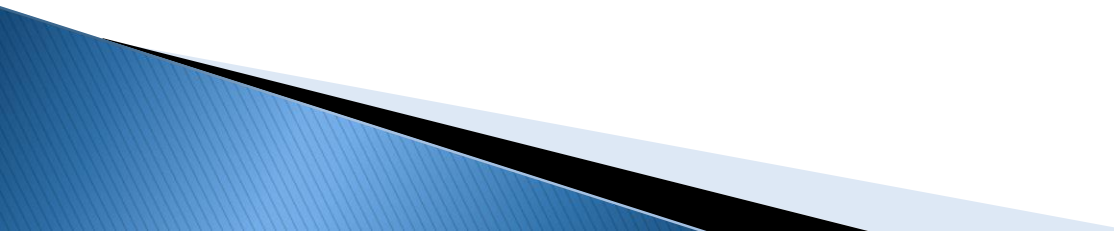


Clinical Aspects of Emergency Diabetes Care

In Adults and Children
ENHIDE
2021







Overview

- ▶ Opportunities to avoid hospital admission
 - ▶ Sick Day Rules
 - ▶ Case Studies
- 

Symptoms of Diabetes

- ▶ Polydipsia
- ▶ Polyuria
- ▶ Tiredness
- ▶ Weight loss
- ▶ Blurred Vision
- ▶ Genital itching and thrush
- ▶ Wounds slow to heal
- ▶ Recurrent Infections

SYMPTOMS OF DIABETES

-  Weeing more often
-  Being really thirsty
-  Wounds slow to heal
-  Losing weight
-  Feeling tired
-  Blurred eyesight
-  Genital itching and thrush

If you notice any symptoms, contact your GP straight away. For more information visit diabetes.org.uk/symptom



DiABETES UK
KNOW DIABETES. FIGHT DIABETES.

The British Diabetic Association operating as Diabetes UK, a charity registered in England and Wales (no. 215199) and in Scotland (no. SC030138). ©Diabetes UK 2021

Diabetes Diagnosis in Children

- ▶ Random glucose ≥ 11.1 mmol/mol
- ▶ Fasting glucose/HbA1c not necessary
- ▶ SAME DAY REFERRAL to Hospital – can avoid deterioration
- ▶ Paediatric GP Referral Pathway

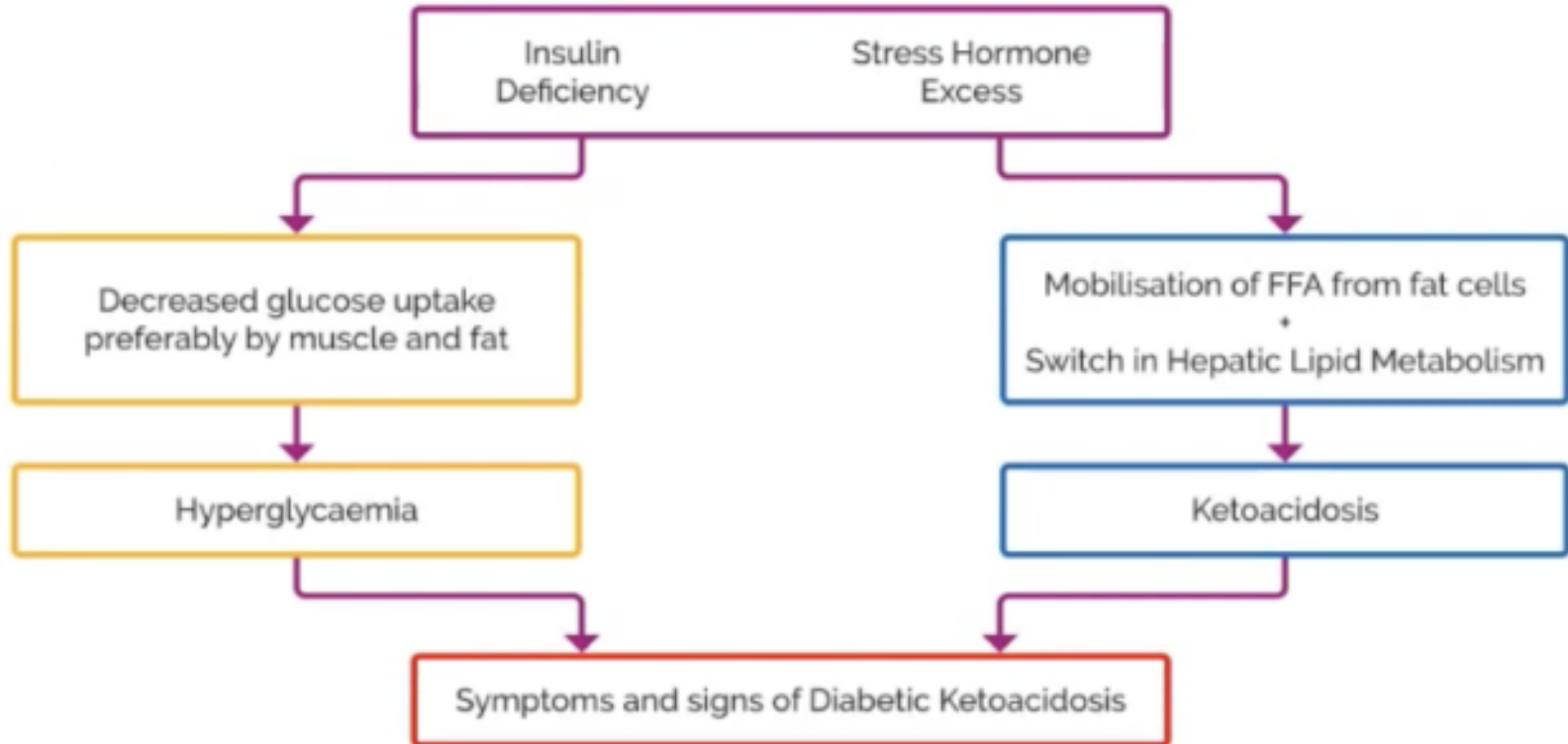
<https://www.enherts-tr.nhs.uk/gps-professionals/key-documents>

