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Type 1 Diabetes in the Classroom

By

Ursula Herrell

An Undergraduate Thesis Submitted in Partial Fulfillment
of the Requirements for the
University Honors Scholars Program
and the
Honors College
College of Nursing
East Tennessee State University

Ursula Herrell

Date

Dr. Florence Weierbach, Thesis Mentor

Date

Dr. Wanda Franklin, Reader

Date

Abstract

Type 1 diabetes [T1D] is an autoimmune disease that presents in a pathophysiological disorder as insulin deficiency. Managing this illness during childhood is a constant challenge of maintaining blood glucose levels within a healthy range, resulting in increased stress for children and caregivers. School attendance is one factor that may result in increased stress. Studies have highlighted the fact that teachers of students with T1D may receive little education regarding management of the disease and may be required to make accommodations which can result in confusion, miscommunication, and increased psychosocial stress. The goal of this research was to learn about the experiences of teachers of students with T1D, what is expected of them, what resources they have, and factors which they perceive as barriers or facilitators to education for students with T1D. Semi-structured interviews were conducted with two high school teachers in East Tennessee who had experience teaching students with T1D. The results of the interviews showed that teachers receive limited education, that they are expected to make accommodations such as having snacks on hand and allowing extra access to phones, and that there are perceived barriers to education of individuals with T1D due to the possibility of life-threatening events. The teachers reported that school nurses are involved in the care of students with T1D. Limitations include that only two teachers were interviewed, and while the results are important to take into consideration, saturation was not reached. Future research could include more in-depth interviews or surveys with school nurses.

Type 1 Diabetes in the Classroom

Background and Significance

Type 1 diabetes [T1D] is a chronic autoimmune disease that is often diagnosed in childhood. The illness is defined as pancreatic beta cell dysfunction, leading to insulin deficiency in those affected. Symptoms prior to diagnosis include weight loss, excessive thirst and urination, and a heightened risk of diabetic ketoacidosis and death. Insulin therapy is used to maintain glycemic control (DiMeglio et al., 2018).

Prior to the discovery of insulin, type 1 diabetes was a fatal disease. In 1922, the first dose of insulin was administered to a 14-year-old boy who, at the time of administration, weighed just 65 pounds and suffered from diabetic ketoacidosis. When given insulin, his condition immediately improved, and his life was prolonged 13 more years. Another early recipient of insulin was a 5-year-old boy who proceeded to live until the age of 76 (Lewis & Brubaker, 2021). The impact of the discovery of insulin cannot be understated; it has enabled millions of people to live with a disease which would have otherwise killed them.

In the century following the discovery of insulin, many advancements have been made in the management of type 1 diabetes. A variety of insulins with different durations have been created, and there are more and improved methods of insulin delivery (Lewis & Brubaker, 2021). However, despite the life-saving advancements which have occurred, there are still many difficulties when it comes to managing a chronic disease such as type 1 diabetes.

Management of T1D in pediatric patients requires parental involvement and a variety of lifestyle modifications; the chief concern is preventing either hypoglycemia or hyperglycemia (DiMeglio et al., 2018). A hemoglobin A1c [HbA1c] test measures the average blood glucose over time, and it is often used as the main indicator of the quality of diabetes management; the

recommended HbA1c value for pediatric patients is less than 7.5% (DiMeglio et al., 2018, p. 2455). A value greater than 7.5% would indicate that blood glucose is not being managed properly, and therefore, the patient is at a greater risk of complications, including diabetic ketoacidosis, seizures, retinopathy, neuropathy, nephropathy, atherosclerosis, and decline in cognitive function (DiMeglio et al., 2018, pp. 2455-2456). It is important to maintain proper glycemic control to avoid complications; to do so involves knowledge of the complex interactions between diet, exercise, stress, insulin dosages, and other factors which may influence blood glucose. It is an intense task that must be performed around the clock by caretakers of children with T1D. Yet 57% of students in the U.S. do not have personnel assigned to monitor their T1D care at school (Dixe et al., 2020, p. 5).

