Chapter 11
Medical Family Therapy in Endocrinology

Max Zubatsky and Tai Mendenhall

Endocrinology is the study the body's endocrine system, which is responsible for the production of hormones that serve a variety of functions. The endocrine system normally controls the homeostasis of bodily systems and is responsible for growth, development, reproduction, and responses to various internal and external stimuli. Common types of disorders as a result of endocrine complications (e.g., diabetes mellitus, thyroid disease, Addison's disease, Cushing's disease, Grave's disease) are often related to improper functioning of the pancreas and/or pituitary, thyroid, and adrenal glands. These disorders can affect widespread complications such as increased heart rate, abnormal bone growth, skin changes, elevated blood glucose levels, and severe fatigue and weakness (Melmed, Polonsky, Larsen, & Kronenberg, 2015; Nelson, 2005). Life-threatening effects may include diabetic ketoacidosis, hypoglycemic coma, thyroid storm, acute pancreatitis, and pituitary apoplexy (National Adrenal Diseases Foundation, 2016; Savage, Mah, Weetman, & Newell-Price, 2004).

Effectively managing one's health in the face of an endocrine disorder can be extraordinarily stressful, carrying with it significant implications for patients' and their families' coping and adjustment that can be lifelong. As tertiary teams evolve to most successfully engage patients and families in this journey, integrated behavioral health teams that include a wide variety of professionals are becoming the rule (not the exception). To set the stage for our discussion of this as it relates to the practice of Medical Family Therapy (MedFT), we begin by sharing the story of a middle-aged patient, Joe, and his wife. They met Justin shortly after being referred to Endocrinology for diabetes care.

M. Zubatsky (✉)
Department of Family and Community Medicine, Saint Louis University, St. Louis, MO, USA
e-mail: zubatskyjm@slu.edu

T. Mendenhall
Department of Family Social Science, University of Minnesota, Saint Paul, MN, USA

T. Mendenhall et al. (eds.), *Clinical Methods in Medical Family Therapy*, Focused Issues in Family Therapy, https://doi.org/10.1007/978-3-319-68834-3_11

Clinical Vignette

[Note: This vignette is a compilation of cases that represent treatment in Endocrinology. All patients' names and/or identifying information have been changed to maintain confidentiality.]

Justin (MedFT) first met Joe after he was brought in by his wife following an acute state of diabetic ketoacidosis. He had been a patient of one of Justin's physician colleagues for about three months. He had not shown up regularly for many of his appointments.

Dr. O'Connell (Joe's endocrinologist) called Justin over and said, "His name is Joseph Albright. Goes by Joe. He's stable now; doing better. They've been here all night." He scrolled through his laptop. "At admission, Joe's blood glucose was 430; weight 300. His A1c came back at 14.5."

"Sounds like we need to learn if he's interested in improving his health." Justin said.

"Yeah; my hope is that we can talk with him together; figure out ways to help him be more compliant with his care regimen." Dr. Connell checked his laptop again. "He's only made it in twice so far; both times for acute presentations and upon his wife's insistence. I think this time really scared him."

"Third time's a charm," Justin said.

"I hope so. Before he got sent to Endocrinology, I know that Family Medicine went over diabetes-basics, but I just don't think that he wanted to hear it."

"What's his wife's name?", Justin asked.

Dr. O'Connell responded, "I don't know."

"Is she the one who does the grocery shopping?"

"I don't know."

"Oftentimes family members are not included in standard diabetes care, at least not at first." Justin said. "They should be, though, because day-to-day management of the disease is not done in our offices—it's done outside of the clinic within patients' family or social contexts. And family support—or lack of it—carries a great deal of influence on how well patients do."

Dr. O'Connell and Justin decided it would be best to meet with both members of the couple. They had communicated a strong want to do so, and Joe had already signed a consent form allowing his care team to communicate about his condition with his wife. At that encounter, I encouraged them to work as a couple in managing Tom's diabetes, and to do this as active members of the larger care team. It was clear that Joe's wife—Alice—wanted to be a part of Joe's recovery and ongoing health.

Justin asked Joe to complete a PHQ-4; his scores suggested considerable struggles with both depression and anxiety. He (Joe) explained how his disconnection from Alice—as his primary support person—was a driving factor behind his sense of feeling so overwhelmed. Justin and Dr. O'Connell noted (ironically) how earlier conversations that Joe had had with his doctors about

diet had not included the person who buys and cooks most of his food. Justin normalized, too, how distressing diabetes can be even in the best of circumstances, and explained how its effective management—while including attention to diet—goes considerably further than this.

"And to do this well, we need to create a treatment plan that includes more folks than just me and Dr. O'Connell," Justin explained. "I'd like us to talk about creating a new treatment plan that will involve a number of team-players—and I think that the two important members of this team are the two of you."

Joe and Alice were up for the task. "Let's do it!," they exclaimed.

"I'm not done in this world yet." Joe said.

Alice laid her head on this shoulder and closed her eyes. Joe kissed her forehead.

"No, you're not, Mr. Albright." She agreed. "We've got things to do."

This case is illustrative of how the practice of Medical Family Therapy within Endocrinology might begin. Instead of being shuffled off by a primary care provider to "mental health" when standard care is not working, care is explicitly and purposefully integrated. And just as we know that the words "stressed" and "desserts" are the same word spelled backwards, we know that managing diabetes well requires attention to a patient's physiological well-being within the context of his or her psychosocial well-being. Oftentimes, it is the MedFT who helps navigate patients and families on this journey—explaining how its respective parts fit together and even engaging those parts to do so. Justin's first discussion with Joe and Alice is illustrative of this.

In this chapter, we will further describe Endocrinology as a care setting-type. We characterize the common makeup(s) of our interdisciplinary teams and outline key knowledge and skill areas for MedFTs within these teams. We describe the practice of MedFT in Endocrinology teams in accord with Hodgson, Lamson, Mendenhall, and Tyndall's (2014) five-level MedFT Healthcare Continuum. We present common terminology, reflection questions, recommended readings, and resources in conclusion.

What Is Endocrinology?

As outlined above, Endocrinology is a medical specialty that focuses on the diagnosis and treatment of a variety of conditions that affect the endocrine system. This system includes many glands within our bodies whose primary function is to secrete hormones (e.g., thyroid, pancreas, testes, ovaries); when these glands do not work properly, we

develop endocrine disorders. Endocrinologists—like Dr. O'Connell in the vignette described above—are primary care providers with specialized training to treat patients who are diagnosed with these types of conditions (Goodman, 2010; Lavin, 2012).

The most commonly diagnosed endocrine disorder, diabetes mellitus (DM), is a class of chronic illnesses that includes several endocrine disorders. These include—but are not limited to—Type 1 (immune-mediated diabetes mellitus), Type 2 (insulin-resistant diabetes mellitus), and gestational diabetes. Diabetes affects almost 30 million individuals in the United States, alongside an estimated 8.1 million people who have gone undiagnosed (Centers for Disease Control and Prevention [CDC], 2014). It is especially prevalent in minority groups, with trends showing that over 9% of Asian Americans, 12% of Hispanics/Latinos, 13% of non-Hispanic Blacks, and 20% of American Indians have been diagnosed with some type of diabetes (American Diabetes Association [ADA], 2016). These disparities are prevalent across both adult and pediatric populations (ADA, 2016; Raile et al., 2007; Seid, Sobo, Gelhard, & Varni, 2004). Earlier lifetime mortality rates are extant within persons living with diabetes compared to their non-diabetic counterparts and secondary to a host of comorbid physiological and health complications (Groop et al., 2009; Patterson et al., 2007). Emerging literature has suggested that a new form of diabetes, i.e., Type 3, represents a pathogenic mechanism of neurodegeneration in patients diagnosed with Alzheimer's disease (Suzanne & Wands, 2008; Rivera et al., 2005; Steen et al., 2005). The cognitive deficits and inability to use glucose effectively in these individuals is now said to be linked to several key features of diabetes localized specifically to the brain (de la Monte, 2012).

Attending to both individual (e.g., psychological, behavioral) and family (e.g., genetic predispositions, family functioning, and support) phenomena, the impact(s) of endocrine disorders cannot be overstated. The presence of depression and related mood symptoms, for example, is higher for those living with diabetes—and associated strongly with more serious and longer-lasting complications (ADA, 2016; Katon et al., 2004). These sequelae can greatly impact patients' utilization of services and compliance with recommendations for disease management (e.g., medications, insulin injections, diet, physical activity) (Anderson, Freedland, Clouse, & Lustman, 2001; Egede, Zheng, & Simpson, 2002), much like what we saw with Joe and Alice. Research teams in the United States and Europe found that the prevalence of diabetes in people with serious and persistent mental illnesses (e.g., schizophrenia, bipolar disorder) is 2 to 3 times that of the general population (Holt, Peveler, & Byrne, 2004; Oud & Meyboom-de Jong, 2009). Healthcare facilities are quickly discovering the need for more comprehensive services to adequately assess and treat the complexities of diabetes care.

