

University of Texas at Tyler

Scholar Works at UT Tyler

MSN Capstone Projects

Nursing

Spring 4-19-2024

Discharge Preparedness for the Type 1 Diabetic Patient

Nathan W. Sewell

University of Texas at Tyler, nsewell@patriots.uttyler.edu

Follow this and additional works at: https://scholarworks.uttyler.edu/nursing_msn



Part of the [Nursing Commons](#)

Recommended Citation

Sewell, Nathan W., "Discharge Preparedness for the Type 1 Diabetic Patient" (2024). *MSN Capstone Projects*. Paper 314.

<http://hdl.handle.net/10950/4653>

This MSN Capstone Project is brought to you for free and open access by the Nursing at Scholar Works at UT Tyler. It has been accepted for inclusion in MSN Capstone Projects by an authorized administrator of Scholar Works at UT Tyler. For more information, please contact tgullings@uttyler.edu.

Discharge Preparedness for the Type 1 Diabetic Patient

Nathan W. Sewell, BSN, RN

The University of Texas at Tyler, School of Nursing

For NURS 5382: Capstone

J. Michelle Nelson, Ph.D., RN, CNE

04/19/2024

Contents

Acknowledgments

Executive Summary

Implementation and Benchmark Project

1. Rationale for the Project
2. Literature Synthesis
3. Project Stakeholders
4. Implementation Plan
5. Timetable/Flowchart
6. Data Collection Methods
7. Evaluation
8. Cost/Benefit Analysis
9. Discussion of Results

Conclusions/Recommendations

References

Appendices

Acknowledgments

This endeavor would not have been possible without the patience and guidance offered by my professor, J. Michelle Nelson, Ph.D., RN, CNE. I am thankful for her leadership, constructive feedback, and for sharing her knowledge and expertise throughout the semester. I would like to express my deepest appreciation to my advisor, Janet Rainey, M.S., for her patience and guidance throughout this program. She assisted me and helped me through some very difficult moments of transition, and I am very thankful for her.

I would like to acknowledge and extend a special thanks to my classmates; you have done difficult things and have excelled. You are all leaders. I appreciate your kind words of encouragement throughout the program and your perseverance, which has been inspiring. Thanks should also go to my librarian, Ezzie Rodgers, she helped me in a tight spot in preparation for this project and gave some outstanding advice and suggestions.

I would be remiss if I did not mention my wife Eryka C. Sewell, for the love, support, and longsuffering you have extended to me through difficult nights with our lovely children, while I worked on this project. This is just as much your investment as it is mine. You have believed in me when I did not believe in myself. I am grateful to my director, Robert Venable, BSN, RN for paving open roads for me in the work schedule, which undoubtedly aided me in my success. Thank you for your leadership. I wish you success in your ventures as well. I would like to recognize my church community and friends at Soma Church in Tyler; your prayers have lifted me up in my deepest lows and you have been a constant encouragement to me to keep the faith in Christ Jesus and finish this race with excellence and grace.

Executive Summary

The purpose of this paper is to highlight the individual who suffers from type 1 diabetes, because there appears to be a disparity in the equity of their healthcare needs as compared to other chronic illness. Type 1 diabetes is a progressive illness that places a tremendous burden on the person inflicted with it, including emotional, physical, and financial strains, and these burdens contribute to an emotional condition known as diabetic distress (Orben et al., 2022). This distress impacts the individual's self-efficacy, and they see more frequent exacerbations of their diabetes like diabetic ketoacidosis (DKA) (Fisher et al., 2018; Hood et al. 2018; Orben et al., 2022). The cost of insulin is high but the cost of a hospitalization with a diagnosis of DKA on average costs the individual \$30,000 (Lyerla et al., 2021).

An evidence-based approach to improving this healthcare inequity for the type 1 diabetic is to provide a text-based intervention that educates, encourages self-efficacy, and empowers the type 1 diabetic patient to take ownership of their disease process. The evidence-based practice question that guided my search through the literature is as follows: In young adults with type 1 diabetes discharged to home following a post diabetic ketoacidosis (DKA) episode, how does diabetes discharge instructions with a follow up educational text message at 48 hours and at 2 weeks after discharge, compare to diabetes discharge instructions without a follow up educational text message affect the rate of rehospitalizations with recurrent DKA within 3 months after intervention?

The plan is to implement this project that utilizes a text-based intervention to recently discharged type 1 diabetic patients. Each case will be evaluated over a three-month span of time after discharge. The desired outcome and aim are that there be no additional hospitalizations following the patient's initial hospitalization for DKA for those who received the intervention.

Discharge Preparedness for the Type 1 Diabetic Patient

If you were to visit your local hospital, travel to the intensive care unit (ICU), and speak to one of the critical care nurses, they could tell you a personal story of caring for a patient who has suffered frequent episodes of diabetic ketoacidosis. The patients are typically young adults present without their parent and by themselves or with a significant other. They present with all the signs and symptoms of dehydration and acidosis. You can smell their acetone breath because they are breathing so fast and heavy. Their blood sugar is well above 500 mg/dL. They are not typically happy to see you. The patient tries to hide themselves from the bright lights in the ICU under the covers because they're exhausted, feel horrible, and just want to sleep. However, the nurse knows they must engage with the patient because this patient is critically ill, and their life depends on it. These young adults appear to be oblivious to the severity of their illness, but this is not always the case—they know they are sick. This patient may have possibly been with you a week or two weeks prior in the same condition or worse than they were in the previous admission. The nurse taking the primary role in managing the case experiences frustration with these patients the likes of finishing a beautiful puzzle just to have it strown all over the place, then being tasked to put it back together again.

If you have worked a year in the ICU, you are very familiar with the cyclical nature of these patient admissions. Compassion begins to rise in you as if you were their parent and your heart breaks when you see these readmitted patients in the critical state they come to. Most unhealthy cycles can be interrupted, and new healthier patterns can be brought in to replace the unhealthy ones. About a year ago, through the spirit of inquiry, I began to wonder what a nurse could do to interrupt this specific loop that type 1 diabetics find themselves in and began to consider a few viable options.

This paper contains the purpose and rationale behind this project and transitions into a survey of the literature that was found to provide an evidence-based solution to help the type 1 diabetic patient who is being discharged home after an episode of DKA. The stakeholders will be identified who will receive invitation to take part in this project and an implementation plan and timeline laid out. The methods for data collection will be communicated clearly. The plan for displaying and evaluating the data from this project is documented in the body of this paper. The cost to benefit ratio is given with some projections for the savings that this project can bring to the healthcare system. This is a benchmark study, hence there will not be specific results displayed in this work, however, the outcomes that are anticipated will be provided. Concluding thoughts and recommendations will be given to finish this evidence-based practice project.

Rationale for the Project

Young adults with type 1 diabetes who have been hospitalized and diagnosed with diabetic ketoacidosis (DKA) are at risk of being stuck in a negative feedback loop that can end in their demise. Steenblock et al. (2022) emphasizes and sheds light on a negative feedback loop and pathophysiological explanation that exists between diabetes and depression. This feedback loop is manifested in the dysregulation of the hypothalamic-pituitary-adrenal cortex (HPA) (Steenblock et al., 2022). When an individual with type 1 diabetes is under duress, HPA is activated, resulting in increased cortisol levels, and when chronically activated, the effect leads to cortisol dysregulation and impaired glucose metabolism (Steenblock et al., 2022).

Along with the pathophysiological processes occurring with type 1 diabetes, this vulnerable individual is placed under an incredible burden, typically a juvenile transitioning from pediatric care to adult care, who is experiencing emotional, physical, and financial strains of hospital bills and the cost of insulin. These burdens, when compounded, contribute to a condition

known as diabetic distress syndrome or simply diabetic distress (Orben et al., 2022). Orben et al. (2022) submit that individuals who have diabetic distress are more likely to become lax in their management of the disease process, perform fewer self-care behaviors, have higher glycosylated hemoglobin levels, have increased number of diabetic complications, and have lower quality of life.

Sick people respond to genuine compassion and hands that are extended to heal. I believe this population of patients with type 1 diabetes value their life and will respond when there is an extension to bring healing. In a mixed methods study, participants voiced their desire for peer support to aide them in their management of diabetes (Hood et al., 2018). The key component that contributed to their success was *support*.