According to Madrigal et al. (2020), the management of type 1 diabetes provokes feelings of fear and worry not only in the child diagnosed with the disease, but also in their parents and guardians (p. 4979). Pate et al. (2019) reported a correlation between increased parental fear of hypoglycemia and worse glycemic control (p. 216), and children with greater anxiety are more likely to have poor glycemic control (Runions et al., 2019, p. 472). Research suggests that the mental states of parents and children dealing with T1D directly impact each other. The heightened diabetes-related stress of the parent negatively impacts the child, and vice-versa, and this can be seen in the impact on the child's HbA1c value (Di Riso et al., 2020, p. 2). Perhaps reducing the distress that parents and children with T1D experience could improve glycemic control, leading to better health outcomes.

School attendance is one factor which may result in distress for children with T1D and their families. Runions et al. (2019) suggests that technological improvements in the medical management of chronic childhood conditions such as T1D has led to increased attendance in

typical school settings and enabled them to receive more education (p. 472). However, chronic health conditions can result in social stigma in the school environment, leading to peer rejection, and a lack of structured communication and education between healthcare teams and teachers can lead to a lack of understanding regarding the management of medical conditions on the part of the teacher (Runions et al., 2019, p. 473).

In Madrigal et al. (2020), children with T1D reported that they found it harder to adhere to the curriculum and participate in activities at school than their peers (p. 4978). Students with T1D who were interviewed in Fraysier (2017) reported that they felt a lack of understanding from teachers and coaches, and often felt singled out. One student stated that his “hypoglycemic behavior was misinterpreted as disrespect” (p. 3), another student stated that she was not allowed to go on a school trip because “they did not want to spend a day in the hospital if something happened” (p. 2), another student reported that she often “zoned out” during class but did not check her blood glucose because her teacher would not allow access to backpacks during class (Fraysier, 2017, p. 2). One teacher attempted to take a child’s insulin pump, believing that it was a cell phone (Fraysier, 2017, p. 4). Instances such as these can contribute to stress and anxiety, which can have a negative impact on psychosocial health and development, as well as result in worse glycemic control, leading to poorer health outcomes over time. If teachers do not have knowledge or understanding of T1D, that could increase misunderstandings between teachers and students, contributing to greater stress.

In the U.S., there is little research from the perspective of teachers of students with T1D. If more research could be done to identify what knowledge or resources are needed for teachers so that they could better support their students with T1D, then the health outcomes of students with T1D might ultimately be improved through decreasing their stress and improving their

quality of life. Adverse effects of T1D such as fear of hypoglycemia reduce quality of life and are “predictive” of worse glycemic control (DiMeglio et al., 2018, p. 2456).

Literature Review

The ETSU Sherrod Library OneSearch was utilized which included the search engines PubMed and CINAHL. Keywords included type 1 diabetes, school, teachers, and students. Twenty articles matching the criteria were reviewed; seven were selected to be included in the literature review. Inclusion criteria for the articles included addressing the dynamics between teachers and students with T1D, with a focus on the psychosocial impact on the students with T1D and the education and responsibilities of the teachers with regard for T1D. To be included, articles had to be published within the last ten years. Most of the articles selected were published within the last five years.

There are few studies on this topic published in the U.S.; the studies which met the criteria for inclusion were predominantly from European countries. A Spanish study assessed teachers’ knowledge of T1D and found that just 5.1% of teachers considered themselves to have sufficient knowledge regarding T1D to be an “effective support person” for students with T1D (Gutiérrez-Manzanedo et al., 2018, p. 142). When parents were surveyed, 70% wanted the teachers to have better knowledge regarding T1D (Gutiérrez-Manzanedo et al., 2018, p. 142). A second Spanish study found similar issues: only 4.8% of teachers said they had received training regarding diabetes, and only 5.7% of teachers indicated that their school had glucagon for hypoglycemic students, even though 29.9% were able to recall a time when a student had experienced hypoglycemia at school (Luque-Vara et al., 2021, p. 3). Armas Junco & Fernández-Hawrylak (2022) were more optimistic: 51.2% of teachers stated that there were action protocols at their schools, and 45.2% stated they had received education on T1D (p. 6).

