic medications
- Chronic kidney disease eGFR <60ml/min/1.73m² OR urinary tract obstruction

2. What are the risks to the patient and their medical conditions if the medicine is withheld?

There are some risks to consider should medicines be paused. These include^{1,3}:

- Discontinuation of medicines blocking the RAAS system and diuretics may lead to decompensated heart failure in patients with heart failure.
- Inappropriate cessation of glucose lowering treatment may adversely affect diabetes control.

Other risks to consider are:

- Patients may not restart their therapy on recovery. Always ensure that patients know when to restart their medications if they have been stopped.
- Patients who have medications compliance packed may not be able to distinguish between different medications.

Specific considerations for renal patients

Have a low threshold for referring transplant, dialysis patients, or those with an eGFR of less than 30mL/min/1.73m² to secondary care. It is advised that these patients should contact their general practice when they are unwell so that they can arrange a renal function test. Patients may have their medications paused as per the below table, however for transplant patients, never cease diltiazem, prednisone, tacrolimus, ciclosporin, mycophenolate or azathioprine without discussions with the renal physician.

Specific considerations for patients with Heart Failure

Dizziness, fatigue, new cognitive impairment, nausea or abdominal pain are some of the symptoms of decompensated heart failure which overlap with the symptoms of gastroenteritis, other viral illness and dehydration. Patients may be advised to pause medications as per the table below but should also be advised that there should be a low threshold for seeking medical advice when unwell. Patients should be advised to follow their [heart failure action plan](#). In particular, advise patients to monitor for dyspnoea and their weight daily, diuretics may need to be restarted earlier than 48 hours after feeling better and eating and drinking normally.

Specific considerations for patients with diabetes

Sick day management for patients with diabetes is broader than just management and risk mitigation of dehydration. Glycaemic control will be impacted; blood glucose levels typically rise during illness, conversely patients on a sulfonylurea or insulin may experience hypoglycaemia with reduced oral intake. Type 1 diabetics and patients on SGLT2 inhibitors are also at risk of diabetic ketoacidosis.

Sick day management is well covered in the New Zealand Society for the Study of Diabetes guidelines (NZSSD) for [Type 2](#) diabetes and Starship child health guidelines for [Type 1](#).

SADMANS-GOLD Sick Day Guidelines Table

The below table has been created to summarise the risks and guidance associated with the following classes of medicines.

SADMANS GOLD Sick Day Guidelines Table

Medication	Risk in dehydration	Advice to a patients with risk factors for AKI if they have vomiting or diarrhoea (unless minor) or fevers, sweats and shaking
SGLT2 inhibitors	Increased risk of dehydration, particularly when taken with diuretics. Increased risk of diabetic ketoacidosis if a patient is unwell and not eating and drinking normally. ^{5,6}	Stop while unwell and restart 48 hours after feeling better and eating and drinking normally.
ACE-inhibitors/ Angiotensin-II Receptor Blockers/ Entresto®	Increase the risk of AKI by reducing glomerular perfusion. ⁵	Stop while unwell and restart 48 hours after feeling better and eating and drinking normally.
Diuretics	Increase the risk of AKI by reducing glomerular perfusion. ⁵ Spironolactone may cause hyperkalaemia in renal impairment. ⁷	Stop while unwell and restart 48 hours after feeling better and eating and drinking normally.
Metformin	Accumulates in renal impairment. Combined with dehydration and inflammatory response to infection, increased risk of lactic acidosis. ⁸	Stop while unwell and restart 48 hours after feeling better and eating and drinking normally.
Non-steroidal anti-inflammatory drugs (NSAIDs)	NSAIDs have been associated with the development of AKI. NSAIDs may impair kidney function by inhibiting prostaglandin-mediated vasodilatation of the afferent arteriole. ¹	Stop while unwell and restart 48 hours after feeling better and eating and drinking normally. Do not use NSAIDs for pain or fever relief, use paracetamol as an alternative.
Sulfonylureas	Risk of hypoglycaemia if the patient is not eating. ⁹	Monitor for hypoglycaemia, dose may need to be reduced or omitted but DO NOT ROUTINELY STOP.
Gabapentinoids	Might accumulate because of reduced kidney function in AKI, increasing the risks of adverse effects.	Monitor for confusion, over sedated or restless but DO NOT ROUTINELY STOP.
Opioids		Monitor for respiratory depression or CNS depression (confusion, over sedated or restless) but DO NOT ROUTINELY STOP.
Lithium		Patients should be aware that vomiting or diarrhoea could be signs of toxicity and should contact their prescriber for a lithium level, electrolytes and renal function. Monitor for other signs of toxicity (muscle weakness, lack of co-ordination, drowsiness or lethargy progressing to giddiness and imbalance, tinnitus (ringing in the ears), blurred vision, slurred speech, tremor, and muscle twitching. ¹⁰
Direct-Acting Oral Anticoagulants		Monitor for bleeding but DO NOT ROUTINELY STOP.

Tools available:

- **Te Whatu Ora: At home sick day advice for patients**
- **Heart function nurses: call 878 8109 and ask for Villa 2, then heart function nurse.**
- **Goodfellow unit: ABC: Basics of kidney disease**
- **Healthify: Diabetes type 2 sick day plan**
- **Starship Child Health: Feeling sick? What to do: information for people with type 1 diabetes**
- **NZSSD: Type 2 diabetes management guidelines**
- **Patient fact sheet: Managing Insulin when you are sick**
- **Diabetes Canada: Stay Safe When You Have Diabetes and Are Sick or At Risk of Dehydration**
- **Healthify: Gastroenteritis**
- **Healthify Gastroenteritis in children**
- **Health Pathways: Gastroenteritis in Adults**
- **Health Pathways: Gastroenteritis in Children**

References:

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