NHS
Birmingham and Solihull
Clinical Commissioning Group

Diabetic Ketoacidosis (DKA) and recognising it

Why now and what has happened?

During this difficult time of COVID-19 one of the many challenges faced in primary care is recognition of the ill child and how to remotely assess and manage children.

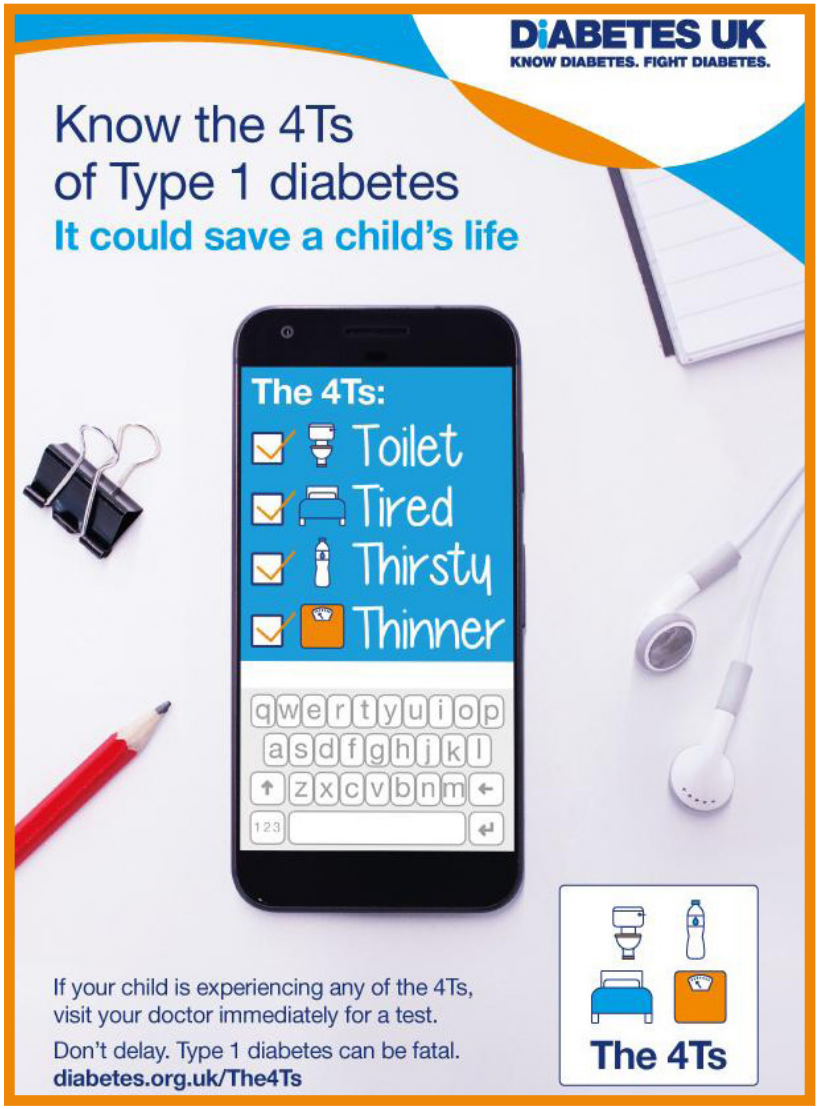
There have been a number of cases of DKA presenting as emergencies to secondary care, more than would be expected and unfortunately quite unwell at presentation. Typically children with new onset type 1 diabetes would be identified BEFORE they develop DKA so the following guidance is to help us prevent this continuing.

What is DKA?

- It is the leading cause of mortality in childhood diabetes.
- It can be fatal.
- It is the deficiency of insulin in previously undiagnosed Type 1 diabetes or not enough insulin in those already diagnosed.
- Metabolic and electrolyte disturbance is caused by insulin deficiency leading to severe dehydration and acidosis.

So what should we be looking out for?

Ask about the 4 Ts in a telephone consultation



Signs / Symptoms (Think about a COMBINATION of these rather than on their own)

- Dehydration.
- Lethargy, drowsiness or confusion.
- Polyuria ± polydipsia.
- Weight loss.
- Abdominal pain ± vomiting (may mimic a surgical abdomen).
- Rapid, deep sighing (Kussmaul's respirations).
- Ketotic breath - fruity, pear drops smell.

Any child with diabetes type 1 and a concurrent illness – ESPECIALLY those using insulin pump therapy are at risk

Other at risk groups in existing diabetes type 1

- Comorbid mental health illness.
- Previous DKA.
- Peripubertal/Adolescent girls.

Key messages

BE ON THE LOOKOUT FOR POTENTIAL DKA – **HISTORY IS KEY** – where the combination of symptoms suggests diabetes or DKA as a differential then the priority is to **ACT QUICKLY** with further actions.

A B C

Don't **E**ver **F**orget the **G**lucose...

If you suspect DKA then a urine dip and capillary blood glucose measurement will aid the diagnosis, if you can't do this in house then use the paediatric services for advice

Use remote assessment guidelines (see table) during triage to help gauge severity of illness in ANY child.

Where can I get more help and guidance?

There has been some excellent work produced by various bodies during this time to help, and we have also produced two guidance documents to help primary care in Birmingham and Solihull in remote assessment of children but also guidance on managing face to face consultation after remote assessment.

Not least of all you will see that secondary care paediatrics is supporting primary care decision making by being much more accessible.

