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An Evaluation of “Diabetes Day” using Implementation Science to Improve Support for Families of Children with Type 1 Diabetes Mellitus

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An Evaluation of “Diabetes Day” using Implementation Science to Improve Support for Families
of Children with Type 1 Diabetes Mellitus

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Abstract

Background: Type 1 diabetes (T1D) is one of the most common life-long endocrine disorders in children and adolescents. Attending to the psychosocial and emotional needs of children with T1D and their families is fundamental in attaining optimal clinical health outcomes. Diabetes Day is a collaborative effort that is offered at a pediatric endocrinology clinic in Western Massachusetts. The Diabetes Day team spends multiple hours planning, recruiting and implementing Diabetes Day as a way to provide this requested support; however, participation rates of families continues to decrease. *Purpose:* The purpose of this DNP project was to evaluate the process of planning, implementation and evaluation of Diabetes Day to improve family participation and attendance. *Methods:* The plan, do, study, act (PDSA) model was used to implement this QI project consisting of qualitative questionnaires from Diabetes Day family participants as well as the Diabetes Day staff. *Results:* Barriers to participation included a fear of missing work/school or the time of the day. Suggestions for improving the implementation process include updating recruitment methods, sharing the burden of recruitment, and providing more education to families describing Diabetes Day. *Conclusion:* Successful implementation of Diabetes Day can provide improved diabetes management and patient outcomes. The results of this project will continue to be used to guide the Diabetes Day team to uncover additional barriers to participation that can be overcome using a different approach to recruitment resulting in an increase in family participation.

Keywords: type 1 diabetes, children, parents, support group, peer support, group support, group interventions, pediatrics, and adolescents

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Introduction

Type 1 diabetes (T1D) is a common chronic disorder affecting children which has a serious impact on a young child’s life as well as on the lives of their parents who play an important role in their child’s daily diabetes management (Pate, Klemencic, Battelino, & Bratina, 2019). Parents are faced with the enormous responsibility to provide diabetes care for their child which can place considerable demands on them physically and emotionally (Rankin et al., 2016). Structured education programs have been used in adult patients with T1D with demonstrated improvements in glycemic control, satisfaction with treatment, and improved quality of life compared to those receiving standard care (Barnard, Thomas, Royle, Noyes, & Waugh, 2010). The aim of this quality improvement (QI) project is to use implementation science to evaluate a support program, called Diabetes Day, for families of children with T1D to improve the participation rate and provide the best support for both the parent and child.

Background

Type 1 diabetes (T1D) is one of the most common life-long endocrine disorders in children and adolescents (Pate et al., 2019). The incidence of T1D has been increasing by three to four percent with the greatest age-specific rise noted in children under five years of age (Rankin et al., 2016). The Centers for Disease Control and Prevention estimates over 30 million Americans have diabetes (CDC, 2019). During 2011–2012 the estimated annual number of newly diagnosed cases of T1D in the United States included 17, 900 children and adolescents under 20 years old (CDC, 2019). The diagnosis of T1D in childhood is a major life-event which may have significant long-term effects on the health of the child (Channon, Lowes, Gregory,

Grey, & Sullivan-Bolyai, 2016). Families often feel overwhelmed by the demands and challenges they are faced with when caring for a child newly diagnosed with T1D (Merkel & Wright, 2012). Social support groups have been acknowledged as a beneficial intervention to help meet the social, emotional, and psychological needs of families caring for children with T1D (Merkel & Wright, 2012)

Attending to the psychosocial and emotional needs of children with T1D and their families is fundamental in attaining optimal clinical health outcomes (Channon et al., 2016). There are many challenges to providing this support, including limited resources, limited time during clinic visits focusing more on achieving glycemic control, and hesitance of families and providers to address psychosocial concerns at routine clinic visits (Channon et al., 2016). Support groups in which the participants share experiences with another person in similar circumstances is one way to overcome these challenges (Channon et al., 2016).

A common approach in adult care is the involvement of peer-led interventions, in which the participants share an experience with another person in similar circumstances (Channon et al., 2016). In the World Health Organizations 2014 report, the summary of evidence from 22 studies in diabetes (primarily in adult services) concludes that peer support can offer significant benefit (Channon et al., 2016). Results of a study done exploring parents' perceptions of the effects of parent-led support groups in offering parents support and knowledge, and in improving parents' ability to handle childhood disability issues were substantial (Law, King, Stewart, & King, 2001). During these groups, parents gained increased skills, an increased sense of power and a sense of belonging, as well as the ability to connect with each other and provide support and skills to deal with the day-to-day issues of raising a child with disabilities (Law et al., 2001).

Diabetes Day is a collaborative effort that is offered at a pediatric endocrinology clinic in Western Massachusetts. The team includes medical assistants, nurses, physicians and child life specialists and was initially introduced in 2017, conceptualized to be “out of the box” care with the intent to bring more socialization to families of children with T1D. Diabetes Day was started as a response to families who expressed interest in a support group with other families living and thriving with T1D. The Diabetes Day team spends multiple hours planning, recruiting and implementing Diabetes Day as a way to provide this requested support; however, participation rates of families continues to dwindle.

Problem Statement

Parents of children with T1D can benefit from the emotional and psychosocial support provided by Diabetes Day, yet participation rates remain low. Approximately fifty percent of the families that sign-up and confirm they will be coming to Diabetes Day actually show up. The pediatric endocrinology staff put in many hours preparing for Diabetes Day which takes them away from direct patient care. Diabetes Day is a way for families to ask questions and learn from other families in similar situations about the latest technology and strategies to improve their child’s management of T1D. When families participate in this support group, they are less likely to call in to the office with questions which lessens the amount of time the nurses are on the phone and away from direct patient care. The aim of this QI projects was to use implementation science as an approach to evaluate the Diabetes Day program’s process of planning, perceived barriers to program participation and factors that may facilitate attendance to improve overall care to families of children with T1D.