- ▶ DKA – can develop very quickly
- ▶ Known association between DKA at diagnosis and worse long term prognosis

Diabetes Diagnosis in Adults

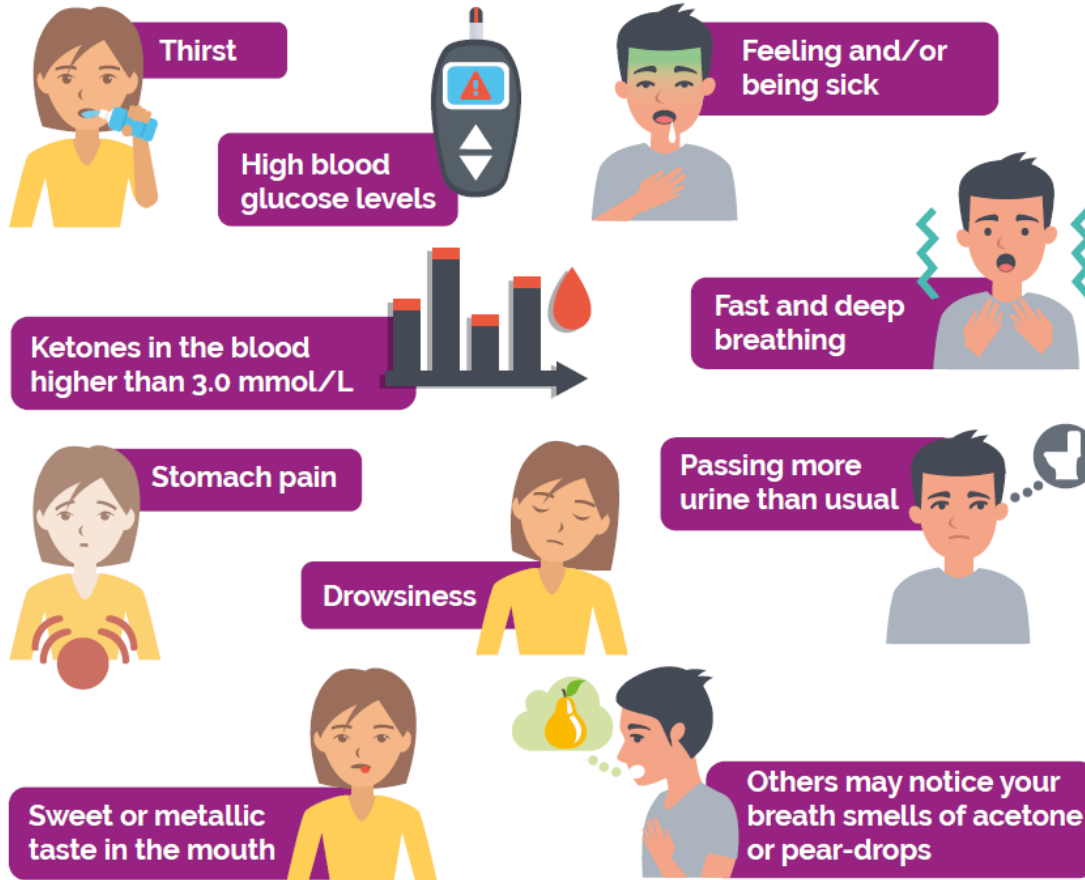
- ▶ Blood glucose $>11.0\text{mmol/mol}$
- ▶ HbA1c $>48\text{mmol/mol}$
- ▶ Osmotic Symptoms but not acutely unwell consider referral to Community Diabetes Team for same day insulin initiation. Triage contact: XXXXX
- ▶ If unwell contact GP Liaison Phone – 01438 XXXXXX or Med registrar on call via switchboard to arrange patient assessment
- ▶ Critically unwell – admission via A&E/999
- ▶ **Avoid** – Advice & Guidance, Standard ERS and SPOC

