

A Covid-19 Response Action – Diabetes Management in Care Homes

A National Stakeholders Covid-19 Response Group Interim Guidance



This guidance was prepared by a multidisciplinary stakeholder group in order to:

- Minimise morbidity and mortality from Covid-19 in care home residents with diabetes
- Alert care homes that those residents with diabetes are at very high risk of Covid-19 infection
- Emphasise that those at the highest risk of poor outcomes from Covid-19 are those who have: frailty, several existing medical conditions such as cardiovascular disease or respiratory disease, diabetes-complications, treatment with steroids, a life expectancy <6 months
- Maintain the safety of all those living and working within the care home

Addressed to: Care home managers, other care home staff, community nursing and diabetes staff, primary care providers including general practitioners

This guidance is designed to support clinical decision-making in care homes. As such, the guidance will take into account the availability of skilled personnel, access to monitoring of blood glucose (sugar) and ketones, fluid administration limits, and overall level of care likely to be available.

Prevention and Control Issues

Care homes represent a major challenge to ensuring that Covid-19 prevention and control issues are optimal. Advice on special precautions to be taken can be found at: <https://www.gov.uk/government/publications/coronavirus-covid-19-admission-and-care-of-people-in-care-homes>

Communication between all relevant parties (care homes, community services, primary care) may be enhanced by technology for virtual reviews/case conferences to minimise contacts for healthcare professionals.

Advice for care home managers

- Equip your care home with sufficient capillary blood glucose (sugar) strips (with a meter), and strips for ketones if possible
- Have available a hypoglycaemia treatment kit plus intramuscular (IM) glucagon, and replenishing this every time it has been used
- Maintain a written record of a resident's blood glucose, medications, temperature, food chart and body weight
- Have a daily foot care surveillance plan in place for all residents with diabetes to ensure good foot health
- Ensure good communication with your local diabetes specialist nurses, the community nursing service, and with your primary care team who want to provide you and your staff with support and guidance at all times

Background

The epidemiology of Covid-19 incidence, severity of illness and mortality seem to be shifted towards older people particularly those with multiple comorbidities such as diabetes, hypertension, and cardiovascular disease.

Residents of care homes (both residential and nursing) are a highly co-morbid population who are particularly vulnerable to Covid-19 infection. A quarter of residents have diabetes and two-thirds may have frailty which is better predictor of intensive care unit (ICU) outcomes than age or other factors.

Effect of Covid-19 on individual residents and their diabetes management

Covid-19 can cause a serious acute illness in residents with diabetes by:

- increasing the risk of a rapid worsening of diabetes control which can lead to life-threatening conditions called diabetic ketoacidosis (DKA) and hyperosmolar hyperglycaemic state (HHS)
- increasing susceptibility to other infections including pneumonia, chest and foot infections, and sepsis
- worsening symptoms and signs in those with frailty, kidney disease and/or cardiovascular (heart) disease.

Management of your residents with diabetes

Usual management of each resident with diabetes should aim to ensure that they:

- receive plenty of oral fluids to maintain good hydration
- maintain a daily appropriate exercise and nutritional plan with regular meals or if appetite reduced, have food 'little and often'
- receive their usual diabetes treatment
- have regular twice daily capillary blood glucose testing with the aim to keep the level between 7 and 12 mmol/l
- have daily foot checks to ensure early detection of poor blood supply, infection, and regular changes of dressings
- have the opportunity to have their wishes documented in any anticipated future emergency (e.g. hospital admission) by completion of a RESPECT form or similar.

