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New Approaches to Providing Individualized Diabetes Care in the 21st Century

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Abstract

Building from a foundation of rapid innovation, the 21st century is poised to offer considerable new approaches to providing modern diabetes care. The focus of this paper is the evolving role of diabetes care providers collaboratively working with patients and families toward the goals of achieving optimal clinical and psychosocial outcomes for individuals living with diabetes.

Advances in monitoring, treatment and technology have been complemented by trends toward patient-centered care with expertise from multiple health care disciplines. The evolving clinical care delivery system extends far beyond adjustment of insulin regimens. Effective integration of patient-centered strategies, such as shared-decision making, motivational interviewing techniques, shared medical appointments, and multidisciplinary team collaboration, into a dynamic model of diabetes care delivery holds promise in reaching glycemic targets and improving patients' quality of life.

Keywords

Diabetes self-management; glycemic control; multidisciplinary team care; patient-centered care; pediatrics; type 1 diabetes

INTRODUCTION

Since the discovery of insulin in the 1920's, treatment advances have revolutionized outcomes for individuals with type 1 diabetes (T1D) [1]. Goals have evolved from survival despite diabetes to living a long and healthy life with diabetes. Although the past century has

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CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

provided significant advances in technology, pharmacology and evidence, globally, there remain tremendous challenges to achieving optimal glycemic control and quality of life with diabetes. Among these include the still imperfect nature of treatment as well as complex psychosocial, behavioral, and family dynamic factors that contribute to diabetes management. The 21st century is poised to offer considerable new approaches to providing modern diabetes care. We discuss the evolving role of providers, multidisciplinary teams, and patient-centered care to achieve optimal clinical and psychosocial outcomes for individuals living with diabetes.

Modern Advances in Diabetes Care

Selection of insulin regimen is influenced by a variety of factors including but not limited to cost, patient or family preference, balancing number of injections each day with flexibility of schedule, local diabetes center resources and prescribing patterns as well as pragmatic considerations such as availability of support throughout the day to supervise insulin administration. In recent years, pharmacological advances have been further enhanced by technology that allows for more accurate and timely monitoring of glucose levels, including continuous glucose monitoring (CGM) and continuous subcutaneous insulin infusion (CSII), or insulin pumps, that enable more sophisticated patterns of insulin delivery to better match patient requirements. Despite documented benefits [2, 3], uptake of these diabetes technologies is variable [3–4] and CSII may not meet the needs of all patients. Implementation of any currently available treatment regimens is multifaceted and one approach will not work for all situations. There may be circumstances under which less intensive split-mix regimens or multiple daily injections (MDI) are preferred by patient or family and these preferences may change over time. In order for any insulin regimen to be effective, it must align with the needs and preferences of the patient, caregivers and broader context of care including school settings [5].

GUIDELINES FOR DIABETES CARE

Updated Glycemic Targets

In recognition of the inverse relationship between glycemic control and onset of diabetes related complications [6–8], the American Diabetes Association (ADA) recently updated A1c targets < 7.5% for all pediatric age groups, which is in accordance with the recommendations of other national and international diabetes organizations [5]. Although glycemic targets for the population at large have been updated, these new guidelines continue to highlight individualization of blood glucose and A1c targets with the goal of achieving the best control possible for the individual, while minimizing risks of severe glucose variability [5]. Therefore, to increase the likelihood of meeting these glycemic targets, providers, children and families need to work together to find the best-suited regimen to overcome “therapeutic inertia” wherein sub-optimal control is tolerated as good enough [9, 10]. In order to achieve this, providers may increase the frequency of communication and interventions or teach patients and families the skills to make treatment adjustments between clinic visits. Matching the treatment regimen to the pediatric patient should be a fluid process, with periodic reassessments over time as children grow and develop.

Despite the uniformity of recommendations amongst multiple professional organizations toward pursuit of better glycemic control, the global diabetes community has not achieved previous higher A1c targets. Among participants in the T1D Exchange Clinic Registry, only around one-quarter of children and adolescents currently meet the updated A1c target of < 7.5% [11]. In the global TEENs study, the proportions of youth age 8–25 years reaching the recommended targets ranged between 19–32%; overall, 72% of youth were not meeting the targets [12]. In comparison, within a European cohort, over half of children under 6 years achieved A1c < 7.5% without an increase in severe hypoglycemia [13]. It remains to be seen if lowering glycemic control targets to < 7.5% will result in similar trends in the United States.

