Parent-child dyads in diabetes: Does it affect control and outcomes for both or either?
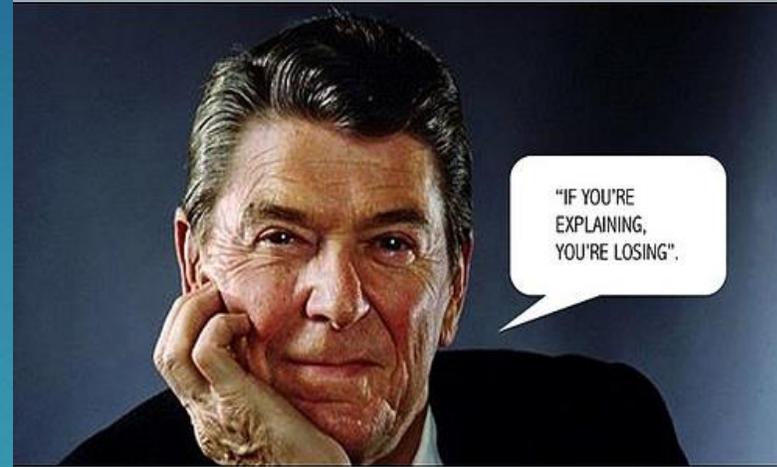
CONOR CRONIN

