

Cultural Considerations in Diabetes Management

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After participating in this activity, participants should be able to:

1. Define cultural sensitivity and list strategies for cultural competence in pharmacy practice.
2. Describe the diverse cultures that are represented in the Middle East.
3. Identify potential barriers that influence diabetes management in Middle Eastern, American Indian, and Hispanic cultures.
4. Identify strategies employed by pharmacists to improve diabetes care and outcomes for patients from the Middle East and American Indian and Hispanic culture.

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DIABETES IN THE UNITED STATES

Diabetes is a chronic disease in which the body is unable to properly utilize the insulin it produces or unable to produce insulin. Consequently, when blood glucose levels are high, the patient is referred to as being hyperglycemic. Prolonged blood glucose elevation can lead to more devastating micro- and macrovascular complications, including retinopathy, neuropathy, nephropathy, and cardiovascular disease. The onset of these complications can lower the quality of life and increase the costs of managing diabetes complications over time.

In the United States, 29.1 million people have diabetes, and 86 million are living with prediabetes. Diabetes is the seventh leading cause of death in America and accounts for more than 20 percent of health care spending. This disease disproportionately affects ethnic minorities. In some communities, type 2 diabetes affects up to 50 percent of the adult population over 35 years old. The American Diabetes Association (ADA) has established high risk ethnicity (African American, Native American, Hispanic/Latino, and Asian American) as one of 10 independent risk factors that should not only trigger diabetes screening in overweight patients under 45, but should also identify minority patients as high priority for screening at all ages. Particularly, there are significant differences in the diabetes occurrence rate among Arab, Hispanic, and Native American populations.

CULTURAL COMPETENCE IN PHARMACY PRACTICE

Cultural diversity in the U.S. is growing. As members of the health care team, pharmacists have the responsibility to care for individuals with different cultural backgrounds. Pharmacists can closely monitor patients, manage medication therapy and adverse effects, prevent drug interactions, and provide counseling on new and current medications. To provide optimal care, pharmacists must demonstrate cultural sensitivity toward a diverse patient population. A culturally sensitive pharmacist will deliver health information based on the patients' ethnic and cultural norms as they take into consideration their values and social beliefs. A patient-centered approach is achieved when the pharmacist is able to overcome social and linguistic barriers. Gaining a better understanding of the individual allows the pharmacist to establish a better patient-provider relationship. A better rapport can lead to improved communication about a patient's current state of health and medication regimen. A culturally competent pharmacist expands his or her cultural knowledge and uses resources to try to meet patient needs.

Cultural competence is a learnable skill, which allows a practitioner to provide care for the patient's social, cultural, and linguistic needs. Additionally, it is defined as being a set of congruent behaviors, attitudes, and policies, collec-

tively creating a system among professionals that enables effective practice in cross-cultural situations. It is important for pharmacists to familiarize themselves with the cross-cultural barriers that serve as the major limitations for effective communication between the pharmacist and patient. These barriers are broken down into eight categories featured in Table 1. The ability to identify these barriers is imperative, as it will allow pharmacists to choose the proper method to overcome them.

Table 1. Cross Cultural Barriers

- Lack of knowledge
- Fear and distrust
- Stereotyping
- Assumed similarity
- Nonverbal communication
- Authority
- Physical touch/contact
- Verbal languages and styles

Language differences are a significant communication barrier. A valuable tool in helping the pharmacist become an active listener and avoid misinterpretation is by using language interpreters. Professional interpreters can help overcome miscommunication created by limited English proficiency. They can also assist in preventing retrieval of distorted information from family and friends, and eliminate direct violation of patients' confidentiality.

Several models proposed to help health care professionals overcome cross-cultural barriers and facilitate communication and interaction are listed in Table 2. These models each have a unique approach to engaging patients in conversation about their health and cultural lifestyle in managing their disease. The ESFT model can be used to enhance cross-cultural communication. It addresses the patients' social and ethnic values, and seeks a rationale for personal health care choices. The ETHNIC model can be used to engage patients in conversation about their illness and treatment methods, including folk healers. Another effective model is LEARN, which emphasizes listening to the patient with empathy and understanding. Additionally, it is critical that the negotiation process occurs with a patient-centered approach in which the pharmacist and patient are both sharing ideas. This model allows pharmacists to build trust, open communication, and negotiate treatment with patients. Pharmacists working with a diverse patient population can apply these tools to promote cultural competent care.