Guidelines for Self-Management Education and Support

In addition to new glycemic targets < 7.5%, the updated ADA guidelines highlight the importance of ongoing culturally sensitive and developmentally appropriate individualized diabetes self-management education (DSME) and support (DSMS) based on patient life stages to achieve desired glycemic control and health outcomes [5]. Specifically, normative developmental stages for children and adolescents are aligned with T1D tasks, management priorities and anticipated psychosocial challenges. As T1D extends across a lifespan, DSME and DSMS are processes that need continuous evaluation and accommodation, especially during transition to adult care and throughout life stages of adulthood. There is a growing recognition that the majority of diabetes care transpires between visits, outside of the clinical encounter. Therefore, effective diabetes education and support that helps to integrate diabetes care with other daily activities is a valuable component of comprehensive diabetes care [14].

MULTIDISCIPLINARY APPROACHES TO DIABETES CARE

One approach to improve the current state of clinical and psychosocial outcomes for individuals living with diabetes is refining the multidisciplinary clinical care delivery system. Multidisciplinary health care teams rely on the skills and expertise of individual providers from a range of disciplines. Each member contributes a unique perspective to the care of the patient. Team members may collaborate during routine team meetings to discuss the patient, decide on appropriate referrals, and plan for patient care [15]. Within a multidisciplinary diabetes team, patients may consult with endocrinologists/diabetologists, nurses, diabetes educators, dietitians, psychologists or social workers to address issues resulting from the multifaceted aspects of diabetes care. Diabetes care providers working effectively in conjunction with multidisciplinary team members have the potential to strengthen clinical care. However, if multidisciplinary services are not unified within a team approach, it may lead to fragmented care or lack of consistency between providers [16, 17]. Additional common challenges relate to financial barriers to access services or increased medical costs for patients that utilize multidisciplinary services.

Multidisciplinary Resources in Diabetes Care

A recent comprehensive survey assessed the current state of resources for diabetes clinics from 155 health care providers representing 47 countries [17]. Results revealed most

participating providers worked within a multidisciplinary treatment team comprised of pediatricians, nurses, diabetes educators and one or two additional specialists. The presence of such teams world-wide suggests a growing recognition of the importance of integrating multiple disciplines for complex diabetes care. About half of the respondents reported mental health providers were integrated into treatment teams, although not all mental health providers participated in routine clinic visits. About one-third reported mental health services were not easily accessible for patients [17].

Future research will be necessary to determine how clinics are able to update services to meet national and international guidelines, as well as how these updates impact patient outcomes. Links have been established between clinics that demonstrate better observance of guidelines for diabetes care and better glycemic outcomes at the clinic level [18]. Thus, it is predicted that adoption of updated guidelines that promote integration of multidisciplinary psychosocial supports (*e.g.*, resources and referrals to mental health providers), may also experience improved psychosocial functioning, and perhaps improved self-care and glycemic control [17].

Patients' Experiences of Multidisciplinary Diabetes Care

Although diabetes centers strive to provide multidisciplinary resources as described above, additional considerations relate to patient-perceived barriers. Young adult survey participants reported on their care experience consulting with two or three multidisciplinary team clinicians [19]. Logistical barriers to obtaining multidisciplinary resources identified by young adults were time constraints, inaccessibility and costs of services, as well as perceptions that clinicians may not understand or appreciate the impact of these barriers to obtaining recommended multidisciplinary services. Treatment-related barriers related to conflicting recommendations from multiple providers, which resulted in increased stress for some participants. Of note, some participants perceived lack of relevant diabetes expertise or lack of communication among providers, as well as reported lack of opportunity to develop relationships with their health care providers, as barriers that may prevent or lead to discontinuation of multidisciplinary services.

The patient perspective may offer insight into strategies to improve clinical care [20]. Participants indicated preferences for joint consultation to avoid potentially conflicting treatment recommendations from multiple providers, as well as accessibility to specialists *via* email or phone to reduce burden of difficulty acquiring services and scheduling appointments. Although this sample included young adults, the identified factors may be even more critical to address in pediatric patients in order to establish effective use of multidisciplinary resources with the support of family members prior to transitioning to adult diabetes care, a transition highly susceptible to gaps in treatment and declines in glycemic control [21–23].