Organizational “Gap” Analysis of Project Site

This project took place at a pediatric endocrinology clinic in Western Massachusetts. Patients range in age from newborns to 23 years old. Diabetes Day has been successful in bringing parents and children newly diagnosed with T1D together in the past years, but there has been a noted decline in group participation rates. Parents and children who have participated in past Diabetes Day sessions report positive outcomes, learning from other parents with similar experiences, and making life-long connections. Over the past nine months, Diabetes Day has seen a decrease in the number of families participating in the day. Families are invited to attend Diabetes Day during routine clinic visits. Names, phone numbers and email addresses are taken down for families who would like to attend and are contacted the week prior to Diabetes Day to confirm attendance. In the sessions held over the past nine months, only one fourth to one half of the families who responded “yes” to attend had actually come to participate in Diabetes Day. The Diabetes Day team were very excited to assist with this project to uncover barriers to participation and ultimately discover ways to improve program attendance.

Review of the Literature

A comprehensive search was conducted using CINAHL, PsycINFO, and Google Scholar. Keywords searched included *type 1 diabetes, children, parents, support group, peer support, group support, group interventions, pediatrics, and adolescents*. Keywords searched using the combined databases CINAHL and PsycINFO resulted in 106 articles. Inclusion criteria included peer reviewed articles between the years 2000 and 2019. Age of subjects ranged from infant to adolescent. Articles were initially excluded if they pertained to the adult T1D population.

Using the same criteria, the Google Scholar database search resulted in 17,100 articles. After examining the resulting articles, only the most relevant articles pertaining to using support

groups for emotional and psychosocial support for families of children with T1D were considered. A total of seven articles were chosen for this literature review. The Johns Hopkins Nursing Evidence-based practice rating scale was used to determine strength and quality of the selected articles (Johns Hopkins Medicine, 2017).

Three articles reviewed were qualitative studies that used observation and interviewing to evaluate the significance of support groups for parents of children with T1D (dos Santos Pennafort, Viviane Peixoto, Oliveira Queiroz, Castanheira Nascimento, & Cavalcante Guedes, 2016; Newell & Hahessy, 2013; Rankin et al., 2016). The ethnographic study by Newell and Hahessy (2013) found that attending a social support group offers parents an atmosphere to vocalize the emotional feelings they encounter when caring for a child with T1D that they are unable to accomplish within the clinic setting. These observations were also echoed by dos Santos Pennafort et al (2016) in their qualitative study which showed the importance of support networks to increase confidence in parents who care for a child with T1D. Rankin et al. (2014) however, found some parents felt they could not ask for help and that staff could not offer empathetic support.

A cross-sectional study by Creedy et al. (2005) describes the importance of support programs for families with children who has a chronic condition, however, it also discusses common barriers to attendance, which includes, distance, timing of groups and employment burdens. A similar study demonstrated the benefits of a peer-led support group for parents of children with T1D and highlights challenges in delivering this support which also includes limited time at clinic appointments as well as families and providers feeling uncomfortable to address psychosocial concerns (Channon et al., 2016).

Two articles reviewed described the use of internet or web-based programs to provide social support (Merkel & Wright, 2012; Teixeira De Domenico & Chiaradia Mendes-Castillo, 2017) . Online social support was found to be an innovative and practical way to provide support that is cost-effective and requires minimal maintenance (Merkel & Wright, 2012). Social media has a great impact on the lives of people of all ages and can be an effective way to provide support while promoting autonomy and improving quality of life (Teixeira De Domenico & Chiaradia Mendes-Castillo, 2017).

Findings from the review of literature demonstrate the benefit of using a support group to provide emotional and psychosocial support for families of children with T1D. The literature describes cost-effective ways to overcome barriers to achieve the maximum benefit using social support groups to families of children with T1D and provide the best patient care outcomes. Support groups are a place in which parents and their child can validate their feelings in a safe environment made up of people who are in similar situations.

Evidenced Based Practice: Verification of Chosen Option

Implementation science is the systematic analysis of how to plan and evaluate actions to assist in a successful acceptance of an evidence-based health intervention (Handley, Gorukanti, & Cattamanchi, 2016). The goal of research on knowledge implementation in healthcare is for interventions to provide more effective care and outcomes for patients and populations (Handley et al., 2016). Implementation science is an effective and evidence-based approach to improve the design, implementation, and evaluation of Diabetes Day to increase attendance and provide quality patient care.

Theoretical Framework

Rogers's diffusion of innovation theory (Appendix A) serves as a conceptual framework for this QI project. This theory guides the analysis of how certain clinical behaviors are adopted and allows attention to be directed toward observed innovation characteristics that drive adoption for the identification of conditions that advance implementation (Dearing & Cox, 2018). The diffusion of innovation theory offers all the steps to disseminate the acceptance of a new idea as well as implement and evaluate the effectiveness (Dearing & Cox, 2018). Utilizing this theory helped to evaluate each step of Diabetes Day from the planning stage to the evaluation after the session to provide the best attendance and outcomes for families with children who have T1D.

Methods

Goals, Objectives, and Expected Outcomes

The main goal for this project was to evaluate the process of planning, implementation and evaluation of Diabetes Day to improve family participation and attendance. The purpose of the Diabetes Day parents' group is to provide a safe environment for parents of children with T1D to share their experiences caring for a child with diabetes with other parents from the same area who are followed by the same team of endocrinologist and Certified Diabetes Educators (CDE's). The goals and objectives for the project were determined using the SMART criteria (Specific; Measurable; Assignable; Realistic; and Time specific). The goals, objectives, and expected outcomes for this DNP project are presented in Table 1.