Table A – General areas of concern

Area of Concern	Potential Effect of Covid-19	ACTION
'Higher Risk' residents with Diabetes	Increase their vulnerability to more serious life-threatening disease	Extra vigilance and surveillance looking for any deterioration in health by twice-daily assessment of symptoms, blood glucose and ketones where possible
Diabetes control (glucose targets)	Risk of worsening diabetes control by causing higher glucose levels	Aim for random sugar (glucose) levels of 7-12 mmol/l
Hospital Admission	Will increase need for specialist review and referral to hospital in residents with acute illness	Persistent fever, increasing shortness of breath, or persistent diarrhoea and/or vomiting. Also see ' <i>Special Note</i> '
Best place of care: care home v hospital	Increase the risk of acute illness with or without major changes in glucose control	Decision to admit to hospital based on a shared decision basis with manager, nursing advice, resident and/or carer: threshold for hospital admission LOW in residential (non-nursing) homes



Special Note: residents with **diabetes and Covid-19** who are:

- generally unwell, very thirsty, look dehydrated with deep breathing, and blood sugar ≥ 11 mmol/l, may have **diabetic ketoacidosis (DKA)** – check urine for raised ketones if strips available
- very dehydrated, confused or more drowsy than usual, and with blood sugar ≥ 30 mmol/l, may have **hyperosmolar hyperglycaemia state (HHS)**.

Please consult your local diabetes nurse specialist or primary care team for immediate assessment and treatment guidance and arrangements for hospital admission as appropriate.

Table B – Managing hyperglycaemia (high glucose levels) in varying circumstances (clinical scenarios)

Suggested Initial Actions in different Clinical Scenarios	
Clinical scenario	Initial Actions required
Stable non-COVID-19 resident	Continue usual diabetes treatment; maintain close monitoring for COVID-19 symptoms.
COVID-19 positive and stable resident	Continue usual diabetes treatment even if they have reduced appetite, but regular monitoring is required to avoid high (i.e. ≥ 12 mmol/l) and low blood sugars (i.e. < 4 mmol/l).
COVID-19 positive and unwell resident on oral therapy*	Initially, adjust oral hypoglycaemic medications and ensure regular and frequent testing of blood sugar (2-4 hourly Δ): A Stop metformin in patients with fever and acute illness to minimise risk of lactic acidosis. B Stop SGLT-2 inhibitors** particularly in those with diarrhoea and vomiting due to an increased risk of dehydration and/or DKA C Consider adding a different oral hypoglycaemic treatment as necessary (e.g. linagliptin) D Alert your local diabetes nursing team if sugar levels continue to rise and remain above 12 mmol/l, as commencement of insulin may be necessary at some stage
COVID-19 positive and unwell resident on insulin*	A Seek local diabetes nursing team support/advice for further management; test blood sugar frequently (e.g. 2-4 hourly Δ) B Continue insulin at usual dose, closely monitor blood glucose (every 2-4 hours Δ) and depending on insulin regimen present, adjust insulin up or down initially by 2-4 units or as advised by your local diabetes nursing team, every 6 hours if blood sugar outside target range of 7-12mmol/L.*** Δ
COVID-19 positive and unwell resident, unable to take oral therapy*	A Seek local diabetes nursing team support/advice for further management; test blood sugar frequently (e.g. 2-4 hourly Δ) B Replace oral therapy by a basal long-acting analogue insulin starting at a daily dose of 0.15 units/Kg body weight (e.g. 0.15 x 80kg given as 12 units once daily or 6 units twice daily). Aim to maintain blood sugar levels within the target range of 7-12 mmol/l. Δ
COVID-19 positive on any therapy but with erratic eating patterns and fluctuating surges of blood glucose*	A Seek local diabetes nursing team support/advice for further management; test blood sugar frequently (e.g. 4-6 hourly) B Continue their usual hypoglycaemic therapy. C Short-acting insulin can be given subcutaneously as required in boluses of up to 6 units or greater depending on local diabetes nursing advice, every 6 hours when blood sugar levels are ≥ 15 mmol/L***

*please liaise with your local community nursing team and/or diabetes specialist nurse advice to manage the resident; ** for example, canagliflozin, dapagliflozin, empagliflozin; ***for more detailed advice, please visit: <https://abcd.care/coronavirus>; Δ monitoring frequency and glucose target range dependent on shared decision making, staff resources and health status of resident