After establishing better communication, pharmacists can begin to discuss and establish patient-specific goals as part

Table 2. Culturally Competent Care Models

ESFT	Ethnic	Learn	Explanatory Model of Illness
<ul style="list-style-type: none"> • Explanation • Social • Factors (environmental factors, fears, concerns) • Therapeutic (therapeutic contracting and playback) 	<ul style="list-style-type: none"> • Explanation • Treatment • Healers • Negotiate • Intervention agreement • Collaboration 	<ul style="list-style-type: none"> • Listen • Explain • Acknowledge • Recommend treatment(s) • Negotiate treatment 	<ul style="list-style-type: none"> • What do you call your illness? • What name does it have? • What do you think has caused the illness? • Why and when did it start? • What do you think the illness does? How does it work? • How severe is it? Will it have a short or long course? • What kind of treatment do you think you should receive? What results do you hope to achieve from it? • What are the chief problems the illness has caused? • What do you fear most about the illness?

of diabetes self-management education, which provides the patient with knowledge and skills to perform self-care behaviors and make lifestyle changes. Another useful tool for pharmacists is utilizing the Explanatory Model of Illness, comprised of eight questions to assess the patient's perspective of illness and to improve patient disease state awareness and application of self-monitoring practices. As such, a culturally competent pharmacist may reduce disparities in health outcomes for patients with diabetes.

DIABETES IN THE MIDDLE EASTERN PATIENT

Diabetes is a worldwide epidemic that is noticeably high among individuals living in the Middle East. The World Health Organization ranks the Middle East as being second in the world with a 9.3 percent prevalence of diabetes. Prevalence rates are projected to double over the next two decades. Within the 20 countries that make up the Middle East, nearly 20.5 million people are living with diabetes, and another 13.7 million are in the pre-diabetes stage, having impaired glucose tolerance (IGT). Almost three quarters of these individuals with diabetes are under 60 and in their peak productive years, making diabetes a heavy burden in the region.

Arabic-speaking people residing in the Middle East, a region extending from the Atlantic coast including North Africa to the Arabian Gulf, identify themselves as Arab. The Arab classification is largely based on the ability to communicate in the common Arabic language. Arabs are heterogeneous with respect to dialects and religious beliefs. Since the Middle East is historically known as the birthplace of the world's three monotheistic religions, within the region there are Christians, Jews, and Muslims. The Middle East is also comprised of other ethnolinguistic groups, including Israelis in the west, Persians in the east, and the Turkish

in the north. Although they do not all share a common language, there is a basic geographic, historic, cultural, political, and economic unity across the core region.

Cultural Considerations for the Middle Eastern Patient

Pharmacists can begin to overcome the cross-cultural barriers listed in Table 1 through the models described earlier. However, a general understanding of the beliefs and practices unique to a culture can help the pharmacist provide patient-centered, culturally competent care. The following section will discuss some of the risk factors, beliefs, and practices among Middle Eastern patients that can influence diabetes care and will provide strategies for the pharmacist to integrate this knowledge into their patient care delivery.

Obesity as a Risk Factor for Diabetes

Culturally, food is an important part of Middle Eastern identity and society. Large gatherings with meals consisting of rice and meats are often shared as an act of generosity and demonstrate hospitality to guests. However, in the last 20 years, the rising occurrence of obesity-linked type 2 diabetes has made uncontrolled weight gain a major health issue. The increasing prevalence tends to parallel with increased industrial development and economic growth, which has improved the standard of living. This has led to drastic changes in nutrition, as Western-style fast food has proliferated in the region. The diet has shifted from consuming whole wheat bread, fish, dates, milk, fresh vegetables and fruits, to consuming foods rich in saturated fats and refined carbohydrates. Socioeconomic development has also led to a more sedentary lifestyle, a risk factor for type 2 diabetes and obesity, as a greater reliance has been placed on mechanization and the utilization of cheap migrant workers.