In recent decades, the emergence of tertiary care in Endocrinology has offered additional resources and services often not provided in primary care. This work targets specific treatments, and—within these efforts—includes multiple providers representing multiple disciplines (Grone & Garcia-Barbero, 2001). For example, tertiary care for patients with diabetes ultimately aims to improve patients' lives through ongoing symptom- and disease- management. To this end, long-term attention to health complications, medications, injections, and lifestyle habits that

accompany diabetes care are addressed by a team of healthcare professionals. These efforts are advanced through the coordination of personalized treatment plans that include both the patient and other members within his/her primary support system(s) (Sonino, 2008). Specialists attend to various aspects of the disease such as healthy eating, physical activity, medication adherence, problem-solving skills, risk-reduction behaviors, and spousal and family support and engagement (Gulabani, John & Issac, 2009; Rajasekharan et al., 2015). As more complications continue to arise in this population, MedFTs play a pivotal role as members on these teams.

Treatment Teams in Diabetes and Endocrinology Care

Collaboration in tertiary care settings—between providers and with each other, and between providers and patients and families—is essential (Foraida et al., 2003; Jefferies & Chan, 2004). Attending to the complexities of diabetes, for example, necessitates that providers (medical and behavioral) overlap their respective energies in care. As primary care providers probe questions regarding biomedical and pharmacological treatments, MedFTs and other professionals fill in critical gaps to address underlying challenges, conditions, connections, relationships, and resources playing a loud or silent role in diabetes management (or mismanagement). Providers who embrace these biopsychosocial-spiritual (BPSS) complexities maintain an advantage of holistically seeing how the patient functions (or not) within his/her family and social contexts (Engel, 1977, 1980; Wright, Watson, & Bell, 1996). Advancing care in accord to these complexities can ultimately improve both the patient's and family members' overall functioning and health.

Tertiary care teams tend to represent a broad range of disciplinary backgrounds and training—and in diabetes care, for example, produce better health outcomes (Levetan, Salas, Wilets, & Zumoff, 1995; Liau et al., 2010; Verlato et al., 1996). Diabetes and Endocrinology clinics are noticing, too, the importance of integrating specialty care professionals into their work with patients, families, and communities alike. High-quality teamwork among these providers includes effective patient introductions for initiating services, quality-of-care meetings for coordinating said services, curbside consultations (as indicated throughout treatment), and streamlining referrals through effective planning and discharge (Cook et al., 2009; Mitchell et al., 2012; Wrobel et al., 2003). The following highlight key professionals in and outside of tertiary care settings who are involved in delivering specific services and diabetes care education:

Primary care physicians (PCPs). These providers, usually within the context(s) of Family Medicine, see patients for regular checkups. They have a strong foundational knowledge regarding a variety of health and healthcare presentations and tends to function in key referral roles to connect patients to specialty providers, care teams, and/or community-based resources. The PCP may refer to or check in with the endocrinologist if the patient is not responding to evidence-based care and if his/her disease is progressing beyond the expertise available in the primary care setting.

Endocrinologists. These providers maintain specialized training in treating people with diabetes and other endocrine diseases. Most people with Type 1 diabetes will see an endocrinologist after their initial diagnosis and then continue to consult with him/her about disease management thereafter. Those living with Type 2 diabetes may see this professional when encountering ongoing difficulties with blood sugar management and/or other health issues. Patients diagnosed with Type 3 diabetes may see an endocrinologist in collaboration with a neurologist to track and attend to cognitive functioning and/or declines. Patients may seek a PCP for concomitant medical presentations.

Diabetes educators (often nurse practitioners). These providers possess comprehensive knowledge of prediabetes conditions (for diabetes prevention) and post-diagnosis disease management. They educate and support patients and families to understand and manage multiple facets of the condition and to develop personalized daily self-careplans.

Registered dieticians. These professionals are trained to help patients in their dietary and nutritional care around Type 1, Type 2, or gestational diabetes. They often are dual-certified as diabetes educators. Principal efforts center on assessing food needs, lifestyle history, weight management, and other benchmarks to coordinate appropriate care plans.

Pharmacists. Pharmacists help endocrine disorder patients with education about the use of insulin and/or other medication(s). They also work with women with gestational diabetes, addressing lifestyle habits and dietary management before and after birth of their child.

Behavioral health providers. Behavioral health providers in tertiary care are represented by a variety of disciplinary backgrounds, e.g., MedFTs, social workers, psychologists, counselors, and psychiatric nurses. They work collaboratively with each other and medical providers in the integration of psychosocial and psychotherapeutic services with biomedical care. Many are trained to deliver brief behavioral health assessments and interventions to patients and families while utilizing referrals and providers in their care teams to assist in the delivery of specific services. MedFTs, specifically, work purposefully to engage families as active members of the care team alongside behind-the-scenes (from patients' and families' perspectives) efforts in coordinating professionals' respective contributions and personal/interpersonal functioning and teamwork.

Although many patients with diabetes receive treatment in primary care clinics, there are numerous benefits to effective care coordination in tertiary care settings. Integrated behavioral healthcare services by both medical and behavioral health providers often work within one treatment plan for a particular patient or set of patients in a practice. When a protocol for care is established that includes multiple providers, behavioral health becomes a critical component of delivering the highest quality of care (Blount, 2003; Mullen & Funderburk, 2013; Talen & Valeras, 2013). Across different levels of integration (Doherty, McDaniel, & Baird, 1996), tertiary care normally operates in either a colocated or a partially integrated behavioral healthcare team.

Fundamentals of Care in Endocrinology

When working within the capacity of a MedFT provider in tertiary settings, specialized areas of content knowledge and concomitant skill sets are essential. The following represent those that are critical to Endocrinology (generally) and diabetes care (specifically).

Translating "Endocrinology"

Patients and families who are referred to a "specialist" are oftentimes fearful about what this means. They want to know why their primary care physician cannot "fix" them, whether they are "too sick" for a "usual doctor" to handle, etc. MedFTs are oftentimes in a role(s) whereby discussing the process(es) of referrals, and even the very definition of "Endocrinology" is important so as to assist patients and families in knowing what to expect. This is best done in a manner that is sensitive to patients' and families' distress and/or confusion, e.g., normalizing and empathizing how challenging diabetes can be to effectively manage how complex and overwhelming the medical system can be to navigate; how feelings of sadness, anger, hopelessness, worry, and/or a host of other emotions is normal for everyone (patients, families); and that interpersonal conflicts and discord (in general or specific to health-related foci) among spouses and/or family members is common.

Translating "Diabetes"

As complicated as diabetes can be on a physiological level, it is important to be able to explain (sometimes many times over the course of treatment) what it is in everyday language. Put simply, diabetes is a condition wherein the body is not able to break down or take in energy (carbohydrates) from the foods that we eat. This is because the hormone that is necessary to make our cells absorb sugar from our bloodstream—called insulin—is not produced by our pancreas, not produced enough, or produced but not "heard" by our cells. This then can lead to a buildup in blood sugar; our cells begin to starve, and a host of complications follow (ADA, 2016).

Type 1 diabetes is an autoimmune disorder wherein the insulin-producing cells are destroyed by one's body. Risk factors linked to it include family history and/or presence of autoantibodies, early exposure to viral illnesses, dietary factors (e.g., low Vitamin D consumption as an infant), and even geography. It usually onsets quickly during childhood and requires daily insulin replacement therapy for the patient to survive. Common symptoms include fatigue, weight loss, hunger, blurred vision, insatiable thirst, and frequent urination.

Type 2 diabetes is more common in adults, but it is increasingly prevalent in children. Risk factors linked to it include family history, being overweight, physical inactivity, race, and age. The onset is slow, usually with insulin resistance (i.e., our cells become less responsive to insulin), and carries with it many of the symptoms outlined above for Type 1 sans weight loss.

Other types of diabetes are extant but generally less prevalent. Gestational diabetes, for example, is a Type 2-like condition associated with pregnancy. Type 3 diabetes, as described above, is beginning to be understood as a correlate (and maybe causative agent) to dementia (Accardi et al., 2012; ADA, 2016).

Tests for Diabetes

There are four primary tests that MedFTs should be conversant with in diabetes care. The *random blood sugar test* assesses a patient's blood glucose at any time; sugar recorded and more than 200 milligrams per deciliter (mg/dL) suggests a diabetes diagnosis. The *fasting blood sugar test* assesses a patient's blood after several hours (usually overnight) of not eating. Sugar recorded at more than 126 mg/dL confirms a diabetes diagnosis. The *oral glucose tolerance test* encompasses ingesting a sugary liquid after fasting and then monitoring blood sugar changes over the following 2 hours. Readings more than 200 mg/dL at the conclusion of this time further confirm diabetes. Finally, the *glycated hemoglobin (A1c) test* measures a patient's average blood sugar over the preceding 2–3 months. Specifically, it measures the percentage of blood sugar attached to hemoglobin in red blood cells. An A1c of greater than 6.5% suggests a diabetes diagnosis. For patients with diabetes, the most common tests used for disease management are the random blood sugar test (up to several times per day) and the A1c test (usually 3–4 times per year) (ADA, 2016; Bradley, 2013). MedFTs functioning within Endocrinology should be able to read, interpret, translate, and discuss these tests with other members of the care team and with patients and families. This is important because they represent hallmark data regarding care effectiveness and patient improvements or declines.

Diabetes Management

Understanding the goals of diabetes management is essential for MedFTs, insofar as they permeate almost every clinical encounter, treatment plan, and problem-solving sequence related to the disease. Put simply, it is important for patients to maintain blood glucose (sugar) levels within an indicated range (not too high, not too low). Usually this means 90–190 mg/dL before meals, although this can vary by age and individual circumstances. This objective is achieved through a daily managing of insulin and/or medication (to lower blood sugar), physical activity (to lower blood sugar), and food intake (to increase blood sugar) (ADA, 2016; Garber et al., 2013).

