

## Parent perceptions of new paediatric diabetes telephone clinics during COVID-19

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### Abstract

#### *Introduction*

During the COVID-19 lockdowns, telephone clinics (TCs) were introduced to continue paediatric diabetes care in Children's Health Ireland Crumlin.

#### *Methods*

Paper questionnaires were distributed in face-to-face diabetes clinics (FTFC) in October 2020. TC users were invited to participate. Results were analysed using Excel.

#### *Results*

Analysed responses represent 15.9% of the TC user population (36/226). Median patient age was 12 years (range 5-16, 35/36). Treatment was with pump therapy in 54.3%(19/35) and subcutaneous injections in 40% (14/35). Continuous glucose monitors were used by 79.4% (27/34) and fingerprick measurements by 20.6% (7/34). Median satisfaction was 8/10 (range 2-10, 36/36). TCs were: 'better than FTFC' in 5.6% (2/36), 'about the same as FTFC' in 22.2% (8/36), 'not quite as good as FTFC but an acceptable alternative' in 63.9% (23/36) and 'not satisfactory' in 8.3% (3/36). 88.2% (30/34) reported TCs helped to safely continue diabetes management. Advantages included reduced waiting times (22.2%, 8/36), less time away from work/school (19.44%, 7/36), and less travel time (16.7%, 6/36). Disadvantages included lacking HbA1c results (25%, 6/24) and a less personal experience (25%, 6/24). 64.7% (22/34) were interested in continuing TCs in combination with FTFC long-term.

#### *Conclusion*

This pilot study reported high rates of parent satisfaction and interest in continuing TCs in a small sample size.

## Introduction

The use of telemedicine is rapidly growing. Within paediatrics, even prior to the pandemic, there was evidence that telemedicine services provide comparable or better care when compared with in person services <sup>1, 2</sup>. At Children's Health Ireland (CHI) at Crumlin, there were no telemedicine services prior to the COVID-19 pandemic. CHI at Crumlin runs the largest, tertiary paediatric diabetes centre in Ireland, serves over 500 patients and relies heavily on diabetes technologies, data for which can be remotely accessed.

This data was uploaded by patients. Glucose trends, values and an estimated HbA1C for patients using Continuous Glucose Monitors (CGMs) was accessed via an online software program. Patients using fingerprick glucose monitoring either manually uploaded glucose readings to an online platform that acted as a diary or used a paper diary. Other aspects of clinical care were not possible at TCs. This included review of injection sites, HbA1c measurement and contemporaneous multidisciplinary team (MDT) involvement.

## Methods

TCs were introduced in March 2020. TCs comprised a telephone call with an endocrinology consultant or Non Consultant Hospital Doctor (NCHD). Prior to TCs the data manager phoned patients and assisted with data upload. An MDT meeting after TCs identified patients who required subsequent input from other MDT members. Face to Face Clinics (FTFCs) comprised in person nursing and medical review, with dietetics and psychological input as appropriate.

The primary outcome was parent satisfaction with TCs. Secondary outcomes included potential areas for improvement, and interest in continuing a combination of TCs and FTFCs. Between March and May 2020, only TCs were implemented following the lockdown, with cessation of FTFCs. Following this, a combination of TC and FTFCs were conducted with a phased reopening of FTFCs over this time. At the time of survey in October 2020, 253 TCs had been carried out, and 226 patients had attended at least one TC.

Parent/patient questionnaires were compiled by a paediatric endocrinologist, clinical nurse specialist and data manager. Paper questionnaires were distributed in October 2020 in the hospital waiting room while patients awaited their FTFC. All parents/guardians of patients who previously attended a TC were invited to participate. No identifying details were collected, and questionnaires were completed anonymously. The questionnaire comprised sixteen quantitative and four qualitative questions. A combination of open questions, dichotomous questions and Likert scales were used. Results were analysed using Microsoft Excel.

## Results

Thirty-six questionnaires were completed among 226 patients who attended at least one TC (15.9%, 36/226). Paper questionnaires were distributed at FTFCs in October 2020. Six questionnaires were excluded as those patients indicated they had not attended a TC in their responses. All 36 remaining surveys were analysed. Where there are partial responses, the completion rate is quoted. The completion rate was 87.9%.

