

Addressing the Issues of Health Equity and Disability in Diabetes Care

By **Monica F. Nogueira Cordeiro, MD**, and **Alyson K. Myers, MD**

INTRODUCTION

Almost 12% of the US population, or around 38.4 million people, have diabetes, with higher rates among those with lower socioeconomic status or lower levels of education.¹ The financial burden of diabetes in 2022 was \$412.9 billion dollars, 74% of which was due to direct medical costs. Approximately 1 in 4 health care dollars is spent on diabetes alone.² Medications for comorbid conditions and inpatient admissions due to diabetes are the largest drivers of direct medical costs.² Use of inpatient diabetes teams has been associated with a decreased rate of 30-day hospital readmission and length of hospital stay, and lower hospital costs,^{3,4} but such teams are not readily available at all inpatient facilities. Access to such services is only one example of health inequity in diabetes care. There are numerous other disparities in diabetes care including prescribing differences, access to care inequities, health insurance variations (eg, Medicaid vs commercial insurance), and myriad other social determinants of health (eg, low health literacy) that can impact diabetes care. The goals of this paper are to define health equity, describe examples of health inequity, and describe solutions that case managers can use when caring for people with diabetes.

HEALTH EQUITY

According to the Centers for Disease Control and Prevention (CDC), health equity is achieved when every person can “attain his or her full health potential,” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.” [The American Diabetes Association \(ADA\) Health Equity Now Bill](#) outlines certain rights shown in Box 1.

Equity for people with diabetes is created and maintained by clinicians, health systems, and community, and fractures in such systems lead to inequity.⁵ The root cause of this fractured system is the social determinants of health (SDOH) that disallow patients to be on the same playing field.⁶ In addition, clinicians need cultural competence to address these SDOH⁶ because diabetes affects Black, Hispanic, and Indigenous patients at higher rates than White patients.¹

HEALTH BARRIERS

SDOH have proven to be more important than medical treatment in determining longer life expectancy.⁷ Some of the SDOH that need to be assessed in diabetes management include, but are not

BOX 1 RIGHTS OF PEOPLE WITH DIABETES

- The right to access insulin and other drugs affordably
- The right to healthy food
- The right to health insurance that covers diabetes management and future cures
- The right not to face stigma or discrimination
- The right to avoid preventable amputations
- The right to participate in clinical trials without fear
- The right to stop prediabetes from becoming diabetes
- The right to build an environment that does not put you at greater risk for getting diabetes
- The right to the latest medical advances
- The right to have your voice heard

limited to, health illiteracy and innumeracy, lack of transportation, food and housing insecurity, lack of access to technology, cultural beliefs and practices, and medication costs. Additional obstacles such as language and vision/hearing loss affect diabetes care, and clinician/staff bias should also be considered.

Health Illiteracy and Innumeracy

Health illiteracy is often a major hindrance to achieving optimal health care, and there is a strong relationship between health illiteracy and health care outcomes.⁷ Health literacy lies on a spectrum.

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There are numerous other disparities in diabetes care including prescribing differences, access to care inequities, health insurance variations (eg, Medicaid vs commercial insurance), and myriad other social determinants of health (eg, low health literacy) that that can impact diabetes care.

In some instances, people may have a good foundation of health literacy but experience challenges around people (ie, clinicians) or places they consider intimidating. Some of the fundamentals of health literacy involve reading and writing as well as numerical and comprehension skills needed to obtain and understand medical information to drive decision making. Numeracy involves both having mathematical skills and being able to understand mathematical information. Mathematical skills include understanding numerical measurements and units of measurement (eg, nutrition information involving serving sizes), comprehending glucose trends, and understanding health determinant risk factors for disease.^{8,9} To successfully self-manage diet, exercise, medications, and insulin doses, patients must have basic health literacy and numeracy skills. Patients who are on insulin often need to count carbohydrates and take into consideration their variable glucose levels to calculate a bolus or titrate insulin.