MedFTs should be able to assist patients with setting up a log to track blood sugar testing, interpret trends in recorded values, and know when and how to collaborate with the endocrinologist or other team members (e.g., when values are trending in a negative manner).

It is important for MedFTs to be aware of—and to discuss, normalize, and mitigate—a number of common pitfalls to sticking with a diabetes management plan. For example, some patients and families initially experience a "honeymoon phase" post-diagnosis. They see diabetes as a "call" to be healthier, and they welcome its indicated changes in diet and physical activity routines. However, just like New Year's resolutions usually wane by February, so too do many of our diabetes "honeymooners" (Cogan, 2008).

Blood glucose monitoring. Regular monitoring of one's blood glucose is essential for diabetes management. MedFTs often help patients and families learn how to integrate this into their everyday routines, alongside developing ways to track patterns over time. Familiarity with different types of lancing devices (e.g., lancets, spring-loaded single-use devices, pen-types), meters (e.g., by ease of use, wait times), test strips (e.g., costs, availability), and procedures (e.g., assembly of supplies, methods blood application to test strips) is requisite in order to do this. MedFTs oftentimes—with access to on-site supplies—even demonstrate blood sugar checks on themselves and/or walk patients and families through it as a part of these sequences (ADA, 2016). MedFTs can teach patients how to record, retrieve, and read values stored in their (the patients') glucometers and recommend that they bring recording devices to meetings so as to keep indicated data current.

Hypoglycemia. Hypoglycemia is a condition wherein a patient's blood sugar is especially low. Causes include not having eaten enough food, having too much insulin, and/or exercising more than one should. Symptoms can onset suddenly, progress to unconsciousness if not treated, and can cause permanent brain damage or death. Mild symptoms can include fatigue, shakiness, blurry vision, sweating, hunger, weakness, and noticeable changes in anxiety and other behaviors. Moderate symptoms can include confusion, a "dazed" appearance, extreme fatigue, and/or marked irritability. Severe symptoms can include inability to swallow, seizures, and/or coma. Responses to hypoglycemia should thereby be prompt; they can include consuming foods that are high in simple sugar (e.g., orange juice, honey, non-diet soda), ingesting tablets or gels with pre-measured amounts of pure glucose, or taking an injection of a hormone (e.g., Glucagon) that raises blood glucose (ADA, 2016). It is important for MedFTs to know where these supplies are kept on-site and that they be able to help access indicated interventions if/when necessary.

Hyperglycemia. Hyperglycemia is a condition wherein a patient's blood has too much sugar. Causes can include too little insulin, decreased physical activity, illness or injury, stress, and/or menstrual periods. While onset can be rapid when someone is on an insulin pump, it usually develops slowly. Mild symptoms include fatigue, thirst, frequent urination, stomach pains, poor concentration, skin flushing, and/or sweet "fruity" breath. Moderate symptoms include nausea and vomiting, stomach

cramps, and dry mouth. Severe symptoms can include labored breathing, confusion, and unconsciousness. Responses should include verification of blood glucose via testing, exercising (unless ketones are present), insulin administration, and rapid hydration (ADA, 2016).

Glucagon administration. Glucagon is a naturally occurring hormone that, when injected, quickly raises patients' blood sugar. Its principal use is to reverse severe hypoglycemia. Any provider working with diabetic patients should be familiar with this treatment, insofar as discussing and preparing to use it if/when necessary should be a part of any diabetes management plan. The treatment process includes merging a powder and solution mixture and then injecting it into the patient with a syringe (ADA, 2016).

Insulin administration. MedFTs should maintain a baseline familiarity with the most commonly used insulin types (e.g., rapid-, short-, intermediate-, and long-acting) and methods of delivery (e.g., vial, syringe, pen, pump). They must be conversant regarding indicated ways to store insulin (e.g., refrigeration, room-temperature), timing of administration (e.g., before meals), dosage supplies (e.g., alcohol pads, gloves), and logarithms. This is important because it represents a common area of concern and negotiation among couples and families as they schedule patient- and/or family-centered care sessions in clinic and as they adapt to a diabetes-sensitive lifestyle outside of the clinic. It also represents an important developmental milestone for children and adolescents, i.e., managing insulin administration and/or insulin pumps on their own sans adult supervision (ADA, 2016).

Ketone monitoring. Ketones are acids that can build up in patients' bodies; they represent the principal culprit behind diabetic ketoacidosis (DKA), which is a leading cause of diabetes-related hospitalization, coma, and death. These acids are monitored through testing patients' urine with a specialized test strip. If/when ketones are moderate or high, it is important to not engage in physical activity, hydrate, and encourage frequent use of the restroom (ADA, 2016).

Complications. Thoroughly outlining all of the potential complications of diabetes is outside of this chapter's scope. However, it is important for MedFTs to be familiar with the most common ones associated with this disease when it is poorly managed; these include cardiovascular disease (e.g., signs of a possible stroke include facial droop, weakness in arms, and difficulties with speech; signs of a possible heart attack include feelings of pressure on the chest, chest pain, shortness of breath, and nausea), neuropathy (e.g., numbness, pain, and/or tingling in fingers and toes), nephropathy (e.g., signs of kidney damage include marked swelling—called edema—around the eyes, ankles, and feet, alongside foamy urine and/or weight gain secondary to fluid retention), retinopathy (e.g., signs of eye damage include seeing small black dots—called "floaters"—in one's forward vision and/or flashing lights—called "flashers" in one's periphery vision), and problems with the feet and skin (e.g., cuts and wounds that are very slow to heal, infections, itchy dry skin) (ADA, 2016). MedFTs should explain to patients how PCPs and endocrinologists may not ask about or see these symptoms in regular visits, and should communicate strongly that they (the patients) seek immediate medical attention if/when these types of symptoms manifest.

Nutrition. MedFTs must be conversant with the tenets of good nutrition, purposeful meal planning, food preparation, and portion sizes. A great storehouse of this information—for patients, families, and providers alike—is the American Diabetes Association's website(s): see www.diabetes.org. MedFTs should encourage patients to consume a variety of healthy foods, including produce (vegetables and fruits), grains, fish, and nuts—alongside talking about the importance of reducing intake of animal fats, trans fats, sodium, and alcohol. Working with patients and families with how to afford healthy foods (e.g., where and when to purchase these) and co-own new diets (e.g., we are in this together) is oftentimes something that MedFTs process and advance within team care (ADA, 2016).

Physical activity. MedFTs must work with patients and families toward making exercise a stalwart part of everyday life—and they are up against considerable resistance vis-à-vis modern day lifestyles of desk jobs, marathon television watching, videogames, and obesity (as almost normative) (ADA, 2016). Further, many patients are in no condition to simply begin lifting weights or go jogging. Familiarity with multiple strategies of light to moderate exercise (to begin with), chair aerobics (e.g., for those living with joint or back pain), and/or easy and indoor sequences (e.g., for those who cannot afford to go to a gym or do not feel safe being outside in their neighborhoods) is important so as to avoid commonplace impasses between primary care providers who say "You should exercise…" and patients who say "Yes, but…." Purposeful collaboration with patients' PCP, a physical therapist, and/or a sports medicine provider can further facilitate this care.

Sensitivity to diversity. MedFTs must maintain awareness of cultural and community phenomena that impact patients and families (Tyndall, Hodgson, Lamson, White, & Knight, 2012), especially in regard to well-known and documented health disparities among those suffering from diabetes. This is important, too, because patients' ethnicities and cultures play considerable roles in diabetes management and care (Counihan & Van Esterik, 2012; Nam, Chesla, Stotts, Kroon, & Janson, 2011). MedFTs must purposefully integrate these complexities into treatment teams' sights as interventions (medical, behavioral, or otherwise) are designed and implemented in collaboration with patients and their families. They must also be familiar with and honor different groups' conceptualizations of illness and disease (generally), diabetes (specifically), and traditions, habitudes, and meanings connected to food (e.g., ceremonial feasting with rice or fry bread—both very high-carbohydrate foods—as cultural staples) and physical activity (e.g., culturally-specific games) that directly impact disease management and course(s) (American Association of Diabetes Educators, 2015; Heisler, 2007). It is thereby important for a MedFT to research—and to learn through direct conversations with patients and families—about the culture(s) within which care is being advanced. For example, Tai Mendenhall's work in the American Indian (AI) community encompasses considerable attention to Indigenous peoples' historical trauma and (understandable) tendency to mistrust Western providers, common narratives about diabetes as an unstoppable plague, culturally framed conceptualizations of health within Medicine Wheel models and affiliated narratives about

"walking in balance" (i.e., simultaneously attending to physical, emotional, interpersonal, and spiritual well-being), Native foods held in high-value, and drumming, dancing, and a host of culturally unique games and activities preferred as means of physical activity and exercise (Mendenhall et al., 2010; Mendenhall, Gagner, & Hunt, 2015; Mendenhall, Seal, GreenCrow, LittleWalker, & BrownOwl, 2012; Seal et al., 2016).