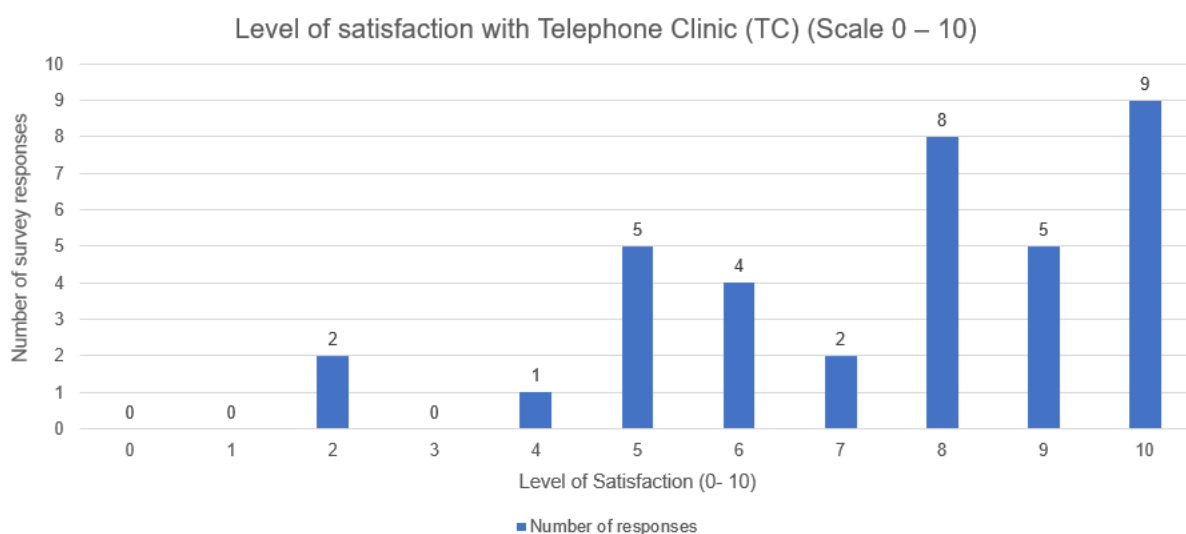
### Demographics

The median age was 12 years (range 5 – 16 years), completion rate 97.2% (35/36). Treatment was with continuous subcutaneous insulin infusion (CSII) in 54.3% (19/35), injections with carbohydrate counting in 37.1% (13/35), twice daily injections in 2.9% (1/35), metformin in 2.9% (1/35) and monitoring only in 2.9% (1/35). CGMs were used by 79.4% (27/34) and fingerprick measurements by 20.6% (7/34).

### Satisfaction

Overall satisfaction rate is detailed in figure 1. Comparative satisfaction of TCs was as follows: ‘better than FTF’ in 5.6% (2/36), ‘about the same as FTF’ in 22.2% (8/36), ‘not quite as good as FTF but an acceptable alternative’ in 63.9% (23/36) and ‘not satisfactory’ in 8.3% (3/36). Respondents reported they received sufficient technological support to upload data prior to TCs in 94.3% (33/35) and insufficient support in 5.7% (2/35).

Figure 1: Overall level of satisfaction with Telephone Clinics (TCs)