Management of hypoglycaemia (low blood sugar, < 4 mmol/l)

Residents receiving insulin or certain glucose-lowering tablets called sulphonylureas (e.g. gliclazide, glipizide) or glinides (e.g. nateglinide) have a higher risk of hypoglycaemia particularly if their usual meal pattern is disturbed through acute illness or nausea. A guide to management is given below:

Awake and able to drink	Awake, able to drink but confused or agitated	Unconscious, may be fitting
<ul style="list-style-type: none"> Give fast acting carbohydrates such as 60mls of Gluco juice, 200 ml of pure fruit juice, or 5-6 dextrose (glucose) tablets Wait 10 to 15mins, re-check capillary blood glucose (BG) Repeat treatment until BG > 4 mmol/L Then give 20 g long-acting carbohydrate, such as 2 biscuits or a slice of bread Review medications, discuss de-escalation of glucose-lowering treatments with team responsible for diabetes care 	<p>If uncooperative:</p> <ul style="list-style-type: none"> Squeeze half a tube of glucogel into the inside of the cheek and massage Wait 10 to 15mins, re-check BG Repeat treatment until BG > 4mmol/L Then give 20 g of long-acting carbohydrate, such as 2 biscuits or a slice of bread Review medications, discuss de-escalation of glucose-lowering treatments with team responsible for diabetes care 	<ul style="list-style-type: none"> Ask for help and dial 999 Place patient in recovery position Stop any scheduled insulin Give 1mg glucagon IM once only if possible If becomes awake, give 20 g of long-acting carbohydrate, such as 2 biscuits or a slice of bread Liaise with paramedics on arrival for further management

Management of foot care and end of life

Residents with diabetes and Covid-19 require strict attention to foot care to detect early any changes in blood supply to the feet or any signs of infection which might lead to sepsis. Some residents may also be at end of life and this will alter how diabetes care is delivered. A guide to key management aspects are given below:

Foot Care

Residents with diabetes are at high risk of diabetes foot disease which can be exacerbated by Covid-19. Please ensure that each foot is protected from trauma or other injury and arrange daily inspection for:

- skin discolouration - might indicate diminished blood supply (limb ischaemia)
- infection

End of Life

- For residents with type 2 diabetes, stop all oral glucose-lowering therapy and GLP-1 RA (glucagon-like peptide-1 receptor agonist, e.g. exenatide, liraglutide) injections; for those taking a small dose of daily insulin, consideration should also be given to stopping this insulin by discussion with local team responsible for diabetes care .
- For residents with type 1 diabetes, treatment with insulin should be continued but consideration given to simplifying the regimen and switching to a once-daily dose long-acting insulin analogue such Insulin Glargine (Lantus) or Insulin Degludec (Tresiba)
- Stop all routine blood sugar testing in those with type 2 diabetes on diet and/or metformin; in other cases where there are no prospects of recovery, consideration should be given to stopping all blood sugar testing
- For further advice on diabetes care at end of life, seek guidance from your local diabetes and palliative care team, or visit: Diabetes UK, End Of Life Diabetes Care, 3rd Edition, 2018 at: https://www.diabetes.org.uk/resources-s3/2018-03/EoL_Guidance_2018_Final.pdf

Further Advice

For more information and support with glucose and ketone testing or managing your residents with diabetes when they become Covid-19 positive, please consult with your local community nursing service, local diabetes specialist nurses, or primary care team.

National Stakeholders Writing Group and Contributors

Professor Alan Sinclair (Co-Chair), Professor Ketan Dhatariya (Co-Chair), Olivia Burr, Dr Dinesh Nagi, Professor Partha Kar, David Jones, Dr Philip Newland-Jones, Dr Kath Higgins, Dr Mayank Patel, Dr Ahmed Abdelhafiz, Dr David Hopkins, Dan Howarth, Catherine Gooday