Stress management. MedFTs must be competent in working with patients and families to negotiate a variety of stressors in a manner whereby food or other substances are not used as coping mechanisms, exercise is not foregone for television watching, etc. Whether this is about general life functioning (e.g., prioritizing daily professional and personal responsibilities, effective time management) or specific problem solving (e.g., resolving marital conflict about money, creating a personalized self-care plan, substance use treatment), it is important to understand how diabetes health (e.g., metabolic control) and patients' mental health are highly associated (ADA, 2016). They must also be skilled with standardized measures to track patients' stress as measured by symptoms of depression and anxiety (like we saw with Justin's work with Joe and Alice); these include—but are not limited to—the Patient Health Questionnaire (PHQ-2, PHQ-4, and/or PHQ-9) and Diabetes Distress Scale (American Psychological Association, 2016; Fisher, Hessler, Polonsky, & Mullan, 2012; Löwe et al., 2010).

Attention to Ethics

MedFTs in any context must recognize challenges related to delivering mental health services within a broader healthcare system, negotiating and/or obtaining releases of information to discuss and consult regarding cases across multiple providers and/or provider teams, negotiating multiple providers' respective access (or not) to behavioral health notes, finding private space(s) for personal patient or family meetings, and decision-making regarding provider leadership and authority across different phases of care (e.g., acute physical crisis, discharge planning) and care episodes (e.g., during times of suicidal ideations and/or intent). Alongside these, MedFTs in Endocrinology and diabetes care must also be careful to not explicitly offer medical advice that is outside of their licensed scope of practice (e.g., giving specific suggestions regarding medication dosages, unilaterally advancing nutritional/dietary plans). Being equipped with the knowledge and information outlined above does not mean that a MedFT is qualified to overstep a primary care provider's counsel. MedFTs should thereby read about and be familiar with respective team members' disciplinary codes of ethics and be comfortable leading open and collaborative discussions regarding the above-referenced and related foci.

Diabetes Care Across the MedFT Healthcare Continuum

Medical Family Therapy serves as a useful framework for mental health and medical providers in the care for patients and families who live with diabetes. Specific training, practice, research, and policy competencies represent important facets of this work as professionals engage with this population. Tables 11.1 and 11.2 highlight specific knowledge and skills that characterize MedFTs' involvement across Hodgson, Lamson, Mendenhall, and Tyndall's (2014) MedFT Healthcare Continuum. As we move along the continuum, we carry greater expectations regarding roles, knowledge, and overall contributions to care (Willens, Cripps, Wilson, Wolff, & Rothman, 2011).

At the beginning of the continuum, MedFTs at *Levels 1* and *2* should possess general understanding(s) of Endocrinology and diabetes care and are able to advance biopsychosocial-spiritual sensitivity into their work. It is unlikely that they treat patients and families struggling with endocrine diseases in their everyday practices but are able to ask questions relevant to the maintenance of health vis-à-vis these struggles and/or coordinate referrals with outside providers who can assist with particular aspects of a holistic treatment plan. They maintain basic understandings about how diabetes and depression, for example, can be mutually exacerbating—and normalize and advocate said treatment plans upon this type(s) of insight. A clinician equipped with knowledge and skills outlined in *Level 3* is arguably able to function within a tertiary care team per se—keeping up with and contributing to more complex care plans with other providers engaged with patients (e.g., a newly diagnosed patient who is simultaneously overwhelmed with depression and an impending divorce, a long-term patient—like Joe—with consistently poor metabolic control despite several months of straightforward primary care interventions) and families toward a shared vision of treatment goals and outcomes. This encompasses a working familiarity with specific disease processes alongside purposeful efforts to build relationships with other members of the care team (e.g., physician, nurse practitioner, diabetes educator, endocrinologist, pharmacist, dietician).

A MedFT functioning at *Level 4* maintains high proficiency and knowledge in caring for patients and families living with endocrine disorders, alongside intimate understandings about how the integrated behavioral healthcare teams that function within this specialty area work. Being proficient with core content and terms essential to diabetes care (see Glossary) enables him/her to effectively translate and track biomarkers over the course of care (e.g., reading lab values and applauding patients' efforts over time as A1c, blood glucose, or diastolic/systolic blood pressure values improve; collaborating with prescribers regarding how to effectively orient patients to new routines with insulin and/or metformin regimens). Maintaining clear understandings about respective team members' training and scope of practice enables the MedFT to guide patients and families in their care journey—advancing explanations regarding who to go to for what (e.g., the dietician can help you to learn what to look for on food packaging labels, the pharmacist can explain how to calculate

Table 11.1 MedFTs in Endocrinology and Diabetes Care: Basic Knowledge and Skills

MedFT Healthcare Continuum Level	Level 1	Level 2	Level 3
Knowledge	Basic knowledge about BPSS approaches to diabetes care; sensitive to how disease management and mood are mutually influential. Familiar with Endocrinology as a medical specialty; limited understanding of endocrine disorders or team(s) structure. Basic understanding regarding most common Endocrinology presentations (e.g., diabetes) and concomitant strategies for healthy lifestyle.	Can differentiate between types of diabetes (as a common presentation in Endocrinology care); familiar with basic causes and symptoms. Familiar with benefits of couple and family engagement in health-related adjustments and/or lifestyle maintenance. Some differentiation of the primary endocrine disorders and their roles in the body; can identify some disease-related complications.	Working knowledge of specific team members (e.g., dietician, pharmacist) and terms in Endocrinology (e.g., blood glucose, hypoglycemia, insulin). Basic knowledge of biomarkers in endocrine disorders (e.g., hormone levels, thyroid levels, androgen, and testosterone).
Skills	Can discuss (and psycho-educate) basic relationships between biological processes, personal well-being, and interpersonal functioning. Minimal collaborative skills with Endocrinology providers; prefers to work in an individual practitioner model but is able to contact/refer to other providers about services when needed.	Able to apply systemic interventions in practice; assess patients for background issues such as family history and related risk factors; more diabetes cases seen in practice. Adequate collaborative skills; can coordinate referrals to a few specialists in patients' care; still conducts separate treatment plan; goals and interventions can overlap with—or be informed by—an Endocrinology team.	Working within a tertiary care clinic, able to integrate respective team members' expertise and counsel into treatment planning, contribute to some team meetings and consultations. Can implement a systemic assessment of a patient and family with competencies in assessing for BPSS aspects of disease and resources within the family; engage other professionals as indicated.

Table 11.2 MedFTs in Endocrinology and Diabetes Care: Advanced Knowledge and Skills

MedFT Healthcare Continuum Level	Level 4	Level 5
Knowledge	Proficient understanding of several endocrine disorders and their associated treatments, medications, and terminologies. Conversant in nearly all terms, measures, and facets of diabetes care (as one of Endocrinology's most common presentation), e.g., medications, injections, indicated biomarkers, dietary prescriptions, and tools/meters.	Understand treatment and care sequences for unique and/or challenging topics in endocrine practice (e.g., foot care, using insulin pumps); can consult effectively with professionals about medical topics from other fields. Conversant with evidence-based treatments regarding the most endocrine disorders and their role(s) in the family; has background to provide education to patients about a variety of symptoms, medications, and diet management. High content knowledge in clinical topics, research practice, policy, and administrative areas of endocrine disease care; proficient in developing a curriculum on diet, weight loss, family work, and/or mental health areas to provide other professionals.
Skills	Able to deliver seminars and workshops about the BPSS complexities of a variety of endocrine diseases (e.g., thyroid disorders, Grave's disease, Addison's disease) to a variety of professional types (e.g., mental health, biomedical). Can apply several BPSS interventions in care (including most types of brief interventions); can administer mood- and disease-specific assessment tools proficiently. Consistently collaborates with key Endocrinology team members (e.g., PCP, pharmacist, dietician); initiates team visits with multiple providers when working with patients and families.	Proficient in nearly all aspects of diabetes and endocrine disorders; able to synthesize and conduct research and clinical work; engages in community-oriented projects outside of tertiary clinic. Goes beyond interventions routine for this population; can integrate specific models of care into routine practice (e.g., PCBH, Chronic Care Model). Routinely engages in team-based approaches to care, with consistent communication through electronic health records, "patient introductions," "curbside consultations," and team meetings and visits.

insulin dosage vis-à-vis what you are about to eat, and a MedFT can work with you and your spouse regarding how to negotiate what feels supportive to you versus what feels like nagging); knowing how and when to advance diabetes-specific conversations (e.g., counseling about physical activity, weight management, connections between stress and dietary habits, connections between sleep apnea and blood glucose, connections between insomnia and weight gain); purposively scheduling joint meetings to manifest optimal synergy in overlapping and/or respective expertise areas (e.g., the PCP and MedFT can meet you together to discuss how to exercise safely vis-à-vis your physical limitations, and with your partner and/or other social support persons in the context of a neighborhood that may not feel safe or have easily accessible facilities or resources). Any and all of these sequences are likely to follow the care introduction(s) described above in Joe's and Alice's case.

