

Televisits to Partially Substitute for Clinic Visits Are Feasible and Well Accepted by Tech-Savvy Patients With T1DM and Their Families: A Prospective Pilot Study

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Keywords

pediatric diabetes, T1DM, telemedicine, videoconferencing

Care for T1DM in pediatric patients is challenging and requires frequent adjustments of the insulin doses to meet the changing needs of children and young adults. Quarterly visits are recommended.¹ Patients frequently miss appointments due to work/school/extracurricular activities, associated travel expenses, lengthy visits and increasing copay fees. The frequency of clinic visits has been shown to be an independent predictor of A1C.² Our prospective pilot project was designed to determine the feasibility and acceptance of a yearlong intervention substituting three of four yearly recommended clinic visits with direct patient-physician video-calls via Vidyo Inc. The study was performed at a moderate sized pediatric diabetes program caring for about 750 children and young adults with T1DM as part of an academic tertiary health care center.

Ten patients (7 males) aged 9-22 were recruited; all Caucasian (Table 1). Seven of 10 patients completed the study and attended 100% of quarterly appointments. Families of school age children and adolescents preferred evening hours, college students preferred late morning - early afternoon. Patients connected from a home or a dorm room. Most of the visits ran smoothly with no Internet connection issues. One family had consistent problems with videoconferencing and all visits had to be switched to phone calls. One college student forgot about the televisit and connected on her cell phone while she was a passenger in a car. Televisits lasted on average for 34 min (25-45 min), were preceded by review of the blood glucose (BG) data that were sent 100% of the time in advance (within 3-24 hours before the visit) ensured by ~3 reminders. Eight of 10 participants used an insulin pump and a half of them needed a review of the upload process. All visits were followed by a written communication (e-mailed securely) including insulin adjustments and recommendations regarding diabetes self-management. One or both parents participated in televisits with children and adolescents.

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Table 1. Demographical and Clinical Characteristics of the Participants of the Televisit Intervention.

Total number of patients enrolled, n	10
Males, n	7
Age, years	
Child (9 y)	1
Adolescents (13-17 y)	4
Young adults (18-26 y)	5
Average A1C (%)	
A1C range over a year before the intervention	7.07-8.67
A1C range during the study year	7.35- 7.9
Years since T1DM diagnosis, median	7.5
Insulin pump users, n	8
Health insurance	
Private, n	8
Parents' highest education, n	
High school	4
Some college	3
Complete college	1
Advanced degrees	2
Young adults' highest education, n	
High school	2
In college	3
Median travel distance to the main clinic hub (miles)	42.5
Median travel distance to the satellite clinic (miles)	21

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A1C did not change significantly over the year. All participants expressed high satisfaction with care and asked to continue with the televisits. Dropouts included an 18-year-old male whose parents opposed the study and a 22-year-old male who could not adhere to scheduled televisits. A 19-year-old female was withdrawn due to her health insurance refusal to cover the cost of the quarterly A1C test.

In conclusion, patient-physician videoconferencing is feasible and highly accepted by motivated and tech savvy patients with T1DM and their families to substitute for a half of recommended clinic visits with coordination and tech support to ensure timely glucose data upload. Males might be more likely to enroll and engage into diabetes decision making via a videoconference. Development of automated and secure cloud-based BG data upload systems and availability of trusted home-based A1C assays will have a potential to expand use of televisits to a broader groups of patients with T1DM and change the perceptions of pediatric diabetes follow-up care. Further controlled and randomized studies of diabetes televisits will help build a path for policy changes and insurance reimbursement.

Abbreviations

A1C, hemoglobin A1C; BG, blood glucose; T1DM, type 1 diabetes mellitus.

Declaration of Conflicting Interests

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