There are two options for contacting the Paediatrics Consultant Lead:

1. PAIRS telephone advice and guidance: Tel: **0121 333 8170**
   Service available: Mon-Friday: 11am - 1pm and 3pm - 5pm.

2. UHB Paediatric advice line Tel: **07956 662852**
   Service available 9am to 7pm, seven days a week.
   (Outside these hours the paediatric registrar can be bleeped via the hospital switch board)

Both services are available to ANY primary care clinician THROUGHOUT Birmingham and Solihull

For specialist diabetes input (and referral if inside the Birmingham Children's Hospital catchment area).
Ring the switchboard on **0121 333 9999** and ask for:

Monday – Friday, 9am-5pm: Paediatric Endocrinology Registrar on call Bleep **55192**
Weekends and out of hours: RMO1 Bleep **55321**

Table 1: Clinical assessment –

Please note this is for the assessment of ALL unwell children and NOT just COVID-19/PIM-TS/DKA – this is to guide your clinical judgement and allow you to make a decision about the need for further face to face consultation

	Green - Low risk	Amber - Intermediate risk	Red - High risk
Behaviour - easily observed by video consultation or ask the pertinent questions to the parent	Alert Normal	Irritable Not responding normally to social cues Decreased activity No smile	Unable to rouse / Wakes only with prolonged stimulation No response to social cues Weak, high pitched or continuous cry / Appears ill to health care professional
Circulation - PARENTS CAN DO THIS WITH INSTRUCTION FROM THE GP - 'press on the sternum for 5 seconds and let go and count how many seconds it takes to go pink again' - even better if you can see this on video	CRT less than 2 secs	CRT 2-3 secs	CRT over 3 secs
Skin - can be observed by video consultation or ask the pertinent questions to the parent.	Normal colour skin, lips & tongue Moist mucous membranes	Pale / mottled pallor reported by parent/carer Cool peripheries	Pale/mottled/blue Cycanotic lips and tongue

	Green - Low risk	Amber - Intermediate risk	Red - High risk
Respiratory rate - can be observed by video consultation or ask the pertinent questions to the parent	Under 12mths: less than 50 Over 12mths: less than 40 No respiratory distress	Under 12mths: 50-60 breaths/minute Over 12mths: 40-60 breaths/minute	All ages: Over 60 breaths/minute
Sats in air - NOT POSSIBLE BY VIDEO CONSULT – if this is needed then consider speaking to paeds, referring to AMBER site for a face to face consultation.	95% or above	92-94%	Less than 92%
Chest recession - can be observed by video consultation or ask the pertinent questions to the parent	None	Moderate	Severe
Nasal Flaring - can be observed by video consultation or ask the pertinent questions to the parent	Absent	May be present	Present
Grunting - can be observed by video consultation or ask the pertinent questions to the parent	Absent	Absent	Present

	Green - Low risk	Amber - Intermediate risk	Red - High risk
Feeding/Hydration - ask the pertinent questions to the parent	Normal - no vomiting	50-75% fluid intake Over 3-4 feeds +/- vomiting Reduced urine output	Under 50% fluid intake Over 2-3 feeds +/- vomiting Significantly reduced urine output
Apnoeas - ask the pertinent questions to the parent	Absent	Absent	Present
Management	Child can be managed at home with appropriate care and advice. Provide verbal / written information about warning signs and when to seek further advice **See local and national links for PIL leaflets** **Empower parents so they know what to look out for and what to do**	If unsure, please contact Paediatrics as above or use the amber pathway for face to face consultation **See local and national links for PIL leaflets** **Empower parents so they know what to look out for and what to do**	Send child for urgent assessment in hospital setting. **REFER via Paediatrics as above/consider 999 if needed**

Local and National Links

For mental health urgent matters please follow your usual process. The support telephone numbers are available at:

https://www.birminghamandsolihullccg.nhs.uk/your-health/mental-health-support-offer

Guide for parents and carers of children from 0-5 - common childhood illnesses [pdf] 6MB -

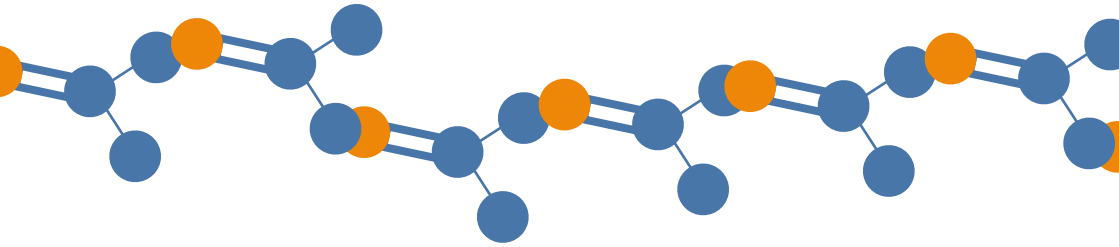
https://bwc.nhs.uk/download.cfm?doc=docm93jijm4n2987.pdf&ver=4409

Patient Information leaflets (and advice for Professionals) on the Big 6 reasons for unscheduled care and Top Twenty Paediatric conditions referred to outpatients -

https://bwc.nhs.uk/assessment-tools/

Patient.co.uk - **https://patient.info/** - search for condition specific Patient Information Leaflets

NHS UK - **https://www.nhs.uk/** - search for condition specific Patient Information Leaflets



Credit BSol CCG, primary care clinicians, secondary care clinicians BCH UHB , diabetes Uk and West Midlands Paediatric diabetes network