Pathophysiology of Diabetic Ketoacidosis



Adapted from: https://www.anaesthesiamcq.com/AcidBaseBook/ab8_2.php

Signs and Symptoms



Sick Day Principles

- ▶ Focus on Ketone reduction (T1) – Blood (<math><0.6\text{mmol/l}</math>) Urine (<math><2+</math>)
- ▶ Focus on Glucose reduction (T2)
- ▶ Never Omit Insulin –Increase insulin according to ‘sick day rules’
- ▶ Test glucose and ketones (2–4 hourly)
- ▶ Rest
- ▶ Prevent Dehydration – (4–6pints in 24 hours)
- ▶ Treat Symptoms/Infection
- ▶ Eat regularly (soups, juice, ice cream, yoghurt)

Managing insulin doses when ketones are less than 1.5mmol/L

> MANAGING YOUR INSULIN DOSE WHEN YOUR BLOOD KETONES ARE LESS THAN 1.5 MMOL/L

Glucose more than 11 mmol/L and/or you feel unwell, either with no ketones or blood ketones less than 1.5 mmol/L (negative or trace of urine ketones)

Sip sugar-free fluids, at least 100 mL/hr. Eat as normal if possible. If not, see meal replacement suggestions (page 6). **You need food containing carbohydrate (carbs), insulin and fluids to avoid dehydration and prevent diabetic ketoacidosis**

Test glucose and blood ketones **every 4 to 6 hours** including during the night

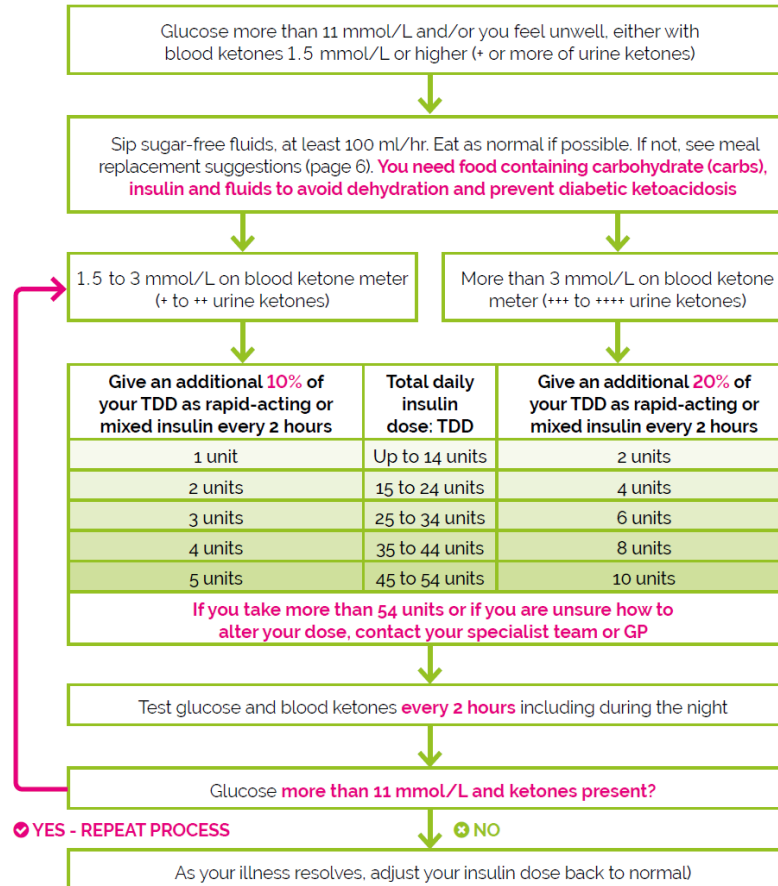
Aim to take your usual insulin dose. However, if your glucose is above 11 mmol/L, take additional insulin as below