Provision 1 of the American Nurses Association (ANA) *Code of Ethics* in essence shapes his or her nursing practice to uphold the inherent worth, dignity, and unique attributes that each person has and to do so compassionately and respectfully (Fowler et al., 2015). The impetus and rationale behind this project are to seek to support and uphold a particularly vulnerable population of people who have type 1 diabetes. One unique attribute of most young adults is that they own a smartphone and on average spend approximately four hours a day on them. The intervention chosen was in line with a key article for this project, in which the main intervention was a text-based intervention that enabled the researchers to extend their reach and improve accessibility to diabetic healthcare for patients in remote towns (Dobson et al., 2018).

In young adults with type 1 diabetes discharged to home following a post diabetic ketoacidosis (DKA) episode (P), how does diabetes discharge instructions with a follow up educational text message at 48 hours and at 2 weeks after discharge (I), compare to diabetes

discharge instructions without a follow up educational text message (C) affect the rate of rehospitalization with recurrent DKA (O) within 3 months after intervention (T)?

Literature Synthesis

Young adults with type 1 diabetes suffer with a multifaceted disease process that not only impairs their physical body's metabolic status, but also impairs their mental health and wellness. Upon review of the current literature, it becomes clear that there is a strong mental health component with type 1 diabetes; some patients have depressive-like symptoms, which only compounds the difficulty of managing their disease process (Oh & Ell, 2018; Orben et al., 2022; Hood et al., 2018; Fisher et al., 2018). The purpose of this literature review is not to answer a psychiatric mental health question, but answer one for the person with type 1 diabetes who suffers with diabetic distress. These individuals have measurable levels of distress, which impact self-efficacy and increase the frequency of exacerbations of diabetes (Fisher et al., 2018; Hood et al. 2018; Orben et al., 2022).

Healthcare professionals should be equipped with competencies on identifying and addressing diabetic distress in their practice and use technology to assist in this, because evidence supports the need to incorporate mental health interventions and assessments into the care of patients with diabetes (Orben et al., 2022; Hood et al., 2018). There must be a means to improve accessibility to healthcare for this specific population that have multiple areas of vulnerability. These areas of vulnerability are compounded with the fact that some are from marginalized groups, such as being people of color, women, children, people with disabilities, those in lower socioeconomic status (Chang et al., 2018; Dobson et al., 2018; Hood et al., 2018; Oh et al., 2018).

There are a few interventions from the literature that will be compared that help provide an answer to the concern for accessibility. Before providing synthesis of those interventions, it is worth noting from the research available that it is apparent that patients with type 1 diabetes do show reductions in diabetic distress when receiving intervention to reduce diabetic distress (Oh & Ell, 2018; Orben et al., 2022; Hood et al., 2018; Fisher et al., 2018). Type 1 diabetic patients also show reduced HbA1c levels with intentional intervention and commitment to those interventions (Dobson et al., 2018; Eberle et al., 2021; Fisher et al., 2018; Magny-Normilus et al., 2019; Spaic et al., 2019).

There are two different approaches to reaching this population of people managing type 1 diabetes, and they seek to remedy this concern for accessibility to healthcare; both have been observed in the body of evidence being synthesized. The first intervention is the provision of a person that functions in the way as a community health worker, advocate, transition coordinator, health coach or mediator (Chang et al., 2018; Magny-Normilus et al., 2019; Spaic et al., 2019; Wolever et al., 2022). The other intervention is the utilization of tele-health, which can be the broader term which encompasses the use of telephone or text communications, virtual group appointments on platforms such as zoom, and computer telemonitoring software that patients interact daily that track vital sign trends including weight and fingerstick blood sugar readings (Bisno et al., 2021; Dawson et al., 2021; Dobson et al., 2018; Eberle et al., 2021).

One study looked at providing a community health worker to reach a marginalized group of Latinos with poorly controlled diabetes and they observed that accessibility to healthcare was improved, but when it came to the actual utilization of services there was no improvement (Chang et al., 2018). An additional group of researchers looked at retired Airforce soldiers who were managing chronic disease processes like heart disease and diabetes who were provided

remote health coaches who saw increase their patient's physical activity, but the study concluded that the health coach part of the intervention would need further study (Wolever et al., 2022).

The reproducibility of these interventions could be costly in that they require hiring a healthcare professional.

There are two studies that focus on critical transitions for the type 1 diabetic patient, specifically after hospital discharge and going from pediatric care to adult care. The first was a multi-interventional study that provided results in reduction in HbA1c as compared to usual care group from before admission to 60-120 days post discharge; they utilized a discharge advocate and behavioral interventions which improved diabetes control (Magny-Normilus et al., 2019). To supplement this, another study used a transition coordinator who was instrumental in improving the time gap from pediatric care to adult diabetic care. There was a noted significant increase in attendance in the intervention group to the diabetic clinic (Spaic et al., 2019). One qualitative study documented that focused diabetes support groups showed to improve the emotional burden and lessen diabetic distress, which helped improve self-efficacy and management of diabetes (Hood et al., 2018).

The next question considered is whether these patients would benefit from telehealth communications? Young adults with type 1 diabetes showed reduced diabetic distress scale scores who had received Colorado Young Adults with type 1 diabetes (CoYoT1) intervention which included a virtual group appointment (Bisno et al., 2021). It was significant in a large, randomized control trial, in that telemonitoring reduced the risk of readmission, emergency department visits, and death in a 30-day timeframe from discharge (Dawson et al., 2021). One study showed that there may be significant clinical effectiveness for those with type 1 diabetes

and type 2 diabetes to receive telehealth and or telemonitoring, but there was a slightly higher result for those with type 2 diabetes versus those with type 1 diabetes (Eberle et al., 2021).

The main driver in this review of the literature is that the diabetic patient needs connection during vulnerable points of transition, and one of the most accessible forms of communication with young adults are their smart phones (Dobson et al., 2018). This Australian research group tested the effectiveness of a tailored SMS/text messaging self-management program that offered significant improvement in glycemic control in clients with poorly controlled diabetes (Dobson et al., 2018). The challenge of getting the patient in to see the primary care physician after discharge is difficult, which is partly related to the social determinants of health for each patient, including language barriers, non-compliance, drug abuse, neglect, and lack of transportation (Chang et al., 2018; Dobson et al., 2018, Oh et al. 2018). To improve accessibility to service utilization from a healthcare provider, the use of a text-based intervention narrows the gap and is the impetus behind this literature review and helps to answer the clinical question at hand (Dobson et al., 2018).

Project Stakeholders

The primary stakeholders invited to attend, otherwise known as the external stakeholders, are those affected by this proposition for change, specifically investors for the hospital. Internal stakeholders are all of those whom this project touches within the hospitals and clinics. The internal stakeholders are the chief executive officer (CEO) of the hospital and the CEO of the clinic, chief financial officer (CFO) of the hospital and CFO to the clinic, Intensive Care Unit (ICU) attending physicians, emergency room physicians, chief medical officer (CMO) of the hospital and the CMO of the clinic, primary care providers in the clinic, the director of endocrinology, the nurse manager of the ICU, and nurses from the ICU. The secondary

stakeholders that will be included in this project will be the few families in the community that have been affected by type 1 diabetes and desire to be present.

Prior to proceeding with this project, permissions will need to be granted by hospital administration and the international review board (IRB). Patients will be given informed consent. Confidentiality and privacy will be upheld to high standards for this project. It will be ensured that Provision 1 of the American Nurses Association (ANA) is upheld, which states that the nurse will uphold the inherent worth, dignity, and unique attributes that each person has and to do so compassionately and respectfully (Fowler et al., 2015).

Implementation Plan

Permission will need to be first obtained by the CMOs, CEOs, CFOs, ICU nurse manager, consultation with the IRB, and office manager at the clinic to hold a meeting to make this presentation. Gatekeepers in this process will be the CMO and attending physicians in the clinic. Additionally, CMO and physicians in the hospital, specifically within the ICU and emergency department (ED) settings, have an important role in intervening for this vulnerable population of young diabetics and will be willing if given the opportunity to contribute on their behalf. The ICU nurse manager is the change champion in this process. One barrier foreseen is permission to proceed. An additional barrier is any legal concern for maintaining patient privacy and confidentiality. Cost to proceed with this change project is considered as well.

