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Children and Young People's Wales Diabetes Network

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Children and Young People's Wales Diabetes Network
and Brecon Group

Maintenance of Essential Paediatric Diabetes Services through the Covid-19 Pandemic

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Maintaining Essential Paediatric Diabetes Services through the Covid-19 Pandemic

Situation

Responding to the Covid-19 pandemic has resulted in many changes in the delivery of healthcare, and in public expectations. Health boards have focused on treating patients with Covid-19, and have reconfigured services to meet this unprecedented demand on acute services. However, care still needs to be delivered to children and families living with Type 1 diabetes to ensure health and wellbeing is maintained, preventing hospital admissions or long-term damage to health. Additionally, newly diagnosed children and young people need to be stabilised quickly, trained in the self-management of diabetes, and supported into stable self-care.

The number of new case presentations during the pandemic is lower than anticipated, which is believed to be because of parental / carer reluctance to engage with healthcare services e.g. contact with GP, attending hospital emergency departments etc. Undiagnosed Type 1 diabetes can rapidly lead to Diabetic Ketoacidosis (DKA), which is fatal if left untreated. Delays in presentation are therefore a concern.

Background

Paediatric diabetes is a secondary care-led service, managed entirely by paediatric diabetes multidisciplinary teams (MDT) in each health board. The service is delivered across all health boards in Wales in accordance with NICE guidance and the Welsh Government's *Diabetes Delivery Plan* (DDP).

The majority of children who develop diabetes hav*e* Type 1 diabetes, the diagnosis and treatment of which is a medical emergency in order to prevent children developing DKA – the principal cause of mortality in children with diabetes. The speed of response required is very different to Type 2 diabetes. In the past three years over 30% of children were in DKA at diagnosis in Wales, which is approximately twice the rate in some countries such as Sweden.

The Welsh Government has made reducing the number of children presenting with DKA at diagnosis a priority in the DDP, emphasising that diagnosis of diabetes and initiation of treatment in children and young people should be considered with urgency and not be managed in the same manner as diagnosing Type 2 diabetes in adults. The Children and Young People's Wales Diabetes Network published a Referral Pathway in 2018 (see Appendix 1), which underlines this. All health boards in Wales were asked to adopt this pathway by the deputy Chief Medical Officer.

The referral pathway can be summarised as:

- Routinely ask questions regarding the main symptoms of Type 1 diabetes (polyuria, polydipsia, tiredness, weight loss)
- Perform a finger-prick blood glucose test immediately and act accordingly, including URGENT referral to secondary care
- Do NOT request fasting blood glucose tests or other delayed tests
- If in doubt, refer as URGENT to secondary care

Other symptoms of Type 1 diabetes include candidal or recurrent infections, enuresis in a previously dry child, and being unwell with a chest infection not responding to treatment. A child already in DKA may present with abdominal pain, vomiting, rapid breathing and confusion or altered sensorium. It is important to note the hyperventilation seen in DKA may be interpreted as respiratory symptoms associated with Covid-19 infection.

Across Wales, there are usually 12-14 children diagnosed with Type 1 diabetes every month. The number of children diagnosed in the first 4 weeks of the Covid-19 "lockdown" is considerably lower than expected based on previous years. There have also been two children diagnosed in severe DKA at diagnosis, one requiring paediatric intensive care. A case history collected by a specialist diabetes nurse includes the parent specifically sharing their reluctance to contact the health services even as their child's health deteriorated, due to their fear of exposure to Covid-19. *See Appendix 2: Case studies of diagnosis in April 2020*

Research related to Covid-19 is obviously limited due to immediacy. However, a paper by Lazzerini et al in *The Lancet Child & Adolescent Health* (https://doi.org/10.1016/S2352-4642(20)30108-5) published on 9 April 2020 contains evidence of delayed presentation of patients across a number of paediatric specialities, including Type 1 diabetes, during the pandemic. There are several reports from other areas of the United Kingdom, which confirm the evidence from Italy. In Wales, the Welsh Paediatric Surveillance Unit (WPSU) has started gathering details of delayed presentation on a weekly basis. The Royal College of Paediatrics and Child Health (RCPCH) has also asked clinicians to provide evidence of late presentations.

Assessment

The reduction in case presentations is considered to be most likely due to parent behaviour during this time. However, the move away from face-to-face consultations in primary care to telephone or remote video consultations may also be a factor in delayed diagnosis.

The public need reassurance that seeking medical assistance will not place their child in more danger, and is the best course of action. All healthcare professionals need to reduce the risk of delayed diagnosis by proactively asking about the symptoms of Type 1 diabetes within their remote triaging and consultations.

Children with established diabetes have an excellent safety netting system across Wales with specialists generally available between 8AM to 8PM, and open access to paediatric

admissions units and wards, in case of any emergency. This is an important service that enables families to keep children healthy and reducing the need for diabetes-related admissions. This service needs to be maintained to ensure children and young people continue to manage their diabetes safely and do not require admission to hospital.

Recommendations

Health boards should use their communications channels to tell people not to delay seeking clinical advice if their child is unwell. All health boards should broadcast public-facing messages specifically about the 'four Ts' – the main symptoms of Type 1 diabetes. Diabetes UK Cymru have infographics available as part of their #KnowType1 campaign.