MedFTs who function at *Level 5* generally have practiced at all levels of care and work in various roles across these respective contexts (e.g., administration, supervision, directing). As a clinician, proficiency in family therapy and BPSS approaches (including competence and knowledge regarding medications, nutrition, lifestyle management, and community approaches to care) extends now to include a comprehensive scope of all facets of diabetes care—including foot care, wound care, diabetic retinopathy, medication side effects, and interactions of sundry disease processes with diabetes per se (e.g., Crohn's disease, osteoporosis, thyroid disease, cancer, chronic pain). This is evidenced in active and effective participation in—and leading of—team-based collaboration, which often expands beyond the Endocrinology "walls" to include other specialties and indicated resources relevant to patients' and families' needs. As an educator and mentor, he/she is proficient in the didactic and supervisory instruction of these skill sets and knowledge—evidenced across live classroom and clinical sequences and/or in the construction of instructional materials (e.g., refereed journal articles, texts, conference proceedings). Further, professionals at this level tend to be involved in research (e.g., testing and/or comparing interdisciplinary team-based methodologies, tracking community-based interventions that purposively integrate patients' and families' lay wisdom and involvement in psychoeducation and support), policymaking (e.g., advocacy for team-based coverage by health maintenance organizations), and other administrative duties (e.g., overseeing behavioral health internships and residencies positioned with Endocrinology care, coordinating clinic sequences and personnel in accord to established or innovative care models). They do this with purposeful sensitivity to the three-world view of healthcare (Peek, 2008), simultaneously addressing (a) common clinical challenges and problem-solving sequences, (b) operational processes that facilitate care teams' effective and efficient functioning, and (c) financial considerations that are unique to the healthcare resources for patients (specifically) and within their clinic and health system (generally).

Research-Informed Practices

Pharmacological Approaches

Patients diagnosed with Type 1 diabetes require lifelong insulin therapy, with some requiring two or more insulin injections daily. Doses are adjusted according to blood glucose levels, set time intervals, and/or the patients' ability to self-monitor and administer dosages reliably (ADA, 2016). Common insulin therapies include Humalog (Insulin Lispro Injection), Novolog (Insulin Aspart), Levemir (Insulin Detemir), and Lantus (Insulin Glargine Injection).

Type 2 diabetes management through pharmacological therapies can be effective but oftentimes is challenging for both patients and family members. Controlling glycemic levels in Type 2 diabetes has become increasingly complex, with difficulties regarding adverse side effects and macrovascular complications (Inzucchi et al., 2012; Stone et al., 2010). Good management of Type 2 diabetes with both pharmacologic and non-pharmacological treatments requires specific education and self-management techniques for patients to learn over extended periods of time. Those with Type 2 diabetes often use oral therapies too (such as chlorpropamide, rosiglitazone, and Glucophage) to control blood glucose levels.

In gestational diabetes, women experience carbohydrate intolerance during the onset of pregnancy and, as a result, a failure to compensate with increased insulin secretion (Cheung, 2009). Pharmacology for this presentation brings with it a different set of guidelines and factors; medications must be deemed safe for the woman in controlling blood sugars while synchronously not harming the unborn fetus (Coustan, 2007). Commonly prescribed treatments, when indicated beyond baseline efforts to control blood sugar through diet and physical activity, include glyburide tablets and glyburide.

Individual Approaches

Several evidence-based approaches have addressed the psychosocial and lifestyle health habits of patients living with diabetes. Motivational interviewing (MI) is a common and effective way to help patients and family members find and access (and mobilize) motivational factors in their lives around chronic illness and disease management (Miller & Rollnick, 2012). Principles such as reflective listening, open-ended questions, motivational statements, guiding behaviors, and change talk can empower patients to explore solution-based options in practice (Rubak, Sandbaek, Lauritzen, & Christensen, 2005; West, DiLillo, Bursac, Gore, & Greene, 2007). MI has been used with patients with diabetes to help explore areas of change regarding a host of health habits and psychosocial challenges. Management of

lifestyle habits (e.g., physical activity) and thought processes for exploring solutions have shown strong evidence for beneficent change (Rubak et al., 2005; West et al., 2007). For example, researchers have found strong support for MI with adolescents diagnosed with diabetes (Channon, Smith, & Gregory, 2003).

Cognitive behavioral therapy (CBT) represents another way to help patients learn effective ways of managing a variety of underlying issues that can make diabetes management difficult (e.g., depression, anxiety, weight gain). This, in conjunction with psychotropic medications, has been associated with improvements in metabolic control (Hamdy et al., 2008). Behavioral therapy, too, has demonstrated success in psychological adjustment around specific symptoms associated with diabetes. Patients also learn better coping skills and strategies to relate to family members and others around the disease (Wysocki et al., 2000). As MeFTs employ these methods with families (i.e., not just individual patients), they work to create shared mutual understandings regarding respective members' thoughts and narratives about disease management foci, alongside shared ownership for indicated behaviors in self-care.

Family Approaches

Family-based approaches to treatment have also been utilized by healthcare professionals around a number of issues in diabetes care. Researchers have shown strong support for parental involvement in treatment planning and disease management with children and adolescents (Wysocki et al., 2008). Systemic interventions that have incorporated a collaborative approach to patients' health have shown better disease- and family-related outcomes (Anderson, Brackett, Ho, & Laffel, Anderson, Brackett, Ho, & Laffel, 1999; Laffel et al., 2003; Peyrot et al., 2005). Integrating psychoeducation through family visits helps to promote co-ownership of new knowledge and joint problem solving (Delamater et al., 2001; Hood, Butler, Anderson, & Laffel, 2007). MedFTs should encourage family-based visits in tertiary care settings, where multiple perspectives of the disease can be processed and a systemic treatment approach to help the patient can be constructed. With Joe and Alice, for example, Justin engaged the couple from the moment of referral so as to mitigate Joe's sense of isolation, increase Alice's involvement, and facilitate the couple's sense of "being in this together."

Although less research has examined clinical interventions for couples living with diabetes (i.e., adult unions wherein one partner has the disease), we know that the quality of relationships per se and the health of the respective partners that inhibit these relationships are highly correlated (Trief et al., 2011). Partners of patients with diabetes often experience stress in trying to support their loved one's efforts to effectively manage the disease while at the same time finding ways to attend to and/or increase the quality of the relationship itself (Revenson, Abraído-Lanza, Majerovitz, & Jordan, 2005; August, Rook, Franks, & Parris Stephens, 2013). Psychoeducational interventions for couples that target diabetes care can offer couples new coping skills and strategies in co-owning disease management and achieving better health-

related outcomes, and couples who demonstrate higher marital satisfaction and stronger tolerance for stress tend to evidence better health across both partners (Gilden, Hendryx, Clar, Casia, & Singh, 1992; Trief et al., 2003).

Community Approaches

The larger communities that patients and families reside within (e.g., neighborhood, faith, or cultural groups) represent a potentially powerful resource in diabetes management. Scholars and community members who have advanced projects informed by Community-based Participatory Research (CBPR) methods, for example, have evidenced considerable promise in improving the health of citizens and families alike (Hacker, 2013; Minkler & Wallerstein, 2011; Mendenhall, Doherty, Berge, Fauth, & Tremblay, 2013). In CBPR, all participants (e.g., primary care providers, MedFTs, patients, spouses) work together as collaborators across every stage of intervention design, implementation, and evaluation. This is different than conventional top-down, hierarchical methods of care wherein patients and families function in relatively passive roles (i.e., as recipients of services). Instead, everyone works together in the context of flattened hierarchies, with each contributing expertise to a larger mosaic of understanding. Research has demonstrated strong support for CBPR with American Indians (Mendenhall et al., 2010, 2012; Mendenhall et al., 2015) and other minority groups (Horwitz et al., 2009).

Community education and support groups also serve as a valuable opportunity for individuals seeking interpersonal connections and encouragement in managing diabetes. Patients at any stage of the disease can benefit from increased social support and knowledge from others with similar life circumstances. Research across a broad range of formats has evidenced support for these initiatives (e.g., Collinsworth, Vulimiri, Schmidt, & Snead, 2013; Philis-Tsimikas et al., 2004; Ramachandran et al., 2006; Venditti & Kramer, 2012). As Justin's work with Joe and Alice continues, for example, connecting them to others who share in similar struggles (and successes) could go a long way in terms of accessing support. Joe could gain from the wisdom of other patients like him who have figured out ways to stick with dietary or exercise regimens. Alice could learn from other spouses about the different ways to cope with stress while still working to support her husband. Both of them could share similar wisdom to others down the road.

Conclusion

The visibility of Endocrinology—and the integrated behavioral healthcare teams within this medical specialty—is growing. As more individuals continue to be diagnosed with all types of diabetes, for example, MedFTs' contributions to care models that attend holistically to patients' and families' well-being will grow in synchrony. MedFTs offer services (and perspectives) that address a number of underlying

psychosocial features of endocrine disorders, alongside ways for patients and families to coordinate care with other professionals as they learn how to cope with (and effectively manage) these illnesses. As we do this, our team-based approaches in tertiary care will serve to connect the disciplinary dots between care provides who—when working together—offer a culmination of care that is more than the sum of its parts (Cavanaugh, White, & Rothman, 2007; Coleman, Austin, Brach, & Wagner, 2009).

Reflection Questions

1. As a MedFT working in an Endocrinology clinic, are you practicing what you preach? Can you, with integrity, engage patients and families toward a healthy lifestyle (e.g., good diet, regular physical activity) unless you are "walking the walk" as well?
2. What ethnic and/or cultural considerations are important for you to think about when working with patients and families who live with endocrine disorders? How might core tenets of some patients'/families' culture(s) influence decision-making in relation to seeking care and treatment options for endocrine-based health conditions?
3. After reading this chapter, what areas of care do you need to learn more about and/or increase skill within in order to provider better care?

Glossary of Important Terms in Endocrinology and Diabetes Care

A1c A laboratory test that shows the average amount of glucose in a patient's blood. This is usually measured every 3–6 months.