Hearing/Visual Impairment

There are about 3.8 million people in the US who live with both visual impairment and diabetes. Visual impairment has been shown to decrease a patient's ability to self-manage their diabetes.¹⁰ The issues that arise with visual impairment are three-fold: lack of access to nonvisual diabetes information, limited diabetes testing choices (eg, a talking meter), and poor understanding by health care clinicians of the needs of this patient population.¹¹ Hearing loss is more common in people with diabetes than in those without diabetes; it also has a significant negative impact on a patient's ability to manage their diabetes.¹² Patients who are unable to effectively communicate with their health care clinicians are less likely to learn about diabetes, including how to properly manage it.

Language

A major consequence of clinician-patient language discordance is miscommunication, which leads to patients having less understanding of their diagnosis, prognosis, and treatment.¹³ In addition, they have limited access to services, thereby leading to reduced quality of care and decreased satisfaction for both clinicians and patients.¹³ For groups who have not assimilated into American culture, these language barriers may even be greater because there are limited resources printed in their language.¹³ One study demonstrated that limited English proficiency was independently associated with feelings of receiving suboptimal care, and especially so, when interacting with clinicians who did not speak their language.¹⁴ Correcting

for this can improve diabetes control, as evidenced by Parker and coauthors who demonstrated that switching to a Spanish-speaking primary care provider among Latino populations with limited English proficiency improved glycemic control by 10% and decreased poor control by 4%.¹⁵ Requiring an interpreter also leads to disparities in glycemic and lipid control.¹⁶

Cultural Competency

Bridging language barriers is important as is recognizing cultural barriers. Some cultures, including Hispanic, Western Pacific, Chinese, South Asian, and Middle Eastern cultures, emphasize the role of family in medical care and dietary habits. In many of these cultures, diabetic dietary limitations may lead to social and cultural isolation because meals are often prepared for the whole family or for celebrations.¹⁵ In some Chinese populations, emphasis has been placed on balanced food (eg, rice and vegetables or rice and protein), and these families may see dietary limitations as something that is impeding this balance.¹⁷ Traditional Hispanic cuisine among Mexicans, Puerto Ricans, and Dominicans includes staples such as rice, beans, and tortillas; patients with diabetes are many times unaware of alternative options they might enjoy.¹⁷ Additionally, some groups such as migrant workers see health care clinicians as sole decision-makers for their health, and thus they may be intimidated to question the clinicians, who they feel are superior.¹⁸

Social Factors

Housing, transportation, and food insecurities are often overlooked causes of poor care for diabetes. Transportation access is an important barrier to care because it can affect a patient's ability to arrive at their appointments on time or at all. It has been shown that patients without transportation often miss appointments.¹⁹ In other instances, patients may not have access to healthy food options or a refrigerator, either because of limited finances or because they live in regions that lack healthy food choices. Interestingly, a longitudinal study of people with diabetes found that uncertain access to food (food insecurity), as opposed to living in areas without healthy food (food deserts), was associated with poorer glycemic control.²⁰ Unfortunately, homelessness or temporary housing (ie, shelters or motels) is another factor that must be considered when caring for people with diabetes. Patients may not prioritize their medications or be able to store them safely (eg, insulin requires refrigeration). Lack of access to care and health insurance are two important barriers for people with diabetes who are homeless.²¹

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Prescribing Practices: Medications and Diabetes Technology

Having health insurance allows patients to have access to more medication options, but all insurances are not created equal. Non-White patients are more likely to have insurance with higher deductibles or premiums, which leads to higher out-of-pocket costs.²¹ In a study of Medicare Advantage and commercial insurance recipients, newer agents such as sodium-glucose cotransporter-2 (SGLT-2) inhibitors and glucagon-like peptide-1 (GLP-1) agonists were more likely to be prescribed to White individuals and those with commercial insurance and higher incomes.²² High costs of insulin may also lead patients with diabetes to ration their insulin. Insulin prices vary depending on the type prescribed: premixed insulin and insulin in a vial/syringe, which is the least expensive.²³ Most recently, the out-of-pocket cost for insulin covered under Part B and Part D of Medicare was capped at \$35 per month, a major step for insulin affordability.²⁴