Researchers reported findings in a qualitative study that parents claimed that their child had experienced difficulties at school due to being diabetic, such as being able to attend field trips only if a family member accompanied them (Armas Junco & Fernández-Hawrylak, 2022, p. 10). Six out of eleven teachers indicated that they believed students with T1D found it more difficult to carry out the same activities as other students, such as not being able to attend field trips. Most of the families agreed that T1D could affect children's academic performances, a position shared by five out of eleven of the teachers (Armas Junco & Fernández-Hawrylak, 2022). These interviews provided valuable insight into the thought processes of both parents and teachers of diabetic children.

Similar findings were reported in studies which addressed the role of the teacher. German teachers reported a “lack of information about diabetes, inadequate training, and poor communication among teachers, parents, and physicians” (Gutzweiler et al., 2020, p. 7). Generally, the role played by teachers in the care of children with T1D is not clearly defined, making it more difficult for them to care for the students, especially when school schedules interrupt the child's diabetes routine, or when children feel uncomfortable checking blood glucose or administering insulin at school (MacMillan et al., 2014, pp. 19-20). Defining roles and providing education on T1D for teachers could help improve the experience for both students and educators. A Portuguese study concluded that providing a training program about T1D to school personnel increased their confidence in caring for students with T1D (Dixe et al., 2020, p. 5).

Although there is interest in this topic outside the United States, there appears to be little information concerning teachers' perceptions of their education and ability to care for children with type 1 diabetes in schools in the U.S.—yet students interviewed in the U.S. have reported

conflicts and misunderstandings with their teachers that caused distress at school (Fraysier, 2017). Therefore, the purpose of this research is to assess the experiences of teachers who have had a student with T1D, what teachers feel is expected of them, what resources they have, and what factors they felt could help or hurt students with T1D when receiving education.

Methodology

A qualitative study guided the inquiry of the teachers' experiences with students with type 1 diabetes. An interview guide was used to conduct interviews of teachers which allowed them to share their experiences teaching students in grades 7 through 12 with T1D (see Appendix A). To participate in the study, the individual had to be a teacher physically present in the U.S. who had taught a diabetic student. An exclusion criterion existed in that the teacher could not have personal experience educating the researcher or family members of the researcher. The researcher obtained approval from the ETSU IRB for this study.

The interview guide allowed the teachers to share their experiences when a student with T1D was in their classroom. It was intended to address the feelings of teachers regarding their experiences of educating a student with T1D, their perceptions of their responsibilities and the resources available to them when they had a student with T1D, and what they felt could be helpful or detrimental to the education of a student with T1D. The interview began with a broad question and there were more specific follow-up questions (Kvale, 2007).

The recruitment flyer was approved by the ETSU IRB (see Appendix B). It was posted on the social media site Facebook. Flyers were distributed in community areas, such as stores and restaurants, to recruit teachers into the study. After being recruited, teachers were encouraged to share the information regarding the study with their peers. After reaching out to join the study, the teachers were sent a consent form which had received approval from the

ETSU IRB (see Appendix C). To participate in the study, the teachers returned a signed consent form. After the consent form was received, a video meeting was scheduled for the interview. Two teachers were recruited into the study. After informed consent was obtained, the interview was conducted over the video chat platform Zoom, recorded, and transcribed (Kvale, 2007). The verbatim transcription was completed by the researcher. After the interview was complete, the Zoom recordings were permanently deleted.

The analysis of the interviews was completed in its entirety with each question being addressed by both participants. Both interviews were transcribed verbatim as soon as possible upon completion of the interview (Kvale, 2007). Field notes that were compiled during the interviews addressed the teachers' experience, grades taught, and location and were reviewed upon completion of the interview. Each transcript was read in its entirety. During the reading of the transcripts, phrases addressing the teacher experiences were identified, labeled, and grouped together (Kvale, 2007). After both transcripts were read the first time and the phrases were grouped together, a second reading analyzed the common themes that the teachers discussed. Additional analysis of the grouped thoughts and ideas occurred to assist the understanding of the U.S. teachers' experiences related to the teachers described in the literature review (Kvale, 2007). A lack of additional interviews did not allow for further analysis and saturation was not achieved because two interviews are not enough to identify the majority of common themes (Hennink & Kaiser, 2019).

