Reducing DKA at diagnosis of type 1 diabetes in children.

**Initiative Type**  System Improvement  
**Status**  Plan  
**Added**  13 December 2019  
**Last updated**  27 February 2020  

**Summary**

In Queensland approximately 45% of children present with Diabetic Ketoacidosis (DKA) at diagnosis of Type 1 diabetes. DKA is the major cause of mortality in children with Type 1 Diabetes. DKA is a metabolic emergency requiring intensive care that can be avoided by recognising the signs of high blood glucose and prompt commencement of insulin therapy. Increasing community awareness and GP education for early diagnosis and prompt insulin treatment for Type 1 diabetes is vital to prevent Paediatric emergencies.

The project will prepare an awareness campaign to reduce preventable Diabetic Ketoacidosis (DKA) at diagnosis of Type 1 Diabetes in Queensland children under 16.

Consumers, clinicians and other relevant stakeholders will be consulted to co-design campaign messaging and material. Resources and campaign messaging will be developed ready for the next stage of the project which is the delivery of a state wide awareness campaign.

**Key dates**  Oct 2019 Jun 2020  
**Implementation sites**  Townsville HHS, CHQ HHS, Mater HHS  
**Partnerships**  JDRF, Diabetes Australia Queensland, 13Health, PHNs, Childcare Alliance Queensland, Independent Schools
Queensland, Diabetes Australia
Queensland, Child and Youth Health Services

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Aim
Reduce rates of preventable Diabetic Ketoacidosis (DKA) at diagnosis of Type 1 Diabetes (T1D) in children under 16 in Queensland.

Improve parent, carers and community knowledge of the symptoms of hyperglycaemia and seek early health care.

Identify stakeholders to improve preventable delays in diagnosis of hyperglycaemia and DKA

Benefits
Lower Paediatric Intensive Care Unit (PICU) admissions and hospital length of stay

Decreased morbidity and complications of T1D associated with DKA

Improved psychosocial adjustment to a chronic disease for the family and child

Background
A Queensland state wide audit of Paediatric Diabetes Services by Paediatric Endocrinologists Jerry Wales from Queensland Children's Hospital and Jason Yates of The Townsville Hospital reported DKA in 44.7% of new cases of T1D in 2017. Presentation in DKA is a Paediatric emergency and can lead to immediate morbidity
and mortality. A literature review confirms international rates vary from 13% to 80% with 25% the accepted mean. Many publications cite delayed diagnosis is related to subtle symptoms or an inter-current illness that can make the diagnosis challenging for Primary Care Physicians who rarely diagnose the disease. Yet T1D can be simple and inexpensive to diagnose and many researchers recommend the need for public awareness campaigns and education to health care providers to improve symptom recognition.

Several published public awareness campaigns report a reduction in DKA rates following campaigns. This project will use lessons learnt from previous national and international public awareness campaigns and use collaborative design methodology for healthcare improvement.

**Evaluation and Results**

The outcome measure is a target rate of 25% for DKA at diagnosis of type 1. In 2019 the rate was 45% in the audit by Drs Yates and Wales, published in the Journal of Paediatrics and Child Health, with estimates of 50% this year.

**References**


Patwardhan R et al. DKA incidence in children at first presentation of T1D at an Australian regional hospital: The effect of health professional education. Paediatric Diabetes 2018; 1-7

King BR et al. A diabetes awareness campaign prevents DKA in children at their initial presentation with T1D. Paediatric Diabetes 2012:13:647-651

Further Reading


Bui H et al. Is DKA at Disease Onset a Result of Missed Diagnosis? The Journal of Paediatrics 2010;156:472-7

Lokulo-Sodipe et al. Identifying targets to reduce the incidence of DKA at diagnosis of T1D in the UK. Arch Dis Child 2014;99:438-442

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