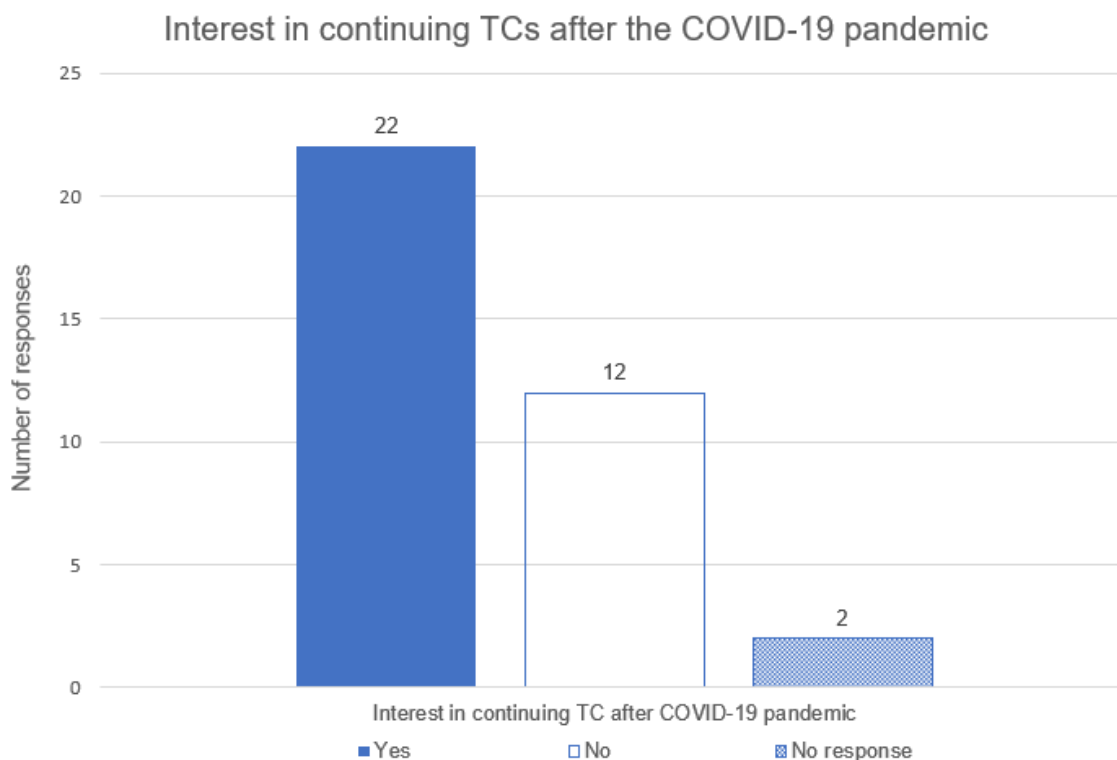
### Advantages and disadvantages of TCs

Qualitative results showed common themes. Perceived advantages included reduced waiting times in 22.2% (8/36), less time away from work/school in 19.4% (7/36), and less travel time in 16.7% (6/36) Perceived disadvantages included: lacking HbA1c results at TCs (25%, 6/24), a less ‘personal experience’ than at FTF clinics (25%, 6/24) and communication barriers (23.8%, 5/24)

### Future of TCs

88.2% (30/34) of respondents believed that TCs helped to safely continue diabetes management during the COVID-19 crisis, while 11.8% (4/34) did not (completion rate 94.4% 34/36). After pandemic resolution, 64.7% (22/34) expressed an interest in continuing TCs along with a guaranteed number of FTFs, while 35.3% (12/34) did not (completion rate 94.4% 34/36). This is depicted in Figure 2 below.

Figure 2: Interest in continuing TCs after COVID-19 pandemic



## Discussion

This survey showed a high rate of parent satisfaction with TCs provided in response to the COVID-19 pandemic, as a means to continue interaction with the diabetes team remotely. This is in keeping with nationally and internationally reported findings of high service user satisfaction with telemedicine <sup>1, 3, 4</sup>.

For practical support, the data manager played a key role in the success of the clinic, as their IT knowledge and skills resulted in a swift switch to the TC platform and availability of pump, sensor, and glucometer data at each TC consultation. The majority of TC users reported that they received sufficient technological support to upload data prior to the TC. The importance of this role is underlined when one considers healthcare provider reports of insufficient technology support in a large international study examining changing paediatric diabetes care delivery in response to the COVID-19 pandemic <sup>5</sup>.

Reported advantages of telemedicine in saving time and reducing missed school or workdays among our cohort is similarly reported widely <sup>2, 3, 6</sup>. A key reported disadvantage was lacking a HbA1c result at the TC, which is a cornerstone in diabetes management. In response to this, home HbA1c testing was introduced for our TC population.

Innovation and agility have proven important factors in healthcare delivery since the COVID-19 pandemic, and telemedicine is an effective tool to achieve this. There are limitations of telemedicine, however. These include the risk of alienating patients, increasing health disparity for those who may not have adequate IT access or skills and the inability to replicate medical care components that can only be delivered in person (e.g., checking injection sites, physical examination, patient rapport) <sup>5</sup>. This was reflected by respondents who reported communication barriers in the TC.

Almost two thirds of respondents were interested in continuing the TC (provided they could avail of a guaranteed number of FTF clinic appointments) after the pandemic. This is similar to reported rates of 72% <sup>7</sup>, 80.1% <sup>3</sup> and 86% <sup>6</sup> of service users who support continuing telemedicine review in combination with in person care. Since the easing of restrictions and devastating disruption of the cyberattack in May 2021, regular TCs have since been phased out although patients can request a TC at any time. Unfortunately, due to resource limitations, it is not currently possible to routinely offer both TCs and usual FTFs.

A significant limitation of this study is the small sample size. Analysed responses represent 15.9% of the TC user population (36/226). There is, therefore, a risk of selection bias and the authors conclude that the perceptions of the entire population who attended a TC cannot be represented by this study. Additionally, the HbA1c results of respondents and demographics including parental education and employment were not analysed, further limiting the results of this study. Lastly, while most patients used CGMs which facilitated remote data analysis at TCs, an important minority

used fingerprick glucose monitoring. Respondents were not asked whether they used online diaries which were accessible at TCs, or paper diaries which were not accessible at TCs.

Nevertheless, the findings are broadly in line with existing research and represent a snapshot of our service at a particular time of extraordinary challenges when there was no alternative to delivery of routine diabetes care. These findings add to the understanding of paediatric diabetes telemedicine in Ireland. We report similar findings to those of a prospective observational cohort study investigating pilot virtual diabetes clinics in the West of Ireland. These clinics were conducted using videoconferencing and were reported as feasible, with high rates of user satisfaction and interest in continuing virtual clinics as part of usual care, and with statistically significant reductions in HbA1c<sup>4</sup>.

This pilot study has also provided important information for the agility of our service to adapt and ensure a culture of continual improvement of our service as different circumstances present. Further research is needed to enhance our understanding of delivering telemedicine services to best serve this vulnerable population who rely on regular clinical interactions.

**Declaration on Conflicts of Interest:**

None declared.

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