

## Adult Diabetic Ketoacidosis (DKA) Policy

### Contents

Policy/Purpose .....	1
Scope/Audience .....	1
Associated documents .....	1
Statement .....	2
Procedural Considerations.....	2
Prior to Administration .....	2
Checks .....	2
Monitoring and Documentation .....	3
Changes to the infusion .....	3
Maintenance .....	3
Restarting / commencing subcutaneous insulin.....	4
Measurement/Evaluation .....	4
References .....	4

### Policy/Purpose

The Adult patient management of ketoacidosis will be managed as per below requirements to ensure patient safety

### Scope/Audience

First Level IV Certificated RN/RM  
Medical Practitioners

### Associated documents

[CDHB Management Guidelines for Common Medical Conditions \(Blue Book\)](#)

Drug Treatment Sheet (QMR0004)

Fluid Prescription Chart (QMR004B)

Acute Hyperglycaemia Insulin Record (Adult) (C180008)

Adult Observation Chart (C280010)

Fluid Balance Chart (C280020B)

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## Statement

Diabetic Ketoacidosis (DKA) is a result of a deficiency of insulin and a high level of stress hormones.

DKA is associated with significant mortality, particularly in the older patient with an underlying acute medical condition precipitating ketoacidosis.

Death from DKA in young, otherwise healthy, patients is often associated with inadequate electrolyte (particularly potassium) and fluid replacement, or occasionally cerebral oedema.

### Common Causes

- Insulin withdrawal or reduction
- Myocardial infarction, stroke, trauma or other medical stress.
- Infection such as pneumonia, gastroenteritis, influenza, UTI, meningitis.
- Newly diagnosed or previously unknown diabetes

## Procedural Considerations

### Prior to Administration

- Establish two points of IV access. One for insulin/fluid regime and one for other drug administration.
- Prescriber to chart fluid regime and insulin infusion on Fluid Prescription Chart as per The Blue Book guidelines
- Prescriber to chart insulin sliding scale in the Drug Treatment Chart
- Commence Fluid Balance Chart for first 24hrs or as per prescribers orders
- Record Baseline Capillary blood glucose (CBG) level prior to infusion commencement and record on the Acute Hyperglycaemia Insulin Record

### Checks

- Check IV line is patent
- Prepare insulin infusion with appropriate giving set (with an antisyphon valve) as per prescription and the CDHB double independent checking procedure available via the Roles and Responsibilities policy Vol 12
- A medication additive label must be placed on syringe.
- Date and time the infusion tubing

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## Monitoring and Documentation

- Check CBG hourly and adjust insulin and/or fluid infusion according to prescribed sliding scale.
  - Do not take blood from limb on which glucose infusion is running
  - If CBG <4 mmol/L, contact Medical Staff. Do not stop infusions except on Medical Officer's order.
- If CBG within normal limits for four hours, move to two hourly recordings. If any deviation from normal, return to hourly CBG monitoring.
- Perform and record all observations using the Adult observation chart and calculate a EWS. Repeat observations and actions will be dependent on the EWS management pathway. Recheck CBG immediately if there is any alteration in the patient's clinical state.
- Blood Ketones (B-OH Butyrate) are to be measured once on every shift and recorded on the Acute Hyperglycaemia Insulin Record (Adult).
- Monitor and record
  - Accurate urine output on a Fluid Balance Chart as ordered
  - Fluid input on the Fluid Balance Chart as ordered
  - Urine ketones once on every shift and recorded on the Acute Hyperglycaemia Insulin Record
  - Any vomiting or /and diarrhoea
  - CBG result, insulin rate and fluid type/rate on the Acute Hyperglycaemia Insulin Record

### Changes to the infusion

- Two appropriate persons are to follow the CDHB Checking Procedure when changing the:
  - Rate of insulin infusion
  - Infusion fluids/syringes.
- Document on the appropriate chart/s

### Maintenance

- At the commencement of each shift the settings on any pump must be checked by two appropriate staff and rechecked with any handover of the patient from one approved staff member to another
- Insulin solution must be replaced every 24 hours. If CBG within normal limits for four hours, move to two hourly recordings. If any deviation from normal, return to hourly CBG monitoring.

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- Recheck CBG immediately if there is any alteration in the patient's clinical state.

### **Restarting / commencing subcutaneous insulin**

- If the patient is on Glargine insulin this should be continued throughout treatment
- Subcutaneous insulin may be reintroduced when the patient is reviewed by Medical Staff.
- Insulin and fluid infusions should continue 1-2 hours after the first SC insulin dose or as per Medical Staff orders.
- Record hourly CBG until stable levels achieved after commencement of subcutaneous insulin.
- Document patient's response to glucose/insulin infusion in the patient's clinical record.

**Please Note:** Normalisation of blood glucose should be gradual and take about 24 hours to achieve. Care needs to be taken in the rapid reversal of fluid loss and electrolyte imbalance. Excessive fluids can cause sudden acid-base shifts and exacerbate hypokalaemia. Central Nervous System acidosis and arrhythmia's are preventable with constant monitoring. Once urine flow is re-established, potassium should be given.

## **Measurement/Evaluation**

Canterbury IV Link Clinical Practice Observation Audits  
CDHB EWS audits  
Incident Management System Process

## **References**

Mallett, J and Dougherty, L. (Eds.) (2000) The Royal Marsden Hospital, Manual of Clinical Nursing Procedures (5th Edition) Blackwell Science Ltd.

<b>Policy Owner</b>	Clinical Director Diabetes Centre / Medical Services CNS/ED
<b>Policy Authoriser</b>	Chief Medical Officer & Executive Director of Nursing
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