CNM 2 CHILDREN'S DIABETES

What is a Dyad???
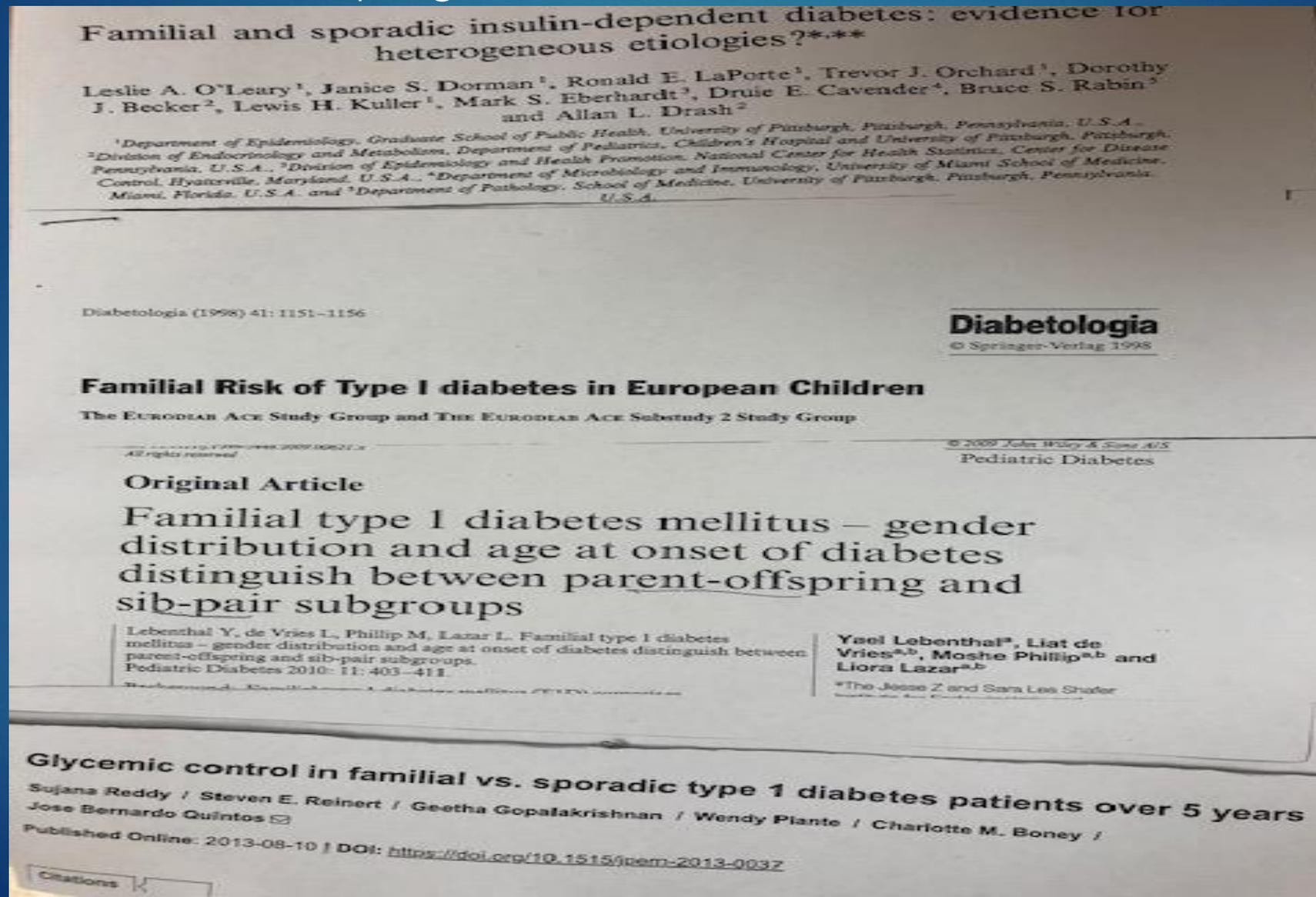

"IF YOU'RE EXPLAINING, YOU'RE LOSING".

▶ PAIR *specifically, sociology* **:** two individuals maintaining a sociologically significant relationship

▶ FORMAL **something that consists of two parts**

▶ SPECIALIZED social science **a group of two people, which is the smallest possible social group:**

Background and Objectives

- Approximately 10-12% of type 1 diabetes (T1D) patients have affected first degree relatives either parent-offspring (dyads) or sibling-pairs.

- To examine glycaemic control and engagement with services in parents with T1D following their child's diagnosis.

- To examine the children of these dyads glycaemic control, rates of Diabetic Ketoacidosis (DKA) at presentation and episodes of severe hypoglycaemia (SH) compared to a control group.

- Previous studies have looked at demographic data on parents, children and offspring with T1D

Familial and sporadic insulin-dependent diabetes: evidence for heterogeneous etiologies?*,**

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Familial Risk of Type I diabetes in European Children

The EURODIAB ACE Study Group and The EURODIAB ACE Substudy 2 Study Group

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Original Article

Familial type 1 diabetes mellitus – gender distribution and age at onset of diabetes distinguish between parent-offspring and sib-pair subgroups

Lebenthal Y, de Vries L, Phillip M, Lazar L. Familial type 1 diabetes mellitus – gender distribution and age at onset of diabetes distinguish between parent-offspring and sib-pair subgroups. Pediatric Diabetes 2010: 11: 403–411.

Yael Lebenthal[a], Liat de Vries[a,b], Moshe Phillip[a,b] and Liora Lazar[a,b]

[a]The Jesse Z and Sara Lea Shafer

Glycemic control in familial vs. sporadic type 1 diabetes patients over 5 years

Sujana Reddy / Steven E. Reinert / Geetha Gopalakrishnan / Wendy Plante / Charlotte M. Boney / Jose Bernardo Quintos

Published Online: 2013-08-10 | DOI: https://doi.org/10.1515/jpem-2013-0037

Citations

Methodology

- This was a quantitative retrospective review of all children and parents with T1D attending CUH

- 42 parent-offspring pairs and 30 sibling pairs were identified.

- T1D where both the parent and child received their diabetes care in CUH. The offspring must have had diabetes of at least 2 years duration.

- Excluded were those with other forms of diabetes.

- Following the application of these criteria 28 eligible parent-child dyads were identified.

- **Control:** For each of the 28 offspring identified the next newly diagnosed child matched by age and gender was assigned as a control.

Results Parents

- From January to April 2018 the number of children attending with a first degree relative with T1D was 61 (16.4%) with the parent-child dyads numbering 31 (8.3%) and the child-sibling numbering 30 (8.1%).

- 17 of the 28 parents agreed to take part in the study giving a response rate of just over 60%.

- Gender distribution among the parents revealed a male preponderance with 13 fathers (76%) and a female preponderance among their offspring at 11 (64%).

Results Parents

- 6 of the 17 parents are not currently attending any diabetes service;

- Of the 11 that do attend the diabetes service, 5 were seen in the clinic at least twice per year with the remaining 6 seen once per year since diagnosis.

- 5 of the parents started CHO counting following their child's diagnosis.

Results Parents

▶ 13 of the parents use S/C insulin with 4 on insulin pump therapy.

▶ The mean HbA1c at 6 months was 65.88 (8.2%) and was again 65.88 at 2 years with no statistically significant changes seen in the study period

▶ 4 of the parents did not have a HbA1c measured.