The presentation will be held in the main conference center at the outpatient clinic prior to the opening hours of the clinic. A complimentary breakfast will be provided. Primary stakeholders will be invited to attend; the primary stakeholders affected by this proposition for change are the external stakeholders, specifically investors for the hospital, and internal stakeholders. The internal stakeholders are the CEO of the hospital and the CEO of the clinic,

CFO of the hospital and CFO to the clinic, ICU attending physicians in the ICU and ED, CMO of the hospital and the CMO of the clinic, family practice physicians at the clinic, director of endocrinology, nurse manager of the ICU, and ICU nursing staff. Prior to this presentation an opportunity will be extended during ICU rounding to the multidisciplinary team. The invitation will include an intentional request for physicians to please provide any constructive feedback. Secondary stakeholders that will be included are a few families in the community that have been affected by the impact of type 1 diabetes.

The morning will open with a brief story from a local family impacted by the overwhelming management of their 18-year-old daughter's type 1 diabetes, who had three hospital admissions the end of last year. Their story is descriptive, remarkable, and tells how their young daughter came to a breaking point after a prolonged hospitalization for DKA. She knew she needed to bring change into her management of type 1 diabetes and break free of previous bad habits. The intervener in her case was her mother. Her mother began first by sending daily helps and hints for diet and encouragements to check her blood sugar. She would send reminders to her daughter via text to remind her of upcoming doctor's visits to check her hemoglobin A1C level. Midway through the following year, her hemoglobin A1C levels dropped significantly. This story encourages and informs about the weight of and significance this disease process has on an individual and the family.

The presentation will transition to background and significance of the type 1 diabetic patient, including the frequency of hospital admissions for type 1 diabetic patients in diabetic ketoacidosis (DKA), the frequency of rehospitalization for DKA exacerbation, any occurrence of and the number of mortalities in a year's time related to DKA as the primary diagnosis, associated costs of the hospitalization for those patients who have insurance and those who do

not. The presentation will include the impetus behind the change project and will be communicated as a research question. A review of the literature will be presented showing significance for a text-based intervention which brings positive impact on the patient with type 1 diabetes in that they have fewer admissions following the intervention. The presentation will move towards a description of the intervention and the process change.

Resources needed to proceed will be a team of committed contributors including nursing staff, diabetes educator, nurse manager of the ICU, in cooperation with clinical staff such as the attending physician and LVN/MA at the office. Permission to use the intervention will need approval from the IRB. The utilization of text messaging will be accomplished with a company smartphone. Special training will be given to team members who are texting the patient's discharged, to ensure that the message is simple, direct, one way (clinician-to-client), and in the patient's preferred language. The time to send these messages will be minimal and should not be burdensome to deliver. The cost to send messages to patients is comparable to follow up calls that are made routinely, and therefore, there will not be a significant cost to implement. The change project leader will need assistance from the nurse manager at the hospital and office manager at the clinic to assist with fluidity of the process change.

Timetable/Flowchart

The major phases of the implementation plan will be as follows and based on key points from *Implementing Evidence in the Clinical Setting* on pp. 289-290 (Melnik et al., 2019). See Appendix B.

- Establish a formal implementation team – Change project leader, nurse manager at the hospital, office manager at the clinic, nursing staff willing to contribute. (1 month)

- Building excitement – raise awareness to the need for change and encourage ownership of the change project. (1 month)
- Dissemination of evidence – the presentation at the main conference room at the clinic of the research question, literature surveyed showing evidence for and necessity for change. (Preparation and implementation may take 1-2 months).
- Develop clinical tool – this is the development of the specific message sent to the discharged diabetic patient at 48 hours and 2 weeks after discharge. (Development may take 1-2 months to develop and be approved by physicians and CMO).
- Pilot the EBP change – roll it out in proper time. (From inception to roll out it is anticipated that this may take 10-12 weeks total.)
- Celebrate success.

Data Collection Methods

The initial phase for this project's data collection will take careful planning. The team in the first few months of the project will refine and plan out what our approach will be and refine our procedures, including testing the clinical tool. The text-based intervention will be evaluated for clarity and conciseness. One outcome is that the clients will not be overwhelmed by a cumbersome message, but rather encouraged and informed by a brief, direct, and clear educational message at 48 hours post discharge and 2 weeks post discharge. Within the first few months our team will meet with the attending emergency room and ICU physicians as well as the diabetes educators on our team to ask if they would consider making a quick consultation to our team at the patient's discharge. Attending physicians will have been informed of the text-based intervention that will be utilized to follow up with patients being discharged home after a hospitalization for DKA. The team will keep a spreadsheet with the physician's names who have

agreed to provide consultation to our team at discharge. We will be able to provide data based on the physician's consultation, whether the patient was admitted to the ICU and discharged home from there or discharged home after a brief emergency room visit.

The second phase of data collection will span a period of one year. This part of the plan will include subject enrollment and intervention sessions. After physician consultation, we will approach the patients at discharge. Informed consent will be obtained if the patients agree to enroll in the study. There will be two groups of patients in our project: group A will receive the diabetes discharge instructions with the addition of the text-based intervention and group B will simply receive diabetes discharge instructions at discharge. Group A will receive communication of the plan to offer an educational text-based intervention at 48-hours, 2 weeks after discharge, and then a three month follow up. Group B will receive communication that they will be followed over the next three months after discharge to observe for readmissions to the hospital for DKA.

When IRB and study approval is obtained from the facility, enrollment of patients to the project will start January 1, 2025, until September 1, 2025. Group A will start with the first patient that is enrolled and continue with third, fifth, seventh, and so on to provide some randomization. Group B will start with the second patient who is enrolled and continue with the fourth, sixth, eighth and so on. Enrollees in Group A will be provided opportunity to read about our process to be informed prior to giving consent to receive the text-based intervention at discharge. Both groups will be informed that their names and other patient identifiers will be held confidential, and their privacy will be upheld under the strict standards set in place under Health Insurance Portability and Accountability Act (HIPAA) guidelines.

There will be a span of three months total from enrollment in the intervention sessions to the time of the post-assessment. Intervention sessions will last no longer than two weeks in congruence with the research question driving this study. If a patient is hospitalized within the first 48-hours or the first two weeks of the intervention session with a primary diagnosis of DKA, this will be noted and documented in the patient database. The outcome desired is that the patient will not be hospitalized during the intervention session time frame.

The last phase of data collection will be at the patient's three-month mark following discharge from the hospital, status post diagnosis of DKA. Data will be collected at this time if the patient had been readmitted to the hospital with DKA at any point during the last three months. Further data will be recorded at the three-months mark to take note of patient outcomes after discharge including: discharge destination, alive or deceased, hemoglobin A1C level, and a brief survey. The primary outcome that will be taken note of is whether the patient required readmission to the hospital at any point within three months of initial discharge.

Data will be completely collected by December 31, 2025, and data analysis will be starting January 1, 2026. Data analysis will take a period of 1 month to ensure that there is completeness of the data. We will discuss if there is any missing data and how to document this in our findings. The primary instrument for data collection that will undergo analysis will be an excel spreadsheet. See Appendix C.

Evaluation

The initiation of this change project will require evaluation of data. Thus, a dashboard will be stationed in the ICU breakroom displaying milestones at-a-glance, which will proceed following the rolling out the process change at 1 month, 2 months, and 3 months. This will be color coded: green indicating no rehospitalization to 1 rehospitalizations, yellow representing

more than 2-3 rehospitalizations, and red indicated more than 5 rehospitalizations. Data needed after rollout of the project for evaluation will be a supporting diagnosis of DKA and record of rehospitalizations. If unable to enact the project, hopefully enthusiasm sparked in the presentation will propel the nursing staff to teach their patients about diabetes and associated complications. However, with the provision of evidence-based practice guidelines, hopefully the nursing staff will be encouraged to enact this change project.

It is estimated that the project will have approximately 100 patients, 50 receiving the intervention and 50 not receiving the intervention. Success will ultimately be representative of there being no hospitalizations for those receiving the text-based intervention. If it is possible to keep this population of patients within the green, that is, having one or no hospitalizations, this project is successful. A simple statistical evaluation of the data will be generated from the instrument created for data collection. See Appendix C.

Cost/Benefit Analysis

From 2009 to 2014 there was a rise in DKA hospitalizations in the United States at a rate of 54.9% (Benoit et al., 2018). As of the year 2021, the median cost of a DKA hospitalization in the United States was \$29,981, with a range of \$10,838 to \$284,357 (Lyerla et al., 2021). Lyerla et al. (2021) later point out this near \$30,000 far exceeds the cost of insulin. The cost of insulin may not be the primary deterrent to be compliant among individuals with type 1 diabetes; it has become more aware that there is an inequality of social determinants of health that have contributed to health disparities and poor self-efficacy in diabetes management (Lyerla et al., 2021). Benoit et al. (2018) conclude that evidence-based and targeted prevention, the likes of diabetes self-management instruction and support could play a significant role in reversing the trends of the life-threatening and avoidable complication of DKA. Since the potential cost of one

hospitalization for DKA reaching \$30,000, it is within a reasonable estimation that the cost of recurrent hospitalizations for this complication of type 1 diabetes reach upwards of \$100,000 in a year.

