

# **Are we Seeing a Worrying Reversal of Falling Trends in DKA admissions in Newly diagnosed Children and Young People with Diabetes ?**

Preliminary Analysis of continuous Audit Data – March  
2017-August 2018

Dr A Raffles Cons Paediatrician

Dr Gunjan Jain Cons Paediatrician

East and North Herts NHS Trust Institute of Diabetes and Endocrinology  
(ENHIDE)

# Overview

- **In the last 18mths – from March 2017 to August 2018 – through a process of continuous audit we have seen a worrying reversal of the trend in admissions of Newly diagnosed diabetic (NDD) Children and Young People presenting in Diabetic Ketoacidosis (DKA) to Our Service.**
- **From a notable fall in admissions of NDD with DKA, as a percentage of all admissions with DKA , from a peak of over 50% to a low rate of 20%, over a 5 year period 2012-2017 this has reversed in the last 18mths – and our NDD with DKA rate is now over 80% - the rates for NDD with DKA across England & Wales for this period have remained at 25%.**
- **Newly diagnosed C&YP not in DKA rates in East and North Herts have therefore fallen from 85% in this period to 58% currently, with the overall rate of NDD NOT presenting with DKA in England & Wales remaining at 77% throughout the 6.5 year period.**
- **This worrying reversal in trends requires further detailed analysis to establish if any single or multiple factors in the pathway of care for these patients across the health service delivery systems responsible can be identified, or whether there are demographic changes responsible for the reversal.**
- **It is suggested that a confidential enquiry into individual cases is established, to identify and where possible provide more robust advice in order to prevent further deterioration in the management of the newly diagnosed young person with diabetes.**

# Figure 1: East and North Herts NHS Trust – Local v National Perspectives on DKA Admissions in Children and Young People aged 0-19 years 2012-2018

**Local v Regional v National Perspectives on DKA admission rates in C&YP aged 0-19th Birthday - 2012-2018**

Years	E&N Herts Total Aged 0-18yrs with T1 diabetes	Total for yr to date	E&N Herts Trust NDD	NDD In Other Trusts but E&N Herts Pts	Total NDD all sources*	NDD NOT IN DKA	NDD With DKA	DKA NOT NDD	DKA all ( NDD and Non NDD)	E&W % Not DKA at New Diagnosis % of All Newly Diagnosed Diabetes	E&N % Not DKA at New Diagnosis % of All Newly Diagnosed Diabetes	E&W % in DKA at New Diagnosis % of ALL DKA Admissions	E&N % in DKA at New Diagnosis % of ALL DKA Admissions	E&W DKA at Admission (Not NDD) % of ALL diabetics in DKA	E&N DKA at Admission (Not NDD) % of ALL diabetics in DKA	All Diabetes Admissions E&N Herts
										n	n	n	n	%	%	
April 1st 2012-March 31st 2013	220		26	5	31	22	6	7	13	77	85	25	46	75	54	Not Available N/A
April 1st 2013- March31st 2014	230		35	3	38	28	7	7	14	77	80	26	50	74	50	N/A
April 1st 2014- March31st 2015	240		23	10	33	19	4	6	10	77	83	26	40	74	60	72
April 1st 2015- March31st 2016	250		22	6	28	18	4	11	15	77	82	26	27	74	73	73
April 1st 2016- March31st 2017	260		26	9	35	22	4	16	20	77	85	25	20	74	80	97
April 1st 2017- March31st 2018	270		40	8	48	29	11	7	18	77	73	26	61	74	39	110
April 1st 2018-October 31st 2018	12	Avg on Month	21	2	14	5	7	1	8	77	42	26	88	74	13	N/A
Total 2012-18			193	43	227	143	43	55	98	77	74	26	44	74	56	

Raw data taken from "cleaned" quarterly reports 2012-2017

Data Validated against Departmental database

Notes: \* Total Newly diagnosed includes diagnosed or transferred from elsewhere

Patients Newly diagnosed with diabetes elsewhere are not included in this DKA Audit

# Table 1 Age of Patients

## 2018 –

- |                              |                           |     |
|------------------------------|---------------------------|-----|
| • Mean Age of NDD with DKA   | 8 years (range 2 - 16yrs) | N=7 |
| • Mean Age of NDD Not in DKA | 12 years                  | N=4 |
| • Non NDD with DKA           | 16 years                  | N=1 |

## 2017 –

- |                                |                                |       |
|--------------------------------|--------------------------------|-------|
| • Mean Age of NDD with DKA     | 11 years (range 1-18years)     | N= 11 |
| • Mean age of NDD Not with DKA | 10.4 years (range 2 -17 years) | N=29  |
| • Mean age Non NDD with DKA    | 16.8 years (range 10-18years)  | N=9   |

# Conclusions

- Late diagnosis of diabetes in Children and Young People may have serious consequences in both their acute and long term management.
- This data is suggestive of a change in the frequency of newly diagnosed patients presenting in established DKA
- Caution is needed in the interpretation of small, local changes, which may not be reflective of any regional or national changes. It is however a concerning change which needs further exploration.
- As numbers are small it should be possible to examine in detail any contributing factors. In order to establish any relation between the rise in rates of DKA in the newly diagnosed diabetic child or young person it is necessary to explore all aspects of the pathway the individual followed, leading to diagnosis.

# Recommendations

- One outcome of the observation that rates of DKA are rising in newly diagnosed diabetics would be to establish an expert panel which reviews all such admissions, against established guidelines and to identify modifying factors in the patient's pathways which would reduce the risk of such an adverse development.
- This expert panel could consist of both diabetic specialists and primary care providers, who have an interest in diabetes and its management, and who recognise the challenges in the diagnosis and management of undifferentiated medical problems presenting in the primary care setting.
- This review should access representatives across a range of situations and services where newly diagnosed diabetes may present, including educational and social settings of care
- Parents and relatives of children who may present in this situation should be represented.
- In order to do this close working between all health providers is required, in order to establish any factors which could help reduce the risk of developing DKA as a presenting symptom.
- **Only with a coordinated approach will progress be made in early identification and management of this group of children and young people.**