Inter-Disciplinary Approaches to Care

Another approach to comprehensive diabetes care is an interdisciplinary approach, which is characterized by communication, coordination, and shared responsibility for patients and health outcomes by team members across disciplines [24–25]. Interdisciplinary teams may

engage in joint patient consultations, which include patients as primary team members engaged in discussion and decision making regarding their health care [15]. In order to implement this treatment approach efficiently, teams must develop interprofessional competency to effectively utilize and integrate expertise and experience from multiple team members [24]. Examples of interprofessional competencies include effective communication of concepts from one own's discipline into the framework and language of other disciplines, or understanding and accounting for the roles of other disciplines when treatment planning [25]. While coordination of multiple participants may prove challenging, one potential benefit of successful interdisciplinary care includes time and financial efficiency when caring for patients with complex conditions, such as diabetes, which requires components of care across multiple life domains [24].

Successful models of interdisciplinary care include patient populations with complex conditions that require a variety of specialty services such as aerodigestive disorders, cardiac issues, or transgender patient populations and surgical intervention [26–29]. However, difficulties navigating institutional and health care policy restrictions may limit the feasibility of implementing this approach at this time.

Changes in Medical Education

In an effort to change the future of health care, medical education is shifting to address multidisciplinary care approaches. In 2004, The Committee on Behavioral and Social Sciences in Medical School Curricula recommended “an integrated behavioral and social science curriculum that extends throughout the four years of medical school” [30]. They also recommended development of national databases documenting curriculum, teaching techniques, and assessment methodologies for behavioral and social sciences; and ensuring the National Board of Medical Examiners' licensing exams adequately covered behavioral and social sciences subject matter [30]. Consistent with these recommendations, the Association of American Medical Colleges (AAMC) approved changes in the Medical College Admission Test (MCAT) requiring aspiring physicians to have a strong understanding of social and behavioral sciences, in addition to a solid background in the natural sciences [31]. These changes are scheduled to go into effect in 2015 with a goal of selecting future physicians who have an appreciation of the behavioral and socio-cultural determinants of health.

PATIENT-CENTERED APPROACH TO DIABETES CARE

Management of diabetes is a complex, time-consuming process, and one that requires understanding of each patient's individual behaviors and the influence these behaviors have on clinical outcomes. Patient-centered care is an approach to clinical care that is consistently recommended for patients with diabetes [32–34] and which encompasses specific communication strategies such as partnership building, expressing empathy, interpersonal sensitivity, mutual exchange of information and collaborative goal setting. Mutual understanding between provider and patient is integral, such that both parties appreciate current diabetes clinical status and future management goals within the context of the patient's daily life, including their culture and values, family, and social and community

environment 35–36]. Additionally, appreciation and openness to the patient's choices, even if not the provider's first choice and/or consistent with best practices, is encouraged. For instance, patient-centered providers may accept a patient or family's choice to decline use of an insulin pump or other advanced diabetes technologies, and support them in implementing the regimen that best fits with their lifestyle.

Benefits and Barriers to Patient-Centered Care

Patient-centered care has a positive impact on patient outcomes in addition to being cost effective across a range of patient populations [37–38]. Evaluation of youth and families' perceptions of patient-centered care revealed higher levels of physicians' patient-centered communication was associated with perceptions of greater control and competence in diabetes management, adherence and better glycemic control [39] and also predicted greater parent-reported improvements in adherence over 6 months. Youth and parents who reported more patient-centered communication felt more competent to manage T1D and had better adherence and A1c. These findings are consistent with T1D literature which links patient empowerment directly or indirectly with adherence behaviors and glycemic control, and also identifies patient-centered care as a feasible target of intervention [40–42].

Despite expert recommendation and evidence of success in a variety of settings, there are obstacles to successfully initiating patient-centered care in practice. A statement published by the National Patient Safety Foundation outlined multiple barriers to implementing patient-centered care [43]. These include physicians' desire for autonomy, absence of a commonly accepted framework for addressing care delivery, lack of expertise, lack of leadership, reimbursement and regulation.

Suggested methods to accelerate patient-centered care integration into health care systems included establishing shared understanding between patients and providers, patient engagement, measures of patient-focused care, evaluation of delivery system effectiveness, and extensive education and training [43]. Examples of current strategies to implement patient-centered care include shared decision making, provider training in patient-centered techniques such as motivational interviewing and shared medical appointments, which will be reviewed in the following sections (See Fig. 1).