Table 1

Goals, Objectives, and Expected Outcomes

Goals	Objectives	Expected Outcomes
10-15 families would sign up for Diabetes Day, a support group for parents of children with T1D.	Provide education to families about Diabetes Day at their clinic visits to encourage participation.	At least five to ten families of children with T1D would sign up to participate in Diabetes Day sessions.
Providers and CDE's will assist in recruiting families to participate in Diabetes Day.	Diabetes Day will be adding to the discharge checklist to remind staff to explain and offer it to families.	At least five families will participate in Diabetes Day at the next session
Parents of children with T1D who attend Diabetes Day will sign up for an additional session before leaving.	The Diabetes Day team will have dates and times available for the next 2 sessions and will offer families the opportunity to sign up.	≥ 50% of families will return for multiple Diabetes Day sessions over a 9-month period.
Participation in Diabetes Day will improve after using information obtained from Diabetes Day program evaluations that are completed by the parent participants.	Parent evaluations of Diabetes Day, from the past 9 months will be collected and reviewed for any parent suggestions or ways to improve the program.	The Diabetes Day program evaluations from the past 9 months will provide information about what parents find valuable during Diabetes Day and what they would like to see changed.
Participation in Diabetes Day will improve after using information obtained from Diabetes Day staff program evaluations.	The 9 members of the Diabetes Day staff would complete a similar evaluation which would describe what they believe are barriers and facilitators to a successful program.	The staff evaluations will provide valuable information on what has been successful and what improvements should be made to increase attendance.

Project Design

This project was a program evaluation of the effectiveness of an ongoing Quality Improvement project at a pediatric endocrinology clinic in western Massachusetts to assess the for barriers to group participation to improve program attendance. The plan, do, study, act (PDSA) model was used to implement this QI project. This project used a qualitative approach to

evaluation using a post-intervention survey consisting of open-ended questions pertaining to what the participants enjoyed, disliked, or what could be done to improve Diabetes Day (Appendix B). The Diabetes Day staff was also given a qualitative survey similar to the participant survey which included a mix of multiple choice and open-ended questions focusing on goals of Diabetes Day and barriers to participation (Appendix C). This DNP project will be evaluating an intervention that is currently being done in the pediatric endocrinology clinic, in house resources will be utilized in order to properly complete the project at no additional cost. (Appendix D).

Project Site and Population

The DNP project took place in a pediatric endocrinology outpatient clinic in western Massachusetts. The Diabetes Care Team is dedicated to teaching parents and their loved ones all they need to know about managing diabetes and keeping their child happy, healthy, and safe. The team cares for over 700 children's families with diabetes in the Western Massachusetts region. The pediatric endocrinology department consists of five endocrinologist, three endocrinology fellows, four registered nurses who are also Certified Diabetes Educators (CDE), two nutritionists and three medical assistants.

The population of patients served range in socioeconomic status with the majority of families in the working class to middle class groups. The clinic treats patient in and around Springfield, Massachusetts and as far out as Greenfield and Pittsfield, Massachusetts T1D patients are seen four times a year by their endocrinologist and CDE (every three months). During their appointments, families are offered the opportunity to participate in Diabetes Day. Typically, patients and families are chosen based on similar age groups for a particular session, for example, school-aged families one session, and adolescent families on another session. The

providers at this site were in full support of this project and thought it would be great use to their facility and could help other pediatric diabetes practices improve their support group programs as well.

Measurement Instruments

In order to measure the outcomes of this DNP Project, Diabetes Day evaluations (Appendix B), which were completed by participating families over the previous nine months, were reviewed. These questionnaires included open ended questions that were developed by the Child Life Specialists when the program was first implemented. The participant program evaluation consists of 10 questions. The first seven questions are completed by the parent and their child together. The following three questions are completed by the parent and focus on the what worked well during the session and any suggestions for improvements.

A similar form was developed by the DNP student, which included a mix of open-ended questions as well as multiple choice answers to provide information . This form was distributed to the Diabetes Day staff to collect information on the planning and implementation of the support group using staff experiences. Using open-ended questions in a qualitative study provided for a richer discussion and more descriptive data.

Diabetes Day

For patients and families of patients with T1D, management of the chronic disease as well as the 3 monthly visits can be overwhelming. Often, families are seeking emotional and psychosocial support. Diabetes Day at this pediatric endocrinology clinic began in 2016 after the team made a site visit to another clinic in upstate New York which provided a similar support program.

The first few Diabetes Day sessions included patient visits consisting of a one on one exam with a physician followed by the socialization and arts and crafts. After parental feedback in the form of surveys the team realized parents were prioritizing the peer interaction over the medical visit and dropped the medical visit. Over the past four years, families continue to state they are very interested in attending Diabetes Day when this is discussed at patient visits and a large number of families sign up to participate; however, few end up coming.

Diabetes Days are held to assist families in connecting and receiving support from other families and clinic members but is also beneficial in reducing staff burden with phone triage. Families with children with T1D have a higher clinic call rate (questions about insurance, medications and technology). By utilizing Diabetes Days families are given the opportunity to have open discussions with the diabetes team and other families on how to overcome these obstacles and challenges. Giving families of children with T1D the opportunity to participate in this type of group will decrease the amount of clinical triage allowing nurses and providers to spend more time with patients during visits to ensure the best patient care.

Diabetes Day is a two-hour long session for children with T1D and their parents. During the session, the families are welcomed by the Child Life Specialist, Social Worker, and members of the Hole in the Wall Gang Hospital Outreach Program (HOP). The Hole in the Wall Gang HOP bring arts and crafts and other activities that are inspired by their summer camp to children in the hospital or clinic settings. A nurse or certified diabetes educator (CDE) will stay with the child group to monitor them in the event of a high or low blood sugar. Snack and drinks are provided.

While the children participate in medical play and other activities, the parents are separated and go into another room often with one or two of the CDE's. The CDE prepares a

topic of discussion as an icebreaker. This may be a Ted Talk video that touches on a “hot topic” in T1D that sparks a discussion or maybe the CDE’s have parents choose cards with different topics, such as “How do you feel about sleepovers? How do you handle blood sugars during sports? Do you sleep at night?” and other similar topics. These icebreakers typically lead the group into a robust discussion with parents sharing stories, fears, and accomplishments. Parents often share what type of technology they use to manage their child’s T1D and why they use these products.

At the end of the session, many times parents will exchange contact information to keep in touch with each other both for the parental support and for the friendships their child has made throughout the day. The participants are given a program evaluation to complete with their child after completion of the program, before they leave.