Pharmacists must remain sensitive to the cultural importance and social aspects of large meals in their conversations about meal planning and portion control. Pharmacists should also seek to understand the dietary habits of an individual patient. For example, one may be more accustomed to traditional Middle Eastern foods, whereas another patient may have adopted a more Western diet. With either case, the pharmacist can assist the patient in applying the principles of a healthy diet to his or her unique habits.

Factors Influencing Implementation of Diabetes Self-Care Behaviors

The ADA provides lifestyle recommendations for managing diabetes that include behaviors impacting many facets of life, from reducing weight and monitoring glucose levels, to foot care and regular medical visits, including a variety of specialists. Some of these behaviors may be inconsistent with the cultural norms. For example, walking barefooted, especially inside the house, is still a common practice for many patients from the Middle East. Due to the hot and dry weather, wearing sandals is a customary practice. Pharmacists providing diabetes care to this population should be aware of this to appropriately screen and counsel patients on appropriate foot care to prevent infection and other complications that can lead to foot ulcerations and amputations. Table 3 provides the recommendations for foot self-care. Middle Eastern patients who practice Islam can be encouraged to self-examine their feet daily during preparation and as part of washing up for the daily prayer.

Table 3. Recommendations for Foot Self-Care

- Daily foot inspection
- Washing feet with soap
- Applying lubricant to feet to keep hydrated and prevent cracking
- Cutting nails and clean under nails with proper instrument

Implementation of other self-care behaviors can be difficult, as some do not acknowledge having the condition. These patients may believe the condition is the result of God's test or punishment and may consider having diabetes to be shameful, especially unmarried women who fear it will cause them infertility, or men who fear acquiring sexual dysfunction. Thus, upon diagnosis, some may not take the proper steps for treatment or make lifestyle modifications. Pharmacists can help patients develop personalized strategies to address psychosocial issues and concerns to promote proactive health and behavioral changes.

Traditional Medicines

Despite the progress of modern medicine, the use of herbal medicine for treatment of diabetes is a practiced in the Mid-

dle East. As with other cultures, some patients lack faith in modern medicine and would rather try traditional medicine such as using oily foods or bitter vegetables to restore health. Plant use for medicinal purposes is common among Arab Muslims, Christians, and Israeli Jews. Both historically and today, the eastern region of the Mediterranean is distinguished for its abundance of natural medicinal herbs, with more than 2,600 plant species used medicinally. Arab practitioners use a series of plants to manage the symptoms of increased thirst, fatigue, and urination experienced by people with diabetes. *Juglans regia*, *Olea Europea*, *Atriplex halimus*, and *Urtica dioica* are often recommended as antidiabetic plants. A mixture of the four plants has been combined and made commercially available as "Glucoselevel." Studies suggest the plants in this product work synergistically to regulate glucose homeostasis. The most common plants used for diabetes are gum Arabic and fenugreek. Gum Arabic (*Acacia*) is used due to its recognized hypoglycemic and hypolipidemic effects.

Fenugreek is also well known for its traditional use as a hypoglycemic plant, with several studies confirming its effect on blood glucose in patients with diabetes. Both products can cause allergic reactions. Fenugreek may cause gastrointestinal upset, and acacia should be avoided in patients with asthma.

As natural formulations are widely available through the Internet and other sources, their utilization raises some fears and concerns for practitioners that question the quality, safety, and efficacy. The public perception that herbal products are safe and effective because they are "natural" has led to indiscriminate use and adverse effects as a result. In many cases, adverse effects were largely due to inappropriate formulations and lack of understanding of plant and drug interactions. Some herbal medicines and dietary supplements have adverse effects and in most severe cases can cause hepatotoxicity and nephrotoxicity. The reported toxicity of herbal formulations may be the result of several factors, including plant-derived compounds, contamination with pesticides, microbes, heavy metals or toxins, or adulterations with orthodox drugs. Despite regulation by national and international health authorities, in most countries in the Middle East some medications are unregulated and not standardized. Health care professionals, especially pharmacists, can increase public awareness and educate patients about the potential dangers of herbal preparations. Pharmacists can engage patients in discussions of the risks and benefits of natural medicines in a non-judgmental, empathic manner.