▶ Due to clinic intervals the majority of parents had their HbA1c checked erratically which may explain the low numbers that had their HbA1c measured at 6 monthly intervals.

Results Children

- The mean age at diagnosis in the dyad group was 7.03 years and 7.14 years in the control group.

- The mean HbA1c level in the dyad group (91, 10.5%) was lower at diagnosis compared to the control group (99, 11.2%).

- Twice as many of the control group (14) presented in DKA at diagnosis compared to the dyad group (7).

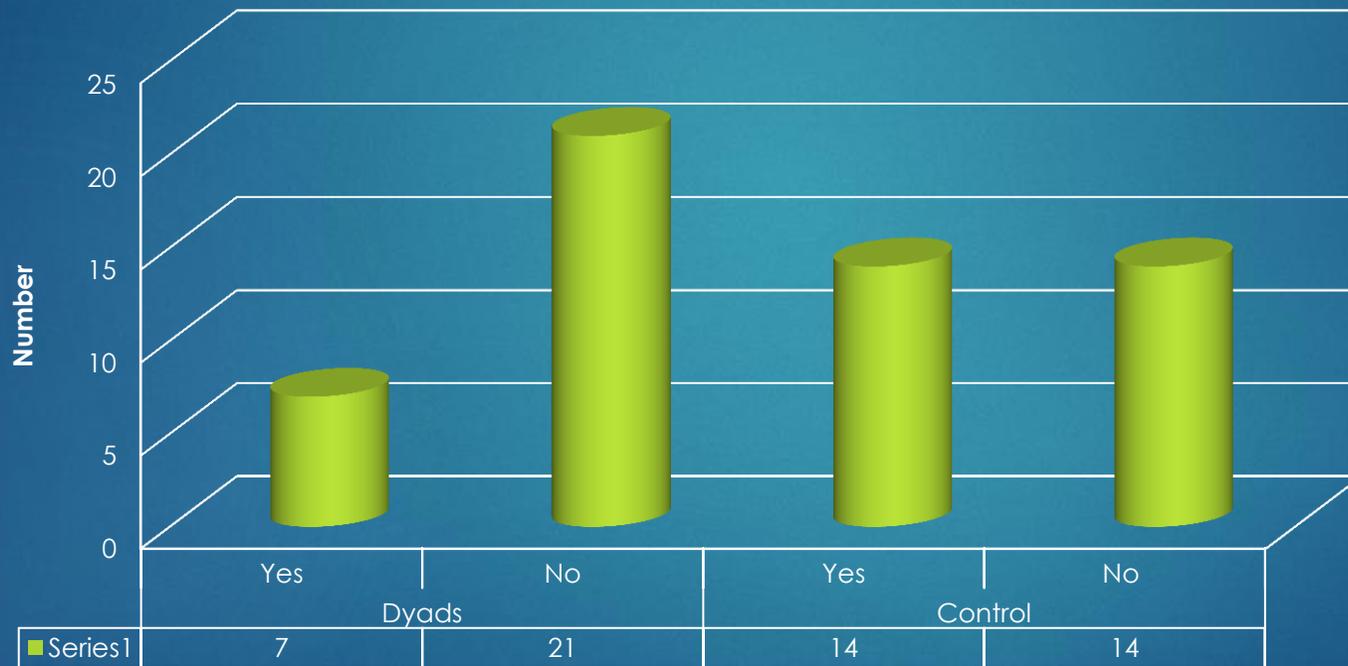- The number of severe hypoglycaemic events in the dyad group was 3 compared to 4 in the control group.