Implementation

The first step in the implementation process to improve participation was to meet with the Diabetes Day team which is made up of staff from the pediatric endocrinology clinic. The team voiced their concerns that over the past year, there has been a fifty percent decline in the number of participants that come to Diabetes Day. The DNP student was then able to gather the sign-up sheets from the Child Life Specialist from the past nine months and compare the number of families that had signed-up to participate with the number of families who actual came to Diabetes Day.

Four sessions were planned between April 2019 and January 2020. The dates for Diabetes Day included April 17, 2019; August 21, 2019; October 23, 2019; and January 15, 2020. Unfortunately, the session planned for October 2019 was cancelled due to the low number of confirmed participants. The participant program evaluations from these sessions were

collected and reviewed by the DNP student assessing for any patterns or themes in regard to program success, barriers to participation, and suggestions for future sessions. These evaluations were anonymous with no patient identifying information.

The DNP student developed a similar program evaluation questionnaire (Appendix C) which focused on the Diabetes Day staffs' thoughts on program success, barriers to participation, and suggestions for future sessions. Staff were emailed the questionnaires in March 2020 and were asked to complete them on the computer and then print them and leave in an envelope that was stored on the unit. Similar to the participant program evaluations, the DNP student assessed the results for patterns and themes to identify barriers to participation and suggestions for improvement. No identifying or demographic information was requested or obtained from staff participants.

Data Analysis

The data from the questionnaires were summarized using descriptive statistics in the form of frequency and percentage tables. Qualitative data from the open-ended responses was also analyzed for themes and patterns between staff and participant observations.

Ethical Consideration/Protection of Human Subjects

The University of Massachusetts, Amherst (UMASS) and the participating institution's Internal Review Board Human Subjects Determination approved this project prior to initiating the DNP project. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which guarantees the protection of the privacy of the patient's health information. The DNP student and practice personnel carefully conducted the project and followed the standards of care for practice in the Pediatric Specialty Center. Staff participants were given all necessary information pertaining to the project and completion of the

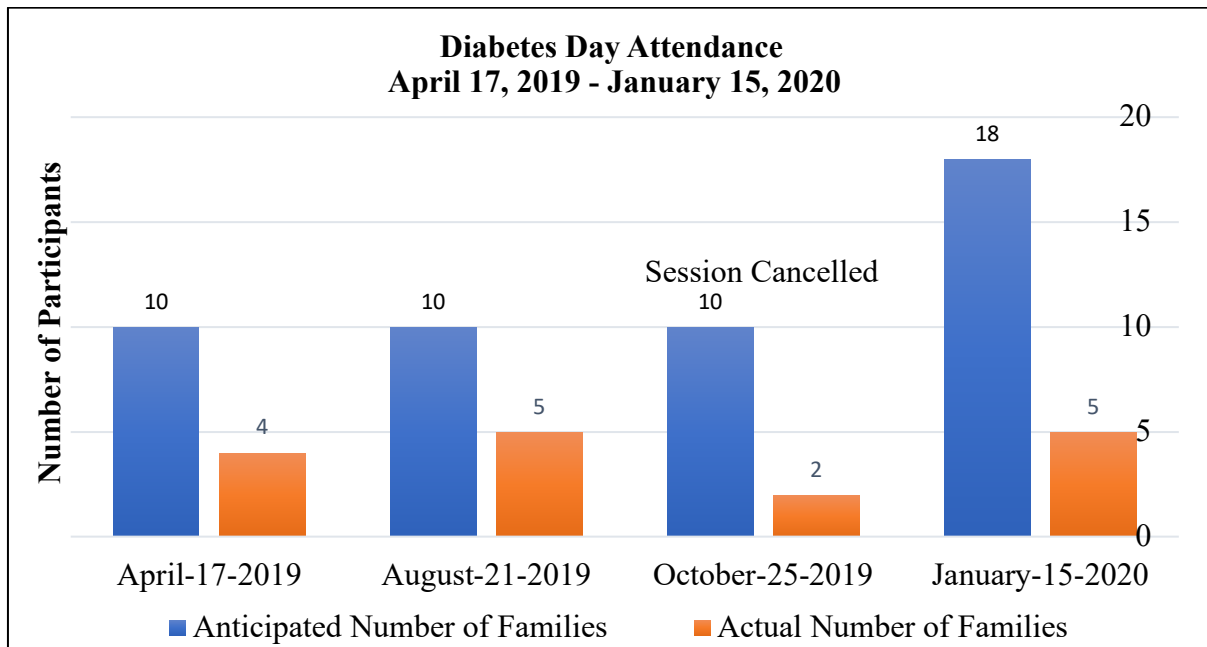
survey was considered consent. Diabetes Day session evaluations were collected from past Diabetes Day sessions which include no identifying information. All information collected from participants was stored in a locked file cabinet or on a password protected computer and did not include any potential patient identifiers. Only the pediatric endocrinology clinic email was used for any communication related to the self-reported questionnaires.

Results

Diabetes Day Family Participant Groups

The Diabetes Day family participant group consisted of 14 families who had attended a Diabetes Day session between April 17, 2019 and January 15, 2020. There were three scheduled dates in 2019; April 17, August 21, and October 23, and one date in 2020; January 15. Only 50 percent or less of the families who were confirmed to participate in Diabetes Day actually participated (Figure 1).

Figure 1 *Diabetes Day Attendance*



Note. The figure is a visual comparison between the number of anticipated families versus the number of actual families. The October 2019 session was canceled due to the low number of participants.

There were more families attending Diabetes Day for the first time with 57.1% and 42.9% of the families attending Diabetes Day for a second time. 12 of the 14 families plan to attend Diabetes Day again while the remaining two families were unsure.

Families were asked questions to be answered with their child as well as questions that were intended towards the parent's views. Children and parents were asked "What did you like most about Diabetes Day?" Children preferred arts and crafts and playing games, while parents enjoyed meeting other parents of children with T1D and learning about new technology (Table 2 and Table 3).