Dietary Considerations: Restricted Foods

A majority of Middle Easterners are Muslim who practice

Islam, a complete way of life in which the religion is not just for spiritual satisfaction. Their beliefs influence the way they wash, eat, and dress, along with their place in society. Shariah law is the Islamic legal system that establishes moral and religious law derived from the Quran. A major part of Shariah law is the concept of "halal," meaning lawful, and "haram," meaning prohibited. For example, halal often influences decisions related to the consumption of protein such as meat, poultry, and other products. "Haram" foods would be those containing pork or not prepared the halal way. Not all Muslims are mindful of keeping a halal diet, and consumption decisions are made based on individual belief. Similarly, in the Jewish faith, Kashrut law is implicated to set the standards for kosher. When taking these laws into consideration, certain medications are restricted due to inactive ingredients derived from these sources. Islam prohibits the consumption of swine and Judaism prohibits swine, shellfish, and other kinds of fish that do not have scales or a fin. Muslim patients may refuse medications containing gelatin, pork products, or alcohol. For example, capsule shells are sometimes made from gelatin which is extracted from the bone, skin, or connective tissue of many animals, primarily pigs, cattle, chicken, and fish.

Within Islamic law, alcohol is also forbidden, including medication formulations containing alcohol such as syrups and elixirs which may fall within the haram category. Pharmacists can assist Muslim patients in avoiding consumption of forbidden products by making them aware of haram ingredients. Drug package inserts or pharmaceutical manufacturers are often the first point of contact to find out if medicines contain porcine derivatives or if their ingredients are derived from halal or kosher sources. Pharmacists can also seek to understand an individual patient's preferences when designing a treatment regimen that takes these religious practices into consideration along with their allergies and concomitant medications. Sensitivity toward religious laws pertaining to consumption will increase the patient's trust in the provider and the likelihood of medication adherence.

Dietary Considerations: Fasting

Fasting is practiced in all of the monotheistic faiths in the Middle East. In the Jewish faith there are several fasting days and feasting times (such as Yom Kippur and Tishah B'av) that involve a complete 24 hours of food and drink abstinence. For some Christians, particularly orthodox traditions practiced in the Middle East, fasting or abstaining from certain foods can be practiced throughout the year, but particularly in the time before Easter. During this time people may not eat at all for 24 hours or will eat considerably less than normal. Ramadan is the holy month in which Muslims fast from sunrise to sunset. It occurs during

the ninth month, according to the lunar calendar. During this month, Muslims consume two meals daily. The first meal is after sunset, which marks the breaking of the fast known as iftar, and the second is before dawn, referred to as suhur. During the fasting time frame, they are to refrain from any oral intake including drinking fluids, consuming foods, or oral medications. This religious practice is not meant to create hardships on the individual, and the Quran specifically exempts people from fasting if they find it harmful, especially for those who are pregnant, elderly, or have medical conditions. Muslims are also exempt from the fast if they are traveling. Women are not required to fast during menstruation, for 40 days postpartum, or during lactation. However, many patients choose to engage in fasting despite this offered exemption. In particular, fasting is not recommended by the religious community for patients with diabetes, especially those with type 1 diabetes, poor glyce-mic control, or medication non-adherence. These patients are at higher risk of metabolic complications due to hyper or hypoglycemia and dehydration.

Pharmacists can play a vital role in assisting these patients with diabetes management strategies. They can perform a pre-Ramadan medical assessment, and provide patient education regarding meal planning, physical activity, and monitoring blood glucose. They can also familiarize patients with symptoms of acute complications. Appropriate dosing adjustments will be warranted as drug doses can only be taken between sunset and dawn. Dosing schedules for diabetes medications can be tailored so that patients can take oral medications in the evening or before dawn. Those using insulin will also need to modify their insulin injection times.