Results

Two teachers were recruited for interviews. The transcript for Participant 1 can be found in Appendix D; the transcript for Participant 2 can be found in Appendix E. The teachers taught

at different high schools in East Tennessee. Participant 1 taught 10th and 11th grade. Participant 2 taught 10th, 11th, and 12th grade. Both had several years of teaching experience.

Regarding the experiences of teachers who have a student with type 1 diabetes, Participant 1 stated “every time I have a student who has type one diabetes or any medical condition it will alert me [...] on the roster and so it will just kind of tell me what to do if a student has type one diabetes and if their blood sugars get low and stuff like that—how to monitor those levels, things like that. For the most part, I haven't had too many problems—last year I did have somebody's monitor go off during class.” Participant 2 stated “Normally, we just receive that they have just diabetes [...] we just were given a generalized individual health plan; just things [to] kind of look out for but it's never been clearly specified that the student has had type one diabetes. You usually just get like a one-page action plan if there were an emergency to happen; sometimes you'll receive information about hyper- or hypoglycemia indicators to look for.” Both these responses indicate that teachers receive some information regarding diabetes, but not a training or education session; teachers received limited education on T1D.

Participant 1 indicated that expectations of teachers with a student who has type 1 diabetes is “one thing that I wish that they covered a little bit more.” Though some documentation for the students exists, “it doesn't actually really mention what to look out for too much, so I wish that they provided that more.” Participant 2 stated “I've received [individualized health plans] of having students with diabetes [...] but it wasn't shared with me until last semester [...] by the parent that the student [...] had type one diabetes. So, they were able to share far more information about what to look for in the classroom compared to the individualized health plan [which] just kind of gave you some general things to watch out for.”

These responses suggest that although some documentation and education does exist, it is brief and non-specific.

Participant 2 stated that it was not communicated that the student specifically had type 1 diabetes, and that this information is usually provided by the students and parents: “I have a current student with type one diabetes and I've received more information from him, but the parents in the past have been the ones to give more detail on which diabetes they have and certain indicators to be looking out for.” Participant 2 continued and said, “I wish we had a little more of planning in place—not to say that we don't have enough but as teachers, especially with students who have type one, I wish I had a little more information or a video or a PowerPoint or even just an in-person presentation.”

Regarding expectations of teachers of a student with T1D, Participant 2 states that having a student with T1D “always kind of raises greater level of responsibility [...] in high school we have the benefit of our students are [...] older; most of them are able or are allowed to self-medicate if needed, or have the awareness of ‘my blood sugar is either dropping or it's too high’ [...] it makes you feel a little better but the expectation generally being that you have read that plan thoroughly and that you have some snacks and items on hand in the event a student needed them.” Participant 1 also stated that “they just recommend that we have snacks on hand [...] if they are feeling dizzy or lightheaded, they tell us to make sure that they have another student go out with them to go and get the nurse or go to the bathroom or go to the office, wherever they need to go.” Both teachers indicated that having a student with T1D requires some adjustments to be made. Participant 2 stated that “those students [do] have more of opportunities to use the restroom [...] so, normally, students only leave once but if it's a student who is diabetic or has another health condition then it would be [...] unlimited.” Participant 1 said “I have had students

who have needed to have their phones on them because that's kind of how they track their levels and stuff like that and so that is an adjustment that I've had to make and I'm happy to make for those students.” The teachers reported that they are expected to have knowledge and make decisions regarding what accommodations are appropriate for students with T1D. Both teachers stated that they were advised to have snacks on hand for students with T1D, as well as accommodations such as extra bathroom breaks or having their cellphones on hand.