Table 2 *Child's Favorite Part of Diabetes Day*

What did your child like most about Diabetes Day? (n=14)		
Types of Activities	Count	Percent
Arts and Crafts	7	50%
Meeting Other Children with T1D	2	14%
Playing Games	4	29%
Learning About New Technology	1	7%

Note. Open-ended questions that were answered with the help of a parent. Children were of Elementary school age.

Table 3 *Parent's Favorite Part of Diabetes Day*

Parents, what has been your favorite thing about Diabetes Day? (n=14)		
Types of Activities	Count	Percent
Meeting other parents of children with T1D	5	35.7%
Learning about new technology	4	28.6%
Getting the kids together	3	21.4%
The activities	2	14.3%

Note. Open-ended questions, parents in the same sessions provided similar answers.

Children were asked about ideas for future activities during Diabetes Day and 64.3% responded that they would like to go outdoors and do outdoor activities (Table 4). Similarly, parents responded that they would like to go outdoors and having Diabetes Day on a weekend day, when asked about ideas to make Diabetes Day better (Table 5).

Table 4 *Child's Ideas for Future Diabetes Days*

Does your child have any ideas for future activities to take place at a Diabetes Day? (n=14)		
Future Activities	Count	Percent
Outdoor Activities	9	64.3%
Fire Truck	2	14.3%
Painting	2	14.3%
Tie-Die	1	7.1%

Note. Open-ended questions that were answered with the help of a parent. Children were elementary school aged.

Table 5 *Parent's Ideas to Improve Diabetes Day*

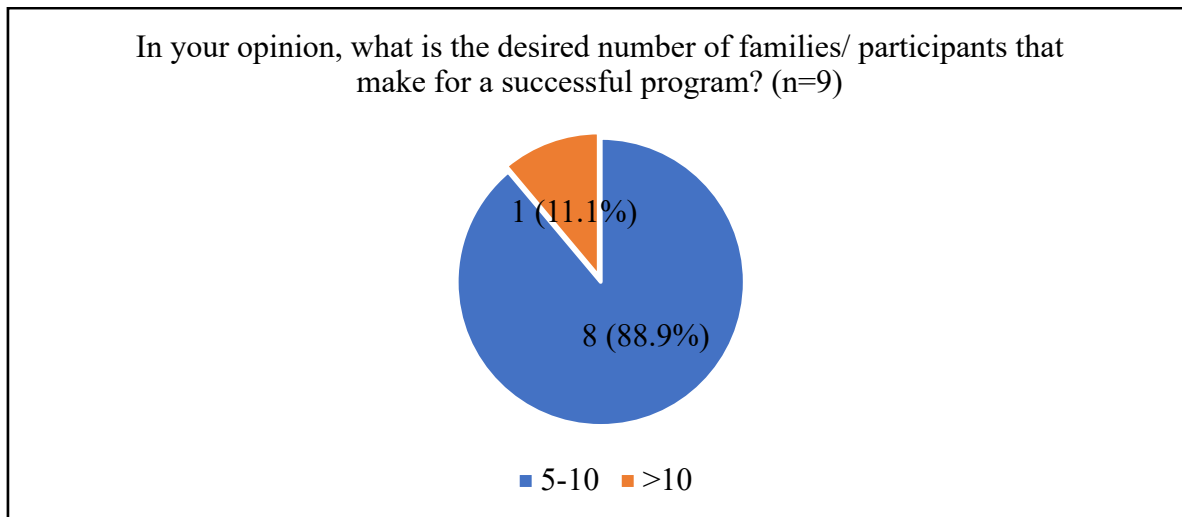
Any other changes, ideas, requests or comments about how to make Diabetes Day better? (n=14)		
Parent Comments	Count	Percent
Have it on a weekend day	3	21.4%
Have it after 5pm	5	35.7%
Provide information on childcare for children with T1D	1	7.1%
Go outdoors	5	35.7%

Note. Open-ended questions, parents in the same sessions provided similar answers.

Diabetes Day Staff Participant Groups

The Diabetes Day staff group consisted of nine participants who completed questionnaires with similar topics to the parent/child questionnaires after the most recent session in January 2020. Forty-four percent of staff felt Diabetes Day sessions should be held every three months with every four months coming in a close second place at 33%. An overwhelming 88.9% of staff agreed that 5-10 families are the desired number for a successful Diabetes Day session as shown in Figure 2.

Figure 2

Number of Family Participants for a Successful Diabetes Day

Note. Questionnaire choices also included; < 5, and 10-15 families in which no staff member chose.

The staff questionnaire included qualitative responses from open-ended questions to gather information from the staff about their visions and goals for Diabetes Day. Diabetes Day, according to the staff, is an event that was designed to increase socialization for children with T1D and their parents as a better way to support and address the psychosocial side of diabetes management. This group provides family socialization, connecting peers who are able to empathize with the challenges and successes of managing a child with T1D. Children are able to play and interact together with other children who also have T1D and learn they are not alone. Often, children are able to develop friendships at Diabetes Day and continue to connect with each other even after they leave the program.

Diabetes Day is an intervention the pediatric endocrinology staff feel very passionate about. The goals for the program, as stated by the staff, are to ease the stress of managing a child with T1D for newly diagnosed families, as well as to gain social support, normalization, peer to

peer connections, develop coping skills, and gain a feeling of empowerment. Staff hope to see families go from strangers to friends and leave feeling supported.

The majority of the staff (88.9%) believe parents attend Diabetes Day “to meet other parents with similar experiences” and the children attend Diabetes Day for “arts and crafts/medical play” (66.7%) (Figure 3 and Figure 4).