Oral and Noninsulin Medication Management During Fasting

Preferred diabetes medications during fasting are those that can provide sustained glucose control with low hypoglycemia risk. Metformin is the preferred treatment due to its low hypoglycemia risk and established role as a first line therapy in type 2 diabetes. Glucagon-like peptide 1 (GLP-1) receptor antagonists (such as exenatide and dulaglutide) reduce appetite during fasting with minimal hypoglycemia risk. While dipeptidyl peptidase 4 (DPP-IV) inhibitors have less HbA1c lowering capabilities, their glucose dependent increase in insulin release avoids hypoglycemia seen with the secretagogues. Thiazolidinediones (TZDs) are also likely a safer option. The sodium glucose transporter-2 (SGLT-2) inhibitors possess low hypoglycemic risk, but these agents have an increased risk of urinary infection and dehydration, which are a concern during prolonged fasting. Sulfonylureas should be used with caution due to hypoglycemia concerns during prolonged fasting.

Those on sulfonylureas who wish to fast should get a dose reduction or stop the medication before the start of Ramadan, depending on their level of glycemic control and risk for hypoglycemia. Secretagogues with a shorter duration, such as repaglinide, could be offered as an alternative to sulfonylureas if taken just prior to the meal. In general, it is recommended that insulin secretagogues should be avoided during Ramadan as they carry the highest risk of hypoglycemia as compared to other non-insulin agents.

Insulin Management During Fasting

Type 1 or type 2 diabetes patients on insulin who wish to fast will require adjustments to their insulin regimens. Most patients who wish to fast will require a modification of the basal insulin dosage and the use of pre-meal insulin to cover the iftar meal after breaking the fast. Table 5 provides recommendations for modifications of basal-bolus therapy and split mix therapy. The use of basal (glargine or detemir) and rapid acting insulin analogs (lispro, aspart, and glulisine) have been shown to be preferential to human insulin formulations (NPH and regular) during Ramadan by reducing hypoglycemia risk. The use of basal insulin analogs is of benefit, as they cover basal requirements without significant peaks and may result in less hypoglycemia. Ultra-long acting insulin degludec has not been studied in this population, but would also likely be preferred over NPH. Type 1 patients with diabetes with unstable control, who often experience frequent hypoglycemia, should not be encouraged to fast. They should be empathically reminded of the religious exemptions already set forth. Type 2 patients with diabetes who have stable control and

who wish to fast must be evaluated before Ramadan begins to be counseled on management strategies.

Diabetes experts recommend specific instructions for safe insulin use during Ramadan (Table 6). Beginning one month before the start of Ramadan, patients should visit their diabetes provider to plan their choice of insulin regimens and to make preparations prior to the fasting period. Additionally, they should discuss and plan the dietary intake for the month. Diabetes patients are encouraged to take a small snack three hours after iftar, followed by suhur just before sunrise. Patients are to avoid unaccustomed physical activity and exercise routines. Patients should monitor blood glucose regularly (perhaps more often than usual) and take symptoms suggestive of hypoglycemia seriously.

Often during Ramadan, Muslims question taking medications through various other administration routes, aside from oral, and question whether it is permissible. Contrary to widespread belief among Muslims that injection invalidates fast, patients should be instructed that insulin injections have no nutritional value and are allowed by Islamic law. Additionally, patients should be notified that pricking the finger for point-of-care testing does not break the fast and that glucose-monitoring devices help assess glucose control and recognize hypoglycemia during fasting. Patients with diabetes who fast should be trained to monitor their blood glucose, taught risks associated with severe hypoglycemia, and shown how to recognize and manage hypoglycemic episodes. Patients should be coun-