Blood glucose The principal sugar found in the blood; it serves as a key source of energy.

Diabetic ketoacidosis A serious condition in which very high blood glucose levels are detected, along with a severe deficiency of insulin in the body. This results in a breakdown of body fat for energy and accumulation of ketones in the blood (making it acidic). This condition can lead to diabetic coma or even death.

Glycemic index A rank order of foods based on the food's effect on one's blood glucose levels.

Impaired fasting glucose (IFG) A condition in which a patient's fasting blood glucose level is consistently elevated above what is considered normal. This is often called "prediabetes," insofar as blood sugar levels are high (100–125 mg/dL) but not yet high enough to indicate a diabetes diagnosis.

Insulin A peptide hormone produced in the pancreas; it regulates the metabolism of carbohydrates and fats by promoting glucose absorption from the blood to skeletal muscles and fat tissue and/or by enabling fat to be stored (rather than used for energy).

Lantus A common prescription medication approved to treat Type 1 or Type 2 diabetes; it acts as a long-acting form of insulin that is not human-made.

Metabolic syndrome Refers to several conditions that raise a patient's risk for heart disease, diabetes, and/or stroke. Said conditions include obesity, diabetes, prediabetes, hypertension, and/or high lipid levels.

Metformin An oral medicine that is used for Type 2 diabetes; it reduces the amount of glucose produced by the liver and helps the body respond better to insulin.

Additional Resources

Literature

Barnard, K., & Lloyd, C. (2012). *Psychology and diabetes care: A practical guide*. New York, NY: Springer.

Becker, G., & Goldfine, A. (2015). *The first year: Type 2 diabetes: An essential guide for the newly diagnosed*. Boston, MA: Da Capo Press.

Codario, R. (2011). *Type 2 diabetes, pre-diabetes and the metabolic syndrome*. New York, NY: Springer.

Hawthorne, G. (Ed.). (2011). *Diabetes care for the older patient: A practical handbook*. New York, NY: Springer Science & Business Media.

Hieronymous, L., & Geil, P. (2006). *101 tips for raising health kids with diabetes*. Alexandria, VA: American Diabetes Association.

Obrosova, I., Stevens, M., & Yorek, M. (2014). *Studies in diabetes*. New York, NY: Springer Science & Business Media.

Unger, J. (2013). *Diabetes management in primary care*. New York, NY: Lippincott Williams & Wilkins.

Measures/Instruments

Audit of Diabetes-Dependent Quality of Life. http://academicdepartments.musc.edu/family_medicine/rcmar/addqol.htm

CDC Pre-Diabetes Screening Test. http://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf

Diabetes Self-Management Questionnaire. http://www.ketteringhealth.org/diabetes/pdf/questionnaireKett.pdf

Diabetes Health Profile. http://www.diabetesprofile.com/63/133/dhp-18

Diabetes Quality of Life Measure. http://apntoolkit.mcmaster.ca/index.php?option=com_content&view=article&id=270:diabetes-quality-of-life-dqol-questionnaire&Itemid=62

Dyadic Coping Inventory. http://www.academia.edu/12572622/Dyadic_Coping_Inventory_DCI

Questionnaire on Stress in Diabetic Patients-Revised. http://academicdepartments.musc.edu/family_medicine/rcmar/qsdr.htm

Organizations/Associations

American Association of Diabetes Educators. www.diabeteseducator.org
American Diabetes Association. www.diabetes.org
Collaborative Family Healthcare Association. www.cfha.net
International Diabetes Federation. www.idf.org
Juvenile Diabetes Research Foundation. www.jdrf.org

References[1]

Accardi, G., Caruso, C., Colonna-Romano, G., Camarda, C., Monastero, R., & Candore, G. (2012). Can Alzheimer disease be a form of type 3 diabetes? *Rejuvenation Research*, *15*, 217–221. https://doi.org/10.1089/rej.2011.1289

American Association of Diabetes Educators. (2015). Cultural considerations in diabetes education. *AADE Practice Synopsis*, July Issue. Retrieved from https://www.diabeteseducator.org/docs/default-source/default-document-library/cultural-considerations-in-diabetes-management.pdf?sfvrsn=0

*American Diabetes Association. (2016). *Diabetes basics*. Retrieved from http://www.diabetes.org/diabetes-basics/statistics/

American Psychological Association. (2016). *Patient Health Questionnaire* (PHQ-9 & PHQ-2). Retrieved from http://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/patient-health.aspx

Anderson, B. J., Brackett, J., Ho, J., & Laffel, L. M. (1999). An office-based intervention to maintain parent-adolescent teamwork in diabetes management: Impact on parent involvement, family conflict, and subsequent glycemic control. *Diabetes Care*, *22*, 713–721. https://doi.org/10.2337/diacare.22.5.713

Anderson, R. J., Freedland, K. E., Clouse, R. E., & Lustman, P. J. (2001). The prevalence of comorbid depression in adults with diabetes a meta-analysis. *Diabetes Care*, *24*, 1069–1078. https://doi.org/10.2337/diacare.24.6.1069

*August, K. J., Rook, K. S., Franks, M. M., & Parris Stephens, M. A. (2013). Spouses' involvement in their partners' diabetes management: Associations with spouse stress and perceived marital quality. *Journal of Family Psychology, 27*, 712–721. https://doi.org/10.1037/a0034181.

*Barnard, K., & Lloyd, C. (2012). *Psychology and diabetes care: A practical guide*. New York, NY: Springer.

*Becker, G., & Goldfine, A. (2015). *The first year: Type 2 diabetes: An essential guide for the newly diagnosed*. Boston, MA: Da Capo Press.

Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems, & Health*, *21*, 121–133. https://doi.org/10.1037/1091-7527.21.2.121

[1] Note: References that are prefaced with an asterisk are recommended readings.

Bradley, C. (2013). *Handbook of psychology and diabetes: A guide to psychological measurement in diabetes research and practice*. New York, NY: Routledge.

Cavanaugh, K. L., White, R. O., & Rothman, R. L. (2007). Exploring disease management programs for diabetes mellitus. *Disease Management & Health Outcomes*, *15*, 73–81. https://doi.org/10.2165/00115677-200715020-00002

Centers for Disease Control and Prevention. (2014). *National diabetes statistics report*. Retrieved from http://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html

Channon, S., Smith, V. J., & Gregory, J. W. (2003). A pilot study of motivational interviewing in adolescents with diabetes. *Archives of Disease in Childhood*, *88*, 680–683. https://doi.org/10.1136/adc.88.8.680

Cheung, N. W. (2009). The management of gestational diabetes. *Vascular Health and Risk Management*, *5*, 153–164. https://doi.org/10.2147/vhrm.s3405

Cogan, F. (2008). The honeymoon period in type 1 diabetes. *Health Central*, December Issue. Retrieved from http://www.healthcentral.com/diabetes/c/651280/50845/honeymoon-period/

Coleman, K., Austin, B., Brach, C., & Wagner, E. (2009). Evidence on the chronic care model in the new millennium. *Health Affairs*, *28*, 75–85. https://doi.org/10.1377/hlthaff.28.1.75

*Collinsworth, A. W., Vulimiri, M., Schmidt, K. L., & Snead, C. A. (2013). Effectiveness of a community health worker-led diabetes self-management education program and implications for CHW involvement in care coordination strategies. *Diabetes Educator, 39*, 792–799. https://doi.org/10.1177/0145721713504470.

Cook, C., Seifert, K., Hull, B., Hovan, M., Charles, J., Miller-Cage, V., … Littman, S. (2009). Inpatient to outpatient transfer of diabetes care: Planning for an effective hospital discharge. *Endocrine Practice*, *15*, 263–269. https://doi.org/10.4158/ep.15.3.263

Counihan, C., & Van Esterik, P. (2012). *Food and culture* (3rd ed.). New York, NY: Routledge.

Coustan, D. R. (2007). Pharmacological management of gestational diabetes: An overview. *Diabetes Care*, *30*(Suppl. 2), S206–S208. https://doi.org/10.2337/dc07-s217

de la Monte, S. M. (2012). Contributions of brain insulin resistance and deficiency in amyloid-elated neurodegeneration in Alzheimer's disease. *Drugs*, *72*, 49–66. https://doi.org/10.2165/11597760-000000000-00000

Delamater, A., Jacobson, A., Anderson, B., Cox, D., Fisher, L., Lustman, P., Rubin, R., & Wysocki, T. (2001). Psychosocial therapies in diabetes: Report of the psychosocial therapies working group. *Diabetes Care, 24*, 1286–1292. https://doi.org/10.2337/diacare.24.7.1286

Doherty, W., McDaniel, S., & Baird, M. (1996). *Five levels of primary care/behavioral healthcare collaboration*. Behavioral HealthCare Tomorrow, Oct, 25–28. Retrieved from http://www1.genesishealth.com/pdf/mh_reynolds_resource_dohertybaird_051110.pdf

Egede, L. E., Zheng, D., & Simpson, K. (2002). Comorbid depression is associated with increased health care use and expenditures in individuals with diabetes. *Diabetes Care*, *25*, 464–470. https://doi.org/10.2337/diacare.25.3.464

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, *196*, 129–136. https://doi.org/10.1126/science.847460

Engel, G. L. (1980). The clinical application of the biopsychosocial model. *American Journal of Psychiatry*, *137*, 535–544. https://doi.org/10.1176/ajp.137.5.535