Glucose	Insulin dose
11 – 17 mmol/L	Add 2 extra units to each dose
17 – 22 mmol/L	Add 4 extra units to each dose
More than 22 mmol/L	Add 6 extra units to each dose

Call your GP or nurse if your glucose still remains higher than normal

⚠ If you start vomiting, are unable to keep fluids down, or are unable to control your glucose or ketone levels, you must seek urgent medical advice. DON'T STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT

Managing insulin doses when ketones are greater than 1.5mmol/L



⚠ If you start vomiting, are unable to keep fluids down, or are unable to control your glucose or ketone levels, you must seek urgent medical advice. DON'T STOP TAKING YOUR INSULIN EVEN IF YOU ARE UNABLE TO EAT

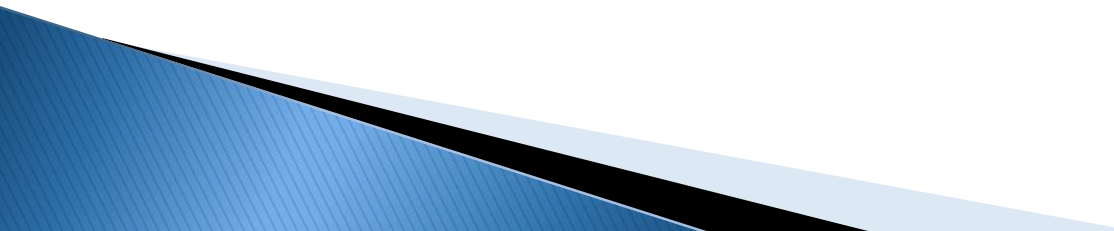
Type 2 – Managing Glucose Levels

- ▶ If Glucose level persistently > 11 mmol/L the insulin dose needs to be increased

Blood glucose level	Additional insulin
11.1 to 17 mmol/L	Add 2 extra units to each dose
17.1 to 22 mmol/L	Add 4 extra units to each dose
Over 22 mmol/L	Add 6 extra units to each dose

- ▶ If patient has more than 50units TDD, these adjustments should be doubled.

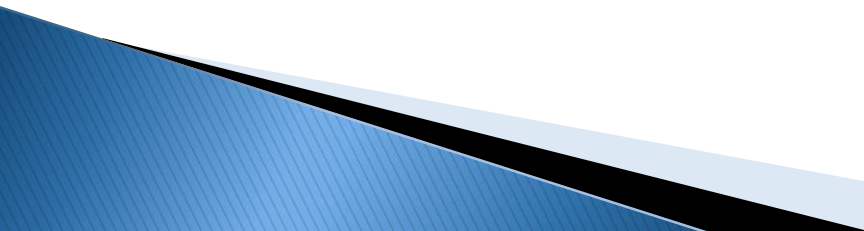
When to Seek Help

- ▶ Pregnancy
 - ▶ Vomiting for 2 meals (4 hours)
 - ▶ Persistent Ketones
 - ▶ Become drowsy
 - ▶ Become breathless
 - ▶ Acute abdominal pain/diarrhoea
- 