Table 4. Oral Antidiabetic Agents and Common Side Effects

Drug Classes (example drug names)	Hypoglycemia	Weight Gain	GI Side Effects
Biguanides (metformin)	–	+	+
α -glucosidase inhibitors (acarbose)	–	–	+
TZDs (pioglitazone)	–	+	–
DPP4 (sitagliptin, linagliptin, saxagliptin)	–	–	–
Sulfonylureas (glimepiride, glipizide, glyburide)	+	+	–
GLP1-RA (exenatide, liraglutide)	–	+	+
SGLT-2 (canagliflozin, dapagliflozin)	–	+	–
Glinides (repaglinide)	+	+	–

Table 5: Modification of Insulin Therapy During Ramadan

Bolus dose	Morning dose	Transfer full dose at iftar
	Evening dose	Transfer ½ dose at suhur
	Lunch dose	Omit the dose
Basal portion	If patient is on NPH	50% dose at suhur
	If patient is on basal analog	Same dose at bedtime
Split with 3 times short acting and NPH at dinner	Morning short acting	Transfer full dose at iftar
	Lunch short acting	Omit dose
	Dinner short acting	Transfer ½ dose at suhur
	Intermediate acting	Keep same dose at suhur

Table 6: Preventing and Treating Hypoglycemia During Ramadan

Prevention Recommendations	Signs of Hypoglycemia	Treatment Recommendations
<ul style="list-style-type: none"> • Blood Glucose Monitoring: Monitor glucose levels daily or several times a day. • Patients on insulin measure blood glucose before, during and after fasting (2-4 times a day) • Patients should consult with diabetes health care provider at least 1 month prior to Ramadan for evaluation and medication adjustments • Avoid skipping predawn meals • Avoid intense physical activity during the fasting period 	<ul style="list-style-type: none"> • Blood glucose levels fall below 70mg/dl (3.9mmol/l) • Symptoms to lookout for hunger, shakiness, nervousness, sweating, dizziness, light-headedness, sleepiness, confusion, difficulty speaking, anxiety, weakness 	<ul style="list-style-type: none"> • Half cup of apple or orange juice • Half a cup of regular sweetened soda • One cup of milk • 5-6 pieces of hard candy • One tablespoon of sugar or honey • 3-4 glucose tablets • One serving of glucose gel

selected on how to properly break the fast in the presence of hypoglycemia.

DIABETES IN THE HISPANIC PATIENT

Hispanics account for about 15 percent of the country's population and are considered the fastest growing minority group in the United States. Diabetes ranks as the third and fourth leading causes of death in Hispanic females males. Mexican Americans tend to be diagnosed with diabetes at younger ages and exhibit higher fasting glucose levels, decreased insulin sensitivity, and more severe forms of diabetes complications. The development of diabetes-related complications is related to glycemic control. Glycosylated hemoglobin (HbA1c) levels are consistently higher in Hispanic Americans, and they have higher rates of many diabetes complications such as retinopathy, neuropathy,

and lower leg amputations than do non-Hispanic whites. Poorer outcomes and glycemic control has been attributed to language barriers, inadequate access to care, lack of insurance coverage, low socioeconomic status, quality of care factors, self-care behaviors, and biological differences.

CULTURAL CONSIDERATIONS FOR THE HISPANIC PATIENT

Lifestyle self-management and medical treatment resulting in tight glucose control have been shown to delay the onset of or reduce diabetes complications by 50-70 percent. For Mexican Americans, the largest Hispanic subgroup, achieving glucose control has been even more difficult because individuals are more likely to rely on family and "curanderos" folk healers for health advice. They may lack transportation to health care facilities, become isolated from mainstream culture, consider family

needs as more important than their own personal needs, and experience language differences with health care workers.

The language barrier is an ongoing problem that may prevent Hispanic patients from being able to communicate effectively with health care providers. The cultural and language differences between Hispanic patients and non-Hispanic medical providers may instill a feeling of fear, mistrust, and a lack of respect for the patient. This can create a barrier causing the patient to be less likely to follow advice for treatment and lifestyle modifications. If the patient is non-English speaking and, as a result, unable to understand prescribing instructions, the patient may not behave as expected and be labeled as "non-adherent." This misinterpretation results in escalation to insulin therapy earlier than when compared to other cultures.