Shared Decision-Making

Shared decision-making is one approach to successful patient-centered care. In a collaborative process, the patient and provider better understand one another's viewpoints, preferences, and values prior to making a medical decision [44–45]. While the provider and patient are key players, shared decision-making often considers values and preferences of family members and other caregivers, especially in pediatric settings [46]. For instance, the transition from injections to an insulin pump is a common decision point among providers, youth and families with T1D. Clinics or individual providers may have specific indications or preferences for timing of transition to an insulin pump (*e.g.*, at a specific age, after a certain disease duration, or when a patient achieves a target A1c level). Rather than focusing exclusively on the benefits of an insulin pump, a provider who engages in shared decision-making may present advantages and limitations of several available treatment options

(including making no change), and may elicit patient and family-perceived benefits as well as negative consequences of regimen changes and barriers to making such changes in daily life. Through this process, the provider may learn that a family is prepared and committed to take on this regimen change or alternately, that a family may be hesitant about the added stress of an additional diabetes device.

The level of involvement of parents in the regimen decision-making process is highly individualized and must be tailored to meet each family's needs, with consideration of multiple factors such as age of the child, duration of diabetes, and parent functioning. Further, parental well-being may be impacted by the demands of the child's regimen, or even by the diabetes diagnosis itself [47]. Ayala and colleagues [48] interviewed parents of children and adolescents with T1D and found that parents preferred a "partnering relationship" with their provider when making decisions regarding their children's diabetes regimens. Mixed method findings suggested several components of optimal care: a strong connection between provider and family, parents being invited to communicate with the provider and participate in decision making, and the provider at times taking the role of "Captain of the Ship". Although not explicitly examined, it is likely that these findings would be relevant to consideration of use of new regimens or technologies.

Research demonstrates young adults with T1D have also expressed a preference for clinicians practicing shared decision-making. In a web-based survey of 150 Australians aged 18–25 years with T1D [49], participants reported the majority of their providers engaged in shared decision-making and that young adults preferred such interactions. In contrast, participants reported they were less likely to follow providers' recommendations when they were not engaging shared decision-making. Examples of shared-decision making strategies included acknowledgement of patient's expertise in diabetes care, support for patient's autonomy, and providing advice for improving self-management skills [49].

Other concrete approaches to shared decision-making include decision aids or tools designed to engage patients in medical decisions and facilitate comparison of pros and cons or treatment options prior to making a decision [50–51]. For instance, a decision making tool designed to help adult patients with type 2 diabetes decide with their doctors whether or not to begin using a statin revealed increased patient knowledge and decreased conflict regarding their decision as well as increased medication adherence [52]. Overall, decision making tools have been found to improve patients' knowledge of possible treatment options including potential benefits and risks, and helped patients make choices that were more congruent with their personal values. Other benefits emerging from decision making tools relate to improved patient-provider communication [50]. Within T1D, such tools are available through websites promoting family-centered care approaches [53–54], which may help providers facilitate conversations with patients and families regarding decisions such as transitioning from injections to an insulin pump or use of other diabetes technology, or even making choices about changing daily diabetes adherence behaviors.

Motivational Interviewing for Diabetes Providers

Consistent with goals of providing patient-centered care for youth and families with T1D [35], Motivational Interviewing (MI) is one approach gaining popularity in clinical care.

Motivational Interviewing is a communication style designed to elicit intrinsic motivation and strengthen commitment to behavior change goals [55]. Based in principles of patient-centered care, MI emphasizes the patient's ability and responsibility for making decisions regarding behavior change and the provider's role is to support the patient's autonomy in this process. As described in the example of shared-decision making above, MI may be especially appropriate for providers to help patients and families navigate every day challenges of diabetes management. Emerging evidence suggests MI may help facilitate T1D adherence such as increased SMBG, improved psychosocial factors including quality of life, and glycemic outcomes [56–58]. Similar to any new treatment approach, further research is needed to determine optimal MI intervention delivery [59–62].

Earlier integration of MI was primarily delivered by mental health providers, although recent trends in patient-centered care have shifted towards training a range of health care providers in MI to facilitate positive health behavior changes during routine patient interactions, thus serving as a patient-centered intervention at the provider-level [63–65]. Studies demonstrate feasibility and acceptability of clinic-level brief MI training for a range of providers involved in diabetes care teams [66–68]. However, clinically significant changes in patient outcomes such as decreased A1c resulting from provider trainings have yet to be established. Given the evidence demonstrating patients' preferences for shared decision-making and other patient-centered interactions [39, 49], MI training may be beneficial both to address patients' desired clinical care as well as to provide tangible methods for providers to implement optimal standards of patient-centered care in busy clinic settings.