Fisher, L., Hessler, D. M., Polonsky, W. H., & Mullan, J. (2012). When is diabetes distress clinically meaningful? Establishing cut points for the Diabetes Distress Scale. *Diabetes Care*, *35*, 259–264. https://doi.org/10.2337/dc11-1572

Foraida, M. I., DeVita, M. A., Braithwaite, R. S., Stuart, S. A., Brooks, M. M., & Simmons, R. L. (2003). Improving the utilization of medical crisis teams (Condition C) at an urban tertiary care hospital. *Journal of Critical Care*, *18*, 87–94. https://doi.org/10.1053/jcrc.2003.50002

Garber, A., Abrahamson, M., Barzilay, J., Blonde, L., Bloomgarden, Z., Bush, M., … Grunberger, G. (2013). AACE comprehensive diabetes management algorithm. *Endocrine Practice*, *19*, 327–336. Retrieved from http://www.goodsamim.com/ resprog/internalmedicine/files/diabetes/AACE_2013_glycemic-control-algorithm[1].pdf

Gilden, J. L., Hendryx, M. S., Clar, S., Casia, C., & Singh, S. P. (1992). Diabetes support groups improve health care of older diabetic patients. *Journal of the American Geriatrics Society*, *40*, 147–150. https://doi.org/10.1111/j.1532-5415.1992.tb01935.x

Goodman, H. M. (2010). *Basic medical endocrinology*. Boston, MA: Academic Press.

Grone, O., & Barcia-Barbero, M. (2001). Integrated care. *Journal of Integrated Care, 1*, 1–15. https://doi.org/10.5334/ijic.28

Groop, P. H., Thomas, M. C., Moran, J. L., Waden, J., Thorn, L. M., Makinen, V. P., … Forsblom, C. (2009). The presence and severity of chronic kidney disease predicts all-cause mortality in type 1 diabetes. *Diabetes*, *58*, 1651–1658. https://doi.org/10.2337/db08-1543

Gulabani, M., John, M., & Isaac, R. (2009). Knowledge of diabetes, its treatment and complications amongst diabetic patients in a tertiary care hospital. *Indian Journal of Community Medicine, 33*, 204–206. https://doi.org/10.4103/0970-0218.42068

Hacker, K. (2013). *Community-based participatory research*. Thousand Oaks, CA: Sage.

Hamdy, O., Goebel-Fabbri, A., Carver, C., Arathuzik, G., Shahar, J., Capelson, R., … Mentzelopoulos, V. (2008). Why WAIT program: A novel model for diabetes weight management in routine clinical practice. *Obesity Management*, *4*, 176–183. https://doi.org/10.1089/obe.2008.0206

*Hawthorne, G. (Ed.). (2011). *Diabetes care for the older patient: A practical handbook*. New York, NY: Springer.

Heisler, M. (2007). *Diabetes prevention and management: The challenge of cultural differences*. Medscape Diabetes & Endocrinology, July Issue. Retrieved from http://www.medscape.org/viewarticle/540922

*Hieronymous, L., & Geil, P. (2006). *101 tips for raising health kids with diabetes*. Alexandria, VA: American Diabetes Association.

Hodgson, J., Lamson, A., Mendenhall, T., & Tyndall, L. (2014). Introduction to medical family therapy: Advanced applications. In J. Hodgson, A. Lamson, T. Mendenhall, and D. Crane (Eds.), *Medical family therapy: Advanced applications* (pp. 1–9). New York, NY: Springer.

Holt, R. I. G., Peveler, R. C., & Byrne, C. D. (2004). Schizophrenia, the metabolic syndrome and diabetes. *Diabetic Medicine*, *21*, 515–523. https://doi.org/10.1111/j.1464-5491.2004.01199.x

Hood, K. K., Butler, D. A., Anderson, B. J., & Laffel, L. M. (2007). Updated and revised Diabetes Family Conflict Scale. *Diabetes Care*, *30*, 1764–1769. https://doi.org/10.2337/dc06-2358

Horwitz, C., Robinson, M., & Seifer, S. (2009). Community-based participatory research from the margins to the mainstream: Are researchers prepared? *Circulation, 119*, 2633–2642. https://doi.org/10.1161/CIRCULATIONAHA.107.729863

Inzucchi, S. E., Bergenstal, R. M., Buse, J. B., Diamant, M., Ferrannini, E., Nauck, M., … Matthews, D. R. (2012). Management of hyperglycaemia in type 2 diabetes: A patient-centered approach. *Diabetologia*, *55*, 1577–1596. https://doi.org/10.1007/s00125-012-2534-0

Jefferies, H., & Chan, K. K. (2004). Multidisciplinary team working: Is it both holistic and effective? *International Journal of Gynecological Cancer*, *14*, 210–211. https://doi.org/10.1111/j.1048-891X.2004.014201.x

Katon, W. J., Simon, G., Russo, J., Von Korff, M., Lin, E. H., Ludman, E., … Bush, T. (2004). Quality of depression care in a population-based sample of patients with diabetes and major depression. *Medical Care*, *42*, 1222–1229. https://doi.org/10.1097/00005650-200412000-00009

Laffel, L. M., Connell, A., Vangsness, L., Goebel-Fabbri, A., Mansfield, A., & Anderson, B. J. (2003). General quality of life in youth with type 1 diabetes: Relationship to patient management and diabetes-specific family conflict. *Diabetes Care*, *26*, 3067–3073. https://doi.org/10.2337/diacare.26.11.3067

Liau, K. H., Aung, K. T., Chua, N., Ho, C. K., Chan, C. Y., Kow, A., … Chia, S. J. (2010). Outcome of a strategy to reduce surgical site infection in a tertiary-care hospital. *Surgical Infections*, *11*, 151–159. Retrieved from http://online.liebertpub.com/doi/abs/10.1089/sur.2008.081

Lavin, N. (2012). *Manual of endocrinology and metabolism*. Baltimore, MD: Lippincott Williams & Wilkins.

Levetan, C. S., Salas, J. R., Wilets, I. F., & Zumoff, B. (1995). Impact of endocrine and diabetes team consultation on hospital length of stay for patients with diabetes. *American Journal of Medicine*, *99*, 22–28. https://doi.org/10.1016/S0002-9343(99)80100-4

Löwe, B., Wahl, I., Rose, M., Spitzer, C., Glaesmer, H., Wingenfeld, K., … Brähler, E. (2010). A 4-item measure of depression and anxiety: Validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *Journal of Affective Disorders*, *122*, 86–95. https://doi.org/10.1016/j.jad.2009.06.019

Melmed, S., Polonsky, K. S., Larsen, P. R., & Kronenberg, H. M. (2015). *Williams textbook of endocrinology*. Philadelphia, PA: Elsevier Health Sciences.

Mendenhall, T. J., Berge, J. M., Harper, P., GreenCrow, B., LittleWalker, N., WhiteEagle, S., & BrownOwl, S. (2010). The Family Education Diabetes Series (FEDS): Community-based participatory research with a Midwestern American Indian community. *Nursing Inquiry*, *17*, 359–372. https://doi.org/10.1111/j.1440-1800.2010.00508.x

*Mendenhall, T., Doherty, W., Berge, J., Fauth, J., & Tremblay, G. (2013). Community-based participatory research: Advancing integrated health care through novel partnerships. In M. Talen and A. Valeras (Eds.), *Integrated behavioral health in primary care: Evaluating the evidence, identifying the essentials* (pp. 99–130). New York, NY: Springer.

Mendenhall, T., Gagner, N., & Hunt, Q. (2015). A call to engage youth in health research. *Families, Systems, & Health*, *33*, 410–412. https://doi.org/10.1037/fsh0000163

Mendenhall, T. J., Seal, K. L., GreenCrow, B. A., LittleWalker, K. N., & BrownOwl, S. A. (2012). The Family Education Diabetes Series: Improving health in an urban-dwelling American Indian community. *Qualitative Health Research*, *22*, 1524–1534. https://doi.org/10.1177/1049732312457469

Miller, W. R., & Rollnick, S. (2012). *Motivational interviewing: Helping people change*. New York, NY: Guilford Press.

Minkler, M., & Wallerstein, N. (Eds.). (2011). *Community-based participatory research for health: From process to outcomes*. New York, NY: John Wiley & Sons.

Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., … Von Kohorn, I. (2012). *Core principles & values of effective team-based health care*. Washington, DC: Institute of Medicine.

Mullen, D., & Funderburk, J. (2013). Implementing clinical interventions in integrated behavioral health settings: Best practices and essential elements. In M. Talen and A. Valeras (Eds.), *Integrated behavioral health in primary care* (pp. 273–298). London, England: Springer.

Nam, S., Chesla, C., Stotts, N. A., Kroon, L., & Janson, S. L. (2011). Barriers to diabetes management: Patient and provider factors. *Diabetes Research and Clinical Practice*, *93*, 1–9. https://doi.org/10.1016/j.diabres.2011.02.002

National Adrenal Disease Foundation (2016). *Adrenal diseases*. Retrieved from http://www.nadf.us/adrenal-diseases

Nelson, R. J. (2005). *An introduction to behavioral endocrinology* (3rd ed.). Sunderland, MA: Sinauer Associates.

*Obrosova, I., Stevens, M., & Yorek, M. (2014). *Studies in diabetes*. New York, NY: Springer.