Figure 3 *Staff Opinions of Why Families Attend Diabetes Day*

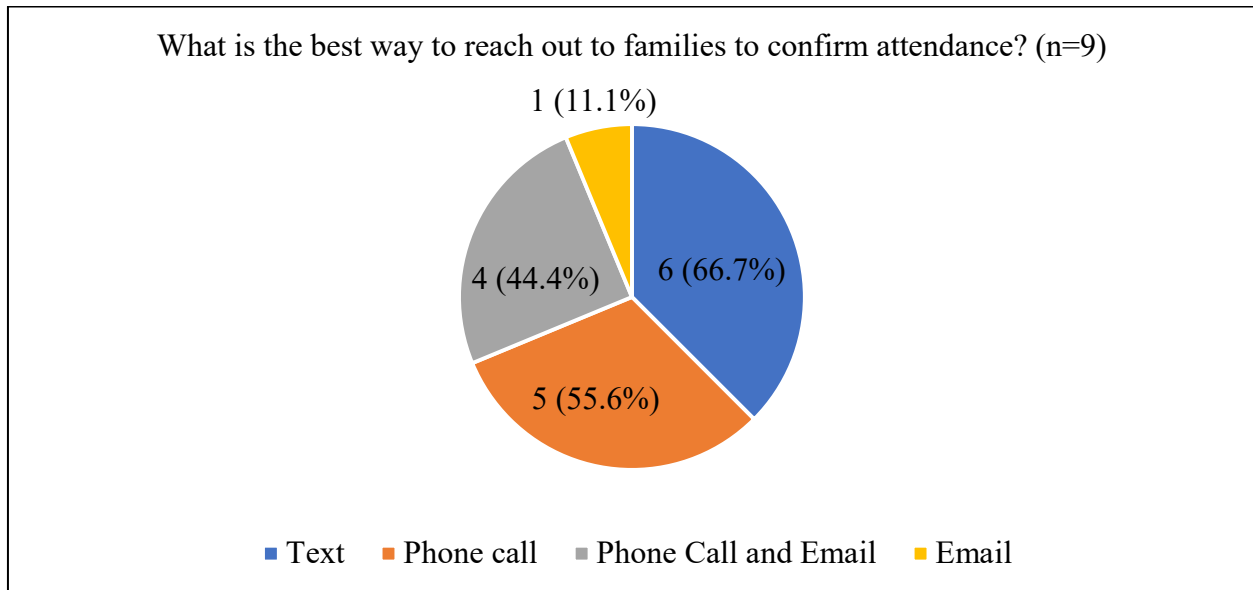
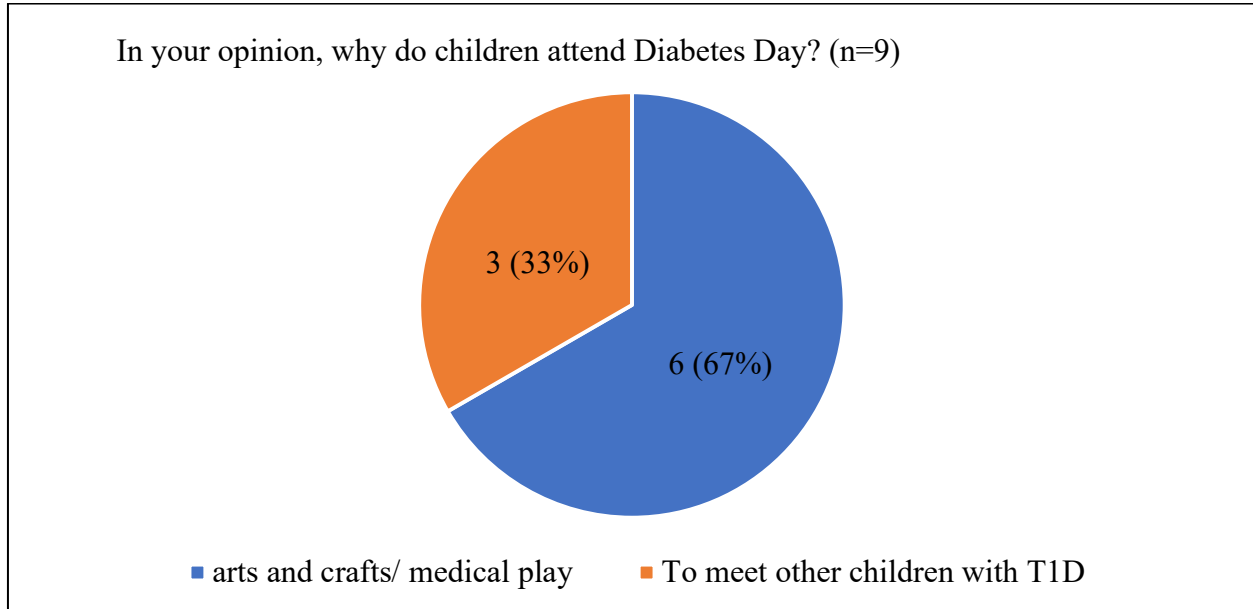


Figure 4 *Staff Opinions of Why Children Attend Diabetes Day*



The best way to recruit families, according to the staff, is during clinic visits, although using phone calls and emails were also well-liked choices (Table 6).

Table 6 *Best Method for Family Recruitment*

What do you think is the best way to recruit families? (n=9)		
Recruitment Methods	Count	Percent
At clinic visits	8	88.9%
Phone calls	6	66.7%
Emails	6	66.7%
Mail home flyers	2	22.2%

Staff selected text messaging as the best method for confirming family attendance with phone call and email options as other suitable methods (Table 7).

Table 7 *Best Method for Family Participation Confirmation*

What is the best way to reach out to families to confirm attendance? (n=9)		
Confirmation Methods	Count	Percent
Text	6	66.7%
Phone call	5	55.6%
Phone call and email	4	44.4%
Email	1	11.1%
Reminder letter in mail	0	0.0%

Staff unanimously selected missing work/school as a barrier to family participation (Table 8). Other common choices were, time of day and the day of the week for reasons that may impede participation.

Table 8 *Staff Views on Barriers to Participation*

What do you believe are some barriers to family participation? (n=9)		
Barriers to Participation	Count	Percent
Missing work/school?	9	100.0%
Time of the day?	8	88.9%
Day of the week?	7	77.8%
Transportation	5	55.6%
Language Barriers	4	44.4%
Too many clinic appointments	2	22.2%
Length of session	1	11.1%

Note. Staff participants were asked to select “all that apply” for multiple choice question.

