

Concise advice on Inpatient Diabetes (COVID:Diabetes): FRONT DOOR GUIDANCE



NATIONAL INPATIENT DIABETES COVID-19 RESPONSE GROUP*

⚠ COVID-19 infection in people with or without previously recognised diabetes increases the risk of the EMERGENCY states of hyperglycaemia with ketones, Diabetic KetoAcidosis (DKA) and Hyperosmolar Hyperglycaemic State (HHS)

Being acutely unwell with suspected/confirmed COVID-19 requires adjustment to standard approaches to diabetes management (see table below).

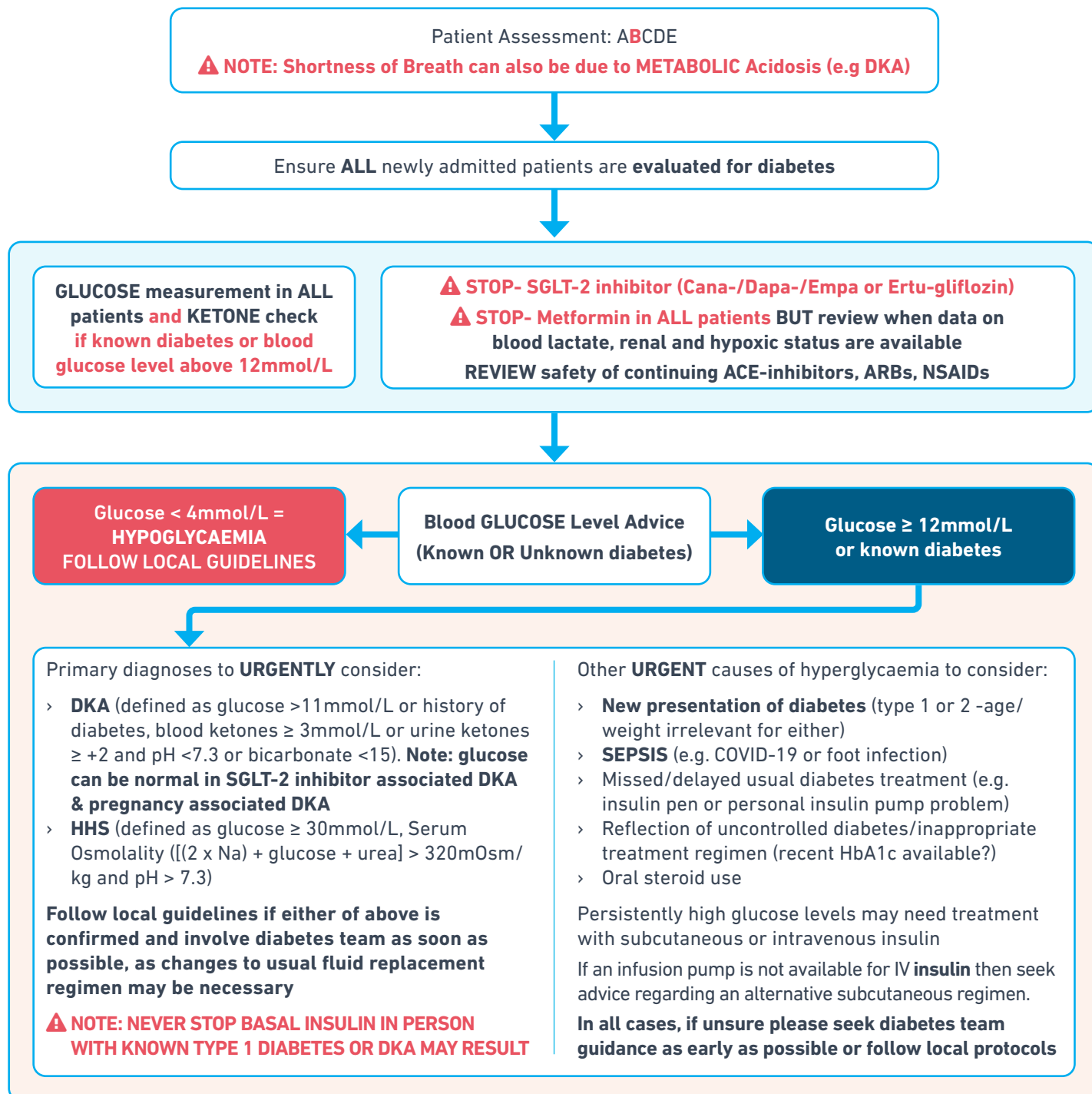
The guidance in this document is based on experience from UK centres with the greatest experience of looking after patients with COVID-19 disease and will be updated as more evidence becomes available.