The teachers stated that the resources available to them included snacks and the school nurse. Participant 1 stated “I've come from different schools, so the school that I went to before we had an emergency kit where we had kind of food packets, glucose packets, things like that for the students [...] My old school did not have an onsite school nurse, so we would send them to the office. My new school does have an onsite school nurse as well that we have on hand.” However, Participant 1 also stated “It doesn't actually really mention what to look out for too much, so I wish that they provided that more. I'm just—especially because I'm not super familiar with type one diabetes—but it just kind of gives us a rundown, tells us to allow them to have snacks and things like that.” Participant 2 stated “I wish that we had greater training on it, but it's really hard [...] we have over 2000 students at my school. I do wish we could have more resources to be individualized so if you have a diabetic student some things to look out for [...] The clinic as well as nurses here but again, they're managing so many.” These responses indicate that school nurses are involved in the care of students with T1D as well as teachers, and that collaboration exists.

Regarding barriers for education of a student with T1D, Participant 2 stated that T1D “does take away and can take away from the classroom because they're already coming into our room with something that's serious [...] that could be potentially life [...] threatening and in

certain situations and has been for some of my students [...] so they're already coming into the classroom with that all in mind and having to be extra aware and responsible for themselves, let alone trying to learn the content and the curriculum.” Participant 1 stated “for the most part, apart from getting those notifications and stuff like that, I haven't noticed too big of a difference, unless of course students need to leave the classroom during certain times to like go and give themselves insulin [...] but a lot of my students have [...] the automatic ones now.” These responses suggest that there is a barrier to education that exists for students with T1D due to the stress of managing their disease.

Discussion

The interviews suggest that the resources provided by the school are limited, mostly relying on the school nurse. The teachers reported that they are expected to have carbohydrates on hand, to make some changes such as allowing access to phones or extra bathroom breaks, and to be able to determine when it is appropriate to send a student to the school nurse. The teachers reported that the instructions provided are minimal, and the teachers expressed desire for greater, more specific instruction. The teachers reported that having a student with T1D in class raises the level of responsibility and increases stress because a life-threatening event could potentially occur.

Information regarding U.S. teachers' perceptions of their knowledge deficits and the type of support they require was not available. It is important to consider ways to support teachers who have a student with type 1 diabetes. In a qualitative study, school nurses reported that a lack of education among teachers and coaches posed a barrier to education of students with T1D due to misunderstandings regarding the severity of T1D (An et al., 2022, p. 362). The type of education teachers require could be more easily identified and provided if the information

regarding their needs was available. School nurses could benefit from having this information about teachers so that they could better educate them, thus also improving the experiences of students. Dixe et al. (2020) found that a training program improved the confidence of teachers when educating students with T1D.

The results of these interviews are supported by the literature review. Both teachers indicated a desire for increased education regarding T1D and stated that little education currently exists. Gutzweiler et al. (2020) posited that German teachers also reported a lack of training on T1D. Both teachers indicated that there is not a formal set of expectations regarding the role of teachers in the care of T1D; rather they are advised to have snacks on hand, make accommodations, and refer students to the school nurse at their discretion. Macmillan et al. (2014) stated that the role of teachers is poorly defined and argued that improving the definition of this role might lead to better outcomes for all involved. The teachers indicated that a barrier exists regarding the stress of managing a chronic disease such as T1D and the fear that a life-threatening event could occur at school. The experiences of students with T1D supports that they might feel that a barrier exists to their learning when it comes to managing T1D at school and possibly facing barriers such as symptoms or misunderstandings with teachers (Fraysier, 2017).

Limitations

A major limitation of this research is the small sample size of two teachers in the study. COVID-19 related barriers encountered by the researcher made it difficult to work through school systems or interview the teachers in person. Recruitment relied upon teachers reaching out to the researcher themselves. The small sample size did not allow for saturation to be reached. Further research needs to examine this topic, although the nature of qualitative interviews allows in-depth responses to be collected from each participant (Kvale, 2007). An

example of a way that a larger sample size could be obtained is to send a school-wide or school-system-wide survey to obtain a sample of teachers who have educated students with T1D and can provide meaningful responses (Maxwell, 2009). Additionally, the interviews conducted in this study identified that school nurses play a key role in managing students with T1D. However, no school nurses were interviewed. To expand on this topic, further research should be conducted with school nurses, as well as other school staff such as coaches or administrators to learn about their perspective.