Oud, M. J., & Meyboom-de Jong, B. (2009). Somatic diseases in patients with schizophrenia in general practice: Their prevalence and health care. *BMC Family Practice*, *10*, 1–9. https://doi.org/10.1186/1471-2296-10-32

Patterson, C. C., Dahlquist, G. F., Harjutsalo, V., Joner, G., Feltbower, R. G., Svensson, J., … Rosenbauer, J. (2007). Early mortality in EURODIAB population-based cohorts of type 1 diabetes diagnosed in childhood since 1989. *Diabetologia*, *50*, 2439–2442. https://doi.org/10.1007/s00125-007-0824-8

Peek, C. J. (2008). Planning care in the clinical, operational, and financial worlds. In R. Kessler and D. Stafford (Eds.), *Collaborative Medicine Case Studies* (pp. 25–38). New York, NY: Springer. https://doi.org/10.1007/978-0-387-76894-6_3

Peyrot, M., Rubin, R. R., Lauritzen, T., Snoek, F. J., Matthews, D. R., & Skovlund, S. E. (2005). Psychosocial problems and barriers to improved diabetes management: Results of the Cross

National Diabetes Attitudes, Wishes and Needs (DAWN) study. *Diabetic Medicine*, *22*, 1379–1385. https://doi.org/10.1111/j.1464-5491.2005.01644.x

Philis-Tsimikas, A., Walker, C., Rivard, L., Talavera, G., Reimann, J. O., Salmon, M., & Araujo, R. (2004). Improvement in diabetes care of underinsured patients enrolled in Project Dulce: A community-based, culturally appropriate, nurse case management and peer education diabetes care model. *Diabetes Care*, *27*, 110–115. https://doi.org/10.2337/diacare.27.1.110

Raile, K., Galler, A., Hofer, S., Herbst, A., Dunstheimer, D., Busch, P., & Holl, R. W. (2007). Diabetic nephropathy in 27,805 children, adolescents, and adults with type 1 diabetes: Effect of diabetes duration, A1C, hypertension, dyslipidemia, diabetes onset, and sex. *Diabetes Care*, *30*, 2523–2528. https://doi.org/10.2337/dc07-0282

Ramachandran, A., Snehalatha, C., Mary, S., Mukesh, B., Bhaskar, A. D., & Vijay, V. (2006). The Indian Diabetes Prevention Programme shows that lifestyle modification and metformin prevent type 2 diabetes in Asian Indian subjects with impaired glucose tolerance (IDPP-1). *Diabetologia*, *49*, 289–297. https://doi.org/10.1007/s00125-005-0097-z

*Rajasekharan, D., Kulkarni, V., Unnikrishnan, B., Kumar, N., Holla, R., & Thapar, R. (2015). Self-care activities among patients with diabetes attending a tertiary care hospital in Mangalore Karnataka, India. *Annals of Medical and Health Sciences Research, 5*(1), 59–64. https://doi.org/10.4103/2141-9248.149791.

Revenson, T. A., Abraído-Lanza, A. F., Majerovitz, S. D., & Jordan, C. (2005). Couples coping with chronic illness: What's gender got to do with it? In T. Revenson, K. Kayser, and G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 137–156). Washington, DC: American Psychological Association.

Rivera, E. J., Goldin, A., Fulmer, N., Tavares, R., Wands, J. R., & de la Monte, S. M. (2005). Insulin and insulin-like growth factor expression and function deteriorate with progression of Alzheimer's disease: Link to brain reductions in acetylcholine. *Journal of Alzheimer's Disease*, *8*, 247–268. https://doi.org/10.3233/JAD-2005-8304

Rubak, S., Sandbaek, A., Lauritzen, T., & Christensen, B. (2005). Motivational interviewing: A systematic review and meta-analysis. *British Journal of General Practice*, *55*, 305–312. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1463134/

Savage, M. W., Mah, P. M., Weetman, A. P., & Newell-Price, J. (2004). Endocrine emergencies. *Postgraduate Medical Journal*, *80*(947), 506–515. https://doi.org/10.1136/pgmj.2003.013474

Seal, K., Blum, M., Didericksen, K., Mendenhall, T., Gagner, N., GreenCrow, B., . . . Benton, K. (2016). The East Metro American Indian Diabetes Initiative: Engaging indigenous men in the reclaiming of health and spirituality through community-based participatory research. *Health Education Research & Development, 4*, 1–8. https://doi.org/10.4172/2380-5439.1000152

Seid, M., Sobo, E. J., Gelhard, L. R., & Varni, J. W. (2004). Parents' reports of barriers to care for children with special health care needs: Development and validation of the barriers to care questionnaire. *Ambulatory Pediatrics*, *4*, 323–331. https://doi.org/10.1367/a03-198r.1

Sonino, N. (2008). The need for rehabilitation teams in endocrinology. *Expert Review of Endocrinology & Metabolism*, *3*, 291–293. https://doi.org/10.1586/17446651.3.3.291

Steen, E., Terry, B. M., J Rivera, E., Cannon, J. L., Neely, T. R., Tavares, R., … de la Monte, S. M. (2005). Impaired insulin and insulin-like growth factor expression and signaling mechanisms in Alzheimer's disease–is this type 3 diabetes? *Journal of Alzheimer's Disease*, *7*, 63–80. https://doi.org/10.3233/JAD-2005-7107

Stone, M. A., Wilkinson, J. C., Charpentier, G., Clochard, N., Grassi, G., Lindblad, U., et al. (2010). Evaluation and comparison of guidelines for the management of people with type 2 diabetes from eight European countries. *Diabetes Research and Clinical Practice*, *87*, 252–260. https://doi.org/10.1016/j.diabres.2009.10.020

Suzanne, M., & Wands, J. R. (2008). Alzheimer's disease is type 3 diabetes: Evidence reviewed. *Journal of Diabetes Science and Technology*, *2*, 1101–1113. https://doi.org/10.1177/193229680800200619

Talen, M., & Valeras, A. (2013). *Integrated behavioral health in primary care*. New York, NY: Springer.

Trief, P. M., Sandberg, J., Greenberg, R. P., Graff, K., Castronova, N., Yoon, M., & Weinstock, R. S. (2003). Describing support: A qualitative study of couples living with diabetes. *Families, Systems, & Health*, *21*, 57–67. https://doi.org/10.1037/h0089502

Trief, P., Sandberg, J. G., Ploutz-Snyder, R., Brittain, R., Cibula, D., Scales, K., & Weinstock, R. S. (2011). Promoting couples collaboration in type 2 diabetes: The diabetes support project pilot data. *Families, Systems, & Health*, *29*, 253–261. https://doi.org/10.1037/a0024564

Tyndall, L. E., Hodgson, J. L., Lamson, A. L., White, M., & Knight, S. M. (2012). Medical family therapy: Charting a course in competencies. *Contemporary Family Therapy*, *34*, 171–186. https://doi.org/10.1007/s10591-012-9191-9

*Unger, J. (2013). *Diabetes management in primary care*. New York, NY: Lippincott Williams & Wilkins.

*Venditti, E. M., & Kramer, M. K. (2012). Necessary components for lifestyle modification interventions to reduce diabetes risk. *Current Diabetes Reports, 12*, 138–146. https://doi.org/10.1007/s11892-012-0256-9.

Verlato, G., Muggeo, M., Bonora, E., Corbellini, M., Bressan, F., & de Marco, R. (1996). Attending the diabetes center is associated with increased 5-year survival probability of diabetic patients: The Verona Diabetes Study. *Diabetes Care*, *19*, 211-213. https://doi.org/10.2337/diacare.19.3.211

West, D., DiLillo, V., Gore, S., & Greene, P. (2007). Motivational interviewing improves weight loss in women with type 2 diabetes. *Diabetes Care, 30*, 108101087. https://doi.org/10.2337/dc06-1966

Willens, D., Cripps, R., Wilson, A., Wolff, K., & Rothman, R. (2011). Interdisciplinary team care for diabetic patients by primary care physicians, advanced practice nurses, and clinical pharmacists. *Clinical Diabetes*, *29*, 60–68. https://doi.org/10.2337/diaclin.29.2.60

Wright, L. M., Watson, W. L., & Bell, J. M. (1996). *Beliefs: The heart of healing in families and illness*. New York, NY: Basic Books.

Wrobel, J. S., Charns, M. P., Diehr, P., Robbins, J. M., Reiber, G. E., Bonacker, K. M., … Pogach, L. (2003). The relationship between provider coordination and diabetes-related foot outcomes. *Diabetes Care*, *26*, 3042–3047. https://doi.org/10.2337/diacare.26.11.3042

Wysocki, T., Harris, M. A., Greco, P., Bubb, J., Danda, C. E., Harvey, L. M., … White, N. H. (2000). Randomized, controlled trial of behavior therapy for families of adolescents with insulin-dependent diabetes mellitus. *Journal of Pediatric Psychology*, *25*, 23–33. https://doi.org/10.1093/jpepsy/25.1.23

Wysocki, T., Nansel, T. R., Holmbeck, G. N., Chen, R., Laffel, L., Anderson, B. J., & Weissberg-Benchell, J. (2008). Collaborative involvement of primary and secondary caregivers: Associations with youths' diabetes outcomes. *Journal of Pediatric Psychology*, *34*, 869–881. https://doi.org/10.1093/jpepsy/jsn13