When creating the budget for this project, one goal is to not leave the patient with an expense or bill regarding receiving the intervention. The goal of this project is to reduce the overall cost for the patient and the hospital. There will be a designated team member who will send a simple and direct text message that is educational and encouraging to promote compliance with follow up with the primary care provider 48 hours after discharge and two weeks after discharge. The cost to send a single text message with a designative smart phone is \$0.20 for AT&T and Verizon carriers (AT&T Intellectual Property & Verizon). The idea is to make a connection with the patient and offer positive feedback and encouragement which hopefully improves self-efficacy and prevents hospitalization. Permission will be requested to utilize the hospital phone during working hours from hospital administration. Permission will be requested for our team to be able to make these calls during their working hours as well. If permissions are granted this will have no significant costs or loss for the nurse team member or the hospital.

There will be minimal expenses in preparing the presentation. A light breakfast with coffee and hot tea will be provided for each person in attendance. The hope is that the administration will see that potential savings could exceed \$30,000-90,000 for a single case, with the prevention of a rehospitalization. The justification for proceeding with this project is that a young person with this disease process could potentially avoid the risks associated with relapsing into DKA. The hope is that more than one rehospitalization is prevented with this intervention, that this will improve the patient's self-efficacy, and that the hospital and the patient will be satisfied with the potential financial savings.

Discussion of Results

Once the project is launched there will likely be hurdles and challenges associated with coordination with hospital and clinic staff communications, leadership challenges with the project team members, and plans to ensure sustainability of this evidence-based practice change. It is anticipated the team will hold regular weekly meetings in the afternoon to keep abreast of the best ways to keep communication open and transparent, with the intent purpose of keeping the team members aware of where we are in the process of implementation and to report any potential case studies that have come through the hospital or clinic. The team will identify and regularly invite an evidence-based practice (EBP) mentor to our group meetings in the afternoon to help sustain the EBP process in our practice. Our EBP mentor will help us to prepare for the implementation once ready, help guide us weekly to ensure that we are staying on target with our plan, support us as we seek to ensure we are providing evidence-based care, and support our growth and development as an EBP team. The team expects that we will see a reduction in hospitalizations for patients who have received the text-based intervention, receive report that the patients have improved diabetes self-efficacy, and see reduction in hemoglobin A1C results.

Conclusions/Recommendations

In conclusion, Orben et al., gives strong representation for the diabetic community they worked with, individuals who specifically expressed feeling a lack of control (2022). Healthcare workers have an obligation to promote the well-being of their patients and seek to empower this vulnerable population and their families with a sense of control over their disease process. The recommendations made are attainable and have the potential to be implemented with effectiveness according to the literature. We will empower our patients and their support systems

with regular text-based communication that provide education and encouragement, in hopes to improve their self-efficacy.

The next step after the project is completed, is to compile the data, and if we are successful in bringing effective change in practice, we will seek to share our success with other healthcare systems. We will have our initial project presentation reformatted for outside agencies or healthcare systems. We will encourage those healthcare communities to strengthen their aims at creating safer healthcare practices for type 1 diabetic patients by utilizing the EBP process to search for more effective measures of prevention of unnecessary hospitalizations, to improve outcomes for the type 1 diabetic patients, and reduce the frequency of hospitalizations to manage DKA.

Regarding our project being implemented in other healthcare settings, we would purpose to leave with them the knowledge that type 1 diabetic patients need support, because their disease process is burdensome and management of the disease process without the support of a healthcare community is very challenging. This is especially true for the young adult who has recently transitioned from pediatric care to adult primary care. These young adults will need more than just a visit with their primary care provider, they need an equivalent of regular communication from an individual in the healthcare setting who will fill the role as a healthcare coach or community healthcare worker who is willing to regularly check in and provide the support that is needed. This project clearly defines a problem that also is inclusive of the need to improve accessibility to diabetes care and one effective way to do this is through text-based communication or some form of telehealth. This idea of telehealth can take many forms, the important thing is that the patient receives regular support to ensure that they are encouraged,

educated, and empowered to improve upon their self-efficacy as it relates to their management of diabetes.

References

- AT&T Intellectual Property. (n.d.). *Other charges applicable to wireless services*. Terms of Service - Legal Policy Center - AT&T.
<https://www.att.com/legal/terms.otherchargesapplicabletowireless.html>
- Benoit, S. R., Zhang, Y., Geiss, L. S., Gregg, E. W., & Albright, A. (2018). Trends in diabetic ketoacidosis hospitalizations and in-hospital mortality — United States, 2000–2014. *MMWR. Morbidity and Mortality Weekly Report*, *67*(12), 362–365.
<https://doi.org/10.15585/mmwr.mm6712a3>
- Bisno, D. I., Reid, M. W., Fogel, J. L., Pyatak, E. A., Majidi, S., & Raymond, J. K. (2021). Virtual group appointments reduce distress and improve care management in young adults with type 1 diabetes. *Journal of Diabetes Science and Technology*, *16*(6), 1419–1427. <https://doi.org/10.1177/19322968211035768>
- Chang, A., Patberg, E., Cueto, V., Li, H., Singh, B., Kenya, S., Alonzo, Y., & Carrasquillo, O. (2018). Community health workers, access to care, and service utilization among Florida Latinos: A randomized controlled trial. *American Journal of Public Health*, *108*(9), 1249–1251. <https://doi.org/10.2105/ajph.2018.304542>
- Dawson, N. L., Hull, B. P., Vijapura, P., Dumitrascu, A. G., Ball, C. T., Thiemann, K. M., Maniaci, M. J., & Burton, M. C. (2021). Home telemonitoring to reduce readmission of high-risk patients: A modified intention-to-treat randomized clinical trial. *Journal of General Internal Medicine*, *36*(11), 3395–3401. <https://doi.org/10.1007/s11606-020-06589-1>
- Dobson, R., Whittaker, R., Jiang, Y., Maddison, R., Shepherd, M., McNamara, C., Cutfield, R., Khanolkar, M., & Murphy, R. (2018). Effectiveness of text message based, diabetes self-

- management support programme (SMS4BG): Two arm, parallel randomised controlled trial. *BMJ*. <https://doi.org/10.1136/bmj.k1959>
- Eberle, C., & Stichling, S. (2021). Clinical improvements by telemedicine interventions managing type 1 and type 2 diabetes: Systematic Meta-Review. *Journal of Medical Internet Research*, 23(2). <https://doi.org/10.2196/23244>
- Fisher, L., Hessler, D., Polonsky, W. H., Masharani, U., Guzman, S., Bowyer, V., Strycker, L., Ahmann, A., Basina, M., Blumer, I., Chloe, C., Kim, S., Peters, A. L., Shumway, M., Weihs, K., & Wu, P. (2018, July 5). *T1-redeem: A randomized controlled trial to reduce diabetes distress among adults with type 1 diabetes*. American Diabetes Association. <https://doi.org/10.2337/dc18-0391>
- Fowler, M., Bjarnason, D., Godfrey, T., Lee, C., Lioce, L., Ngai, M., Robichaux, C., Schroeter, K., Shije, J., Swanson, E., Tanner, M., Thomas, E., Wocial, L., & Zanni, K. (2015). 1.1 Respect for Human Dignity. In *American Nurses Association: Code of Ethics for Nurses with Interpretive Statements* (p. 1). essay.
- Hood, S., Irby-Shasanmi, A., de Groot, M., Martin, E., & LaJoie, A. S. (2018). Understanding diabetes-related distress characteristics and psychosocial support preferences of urban African American adults living with type 2 diabetes: A mixed-methods study. *The Diabetes Educator*, 44(2), 144–157. <https://doi.org/10.1177/0145721718754325>
- Lyerla, R., Johnson-Rabbett, B., Shakally, A., Magar, R., Alameddine, H., & Fish, L. (2021). Recurrent DKA results in high societal costs – a retrospective study identifying social predictors of recurrence for potential future intervention. *Clinical Diabetes and Endocrinology*, 7(1). <https://doi.org/10.1186/s40842-021-00127-6>