Conclusion

Both teachers expressed some similar ideas: the desire for more in-depth training regarding type 1 diabetes, a sense of increased responsibility, the challenge that students with T1D face in the classroom. These interviews indicate the teachers could benefit from improved education and communication regarding students with T1D. Both teachers expressed that school nurses play an important role in the care of students with type 1 diabetes.

School nurses play a critical role in promoting the health of students. In a qualitative study, school nurses identified that their role should be one of proactive communication and advocacy in order to promote the health of students, including providing teachers with information regarding students with T1D (An et al., 2022, p. 361). School nurses reported that educating teachers is important because poor communication could result in teachers who do not understand the severity of diabetes, and communication regarding a student's "504 plan" is key to prevent deviation from evidence-based care (An et al., 2022, p. 362). Future research should investigate the relationship between school nurses, teachers, coaches, administrators, and students, to find ways that school nurses can better promote the health of all students with type 1 diabetes. Identifying what aspects of education are needed could be helpful for school nurses.

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Appendix A

Interview Guide

Interview Guide

1. Can you share your experience of having a student with type 1 diabetes in your class?
 - a. What did you feel was expected of you when you had a diabetic student?
 - b. What was your experience with school resources available to you when you had a diabetic student in your class?
 - c. What were the facilitators and barriers for education of an individual with type 1 diabetes?

Appendix B

Recruitment Flyer



COLLEGE of NURSING
EAST TENNESSEE STATE UNIVERSITY

Research Study Seeks Participants: “Type 1 Diabetes in the Classroom”



What is this study about?

- This purpose of this study is to learn about the experiences of teachers who have taught students with type 1 diabetes.

Who can participate?

- Teachers of grades 7 through 12 who have taught a student with type 1 diabetes.

Why should I participate?

- The goal of this research is to improve the experiences of both teachers and their students with type 1 diabetes.
- You may contribute valuable insights towards this goal.

How can I participate?

- Contact Ursula Herrell at herrellu@mail.etsu.edu or (423) [REDACTED].
- This research is for an East Tennessee State University Honors undergraduate thesis.

Appendix C

Informed Consent

Title of Research Study: Type 1 Diabetes in the Classroom
Principal Investigator: Ursula Herrell, herrellu@mail.etsu.edu
Organization of Principal Investigator: East Tennessee State University

CONSENT FORM

This document provides information about being a participant in a research study. Please read this carefully. This will help you decide if you would like to volunteer to join this study.

STUDY DETAILS

- **What is this study about?** The purpose of this study is to identify the perceptions of teachers regarding students with type 1 diabetes. The goal of obtaining this information is to learn how to improve the experiences of both teachers and students in the classroom.
- **How much of my time will it take?** This research will be conducted through interviews. One interview per participant will be conducted, and the interview will not last more than one hour.
- **What are you asking me to do?** If you decide to volunteer for this study, you will be asked to respond to a series of questions from an interview guide. Your responses will be recorded and transcribed. The interview may be conducted through video conference or in person.
- **Are there any benefits for me?** There are no direct benefits for you. Possible benefits for others include increased knowledge of how to develop education materials and procedures to improve the educational experiences of students with type 1 diabetes.
- **Are there any possible risks or discomforts?** There is a risk of emotional distress if the participant recounts upsetting events. There is a risk of loss of confidentiality.
- **Will I be identified? How are you keeping my information safe?** We will make every effort to keep your study records confidential. The results of this study may be published and/or presented at meetings. You will not be named as a participant. Although your rights and privacy will be maintained, both the research records and signed consent form that identify you may be looked at by others that have the legal right to see that information. This may include the ETSU IRB overseeing this research, other individuals at the University with the responsibility for ensuring we follow the rules related to this research, the federal Office of Human Research Protections (OHRP) that protects participants like you, East Tennessee State University, and the Principal Investigator and research team. Your records will be kept completely confidential according to current legal requirements. They will not

Title of Research Study: Type 1 Diabetes in the Classroom

Principal Investigator: Ursula Herrell

be revealed unless required by law, or as described in this form. If the study staff finds evidence of child or elder abuse or neglect, we may be required by Tennessee law to report it to local law authorities.