Lastly, the staff were asked if they had any further comments or suggestions that could help improve Diabetes Day. The responses had a similar premise with the focus on recruitment and finding a better process to make Diabetes Day as successful as possible. Shared recruitment was one suggestion, as the staff feels that when the responsibility falls on one staff member, the workload can become overwhelming. Another comment that was shared by many, was that over the past year, there has been a transition in the Diabetes Day leadership, as well a change in staff

members. Due to these changes, there has been miscommunication about the roles and responsibilities in the planning and recruiting process causing confusion amongst the team.

Some suggestions were made pertaining to the process of confirming family participants including the time of day the phone calls were made or whether the staff member spoke to the family directly versus leaving a voice message. Calling in the evening results in more parents answering the phone to accurately to confirm yes/no on attending Diabetes Day. Another common suggestion was to provide multiple dates and times that are more accessible for families, including evenings after work/school, weekends, or doing school breaks.

Discussion

Diabetes Day has shown to be a great way to provide emotional and psychosocial support to families of children with T1D. The findings from this project echo those noted in the previous review of literature (dos Santos Pennafort, Viviane Peixoto, Oliveira Queiroz, Castanheira Nascimento, & Cavalcante Guedes, 2016; Newell & Hahessy, 2013; Rankin et al., 2016). The family participant group and the staff participant group had similar thoughts on why parents and children attend Diabetes Day. Parents attend Diabetes Day for support by meeting other parents of children with T1D, however, arts and crafts and medical play were the reasons the children like to attend.

The staff participant group expressed the need to find a way to improve the recruitment process. This group states in their comments, that many changes have been made over the years and there is new Diabetes Day leadership. Suggestions for recruitment and confirming participants include making phone calls in the evening (after working hours) and using text messaging as a means to communicate to families. Text messaging is a method of communication that is able to be done within the pediatric endocrinology department and has

been found to be an easy, time efficient and extremely useful way to communicate with patients and families. Some other suggestions include sharing the recruitment process and having the providers help promote Diabetes Day at clinic visits, as well as provide visuals about Diabetes Day in the clinic and patient rooms.

Both participant groups expressed obstacles to participation including time of the day that sessions are held, and missing work or school. The staff suggestions to overcome obstacles to participation include offering multiple dates and selecting one that most families could attend. Families suggested holding a Diabetes Day outdoors, and when the children were on vacation from school which is a one way to accommodate families in an effort to increase group attendance. Overall, families enjoyed attending Diabetes Day and planned to attend again in the future.

The staff spend many hours planning Diabetes Day, which includes recruitment, deciding what activities to do with the children, and researching topics of discussion for the parent portion. Improving the implementation and recruitment process to become more efficient will not only benefit the participants who attend Diabetes Day but will also benefit the staff who are pulled away from providing direct patient care when attempting to contact patient and families. Finding new ways to increase the attendance at Diabetes Day will increase the opportunities for families to experience mutual support from one another; obtaining help while helping others in return can be exceptionally impactful. Diabetes Day is an evidence-based program, therefore, with an adjusted recruitment strategy, this program will improve health outcomes of children and parents by allowing the diabetes team to provide comprehensive care which includes the physical, emotional and psychosocial wellbeing of families of children with T1D.

Barriers and Facilitators

The experiences of past Diabetes Day families who had already completed their program evaluations were evaluated for this DNP project. Completed evaluations were kept with the Child Life Specialist and the only evaluations on file were from the past nine months which was after the changes occurred with the Diabetes Day leadership. Reviewing evaluations prior to these changes, when family participation was higher, may provide a better understanding of where the missing links are.

The family participant evaluations were anonymous and therefore the DNP student was unable to reach out to these families to ask more specific questions regarding the implementation process of Diabetes Day, and what possible difficulties they envision for signing up to participate, but not actually joining that day. The DNP student would have liked to ask the family participants what their preferred method of communication was; phone, email or text message. This information would provide more insight on ways to close the gap between families requesting to participate in a support group but not showing up on the day.

Facilitators included in this project were the help of a very supportive pediatric endocrinology staff. The project site was at the DNP student's place of employment which made collecting data and collaborating with the Diabetes Day staff simple. The DNP student was able to participate in the most recent Diabetes Day session from planning and recruitment of participants, to observing at Diabetes Day and during the debrief after. Being able to observe the implementation process, reinforced the findings and helped the student appreciate the how beneficial Diabetes Day is to children with T1D and their families. Using the Rogers's diffusion of innovation theory, the DNP student evaluated the current process of Diabetes Day and

discovered new ideas to improve this intervention and was able to disseminate this information as well as provide ways to implement and evaluate the effectiveness.

Conclusion

Support groups are evidence-based interventions that are valuable to the emotional and psychosocial support for families of children with T1D. Diabetes Day is an intervention in which local families can get together to share experiences, meet people in similar circumstances, make social connections, and learn about successes and failures in their child's diabetes management. Successful implementation of Diabetes Day can provide improved diabetes management and patient outcomes. The success of Diabetes Day starts with family recruitment. This DNP project suggests using a team approach to planning and implementation including all members of the diabetes care team.

Findings from this evaluation were shared with the Diabetes Day staff. After reviewing the recommendations from both the staff participation questionnaires and the family participation questionnaires with the DNP student, the staff planned the next session in a local park outdoors and in the summer when children will be out of school. This meets the requests of children and parents who wanted outdoor activities and were hesitant about missing work or school. Other improvements to the process that were made through this project include adding Diabetes Day flyers with a description of the day as well as upcoming dates throughout the clinic and adding Diabetes Day to the discharge sheets the providers use during patient visits.

The Diabetes Day staff has made it a team approach to the recruitment process of patients, with contribution from the providers, CDE's as well as the care coordinator. When families show interest in attending, they are added to a list which includes the child's name, parent's name, phone number and email address. The family is asked at that time to identify

their preferred way to be contacted and are told to expect to be contacted again as the day gets closer.

