DKA in patients suspected or positive for COVID-19

- **At risk for fluid overload or with clinical features of leaky lungs (interstitial pneumonitis) or myocarditis**
- **Shortage of infusion pumps due to huge surge in demand across trust**
- **Challenging IV access while awaiting central/intraosseous access**

Does the patient have the one or more of the following features?

- Mixed HHS/DKA - serum osmolality > 320 (2Na + urea + glucose)
- Pregnant
- Severe metabolic derangement - pH < 7.0 or bicarbonate < 10 mmol/L or K < 3.5 mmol/L
- Significant co-morbidities (e.g. ACS, CKD 4-5, end-stage liver disease)
- Impaired consciousness

YES → Refer to the standard DKA guideline (see intranet)

NO

Commence DKA regimen using subcutaneous insulin

Fluid Replacement

Resuscitation (if SBP < 90 mmHg):

- Give 500ml of 0.9% saline over 15 minutes and repeat as necessary.
- Seek senior support if needing more than 1 bolus.

Initial replacement (if SBP > 90 mmHg):

- Use 0.9% saline (or 10% glucose for euglycaemic DKA).
- Give 250ml in 15 minutes followed by the regimen below.
- Use weight- and pH-guided fluid infusion rate below (at ml/hr):

WEIGHT	pH 7.1 or less	pH > 7.1
< 50	100	90
50-60	115	100
61-70	130	115
71-80	140	125
81-90	150	135
91-100	165	145
>100	170	155

- Use clinical judgment and frequent senior review.

Once glucose level < 14 mmol/L:

- Add 10% glucose at 125 ml/hr.
- Review insulin prescription when ketones < 0.6 mmol/L.

Rapid-acting Insulin

Initial dose:

- SC rapid-acting insulin every 4 hours (Novorapid, Humalog, Apidra) at a dose of 0.4 units/kg/dose.
- Example: 70kg patient - 70 x 0.4 = 28 units every 4 hours

Once glucose level < 14 mmol/L:

- Reduce insulin dose to to 0.2 units/kg/dose.

If ketones not falling as expected:

- Increase dose to 0.5 units/kg/dose.
- Contact diabetes specialist team.
- Consider switching to IV insulin if infusion pump available.

Basal Insulin

Continue basal insulin if previously prescribed. If not, start basal insulin (e.g. Lantus, Levemir) at 0.15 units/kg once daily.

If using a personal insulin pump, either:

1. Continue basal insulin rate via pump if the patient can safely manage this themselves; or
2. Switch to SC basal insulin if the patient cannot safely manage their own insulin pump. Start at 0.25 units/kg once daily.

Potassium

Initial K level	Potassium replacement added in IV fluids
Over 5.5	Nil
3.5 - 5.5	40 mmol/L
Below 3.5	For senior review

Treatment monitoring and targets:

- Check glucose and ketones at least 2 hourly.
  - Fall in ketones by 0.5 mmol/L/hr or 2 mmol/L in 4 hours.
  - Maintaining glucose in safe levels without hypoglycaemia
  - Target range: 6-14 mmol/L
- Monitor potassium 2 hourly.
- Record hourly fluid balance and adjust rates accordingly.
- Monitor SpO_2 as a marker of fluid overload.

DKA resolved when pH > 7.3 and serum ketones < 0.6 mmol/L