- **Will any of my data be used in the future?** All information that can identify you will be removed from the data. This data will then be stored for possible use in future research studies. We will not ask for additional consent for those studies
- **Do I have to pay for anything?** There is no cost to you if you decide to be part of this study.
- **Will I be paid for participating?** You will not be paid for joining this study.
- **Do I have to join this study?** No. This study is voluntary. You get to decide if you want to be part of this study. **You may decide you do not want to participate.** If you join this study and then change your mind, you can quit at any time. Deciding not to join the study or quitting will not affect any benefits you would normally receive.
- **Who should I contact for questions?** If you have any questions or research-related problems at any time, you may contact Ursula Herrell at herrellu@mail.etsu.edu. This research is being overseen by an Institutional Review Board (IRB). An IRB is a group of people who perform independent review of research studies. You may also contact the ETSU IRB at 423.439.6054 or IRB@etsu.edu for any issues, questions or input that you may have about the research or your rights as a research participant.

By signing below, I confirm that I have read and understand this consent form. I also confirm that I had the opportunity to have it explained to me verbally. I confirm that I was able to ask questions and that all my questions have been answered. By signing below, I confirm that I am 18 years or older and I freely and voluntarily choose to take part in this research study.

Signature of Participant

Date

Printed Name of Participant

You will be provided with a copy of this signed consent form.

Appendix D

Participant 1 Interview Transcript

Can you share your experience of having a student with type 1 diabetes in your class?

I think this year—this semester at least—I have 3 and then throughout my years of teaching I probably had on average like 6 or 7 [...] it hasn't impacted the way that I teach too much, but they do give us alerts [...] I wouldn't have even really known that they had it unless they have those monitoring systems on their arms and stuff like that [...] every time I have a student who has type one diabetes or any medical condition it will alert me [...] on the roster and so it will just kind of tell me what to do if a student has type one diabetes and if their blood sugars get low and stuff like that—how to monitor those levels, things like that. For the most part, I haven't had too many problems—last year I did have somebody's monitor go off during class.

What did you feel was expected of you when you had a diabetic student?

That is one thing that I wish that they covered a little bit more, [...] they do a good job of like alerting us when students have type one diabetes and it gives us a small little blurb of like: make sure you have food, make sure you have snacks on hand, but they haven't really told us exactly like signs look for and things like that. But I know at my old school they did provide us with [...] glucose packet things. So, we had some of those in that classroom in our emergency kit in case a student was having problems with their blood sugar levels. We don't have that in this class, they just recommend that we have snacks on hand, so I just kind of asked around and keep snacks on hand but just really making sure that we contact the nurse and get the nurse to come. And if they are feeling dizzy or lightheaded, they tell us to make sure that they have another student go out with them to go and get the nurse or go to the bathroom or go to the office, wherever they need to go.

What was your experience with school resources available to you when you had a diabetic student in your class?

I've come from different schools, so the school that I went to before we had an emergency kit where we had kind of food packets, glucose packets, things like that for the students. We have documentation of kind of medical conditions, what to look out for. It doesn't actually really mention what to look out for too much, so I wish that they provided that more. I'm just—especially because I'm not super familiar with type one diabetes—but it just kind of gives us a rundown, tells us to allow them to have snacks and things like that. They kind of have that help plan laid out for us. My old school did not have an onsite school nurse, so we would send them to the office. My new school does have an onsite school nurse as well that we have on hand.

What were the facilitators and barriers for education of an individual with type 1 diabetes?