HbA1c Child V Control

HbA1C Dyads v Control
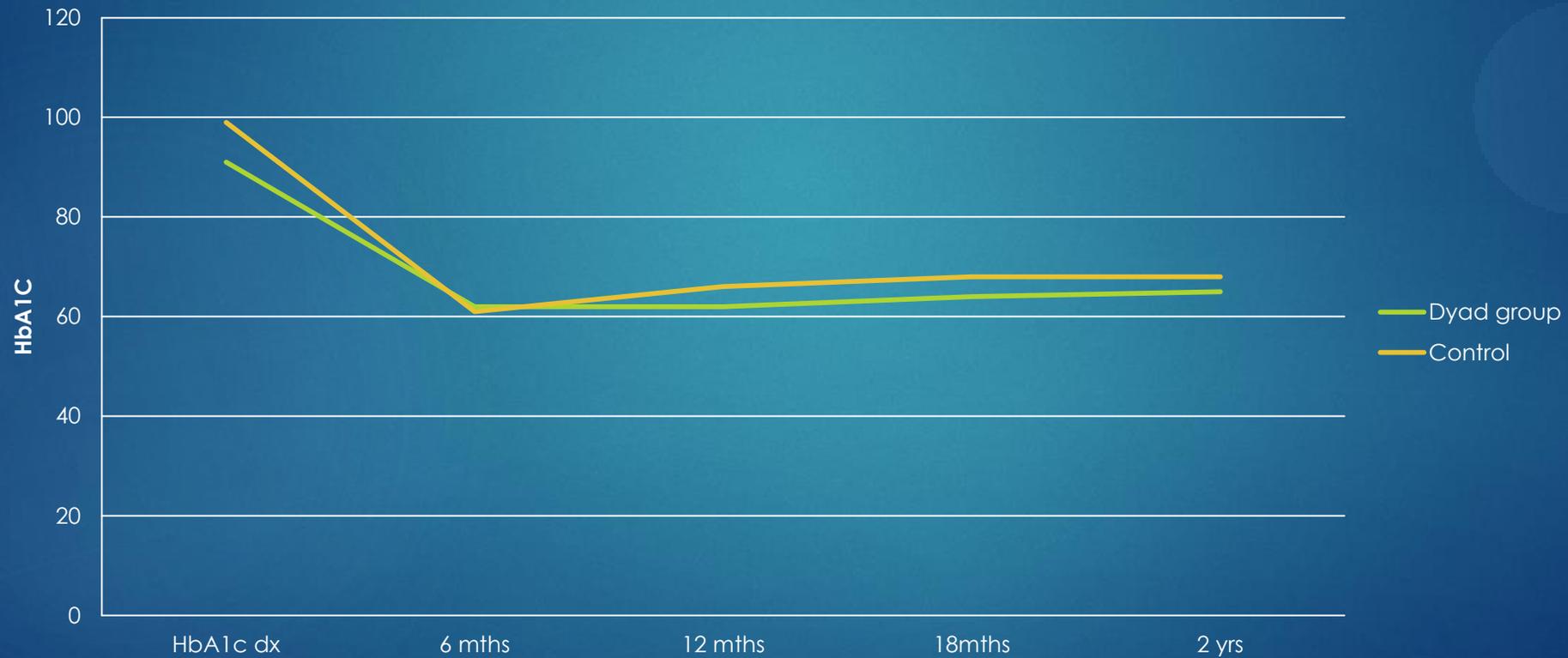
DKA: Child V Control

DKA at diagnosis

Number				
	Yes	No	Yes	No
	Dyads		Control	
Series1	7	21	14	14

Discussion

▶ The rate of T1D among first degree relatives (16.4%) is higher than observed in previous studies. No specific reason could be found to explain this..

▶ The male preponderance among the parents and female preponderance among the offspring corresponds with previous studies that show that T1D is 2-3 times more common in the offspring of men (Craig *et al.,* 2014).

▶ 5 of the 6 parents had previously attended CUH but seem to have got "lost" in their young adult years due to missed appointments. Casey *et al.,* (2014) in an audit of their practice found that young adults missed on average 3 of 7 appointments offered over a 24 month period.

Discussion

- The parents mean HbA1c in the 2 years following the child's diagnosis was 65mmol/mol.

- Casey *et al, 2014* found that the average HbA1c measured over a 24 month period was 81mmol/mol (9.6%).

- It was decided to compare with the 2016 Scottish Diabetes Survey. Here the mean HbA1c result measured over a 15 month period was 67.5mmol/mol (8.3%).

Discussion

- The lower HbA1c levels at diagnosis among the children and lower rates of DKA may be due to an earlier recognition among the parents.

- A greater family awareness may have a role in achieving earlier diagnosis and preventing DKA.

- However 25% of the dyad group still presented in DKA at diagnosis.

- Both groups saw similar improvements in HbA1c in the 2 years post diagnosis.

