

# Pattern of emergency department attendances by children with Type 1 Diabetes mellitus (T1DM) – informing a 24 hour helpline service

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## BACKGROUND

- There is a 4 to 24% variation across the NHS whereby a paediatric Emergency Department (ED) attendance results in an admission.<sup>1</sup> It has been noted that 71.5% of paediatric ED attendances were self-referred by patients and their families.<sup>2</sup>
- The National Institute for Health and Care Excellence (NICE), UK advise that children and young people with T1DM have readily accessible advice from clinicians in the form of a phone line.<sup>3</sup>
- The National Paediatric Diabetes Audit (NPDA) reviews data regarding acute admissions in children with T1DM across the United Kingdom However there is no data on the use of emergency services by them

## OBJECTIVE

- To audit ED attendances amongst children with T1DM registered under the care of an NHS Paediatric Diabetic Unit (PDU) and the impact of its' 24 hour phone line service.
- Provide a baseline service evaluation to identify key areas that may require targeting to reduce preventable ED attendances in this cohort.

## METHODS

- The ED attendance activity of all patients (n=177) registered under the care of the PDU between 1<sup>st</sup> September 2011 and 31<sup>st</sup> August 2014 were retrospectively reviewed using electronic and paper records.
- Attendances secondary to the patient's 'first' diagnosis of diabetes were excluded from 'cause' analysis.

## Demographics

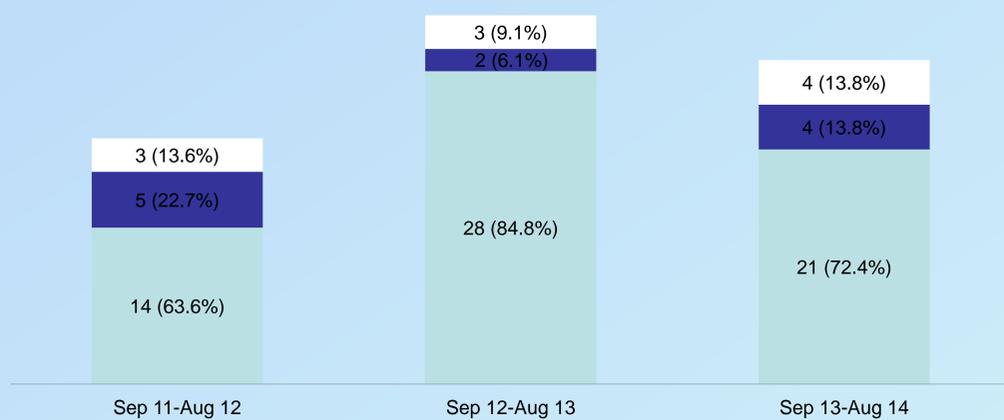
- The total number of ED attendances over the 3 year period was 167.
- 53.1% of the cohort was male and 46.9% female (National gender distribution; 52% male and 48% female)
- Modal age of diagnosis; 2-4 years. (National peak age range; 10-14 years)

## Presentation

- An average of 39 children (23% of registered patients) attended the ED each year.
- The average number of ED attendances per child per year was 1.4 (IQR 1 to 1.6).
- 72% of ED attendances were related to diabetes, of which 69.7% (84 attendances) were in children with an already established diagnosis of T1DM.

**Figure 1: Distribution of reasons for Diabetic ED attendances (Excluding first diagnosis)**

Hyperglycaemia + DKA    Hypoglycaemia    Troubleshooting

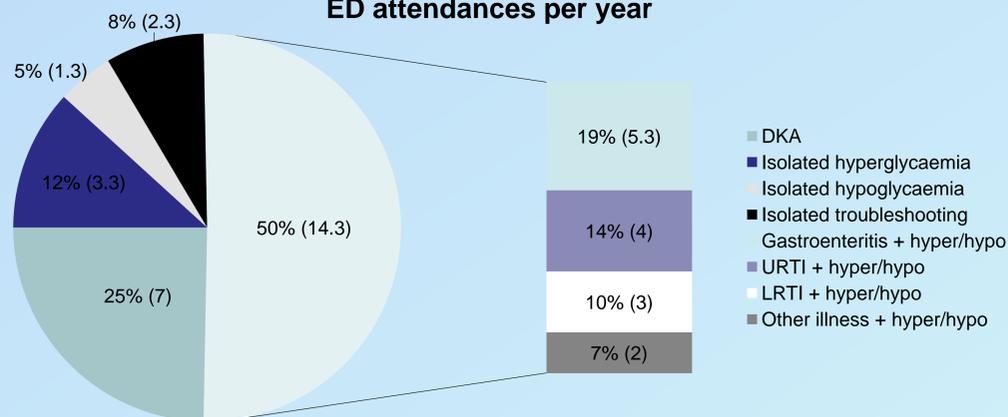


## Underlying Causes

- 73.8% (63) of attendances were secondary to hyperglycaemia (including DKA) (Fig 1)
- 14.2% were due to hypoglycaemic events
- 12.2% were related to troubleshooting (equipment or sick day queries)
- An average across 3 years showed that half of these attendances were associated with other illnesses (Fig 2)

## RESULTS

**Figure 2: Further analysis of reasons for ED attendances per year**



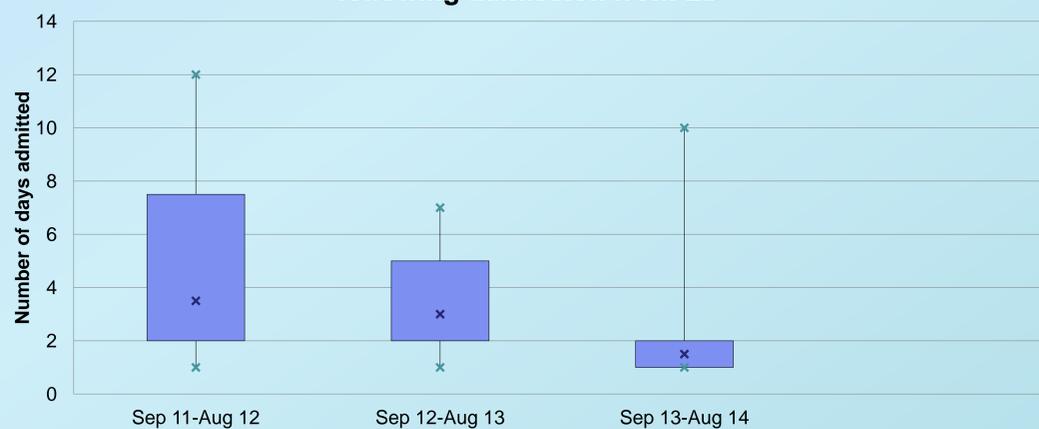
## 24 hour Diabetic Helpline Usage

- Only 11.5% of diabetes related ED attendances were preceded by usage of the phone line

## Admissions

- 49/84 (56.3%) of attendances resulted in an admission
- The mean length of stay (LOS) was 3.4 days with a trend towards a shorter LOS across the 3 years (Fig 3)

**Figure 3: Length of inpatient stay following admission from ED**



## CONCLUSIONS

- One quarter of the children registered at our unit had utilized the ED at least once a year. This could be an underestimate as only local ED attendances were reviewed
- Vast majority of attendances were due to a diabetic complaint, with only half of them being associated with a concurrent inter-current illness.
- Up to 12% of attendances were secondary to troubleshooting queries that could have been resolved outside of the ED.
- Half of the attendances were discharged back into the community and it is possible that these attendances could have potentially been prevented.
- Better awareness and utilisation of the dedicated 24 hour advice line will enable an improved patient experience and outcome.