Insurance type also affects access to diabetes technology such as insulin pumps or continuous glucose monitors (CGMs), but insurance companies are not only to blame; clinician communication and bias about who can manage a pump or a CGM have also been implicated.²⁵ There is a clear difference seen in the rates of diabetes technology use across racial and insurance types. In a study by Agarwal and colleagues of patients with type 1 diabetes, White patients were more likely to use both an insulin pump or a CGM compared with Hispanic or Black patients.²⁶ White participants also had higher income, higher rates of health insurance, and more education. Improving access to technology (eg, CGM data sharing) can further balance the discrepancies in health care, leading to better outcomes.²⁷

STEPS TO TAKE TO OVERCOME BARRIERS

All these barriers contribute to poor glycemic control and poor health outcomes in people with diabetes. Diabetes is one of the leading causes of end-stage kidney disease, blindness, and lower limb amputations in the US.²⁸ As a result, it is important to work in multidisciplinary teams to mitigate some of the barriers to good diabetes care.

Diabetes Education

Patient education traditionally was done on an inpatient basis, but because of insurance reimbursement changes it has shifted to an outpatient basis. This does not preclude providers from ensuring that

patients with diabetes are educated in the hospital setting and on discharge. This can be done by first understanding a patient's level of health literacy and learning style (ie, visual vs auditory). Providers, nurses, and case managers can work together to ensure that a patient knows the purpose of their medications and how to take them. One of the available methods that has been proven beneficial is the "teach-back" method: providers explain what is important in a manner that the patient understands and confirms understanding by having them repeat with their own words what was just explained. When there are language and literacy barriers or limitations because of hearing or visual impairment, it is important to provide information that patients will be able to understand. Language and sign language interpreters are extremely useful in relaying information, especially if they have an understanding of cultural nuances.¹⁷ It may also be appropriate to involve family members who may be caregivers or food preparers in these discussions.¹⁷ In other instances, digital translation tools such as Google Translate can further assist patients once they leave the hospital, and introducing them to these technologies while they are an inpatient can benefit them in their home.¹ In the case of visual impairment, it is important to provide resources in audio form for future references (eg, recordings).⁹ Additionally, certain diabetes supplies are equipped to help visually impaired patients. There are blood glucose meters that read finger sticks out loud. If patients are unable to read or have poor health literacy, pictograms, illustrated text, or spoken animations can be beneficial.⁸

Teaching patients about insulin, which is crucial for patients leaving the hospital, is often overlooked. If case managers are also trained as nurses, they can be instrumental in teaching patients about the different types of insulin as well as how to inject and store it. Although some patients have previously received insulin, they may not be injecting it correctly or using the needle tip that is best for them.²⁹ In a study of 20 Black and Hispanic inpatients who had received insulin, most patients made errors in their insulin pen technique, most commonly not priming the pen or shortening the dwell time of the needle.³⁰ However, sometimes patients' fears and limitations can interfere with teaching and following through with therapy, also known as *psychological insulin resistance*. Common causes for psychological insulin resistance are fears of insulin permanence or restrictiveness, concerns about hypoglycemia, or feelings of failure.^{31,32} Addressing these issues may ameliorate the issue. Alternatively, case managers can work with the patient's caregivers as they may be able to give the patient insulin. For people with diabetes who have a

In situations where medications can be obtained via prior authorizations, case managers can work with pharmacists to help get approval.

needle phobia as a barrier, there are pen needles where the pen needle cap prevents the patient from seeing the needle.

Insurance Coverage

The cost of medications and affordability are two factors that need to be considered when devising a treatment plan for people with diabetes. An insurance company may not cover a medication, or they may cover a different medication within the same class. In situations where medications can be obtained via prior authorizations, case managers can work with pharmacists to help get approval.³⁶ In the hospital setting, the health care team can complete these prior authorizations before discharge, thereby streamlining the process and helping patients obtain medications they need.³⁵ In certain outpatient settings, case managers are an integral part of the process of completing prior authorizations.³⁴ In a similar vein, case managers can work with insurance companies to determine if their patients qualify for a CGM or insulin pump. The Centers for Medicare & Medicaid Services (CMS) covers a CGM for people with diabetes who use one or more insulin injections a day, have frequent hypoglycemia, and require medication adjustments based on blood sugar testing.³⁵ Although Medicare plans adhere to these guidelines, Medicaid plans in many cases are more stringent in their coverage criteria. Case managers may be able to identify appropriate patients and suggest CGM use to clinicians. A CGM can be obtained from select pharmacies or a durable medical equipment company, depending on the insurance coverage.³⁶ Similarly, case managers can suggest that patients discuss insulin pump technology further with their outpatient clinicians because patients are required to complete outpatient visits and diabetes education to qualify for an insulin pump. In addition, the patient must have positive antibodies, or they must demonstrate that they no longer make insulin as noted by an undetectable C-peptide level. Additionally, CMS requires that patients have been on an insulin pump before enrollment in Medicare or be taking at least one shot of insulin per day, have documented frequency of glucose self-testing an average of at least four times per day, and have one or more of the following³⁷:

- Glycosylated hemoglobin level >7%
- History of recurrent hypoglycemia
- Wide fluctuations in blood glucose before mealtime
- Dawn phenomenon with fasting blood sugars frequently exceeding 200 mg/dL
- OR
- A history of severe glycemic excursions

Transitions of Care

Finally, case managers can discuss and plan with the patient and family the care, treatment, and services that are needed upon discharge. This includes working with the primary care team to establish a process to resume held medications or transition the patient to a new medication regimen and provide the patient with or prescribe the necessary durable medical equipment, supplies, and medications to avoid any gap in care and treatment.³⁸

CONCLUSION

Understanding the importance of health care barriers and their overall impact on diabetes care is crucial.

Different facets of SDOH (ie, low health literacy, language, or low income) have been implicated in the inequities of diabetes care. These barriers can be reduced by using the teach-back method, language interpreters, and illustrations; by involving family members as appropriate; by evaluating medication costs; by obtaining prior authorizations; and by confirming outpatient follow-up. Addressing these issues while people with diabetes are hospitalized can hopefully prevent further hospitalizations and patient and societal burdens.

Overall, case managers play a vital role in the safe discharge of a patient and in the long-term care of people with diabetes. ■

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Questions

- Disparities in diabetes care include which of the following?**
 - Prescribing differences
 - Access to care
 - Health insurance variations
 - All of the above
- Health equity is achieved when every person has the opportunity to attain their full health potential, and no one is disadvantaged from achieving their potential because of social position or other socially determined circumstance.**
 - True
 - False
- Equity for people with diabetes is created and maintained by which of the following?**
 - Clinicians
 - Health systems
 - Communities
 - All of the above
- Social determinants of health (SDOH) are more important than medical treatment in terms of longer life expectancy.**
 - True
 - False
- SDOH, which need to be assessed in diabetic management, include which of the following?**
 - Food insecurity
 - Access to technology
 - Transportation
 - All of the above
- Fundamentals of health literacy include which of the following?**
 - Reading
 - Comprehension
 - Numeracy
 - All of the above
- Visual impairment in the US has shown to decrease a patient's ability to self-manage diabetes.**
 - True
 - False
- Issues for vision-impaired individuals include which of the following?**
 - Lack of access to nonvisual diabetes information
 - Limited diabetes testing choices
 - Poor understanding by health care clinicians of the needs of this patient population
 - All of the above
- From which nationalities does dietary culture play an important role for patients with diabetes?**
 - Mexican
 - Chinese
 - Middle Eastern
 - All of the above
- The best choice in overcoming language disparities is for the provider to speak the language of the patient.**
 - True
 - False
- Components of psychological insulin resistance include which of the following?**
 - Concerns about hypoglycemia
 - Feelings of failure
 - Insulin permanence of restrictiveness
 - All of the above
- Strategies to overcome health literacy may include which of the following?**
 - Pictograms
 - Illustrated texts
 - Spoken animations
 - All of the above
- With an understanding of the disparities in diabetes care, the case manager can help patients receive the equity in diabetes care they deserve.**
 - True
 - False

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Addressing the Issues of Health Equity and Disability in Diabetes Care

Objectives

1. Define health equity.
2. State four examples of health inequity.
3. State four solutions for health inequalities that case managers can implement.

Answers

Please indicate your answer by filling in the letter:

1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____

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