- Magny-Normilus, C., Nolido, N. V., Borges, J. C., Brady, M., Labonville, S., Williams, D., Soukup, J., Lipsitz, S., Hudson, M., & Schnipper, J. L. (2019). Effects of an intensive discharge intervention on medication adherence, glycemic control, and readmission rates in patients with type 2 diabetes. *Journal of Patient Safety, 17*(2), 73–80. <https://doi.org/10.1097/pts.0000000000000601>
- Melnyk, B. M., Fineout-Overholt, E., Dang, D., Yost, J., Cullen, L., Cvach, M., Larabee, J. H., Rycroft-Malone, J., Schultz, A. A., Stetler, C. B., & Stevens, K. R. (2019). Models to Guide Implementation and Sustainability of Evidence-Based Practice. In *Evidence-based practice in Nursing & Healthcare: A guide to best practice* (Fourth, pp. 289-290, 395-397, 411–412). Essay, Wolters Kluwers.
- Oh, H., & Ell, K. (2018). Associations between changes in depressive symptoms and social support and diabetes management among low-income, predominantly Hispanic patients in patient-centered care. *Diabetes Care, 41*(6), 1149–1156. <https://doi.org/10.2337/dc17-2000>
- Orben, K., Ritholz, M. D., McCalla, M., & Beverly, E. A. (2022). Differences and similarities in the experience of living with diabetes distress: A qualitative study of adults with type 1 and type 2 diabetes. *Diabetic Medicine, 39*(10). <https://doi.org/10.1111/dme.14919>
- Spaic, T., Robinson, T., Goldbloom, E., Gallego, P., Hramiak, I., Lawson, M. L., Malcolm, J., Mahon, J., Morrison, D., Parikh, A., Simone, A., Stein, R., Uvarov, A., & Clarson, C. (2019, April 22). *Closing the gap: Results of the multicenter canadian randomized controlled trial of structured transition in young adults with type 1 diabetes*. American Diabetes Association. <https://doi.org/10.2337/dc18-2187>

Steenblock, C., Schwarz, P. E., Perakakis, N., Brajshori, N., Beqiri, P., & Bornstein, S. R.

(2022). The interface of COVID-19, diabetes, and Depression. *Discover Mental Health,*

2(1). <https://doi.org/10.1007/s44192-022-00007-0>

Wolever, R. Q., Yang, Q., Maldonado, C. J., Armitage, N. H., Musty, M. D., Kraus, W. E.,

Chang, J., Ginsburg, G. S., & Vorderstrasse, A. A. (2022). Health coaching and genetic risk testing in primary care: Randomized controlled trial. *Health Psychology, 41*(10),

719–732. <https://doi.org/10.1037/hea0001183>

Verizon. (n.d.). *Support*. <https://www.verizon.com/support/text-messaging-legal/>

Appendix A

Evidence Table

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
1. Bisno, D. I., Reid, M. W., Fogel, J. L., Pyatak, E. A., Majidi, S., & Raymond, J. K. (2021). Virtual Group appointments reduce distress and improve care management in young adults with	Telehealth or Virtual Care and Group or Shared Medical Appointment s combined in an experimental model CoYoT1	RCT	n = 58 YAs with T1D 5 did not attend any study visits and were excluded.	TH with VGA Vs. TH only	DDS (CAS 0.950) DSTAR (CAS 0.89) SED (CAS 0.86) SMOD-A CES-D EQ-5D	DDS (includes Average score, ED, PD, RD, ID)	DDS – Average scores -> TH only group increased 1.94 to 2.14. CoYoT1 reduced from 1.95 to 1.79. ED – CoYoT1 (2.37 to 2.19) PD – CoYoT1 (no change) RD – CoYoT1 (2.46 to 2.17) ID – CoYoT1 (1.65 to 1.51)	LOE: I STRENGTHS: <ul style="list-style-type: none"> Shows that VGA contribute to reduce psychosocial burden significantly. WEAKNESS: <ul style="list-style-type: none"> Although improvement in DDS results; all other major variables had no significant statistical finding. Small sample size FEASIBILITY: <ul style="list-style-type: none"> This test could be reproducible in other clinical settings. CONCLUSION:

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
type 1 diabetes.								<ul style="list-style-type: none"> YA with T1D showed reduced DDS scores who had received CoYoT1 intervention. Although no improvement in other variables, reduction in DDS scores is significant and promising for clients to potentially improve self-efficacy. <p>USPSTF: A, High</p>
2. Chang, A., Patberg, E., Cueto, V., Li, H., Singh, B., Kenya, S., Alonzo, Y., & Carrasquillo, O. (2018). Community	Experimental design studying the impact of CHW (focus access and utilization of care)	RCT – single blind	300 poorly controlled DM2 adults 2 public hospitals in Miami, FL public hospital clinics	Participant assigned with a community CHW. Participant with usual care	The study reported self-reported access to care over a year at an exit interview. Medical Expenditures Panel Survey EMR to extract data on utilization	X ² analysis, logistic regression models (to adjust for gender, age, education status, depression, and other	Participants with the assigned CHW report fewer problems with access to medical needs and Rx's. No difference observed in utilization in primary care	LOE: I STRENGTHS: <ul style="list-style-type: none"> CHW intervention proved to show improvement, showing improvement in self-reported access to care. WEAKNESS: <ul style="list-style-type: none"> Did not find improvement in service utilization.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
health workers, access to care, and service utilization among Florida Latinos: A randomized controlled trial.					of healthcare, hospitalization, primary care visits, and ER visits	comorbidities).	visits, ER utilization, or hospitalizations	<ul style="list-style-type: none"> The impact of CHW may be limited infrastructure and the healthcare system the CHW is being rolled out in <p>FEASIBILITY:</p> <ul style="list-style-type: none"> Could be utilized on other populations or settings. <p>CONCLUSION:</p> <ul style="list-style-type: none"> Latinos w/ poorly controlled DM showed improvement with a 1-year CHW intervention leading to improved self-report access to care, but when it comes to utilization of service there wasn't improvement. <p>USPSTF: A, High</p>
3. Dawson, N. L., Hull, B. P., Vijapura, P.,	N/A	RCT	N= 1,055 (n = 578 + n = 477)	Two groups:	Primary Outcome:	Primary Outcome: compare number receiving standard	Primary Outcome:	LOE: I STRENGTHS: <ul style="list-style-type: none"> Study has large sample sizes in both groups in the RCT.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Dumitrascu, A. G., Ball, C. T., Thiemann, K. M., Maniaci, M. J., & Burton, M. C. (2021). Home telemonitoring to reduce readmission of high-risk patients: A modified intention-to-treat randomized clinical trial.			Started with N= 5,051, but lost 3,671 due to exclusion criteria, declined to participate, and other reasons. From n = 1,380 the group was split in two groups of n = 690. Lost an additional 325 → not eligible	Allocated to standard care n = 578 Allocated to TM n = 477.	Readmission or death within 30 days of discharge. Secondary Outcome: Emergency Department visit within 30 days of discharge.	care to those receiving TM. Secondary Outcome: compare number receiving standard care to those receiving TM.	23.7% (137/578) standard care and 18.2% (87/477) who received TM. Absolute risk difference is -5.5%. Secondary Outcome: 14.2% (81/570) standard care and 8.6% (40/464) who received TM.	<ul style="list-style-type: none"> Statistically significant reduction in primary and secondary outcomes as it relates to telemonitoring. Diverse patient populations (race, age, sex, disease processes). The intervention may have increased patient self-efficacy and understanding of their disease process. <p>WEAKNESS:</p> <ul style="list-style-type: none"> This study considers a wide range of high-risk patients the majority of which are cardiopulmonary disease process related which is more than those who have diabetes, which is the focus of the PICOT. Expensive to purchase technology needed. Unable to blind participants to the intervention based on the nature of the intervention. <p>FEASIBILITY:</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
			at d/c, withdrew from study, unable to contact at 30-day follow-up.					<ul style="list-style-type: none"> This is reproducible and applicable to the patient population in the PICOT question, but the cost may be significant and challenging for patients. <p>CONCLUSION:</p> <ul style="list-style-type: none"> Significant results showing how TM can reduce the risk of readmission, ED visits, and/or death in a 30-day timeframe from discharge. <p>USPSTF: A, High</p>
4. Dobson, R., Whittaker, R., Jiang, Y., Maddison, R., Shepherd, M., McNamara, C., Cutfield, R.,	mHealth Development and Evaluation Framework	9 Month-Two arm, parallel, randomized control trial (RCT)	366 participants aged 16 and over w/ poorly controlled diabetes type 1 and type 2 DM.	Primary- Change in HbA1C from baseline to 9 months. Secondary- Change in HbA1C at 3	HbA1C percentage change. SEDM, SDCA, DDS2, BIPQ, EQ-5D, VAS	Percent and mmol/mol	Primary treatment effect– HbA1C in the intervention wing compared to the control group was significantly greater: mean -8.85 mmol/mol at 9 months.	<p>LOE: LEVEL I</p> <p>STRENGTHS:</p> <ul style="list-style-type: none"> Sample size Diverse population Pragmatic design <p>WEAKNESS:</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Khanolkar, M., & Murphy, R. (2018). Effectiveness of text message based, diabetes self-management support programme (SMS4BG): Two arm, parallel randomised controlled trial.				months and 6 months. At nine months they assess change in self efficacy, DM self-care, diabetes distress, perceptions and beliefs about DM, health related quality of life, perceived support for diabetes management, and intervention engagement and			75% (132/177) decrease in HbA1C or the intervention group at 9 months. Secondary treatment effect– SEDM – no significant change SDSCA – improvement in DM foot care for intervention group. AMD 0.85 DDS2 – so significant change BIPQ – reduction noticed in intervention group. AMD -0.54 EQ-5D VAS – significant improvement in	<ul style="list-style-type: none"> • Difficulty w/ recruitment • Secondary assessors were not blinded to treatment allocation – potential bias. • Limitations for those who don't speak English. <p>FEASIBILITY:</p> <ul style="list-style-type: none"> • Low cost • Scalable solution • Technology is improving and most everyone has a phone for text messages / SMS. <p>CONCLUSION:</p> <p>Tailored SMS/text messages self-management program has the potential to improve glycemic control in adults w/ poorly controlled DM.</p> <p>USPSTF: A, High</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
				satisfaction at 9 months.			intervention group. (4.38 (0.44 to 8.33), P=0.03) Perceived support for DM management – improvement in intervention group. (0.26 (0.03 to 0.50), P=0.03)	
5. Eberle, C., & Stichling, S. (2021). Clinical improvement s by telemedicine interventions managing type 1 and type 2 diabetes: Systematic	N/A	Systemat ic Meta- Review	31 eligible studies: (21 SRs & MAs, 8 RCTs, 1 non-RCT, and 1 qualitative study).	T1DM response to TM and improvement in DM control Vs. T2DM Response to TM and	Primary outcome: HbA1c Secondary outcome: FBG, BP, weight, BMI, QoL, cost, and time saving	HbA1c	HbA1c: <i>Hedge g =</i> T1DM vs T2DM – Su et al., <i>Hedge g=</i>	LOE: I STRENGTHS: <ul style="list-style-type: none"> There was evidence that TM/TH provide improvement in HbA1c levels. They observed multiple study designs, reviewed several important clinical outcomes, and provided a focus of comparison of these interventions as compared between T1DM and T2DM. WEAKNESS:

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Meta- Review.				improvement in DM control			-0.27, P= 0.3 vs Hedge g= -0.63, P=<0.001 Tchero et al., Hedge g= -0.26, P=. .05 vs Hedge g= -0.48, P= .001 <i>Smaller effect =</i>	<ul style="list-style-type: none"> • Large variation in technologies used for telemedicine interventions. • Many of the measurements had insignificant statistical findings. • Some of the articles may have confounding data, such as those that had higher HbA1c levels at the start may have more significant drops when comparing T1DM and T2DM who have differing baseline HbA1c levels. <p>FEASIBILITY:</p> <ul style="list-style-type: none"> • Many of the interventions are reproducible. <p>CONCLUSION:</p> <ul style="list-style-type: none"> • There may be significant clinical effectiveness for those with T1DM and T2DM to receive TH/TM. There was a slightly higher result for those with T2DM vs. those with T1DM. <p>USPSTF: A, High</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
							Toma et al., T1DM = -0.12% T2DM = -0.55% Kitsiou et al., T1DM = -0.3% T2DM = -0.8%	

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
6. Fisher, L., Hessler, D., Polonsky, W. H., Masharani, U., Guzman, S., Bowyer, V., Strycker, L., Ahmann, A., Basina, M., Blumer, I., Chloe, C., Kim, S., Peters, A. L., Shumway, M., Weihs, K., & Wu, P. (2018, July 5). <i>T1- redeem: A randomized controlled trial to reduce</i>	Emotion Regulation	RCT	N=301 T1DM patients From CA, OR, AZ, Canada (Toronto, Ontario) >=19-year- old with dx >12 months Mean item score >= 2 on T1DDS	T1DM receives 2 different interventions. OnTrack: emotion- focused intervention Knowlt: Educational / behavioral intervention	T1DDS (CAS a= 0.84) NonJudge (CAS a= 0.95) NonReact (CAS a= 0.89) PCSRIPQ (CAS a= 0.80) DKT2	T1DDS	T1DDS: OnTrack 2.90 – baseline 2.23 – 3 months 2.15 – 9 months Knowlt 2.87 – baseline 2.24 – 3 months 2.17 – 9 months	LOE: I STRENGTHS: <ul style="list-style-type: none">Diverse population with T1DM and with high levels of distress and elevated HbA1c.Low attrition rate and no significant between-group differences, WEAKNESS: <ul style="list-style-type: none">All participants were required to have computers with internet service, which could present a limited generalizability.Participants were recruited differently related to there being small numbers of eligible participants in each city.Intervention design was limited not permitting further analyses. FEASIBILITY:

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
<i>diabetes distress among adults with type 1 diabetes.</i>			Recent HbA1c >7.5% No ESRD, psychosis, or dementia At 3 months 8% and at 9 months 4% = 12% total attrition rate		(CAS a=		HbA1c: OnTrack 8.83 – baseline 8.74 – 3 months 8.65 – 9 months Knowlt 8.77 – baseline 8.60 – 3 months 8.59 – 9 months	<ul style="list-style-type: none"> These interventions could be reproduced. <p>CONCLUSION:</p> <ul style="list-style-type: none"> It is apparent that patients with T1DM do show reduction in DD when receiving intervention to reduce DD; T1DM show reduced HbA1c levels with intentional intervention and commitment to an intervention. <p>USPSTF: A, High</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

<p>7.</p> <p>Hood, S., Irby-Shasani, A., de Groot, M., Martin, E., & LaJoie, A. S. (2018). Understanding diabetes-related distress characteristics and psychosocial support preferences of urban African American adults living with type 2 diabetes: A mixed-methods study.</p>	<p>N/A</p>	<p>2-phase mixed methods</p> <p>Phase 1 – written survey</p> <p>DDS17 used to assess DRD w/ subscales: EB, RD, ID, and PD</p> <p>Phase 2 – a sample from phase 1 volunteered to attend 1 of 4 gender stratified follow up focus groups to study the</p>	<p>Phase 1: N = 155</p> <p>Phase 2: N = 23</p> <p>African American recruited between February and June 2012 from community based settings. University of Louisville employee, African American barbershop, and African American social groups, churches, fraternity, and local health fair.</p>	<p>Phase 1: DDS17 was used to measure DD. DDS17 has 17 items in the instrument and 4 subscales –</p> <p>EB – emotional burden (Diabetes and Depression, Intrusiveness of Diabetes).</p> <p>PD – physician related distress</p> <p>RD – regimen related distress (medication and dietary).</p> <p>ID – interpersonal distress involving family and friends.</p>	<p>The instrument measured the extent to which respondents perceived the following diabetes aspects (EB, PD, RD, ID) on the DDS17. The problem was identified utilizing a 6-point Likert-type scale.</p>	<p>Quantitative: SPSS 24 quantitative data analysis software.</p> <p>Chi-Square analysis</p> <p>Qualitative: Focus groups were recorded, professionally transcribed, and then coded with Atlas.ti version 6.2 qualitative analysis software.</p>	<p>RD – patients scored higher on this subset than any other DDS17 subscale. 28.4% w/ moderate RD and 29% w/ high RD.</p> <p>EB – second highest scoring – one quarter reached 25.2% w/ moderate EB; another quarter reached 25.8% w/ high EB (needing clinical treatment)</p>	<p>LOE: LEVEL VI</p> <p>STRENGTHS:</p> <ul style="list-style-type: none"> Mixed Methods with quantitative and qualitative data that complement each other, providing a perspective into African American's DD. Large African American male participation, which are an under-represented group in healthcare research. <p>WEAKNESS:</p> <ul style="list-style-type: none"> The quantitative and qualitative study sizes are small, which should alert one to avoid generalizing the data. <p>FEASIBILITY:</p> <ul style="list-style-type: none"> Reproducible <p>CONCLUSION:</p> <ul style="list-style-type: none"> Evidence from this study supports the need to incorporate mental health into the treatment of patients with DM. Findings support the need for healthcare providers to prioritize mental health in African American clients with DM and to potentially utilize DRD screening.
--	------------	---	---	--	--	--	--	--