- When compared to the general paediatric T1D patient population the HbA1C levels were again broadly similar with a mean HbA1c level of 64 mmol/mol observed in 2017.
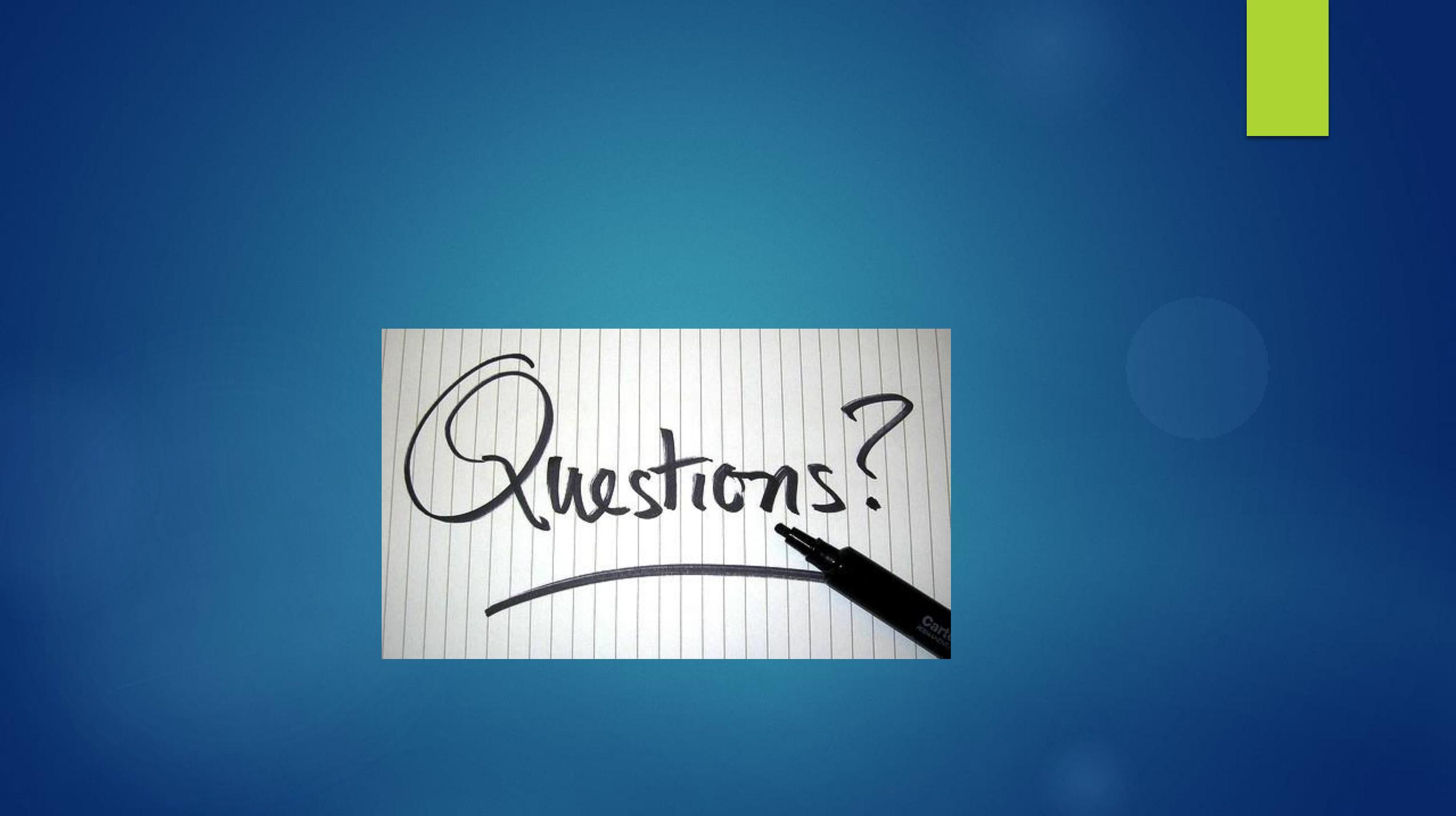
Conclusions

▶ While 16 of 17 parents responded that the education provided to their children improved their own diabetes care no improvements were seen in clinic attendance and HbA1c levels following their child's diagnosis.

▶ The present challenges facing adult diabetes services in relation to clinician numbers and increased intervals between clinic appointments leads to difficulties in ascertaining if having a child with T1D makes any difference to parent's clinic attendance or HbA1c levels.

▶ A limitation is that it was retrospective with a relatively small sample size taken from just one centre.

▶ Further investigations looking at larger populations across multiple centres should be carried out.

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