When examining the Hispanic population with diabetes, a correlation exists between the disease prevalence and assimilating into the U.S. mainstream culture. Acculturation is defined as when immigrants adopt the attitudes, values, customs, beliefs, and behaviors of a different culture. Hispanic Americans who have adapted to the American lifestyle of consuming a large amount of calories and low physical activity have higher obesity and metabolic syndrome incidence rates. Dietary patterns across Latinos can vary by subgroup. Studies have found that Mexican American children and Puerto Rican women likely consume soft and artificial drinks more frequently than their less-aculturated counterparts.

Hispanic cuisine features staple foods that include beans, rice, and tortillas, all of which are high in carbohydrates, which can increase blood sugar and be detrimental to those with diabetes. Additionally, most of the dishes are prepared with unhealthy fat and salt. These dietary habits are high in calories, fat, and sodium, all of which can contribute to risk of obesity, diabetes, and hypertension. Those persons with diabetes or prediabetes can control caloric and carbohydrate intake by preparing nutritious yet authentic and flavorful food. The ADA recommends the following dietary changes for Latino cuisine.

SUGGESTIONS FOR HEALTHIER HISPANIC/LATINO CUISINE

- Use the plate method (half plate of non-starchy vegetables, quarter plate lean protein, and quarter plate starchy beans or rice).
- Choose dishes including fresh seafood, lean poultry, and beans as a protein source.
- Make fresh salsa or black bean dip instead of using guacamole.
- Measure out serving size when eating tortilla chips to decrease carbohydrates and whole wheat tortilla.
- Use brown rice in place of white rice.
- Use healthier cooking methods like grilling, baking,

steaming or broiling, instead of frying foods.

- Use dried beans when possible; they are lower in sodium than canned beans.

Along with diet and physical inactivity, there are several other factors causing disparities in health care for this specific population. Higher rates of diabetes are observed in patients of lower socioeconomic classes and lower education levels. Cultural barriers are another obstacle that plays a major role in the current health disparities that exists among this ethnic group. Due to traditional family values, many Hispanics can neglect their own medical needs when putting the needs of their family members first. Sometimes this may delay seeking necessary treatment. Furthermore, Hispanics may prefer traditional medicine and natural remedies over professional medical advice. For this reason, there is a lack of treatment and glucose monitoring, leading to a greater prevalence of diabetes and its complications among this Hispanic American group.

A number of studies have examined cultural health beliefs of Hispanic patients, including their use of herbs and folk healing. One study found that a majority of patients were using traditional folk remedies in conjunction with their western prescribed medications, with some admitting they relied on traditional medicine because of their fear of needing insulin injections, to avoid their fear of needles. Some patients may avoid insulin due to a misconception that insulin causes blindness. This misconception may result from communities where insulin therapy is not available until patients are in much later stages of diabetes when complications are prevalent. Participants also shared that they relied on their family, friends, and neighbors for advice instead of consulting their physicians. As in other cultures, perceptions of safety of herbal remedies may prevent patients from reporting the use of "natural" treatments to their medical providers.

One particular species used by Hispanic populations, the *Opuntia streptacantha lemaire*, has been shown to have hypoglycemic effects. This plant in the cactus family, commonly known as "Nopal," is believed to have better medicinal properties when prepared and consumed as a shake. It is essential that when working with Hispanic patients, health care providers assess the patient of herbal substance use to get an inclusive list of their medications to avoid drug interactions and potential side effects.

DIABETES IN THE AMERICAN INDIAN PATIENT

Diabetes also has a devastating impact in the first nation of people to inhabit North America. These people are commonly identified as American Indian, Alaska Native, Native American or Indigenous interchangeably. This population is commonly grouped as the American Indian and Alaska

Natives (AIAN) who maintain tribal affiliation or community attachment. There is great diversity among the different tribes in culture, language, beliefs, spirituality, and geographic location. Views on health, illness, and healing may differ among each tribe. The AIAN population experiences the highest health inequities of any group within the United States.