WHERE CHANGE SEEN	KEY DIFFERENCE WITH COVID-19	SUGGESTED ACTION
Early in admission	<p>People with COVID-19 infection appear to have a greater risk of hyperglycaemia with ketones including:</p> <ul style="list-style-type: none"> > People with type 2 diabetes (risk even greater if on a SGLT-2 inhibitor) > People with newly diagnosed diabetes <p>COVID-19 disease precipitates atypical presentations of diabetes emergencies (eg, mixed DKA and hyperosmolar states)</p>	<ul style="list-style-type: none"> > Check blood glucose in everybody on admission > Check ketones in: <ul style="list-style-type: none"> » everybody with diabetes being admitted » everybody with an admission glucose over 12 mmol/l > Stop SGLT-2 inhibitors in all people admitted to hospital > Stop Metformin in all people admitted to hospital but review when data on blood lactate, renal and hypoxic status are available. > Consider using 10-20% glucose where ketosis persists despite treatment in line with usual protocols
Severe illness on admission	<p>Fluid requirements may differ in those with DKA/HHS and evidence of “lung leak” or myocarditis</p>	<ul style="list-style-type: none"> > After restoring the circulating volume the rate of fluid replacement regimen may need to be adjusted where evidence of “lung leak” or myocarditis > Contact the diabetes specialist team early > Early involvement of the critical care team
All inpatient areas	<p>Infusion pumps may not be available to manage hyperglycaemia using intravenous insulin as these are required elsewhere (eg for sedation in ICU)</p>	<ul style="list-style-type: none"> > Use alternative s/c regimens to manage <ul style="list-style-type: none"> » Hyperglycaemia » Mild DKA > Contact the diabetes specialist team for support
ICU	<p>Significant insulin resistance seen in people with type 2 diabetes in ICU settings</p>	<ul style="list-style-type: none"> > IV insulin protocols may need amending (people seen requiring up to 20 units/hr) > Patients often nursed prone so feeding may be accidentally interrupted – paradoxical risk of hypoglycaemia

CONCISE ADVICE ON INPATIENT DIABETES (COVID:Diabetes): GUIDANCE

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Management of Acute Diabetes at the Front Door for Emergency Departments & Acute Medical Units



FURTHER ADVICE ON NEXT PAGE:

FURTHER ADVICE ON INPATIENT DIABETES (COVID:Diabetes):

BLOOD KETONE LEVEL ADVICE:

Blood ketones less than 0.6 mmol/L = SAFE level

Blood ketones 1.5 – 2.9mmol/L = **INCREASED DKA RISK**

- › PO or IV fluids
- › Consider rapid acting insulin if glucose above 16mmol/L - 1 unit rapid acting insulin 'typically' expected to lower glucose by anywhere between 1-3mmol/L. Recheck in 2 hours.

Blood ketones 3mmol/L or greater then check pH and bicarbonate (venous blood gas). DKA confirmed if high ketones accompanied by:

- › Blood glucose > 11 mmol/L (or history of diabetes) and
- › pH < 7.3 or bicarbonate <15

▲ NOTE: Glucose can be <11mmol/L if patients are on SGLT-2 inhibitor treatment, pregnant AND/OR severe COVID-19 infection



INSULIN ADVICE – ALWAYS ASK IF YOUR PATIENT IS ON INSULIN

› **ALWAYS CONTINUE USUAL LONG ACTING BASAL INSULIN**

- › Patients who are very sick or not eating should have a Variable Rate Intravenous Insulin Infusion (VRIII/'sliding scale'), with usual basal subcutaneous (SC) insulin continued alongside
- › If an infusion pump is not available for IV insulin, contact diabetes team or follow local protocols for an alternative subcutaneous regimen



PATIENTS USING WEARABLE DIABETES TECHNOLOGY

- › If patients are unable to manage their personal insulin pump and no specialist advice is immediately available, start a VRIII or S/C basal-bolus insulin regimen then remove the pump and store it safely. If S/C regime required and not able to find out total daily insulin dose from pump then the following would be safe: calculate total daily insulin dose using 0.5 units/kg and give half the total dose as basal/background insulin and half as bolus/mealtime rapid acting insulin. Example, 0.5 units x 60 kg = total daily insulin dose of 30 units. Give half dose (15 units) as basal insulin and 15 units as bolus insulin (5 units at each meal-time). Ensure that pump is disconnected AFTER S/C basal insulin given.
- › Continuous glucose monitors (CGM) and Freestyle Libre (FSL) devices can be left on the patient but conventional capillary glucose monitoring will still be necessary
- › For imaging, insulin pumps, Continuous Glucose Monitors (CGM) and FreeStyle Libre (FSL) devices need to be removed for magnetic scans such as MRI



FOOTNOTES

- › ALWAYS need to exclude acute foot infection (may be the source of sepsis) or critical limb ischaemia
- › ALWAYS ensure foot intact and protected

▲ TAKE ACTION ON ACUTE FOOT DISEASE AS PER LOCAL DIABETIC FOOT PROTOCOLS



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