Shared Medical Appointments

Alternative medical care approaches, specifically shared medical appointments (SMAs), have successfully increased patient and provider satisfaction, improved efficiency, and maximized outcomes in a range of primarily adult patient populations [69–74]. SMAs typically include a group of patients with similar health concerns, needs, or issues brought together in an interactive format led by one or more medical providers. SMAs are an effective tool for empowering patients and have been recommended as a successful method for restructuring care to focus on the patient [35].

There are also emerging reports of success with SMAs for children and adolescents with T1D [81–84]. Rijswijk and colleagues [75] found more diabetes-related topics were covered in SMAs than in individual patient follow-up appointments. Examination of patient-provider and patient-patient communication sequences during SMAs revealed almost all patient cues, or verbal/non-verbal indications of important issues or concerns, were acknowledged by health care providers during SMAs. Further, those cues that were missed by health care providers were addressed by other patients present in the SMAs [76]. Providers functioning as mediators in conversations between patients resulted in improved communication during the appointments [76]. Self-report of SMA experiences revealed patients and parents primarily valued the presence of other patients [77]. Patients and providers reported a higher or similar amount of information discussed during SMAs when compared to regular appointments, including increased discussion about lifestyle, and overall, health care providers, patients, and parents were generally positive about SMAs [77].

In a recent pilot study of a SMA model, the “Team Clinic”, was found to be feasible and acceptable in adolescent patients between 13–18 years of age with T1D [78]. After brief, individual physical exams, patients in groups of 4–6 gathered together to participate in a patient-driven discussion of diabetes topics pertinent to adolescents. Simultaneously, parents participated in group discussions focusing on normal developmental tasks at various ages and diabetes’ impact on these changes. Individual patients, their parents, and their provider then met to review patient and parent goals and provider recommendations for the visit.

Over a 9-month time period, 92 patients participated in the Team Clinic appointments. Group clinics were successfully scheduled in a busy pediatric diabetes center without impacting routine clinic flow, due in part to strategic scheduling during less busy clinic times which optimized clinic space and staff. Participants received increased education when compared to standard visits, and providers were able to provide education to a greater number of patients in a more effective and efficient manner when compared to their usual clinic time [78].

Adolescent participants reported higher satisfaction with Team Clinics when compared to regular clinic visits. They reported feeling more comfortable in clinic, were more willing and at ease asking questions, had high inclination to recommend Team Clinic to others, and described high motivation to return to Team Clinic [78]. These preliminary results suggest adolescents may come to SMAs, or specifically Team Clinics, more willingly and regularly when compared to regular appointments and that they may be more likely to ask for help when needed.

DIABETES MANAGEMENT BETWEEN VISITS

The management and daily regimen of T1D for children and adults has changed dramatically over the last 40 years, and thus the interactions between providers and families have evolved as well. As diabetes management requires ongoing daily attention, most of pediatric diabetes management occurs outside of the recommended quarterly clinic visits. Diabetes management is a full time job for patients and families; and the use of technology, management in schools, and handling of costs and insurance issues are each important areas of consideration.

Diabetes Management at Home: Focus on Technology

While clinic visits may be a time for examination of blood glucose data or downloaded pump logs, families may also use technology to look for patterns in blood glucose levels and make changes to the regimen between clinic visits. Sharing technology, such as Carelink [79] and Diasend [80], allows for more efficient communication between patients and families and the diabetes care team between visits. Similarly, use of personal CGMs is emerging in pediatric T1D patients particularly as accuracy and functionality of these devices continues to improve, and the additional information provided by these devices can assist with adjustments and fine-tuning of doses between clinic visits [81]. Additionally, advances in the comfort of sensors and infusion sets will continue to contribute to both clinical and quality of life benefits from these devices, which have the potential to improve patient outcomes and management between clinic visits [3, 82–84].

Including behavioral assessments in clinical trials of new medical regimens or diabetes technology is critical for understanding a child's and their parents' eventual willingness to partake in the new regimen. In conjunction with the potential therapeutic advance of a closed-loop CGM and insulin pump system, or artificial pancreas technology, pump system, or artificial pancreas technology, there is parallel acknowledgement of the need to consider patient factors in the design and implementation of such treatment options [85]. Further, such assessments should include provider-reports from members of the diabetes care team in order to learn about the impact of use of the new tool/regimen on everyday clinical practice. Consistent with goals of providing patient-centered care, providers should engage in shared decision-making by asking patients and families about quality of life with diabetes regimens or devices when making treatment decisions, especially regarding diabetes technology.