I feel like with my students that I've had with type one diabetes, it hasn't been—there haven't been too many “debilitators” or even really facilitators. They definitely do provide resources [...] depending on kind of what the students medication is and stuff like that, I have had students who have needed to have their phones on them because that's kind of how they track their levels and stuff like that and so that is an adjustment that I've had to make and I'm happy to make for those students and then of course if students are getting like, dizzy or lightheaded, allowing for snacks and things like that but I feel like for the most part, apart from getting those notifications and stuff like that, I haven't noticed too big of a difference, unless of course students need to leave the classroom during certain times to like go and give themselves insulin [...] but a lot of my students have [...] the automatic ones now.

Appendix E

Participant 2 Interview Transcript

Can you share your experience of having a student with type 1 diabetes in your class?

The experience that I've had most recently is every year we get an individualized health plan, or every semester, for students and I've received ones of having students with diabetes [...] but it wasn't shared with me until last semester [...] by the parent that the student [...] had type one diabetes. So, they were able to share far more information about what to look for in the classroom compared to the individualized health plan [which] just kind of gave you some general things to watch out for [...] normally, we just receive that they have just diabetes and we just were given a generalized individual health plan; just things [to] kind of look out for but it's never it's never been clearly specified that the student has had type one diabetes. You usually just get like a one page action plan if there were an emergency to happen; sometimes you'll receive information about hyper- or hypoglycemia indicators to look for [...] I have a current student with type one diabetes and I've received more information from him, but the parents in the past have been the ones to give more detail on which diabetes they have and certain indicators to be looking out for.

What did you feel was expected of you when you had a diabetic student?

It just always kind of raises greater level of responsibility [...] once I found out the student I had had type one diabetes, I really went back to his action plan—the individualized health plan—to really look over the expectations of me, what I would really need to do. Now, in high school we have the benefit of our students are [...] older; most of them are able or are allowed to self-medicate if needed, or have the awareness of ‘my blood sugar is either dropping or it's too high’ or they'll have the Dexcom that they'll use [...] it makes you feel a little better but the

expectation generally being that you have read that plan thoroughly and that you have some snacks and items on hand in the event a student needed them [...] for me, it would just be having snacks on hand and access to water if needed; allowing [...] those students [to] have more of opportunities to use the restroom [...] so, normally, students only leave once but if it's a student who is diabetic or has another health condition then it would be [...] unlimited but that's really it [and] just having some quick carbohydrate on hand.

What was your experience with school resources available to you when you had a diabetic student in your class?

I wish that we had greater training on it, but it's really hard [...] we have over 2000 students at my school. I do wish we could have more resources to be individualized so if you have a diabetic student some things to look out for. Instead it's a little more general: all we have is just that individualized health plan, parents to reach out to, a student [...] we can ask them some questions. The clinic as well are nurses here but again, they're managing so many [...] this year or semester my student that I have with type one, I was given a piece of paper that had information about hyper versus hypo glycemia but then again, it's still pretty brief. So I wish we had a little more of planning in place—not to say that we don't have enough but as teachers, especially with students who have type one, I wish I had a little more information or a video or a PowerPoint or even just an in person presentation [...] just a little more and even specific to students [...] just a quick personalized, you know here's something you need to look out for [with] this student in particular.

What were the facilitators and barriers for education of an individual with type 1 diabetes?

A barrier would be [...] something that's going to be on their mind when they either are alerted by like a Dexcom system or are just starting to feel their from their own body the change in their blood sugar level. So that does take away and can take away from the classroom because they're already coming into our room with something that's serious [...] that could be potentially life [...] threatening and in certain situations and has been for some of my students [...] so they're already coming into the classroom with that all in mind and having to be extra aware and responsible for themselves, let alone trying to learn the content and the curriculum. So that would be one barrier is they're just coming at you with all these other things [...] but [...] every student is coming with some sort of a hindrance or barrier. Just having the individualized health plan [and] being able to talk with the student and the parent themselves has been very helpful about what do you need me to do, or what should I be looking for [...] just making sure that they are aware of what's on their health plan so whether or not they have to go to the clinic for certain monitoring [...] like their ketones or their blood sugar management, carb count, maybe even administering insulin, just verifying with them that they know what's in their individualized health plan.