Providing care to a child with T1D is more than just teaching families how to manage blood sugars. The compassionate staff within the pediatric endocrinology clinic have found a way to connect with their families to provide them with the tools necessary to care for their child physically, and emotionally. The results of this project will continue to guide the Diabetes Day team to uncover additional barriers to participation that can be overcome using a different approach to recruitment resulting in an increase in family participation.

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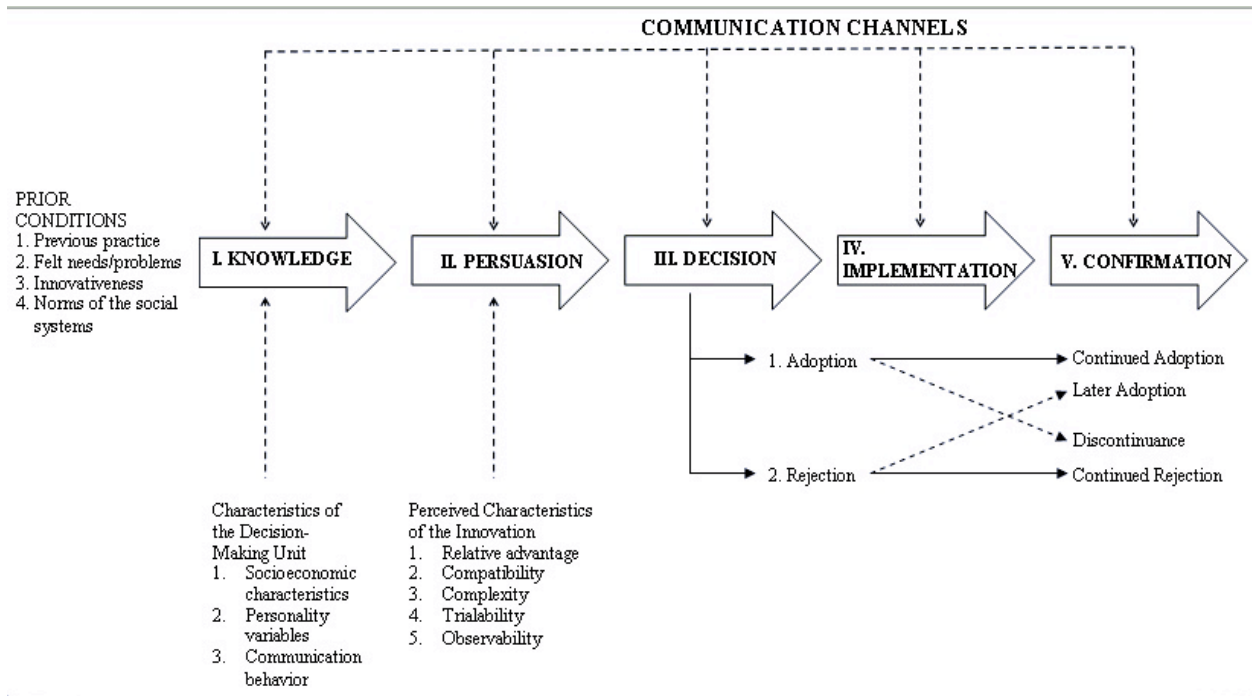
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Appendix A

Rogers's Diffusion of Innovation Theory



Rogers's Diffusion of Innovation Theory

(Rogers, 2003)

Appendix B

Diabetes Day Family Questionnaire

Diabetes Day Survey

Parents: Please fill out survey with your child and return to the survey box.
We hope that this survey will help us best provide future Diabetes Day activities!

1. Is this your 1st Diabetes Day? Please circle: Yes / No
2. Do you plan to attend Diabetes Day again? Yes / No / Maybe
3. What has been your child's favorite part about Diabetes Day?

4. What has been your child's least favorite thing about the day?

5. Is there anything your child would like to see again at Diabetes Day?

6. Does your child have any ideas for future activities to take place at a Diabetes Day? _____

7. Any other changes, requests, or comments from your child about the day?

Parents: please fill out the next section with YOUR opinions.

8. Parents, what has been your favorite thing about Diabetes Day?

9. What would you like to see at future parents' groups during Diabetes Day?

10. Any other changes, ideas, requests or comments about how to make Diabetes Day better? _____

Appendix C**Diabetes Day Staff Questionnaire**

1. Please describe Diabetes Day.
2. What is the most important goal you'd like to accomplish during Diabetes Day (please be specific).
3. How often should Diabetes Day sessions be held?
 - every 2 months
 - every 3 months
 - every 4 months
 - every 6 months
4. In your opinion, what is the desired number of families/ participants that make for a successful program?
 - 1-5 (4)
 - 5-10 (5)
 - >10 (6)
5. What do you think is the best way to recruit families? (select all that apply)
 - mail home flyers
 - At clinic visits
 - phone calls
 - emails
6. What do you believe are some barriers to family participation? (select all that apply)
 - Time of the day?
 - Day of the week?
 - Missing work/school?
 - Too many clinic appointments
 - Transportation
 - Language Barriers
 - Length of session

7. What is the best way to reach out to families to confirm attendance? (select all that apply)

- phone call
- email
- phone call and email
- text
- reminder letter in mail
- Other (Please specify)

8. In your opinion, why do parents attend Diabetes Day?

- Parent education
- Emotional support
- Child to meet other children with T1D
- Meet other parents with similar experiences

9. In your opinion, why do children attend Diabetes Day?

- Education
- Emotional Support
- To meet other children with T1D
- arts and crafts/ medical play

10. Thank you for taking the time to answer a few questions about the planning and implementation of Diabetes Day. Do you have any further comments that may help improve future attendance and improve care to families of children with T1D?

Appendix D**Budget Table**

PERSONNEL	COST
Project Coordinator/Evaluator (DNP Student)	Donated Time at no additional cost
Diabetes Day Staff (RN, CDE, CLS)	Regular workday at no additional cost
MATERIALS	
Snacks (In case of low blood sugars)	Donated by Endocrinology Clinic
Crafts	Donated by Hole in the Wall Gang
Total	\$0

Benefits and savings include increased RN and CDE face-to-face patient care time at appointments and less phone triage for questions related to diabetes management.