Diabetes Management in the Schools

For school age children, the potential role of the school must also be considered when weighing parental expectations and health care team decisions regarding aspects of diabetes management. Parents of children on any type of diabetes regimen are likely to have concerns when they are unable to personally manage their child's care, such as during their work day or time at school/daycare [86]. A recent position statement by the ADA noted that, despite federal and state legislation related to diabetes care, young children in child care settings continue to face discrimination, potentially jeopardizing their health and placing increased demands on parents [87]. Parents often must count on non-nursing personnel such as staff and teachers, to assist children with diabetes tasks [88]. Some parents offer training or diabetes management demonstrations to increase teacher and staff (as well as student) comfort and knowledge regarding diabetes care. Additionally, some clinics may offer education classes for school nurses and/or school technicians given responsibility for diabetes care as another avenue for improving diabetes care knowledge and comfort. In some cases, parents may choose not to enroll their child in school/daycare due to concerns about school/daycare personnel's ability to manage diabetes management [89].

Diabetes Management: Costs and Economic Considerations

Comprehensive discussion of economic considerations related to diabetes care delivery is beyond the scope of this paper, however recognition of the impact of health care costs and anticipated changes in health care delivery are essential considerations for patient-centered care at both the individual and population health levels. Medical costs for patients with T1D are approximately 3-fold that of those without diabetes. If hospitalization is required, the average annual cost exceeds \$25,000 [90], thus an emphasis on preventative care to avoid high cost utilization of emergency rooms or hospitalization when possible is critical. At the individual patient level, costs associated with routine clinic visits may be covered by insurance, but the out-of-pocket cost of managing diabetes can vary greatly based upon type of regimen and insurance (or lack of adequate insurance) coverage. Indeed, cost of treatment options, including emerging diabetes technology, remains a significant factor in deciding on treatment regimens and intensification of management.

The Patient Protection and Affordable Care Act (ACA) of 2010 [91] has the potential to have a significant impact on health care costs, access and quality of health care for patients

with T1D (*i.e.*, protection from denial of coverage based upon pre-existing conditions and continuation of coverage for young adults until age 26). The full impact of the law, both positive and unintended, will only be realized over the course of the next decade. A recent review of the ACA and the potential impact on diabetes care providers predicted significant changes in payment systems away from traditional fees for service [92]. Among these include: patient-centered medical homes, bundled care and accountable care organizations that are intended to provide economic incentives for providing higher quality and cost effective care. While the ACA represents an opportunity for innovation in diabetes care delivery, it remains to be seen exactly how providers will reconcile the potential tension between population performance standards from payors with clinical care guidelines to individualize care [93].

CONCLUSION AND FUTURE DIRECTIONS

Despite significant advances in diabetes treatment regimens and technology, providers, patients, and families continue to encounter challenges to achieving optimal glycemic control. The global consensus for lower glycemic control targets may be daunting to all involved in diabetes care, particularly when considering the challenges of achieving prior, higher A1c targets [11]. Updated guidelines may create an impetus to improve the clinical care delivery system to help patients and families achieve these goals, extending far beyond the adjustment of insulin regimens.

European models of national registries highlight the potential of creating a learning network of clinical sites to improve the care delivery and clinical outcomes for diabetes patients [13, 94]. Effective teamwork and coordination of care through understanding of roles, integration of services, and appropriate use of multidisciplinary resources are all critical to operate beneficially for patients and families.

While movements to train a behaviorally-minded generation of health care providers are admirable and promising, accessible training and on-going support for current providers in patient-centered approaches will be critical to facilitate and sustain the movement toward patient-centered care. Future qualitative research will be beneficial, and essential, to document and disseminate successful strategies for overcoming barriers to providing comprehensive multidisciplinary care, such as decreasing financial burden and improving access to specialized providers. Obtaining patient perspectives and implementing patient-recommended changes will be critical to create an optimal patient-centered delivery care system.

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LIST OF ABBREVIATIONS

ACA	Affordable Care Act
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ADA	American Diabetes Association
A1c	Hemoglobin A1c
CGM	Continuous Glucose Monitoring
CSII	Continuous Subcutaneous Insulin Infusion
DSME	Diabetes Self-Management Education
DSMS	Diabetes Self-Management Support
MI	Motivational Interviewing
MDI	Multiple Daily Injections
SMA	Shared Medical Appointment
SMBG	Self-Monitoring of Blood Glucose
T1D	Type 1 Diabetes

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Fig. (1).
Approaches to Patient-Centered Care.