Recommendations at Diagnosis

- Whilst triaging a child (≤ 16 years) especially with non-specific symptoms, it is important to ask for the common symptoms of type 1 diabetes including the 4Ts: Thirsty (polydipsia), Toilet (Polyuria), Tired, Thinner (weight loss).
- Clinicians and triaging staff must be aware of other symptoms including candidal or recurrent infections, enuresis in a previously dry child, and unwell with a chest infection not responding to treatment.
- Clinicians and triaging staff must be aware that a child already in DKA may present with abdominal pain, vomiting, rapid breathing and confusion or altered sensorium. It is important to note the hyperventilation seen in DKA may be interpreted as respiratory symptoms associated with Covid-19 infection.
- All cases of suspected diabetes must be assessed using a **FINGER-PRICK BLOOD GLUCOSE TEST** immediately, and the national Referral Pathway followed (see Appendix 1). If a finger-prick test is not available, the pati**ent should be referr**ed urgently to secondary care with suspected diabetes. No other tests should be requested.
- If in doubt, pa**tients should be referred as URGENT – SUSPECTED TYPE 1 DIABETES** to secondary care
- Children who are newly diagnosed with diabetes during this crisis will need specialist paediatric diabetes MDT input and face-to-face education until they can be safely discharged home. Face to face input, if risk assessed as essential, should continue. Otherwise further follow up can be arranged in the form of virtual clinics.
- Teams should participate in the WPSU weekly data collection and note the case histories, particularly differentiating between *delayed presentation* and *delayed diagnosis*.

Recommendations for Existing services

- For existing patients with diabetes, the paediatric MDT, including consultant cover, must be protected to provide advice for managing intercurrent illness, technical issues with insulin pumps and continuous glucose monitoring, insulin dose adjustments, sick day advice to minimise/prevent hospital admissions especially during this crucial time.
- In health boards where specialist diabetes advice is provided via an 'on call' phone in the team, this service must be continued.
- All children and young people with diabetes should continue to have open access to their local children's assessments units for advice'.
- Specialist members of the MDT should not be redeployed into other services except as a last resort.
- Children and young people who are extremely vulnerable should be proactively safety netted with virtual clinics and telephone contact over this periods to ensure their safety and appropriate ongoing diabetes management.
- Teams should promote and use the Digibete App to communicate important information with families who have set up accounts. (All children with diabetes in Wales, and their families, have access to this App, which is being rolled out through clinics.)

Appendix 1 – All-Wales Referral Pathway for Suspected Type 1 Diabetes

Referral and Ongoing Care for Children with Suspected Diabetes

This pathway is for children and young people up to their 16th birthday

Common symptoms:

Thirsty
Toilet use (to pass more urine)
Tired
Thinner (weight loss)

Other symptoms:
Faltering growth
Candidal or recurrent infections
Enuresis in a child previously dry
Unwell with a chest infection not responding to treatment

In DKA:
Abdominal pain, vomiting
Ketotic odour to breath
Hyperventilation
Confusion/Coma
Shock

If any of these symptoms are present, ask about the "4 T's"
Recognise a seriously ill child[5] [6]

SUSPICION of diabetes

Perform capillary blood glucose testing IMMEDIATELY*[2]

Random blood glucose level >11mmol/l?

Yes

Refer to local Acute Paediatric Service on the SAME day.

If seriously ill, dial 999 and transfer by ambulance to local emergency department

No

Reconsider diagnosis

* In accordance with current NICE guidance
If BG testing is not available then perform urinary dipstick testing
If BG or urinalysis not available then refer immediately
Do not perform fasting BG measurement, HbA1C, or glucose tolerance test

Appendix 2 – Case studies of Delayed Presentation of Type 1 Diabetes, April 2020

There is evidence that members of the public are not engaging with NHS services due to fears of contracting Covid-19 in a healthcare setting.

The Children and Young People's Wales Diabetes Network has monitored a reduction in presentations of Type 1 diabetes during the Covid-19 pandemic, and is issuing guidance to health boards. The following case studies from April 2020 support this guidance.

Case Study 1 – North Wales, April 2020

At first presentation of Type 1 Diabetes Mellitus, a 9 year old had a 22 hour history of increasing difficulty breathing, vomiting and decreasing level of consciousness. The child's mother was shielding from Covid 19 due to multiple health problems, hence the whole family were self isolating. The parents presumed the child's symptoms to be due to Covid-19 because of her rapid breathing and isolated her in the family home. The family reported initial reluctance to bring the child to the hospital and increase the risk of the mother contracting Covid-19. However, as the child further deteriorated they contacted the GP, who suspected Diabetic Ketoacidosis (DKA) and advised the family to call an ambulance urgently.

On arrival to the emergency department, the child was in potentially life threatening severe DKA with a pH of 6.83.

Of significance is that the father reported to the staff that if they had not been told to call an ambulance they would have continued to stay at home. This potentially life threatening situation was recognised by appropriate triaging in the GP consultation and highlights the publics reluctance to present to a health care setting..

Case Study 2 – South Wales, April 2020

A child with newly diagnosed type 1 diabetes who had a 3 week preceding history of polyuria, polydipsia, weight loss and lethargy was not brought to the GP surgery for fear of contracting Covid-19. On presenting at the GP surgery, appropriate history was taken, an immediate finger prick blood glucose test was done and the child was referred appropriately on the same day to secondary care with a diagnosis of type 1 diabetes.. There was no delay in primary care and the diagnosis was appropriately done at presentation. However, this case highlights the reluctance from the public to present to a health care setting.

Key learning points

- These case studies illustrate the vital role of primary care in diagnosis of Type 1 diabetes
- In both case studies primary care clinicians appropriately diagnosed type 1 diabetes and referred urgently to secondary care. . The timely actions by the GPs in recognising the potentially life threatening situation of DKA has led to good outcomes for patients and their families
- It is important to highlight that hyperventilation in DKA may be misinterpreted as the respiratory symptoms of Covid 19 infection.