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
		results from the quantitative survey.		Phase 2: 4 genders stratified follow up groups including 2 male and 2 female to study the results of the phase 1 quantitative results.				USPSTF: B, Moderate
8. Magny- Normilus, C., Nolido, N. V., Borges, J. C., Brady, M., Labonville, S., Williams, D., Soukup, J., Lipsitz, S.,	N/A	RCT	N=180 Adult with T2DM, active cardiac disease, on tele/medical floor and soon	Intervention Group & Usual care group	<i>Primary outcome:</i> Adherence to DM management based on the 90-day refill at the pharmacy.	MPR	MPR (84.5% vs 76.4%, difference 8.1% With a 95% confidence interval {CI} = -1.04 to 17.2], P = 0.06)	LOE: I STRENGTHS: <ul style="list-style-type: none"> Design covers the transition from hospital to home. Provided “teaching moments” that would influence DM self-efficacy. WEAKNESS:

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Hudson, M., & Schnipper, J. L. (2019). Effects of an intensive discharge intervention on medication adherence, glycemic control, and readmission rates in patients with type 2 diabetes.			to be discharged home. Further criterion includes that they are likely to be placed on insulin at discharge. HbA1c >8.0%.		Glycemic control	Change in HbA1c between 60 to 120 days s/p D/C as compared to HbA1c less than 90 days before hospitalizat ion. ED – 1 pt. Obs. – 2 pt.	S/p D/C HbA1c: Decreased in intervention arm. 1.09 Decrease in usual care arm 0.11. difference of differences = -0.98 [-2.03 to -0.07], P = 0.04).	<ul style="list-style-type: none"> Assumed short-term readmissions could be the result of poor glucose control in T2DM, which is not the case. Interventions didn't include colab with PCP, which may have been limiting. <p>FEASIBILITY:</p> <ul style="list-style-type: none"> Reproducibility would be challenging given the multipronged intervention arm. Reproducibility may rely on a single prong. <p>CONCLUSION:</p> <ul style="list-style-type: none"> Multiple intervention study with results in reduction in HbA1c as compared to usual care group from before admission to 60-120 days post D/C. Utilization of a DA proved helpful. Behavior interventions utilized improved DM control.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
					status”, hospitalization within 30 days of D/C.	Hosp. admit – 3 pt.		USPSTF: A, High
9. Oh, H., & Ell, K. (2018). Associations between changes in depressive symptoms and social support and diabetes management among low-income, predominantly Hispanic patients in patient-	Patient-centered medical home model	Data collected from RCT	N= 251 from 348 initial participants from E. Los Angeles, CA Hispanics part of AHH that had med hx of DM, heart disease, or heart failure	PHQ-9 – Depression Screening MOS - to – measure perceived social support. MOS-SAR – Adherence to self-care behaviors	Patients had an average decrease in depressive symptoms by 7.21 between baseline and 6 months follow up. Total social support improved by 21.43%. Changes in depressive symptoms 6 months post baseline were correlated with self-efficacy	Longitudinal patterns of the variables of interest and a series of <i>t</i> tests to compare data means at baseline, 6 months, and 12 months. Hierarchical regression models to explore any correlation	Depressed individuals would precipitate low self-efficacy and low adherence to a treatment plan at 6 and 12 month follow ups.	LOE: I STRENGTHS: <ul style="list-style-type: none">Presents results proving changes in depressive symptoms and social support can support differences in self-efficacy and adherence to DM management among low- income Hispanics. WEAKNESS: <ul style="list-style-type: none">Results should not be generalized because the study utilized convenience sampling at three clinics that were not randomized.25-34% did not complete the 6 and 12 month follow ups.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
centered care.						between changes in depressive symptoms and social support. Post hoc analyses were intended to identify the time at which the depressive s/s and social support affected DM managemen t.		<p>FEASIBILITY:</p> <ul style="list-style-type: none"> Reproducible <p>CONCLUSION:</p> <ul style="list-style-type: none"> The study finds evidence that there is a profound correlation between depressive like symptoms and self-efficacy and to management of the disease process of DM. <p>USPSTF: A, High</p>

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

<p>10. Orben, K., Ritholz, M. D., McCalla, M., & Beverly, E. A. (2022). Differences and similarities in the experience of living with diabetes distress: A qualitative study of adults with type 1 and type 2 diabetes.</p>	<p>Narrative Inquiry</p>	<p>Qualitative Study Interviews with people with both DM1 & DM2 Thematic analysis using NVivo software</p>	<p>Southeastern Ohio, 205K square mile area covering 420 counties and 13 states. n=19 DM1; n=29 DM2</p>	<p>T1DDS vs T2DDS</p>	<p>Qualitative Design proving descriptive results. Calculated total DD scores, subscale scores, and clinical cutoffs in SPSS statistical software version 28.0 (SPSS Inc.).</p>	<p>Descriptive statistics w/ the demographic and health information Calculated total DD scores, subscale scores, and clinical cutoffs in SPSS statistical software version 28.0 (SPSS Inc.).</p>	<p>Both participants expressed the benefit of social support and expressed the need for others to understand the difference between DM1 and DM2. DD stemmed from judgment and blame from HCPs and general population.</p>	<p>LOE: LEVEL VI STRENGTHS: <ul style="list-style-type: none"> Investigators were divided with expertise from different disciplines. To support dependability an outside researcher did an external audit to examine the research and ensure that the findings were supported by the data. WEAKNESS: <ul style="list-style-type: none"> Small sample size. Unable to measure associations between themes and distress scores. FEASIBILITY: <ul style="list-style-type: none"> Reproducible. CONCLUSION: <ul style="list-style-type: none"> HCPs should be equipped with competencies on identifying and addressing DD in their practice and use technology to assist in this. USPSTF: B, Moderate</p>
--	--------------------------	--	--	---	--	---	--	--

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach’s Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
11. Spaic, T., Robinson, T., Goldbloom, E., Gallego, P., Hramiak, I., Lawson, M. L., Malcolm, J., Mahon, J., Morrison, D., Parikh, A., Simone, A., Stein, R., Uvarov, A., & Clarson, C. (2019, April 22). <i>Closing the gap: Results of the multicenter canadian randomized controlled</i>	Transitional care model	RCT	N= 205; n = 104 in the transition program group and n = 101 in the standard care group. Multi-center, randomized, parallel group from 3 pediatric care centers (2 tertiary centers and 1 secondary center) in Ontario Canada.	Standard care group vs Transition program group (18-month period with the assignment of a TC (CDE) who gives support during the transition from peds to adult care.	Primary Outcome: Proportion of participants who did not show for at least 1 DM clinic visit in 12 month follow up. Secondary Outcome: Freq of HbA1c testing, mean HbA1c level, freq. of complication screening (nephropathy, retinopathy, and peripheral neuropathy), ED visits → DKA or hypoglycemia, pt. satisfaction w/ transition process,	Primary Outcome: Attended all six visits – No change in HbA1c	Mean number of visits over 18 months = 4.1 (SD 1.1) in the transition program 3.6 (SD 1.2) in standard care (P = 0.002) 51 (49%) participants in the transition program and	LOE: LEVEL I STRENGTHS: <ul style="list-style-type: none">strong design, practical interventions, appropriate intervention for the focused age group, and the follow up with the participants covered the transition from pediatric to adult care. WEAKNESS: <ul style="list-style-type: none">Smaller sample sizeLack of blinding FEASIBILITY: <ul style="list-style-type: none">Reproducible CONCLUSION: <ul style="list-style-type: none">The use of a TC was instrumental in improving the time gap from peds to adult DM care. There was noted a significant increase in attendance in the intervention group to the diabetic clinic.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
<i>trial of structured transition in young adults with type 1 diabetes.</i>			Age 17-20 who had 1 visit in the clinic with their pediatric endocrinologist who were sched to be transition to adult care in 6 months.		and DD & impact of DM on QOL Mean HbA1c, QOL, CSQ, DQL	in the two groups. <i>ED/Hospitalized</i> <i>TC intervention</i> Increased Satisfaction Reduced DDS	26 (26%) participants in standard care. Transition prog: 9 Standard care: 2 CSQ mean score 29.0 [SD 2.7] vs. 27.9 [SD 3.4], P = 0.032)	USPSTF: A, High