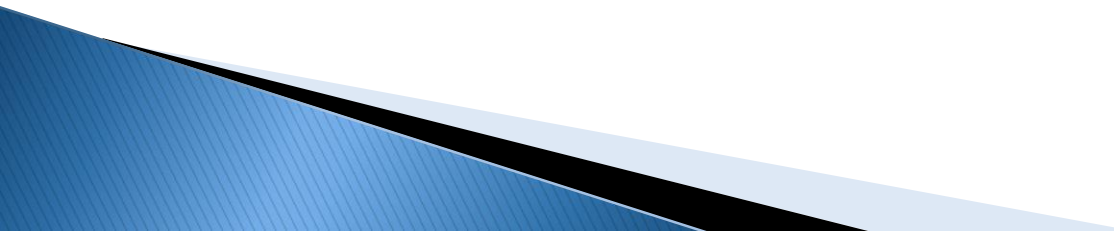
Temporary Omission of Medication

- ▶ **Metformin**
- ▶ **SGLT2i:** Names ending in ‘flozin’ – e.g. canagliflozin, dapagliflozin, empagliflozin
- ▶ **GLP1 analogues (injectables):** Names ending in ‘tide’ – e.g. liraglutide, dulaglutide, lixisenatide, semaglutide
- ▶ **ACE inhibitors:** Names ending in ‘pril’ – e.g. ramipril, lisinopril, perindopril, captopril
- ▶ **ARB’s:** Names ending in ‘sartan’ – e.g. candesartan, losartan, irbesatan
- ▶ **NSAID’s:** anti-inflammatory pain killers – e.g. ibuprofen, naproxen, diclofenac
- ▶ **Diuretics:** ‘water pills’ – e.g. frusemide, indapimide, bendrofluazide, bemetanide

Case Study 1

- ▶ Louis
 - ▶ 20yrs Old – Diagnosed with Type 1 Diabetes age 18
 - ▶ 2 day history of pyrexia, coughing up green sputum and wheeziness
 - ▶ On Tresiba 14 OD, Novorapid – 3/4/6 units
 - ▶ What do we need to advise Louis to do, to try and prevent a hospital admission?
- 

Case Study 1

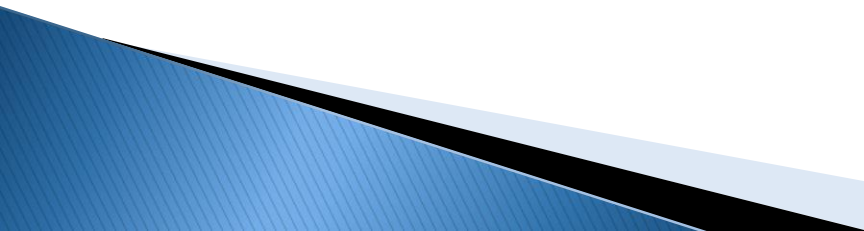
- ▶ Eating and drinking?
 - ▶ What to do with her insulin doses?
 - ▶ What to do for stress and infection
 - ▶ Monitoring
- 

Case Study 2

- ▶ Patricia
- ▶ 58 years old diagnosed with Type 2 diabetes age 53
- ▶ Humulin M3 BD 34/30, Victoza 1.2mg OD, Metformin 500mg BD
- ▶ 24 hour history of diarrhoea and vomiting.

How do we need to do to keep Patricia out of hospital?

Case Study 2

- ▶ Eating and drinking?
 - ▶ What to do with her insulin doses?
 - ▶ What to do with her Victoza?
 - ▶ What to do with her metformin?
 - ▶ Monitoring
- 

Case Study 3 – Paediatric Delayed Referral & Impact of COVID on Service Delivery

- ▶ 3 year old girl. 3 week history of polyuria, polydipsia, weight loss and lethargy
- ▶ Contacted GP surgery 2nd Dec via telephone. Was asked to call back at either 8am or 12MD the next day
- ▶ Parent called back at 8am on 3rd December & was asked to bring in a urine sample and to collect routine blood forms– which she did
- ▶ 4pm that day got a call from the surgery GP to say that the urine had glucose and ketones in it and to go to A&E
- ▶ Was in DKA at presentation and required IV insulin and fluids and 2day hospital stay

Thank you for listening

**Any Questions...
Just Ask!**