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

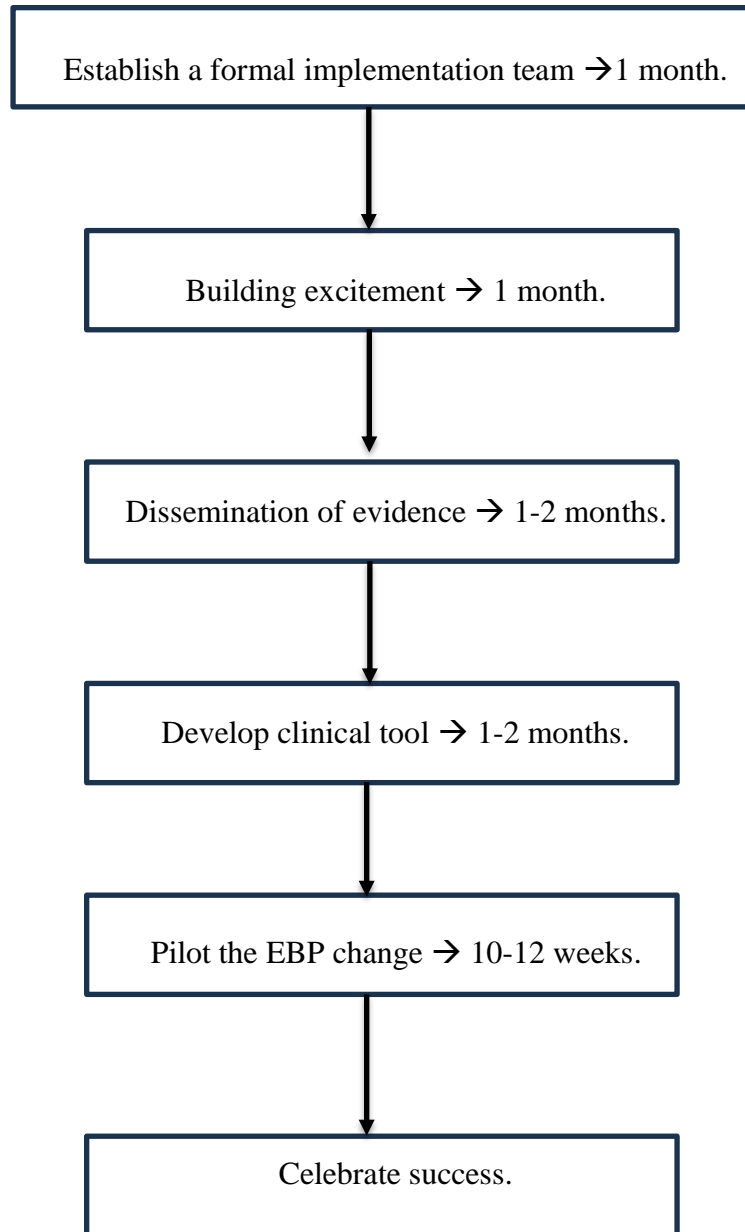
Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
						Reduced EB of DM compared with their baseline scores.	1.95 [SD 0.8] vs. 2.18 [SD 0.8], P = 0.049) (mean score 2.3 [SD 1.1] vs. 2.7 [SD 1.2], P = 0.027)	
12. Wolever, R. Q., Yang, Q., Maldonado, C. J., Armitage, N. H., Musty, M. D., Kraus, W. E., Chang, J., Ginsburg, G. S., &	Health and Wellness Coaching methods within the National Board for Health and Wellness Coaching (NBHWC) Content Outline and	RCT construct ed on a 2X2 factorial prospecti ve design.	200 active- duty USAF, beneficiaries, and retired USAF primary care patients from David Grant USAF Medical Center, Travis	Height, Weight, Waist circumference, blood pressure HbA1c, Labs (fasting blood glucose or HbA1c, total cholesterol, triglycerides, high-density lipoprotein	Primary Outcomes: SBAS, NCI Secondary Outcomes: Interventions – SRA, HC, GRT	Analysis of Variance (ANOVA) Chi-square compared categorical variables and ensured balance on randomizati on.	Primary: fat intake at 1 yr above recommendation <30% - no dietary improvements observed/ Phys activity – HC group 3.6 times more likely to report increase physical activity compared to reports of sedentarism.	LOE: I STRENGTHS: <ul style="list-style-type: none"> One of the most large and rigorous evaluating HC on HC behaviors WEAKNESS: <ul style="list-style-type: none"> Multi-contractual and logistic hurdles at the start effected recruitment and enrollment time. Sample were all military thus limiting generalizability.

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Vorderstrasse , A. A. (2022). Health coaching and genetic risk testing in primary care: Randomized controlled trial.	Practical Skills Guide		Air Force Base, CA.	[HDL], low- density lipoprotein [LDL], and triglycerides), along with current medications.		Statistical Analyses from SAS Version 9.3	No interactive effect found for HC group by FRS or DM2. Those higher risk for DM2 lost average 2.2kg more than the at 1 year	FEASIBILITY: <ul style="list-style-type: none"> Reproducible CONCLUSION: <ul style="list-style-type: none"> Remote HC combined with SRA can increase physical activity. GRT and HC needs further study. USPSTF: A, High

Used with permission, © 2007 Fineout-Overholt

Legend: SMS4BG – diabetes self-management support intervention; SEDM - Standard self-efficacy for diabetes scale; SDSCA – summary of self-care activities; DDS2 – two item diabetes distress scale; BIPQ – brief illness perception questionnaire; EQ-5D – Health related quality of life; VAS – index score and visual analogue scale; DM – Diabetes; AMD – adjusted mean difference; DM1 – type 1 diabetes; T1D – Type 1 Diabetes; DM2 – type 2 diabetes; w/ - with; T2DDS – Type 2 Diabetes Distress Scale; T1DDS - Type 1 Diabetes Distress Scale; DDS- Diabetes Distress Scale; DD – diabetic distress; HCPs – healthcare professionals; DRD – diabetes related distress; DDS17 – Diabetes Distress Scale; EB – emotional burden; RD – regimen distress; ID – interpersonal distress; PD – physician distress; ED – emotional distress; HC – health coaching; GRT – genetic risk testing; SRA – standardized risk assessment; USAF – U.S. Air Force; SBAS – Stanford Brief Activity Survey; NCI – National Cancer Institute Multifactor Screener; FRS – Diabetic Risk Score, CHW – community health worker; Rx(s) – prescriptions; ER – emergency room; AHH – A Helping Hand; MOS – Modified Medical Outcomes Study; MOS-SAR – MOS Specific Adherence Recommendations; CoYoT1 – Colorado Young Adults with T1D; YA(s) – young adult(s); TH – telehealth; VGA – Virtual Group Appointment; DSTAR- Teen Diabetes Strengths and Resilience Scale; SED - Self-Efficacy for Diabetes Scale; SMOD-A - Self-Management of Type 1 Diabetes in Adolescence Scale; CES-D - The Center for Epidemiologic Studies Depression Scale; EQ-5D - The EuroQol-5L; CAS - Cronbach's Alpha Score; TM – telemonitoring; T1DM – Type 1 Diabetes Mellitus; T2DM – Type 2 Diabetes Mellitus; HbA1c – Glycated Hemoglobin A1c; FBG – Fasting blood glucose; PCSRIPQ - Personal Control subscale from the Revised Illness Perception Questionnaire; QOL – quality of life; CSQ - Client Satisfaction Questionnaire, DQL - Diabetes Quality of Life; TC – Transition Coordinator; Peds – pediatrics; CDE – certified diabetes educator; MPR - medication possession ratio

Appendix B**Timetable and Flowchart**

The major phases of the implementation plan will be as follows and based on key points from *Implementing Evidence in the Clinical Setting* on pp. 289-290 (Melnyk et al., 2019).