Diabetes is prevalent in the nearly 60 percent of the 3.3 million American Indians living in the United States. The prevalence of diabetes is higher among the AIAN population than any other major racial or ethnic group (as much as 60 percent) and it continues to increase. The Department of Health and Human Services Office of Minority Health has gathered data showing that AIAN are 2.4 times as likely as white adults to be diagnosed with diabetes, and 2.7 times more likely to be diagnosed with end-stage renal disease than non-Hispanic whites. The Pima Indians of Arizona have the highest rates of diabetes in the world, with more than 50 percent having type 2 diabetes.

CULTURAL CONSIDERATIONS FOR THE AMERICAN INDIAN PATIENT

The high rates of diabetes in this population are multifactorial, but recent evidence suggests that environmental and behavioral factors may play a greater role than genetics. The National Center for Health Statistics reported that of the adults who had been diagnosed with diabetes, nearly 70 percent of them were obese. The high obesity rates are partly due to a shift away from traditional cuisine toward excess caloric consumption. Foods traditionally eaten in the pre-reservation era included wild buffalo, elk, rabbit, fish, vegetables, and berries (such as smooth carrion flower). While large feasts were consumed with every celebration of a birth, marriage, or in the presence of visitors, the traditional dietary patterns have shifted to modern foods, which tend to be highly processed and are higher in saturated fat, sodium, added sugars, and dietary cholesterol.

These consumption habits are highly influenced by limited finances, lack of transportation, and access to grocery stores. Marketplace options can be limited in small reservation communities to convenience stores that carry a large selection of snack foods, sodas, and other nutrient-poor foods. The modern diet may also be influenced by ready access to cheap fast food that is high in calories but lack adequate fiber and vitamins.

Several studies were conducted to examine the benefits of the traditional diet. A short-term study closely looked at the Pima Indians, who primarily reside in Mexico and Arizona. Study results found that returning to the traditional diet was associated with improvements in metabolic abnormalities, specifically serum glucose, insulin levels, cholesterol, and triglycerides. Pima Indians who practiced a traditional diet had a lower prevalence

of obesity and type 2 diabetes. Tribal programs have been developed to improve food consumption patterns. Such programs include the Northern Plains buffalo hunt exchange among tribes, the Bemidji wild rice gatherers, and the Southwest native seeds project. Participation in these programs encourages American Natives to revert back to the traditional diet in avoidance of adverse metabolic consequences due to modern eating habits.

As mentioned earlier, different tribes have considerably different beliefs about diabetes (Table 7). When providing care for an American Indian, pharmacists should be aware of any tribal beliefs about origins of diabetes that may affect their acceptance of treatment. For an example, the Navajo Indians live a life of balance between their physical, spiritual, and emotional attributes and they believe diabetes was brought about from an outside influence such as Europeans. The Dakota Indians believe that diabetes occurs because of a loss of traditions and the change of the dietary habits. Some examples of other tribal beliefs are listed below.

Table 7: Common Beliefs About Diabetes by Native American Tribe

Dakota	Diabetes occurs due to a deviation from the traditional ways and diet.
Iroquois-speaking Seneca	Diabetes is an aggressive attack on Indians that is conscious and malevolent.
Ojibway (Canadian)	Diabetes results from the disruption of the tribal way of life and contamination of the environment and food supply by "white man."
Navajo	Diabetes is due to an outside influence (white people) causing an imbalance physically, emotionally, and spiritually.
Northern Utes	Diabetes is caused by evil witchcraft or a breach of tribal taboos.
Southwest American Indian youth (four tribes)	Diabetes is contagious or it happens to weak people.
Other Plains Tribes	Diabetes is a consequence of the loss of traditional way, or breaking a spirit-imposed taboo.

* Table adapted from McLaughlin S. *Traditions and diabetes prevention: A healthy path for Native Americans. Diabetes Spectrum. 2010;23(4):272–277. doi:10.2337/diaspect.23.4.272.*

Each tribe has a different attitude toward the use of biomedical health care providers and services offered by traditional healers. A study screened 2,595 randomly selected American Indians who were between the ages 15-57 and presently living on or near a reservation in the southwest or northern Plains. The findings of the study showed that those with a higher level of education were more likely to use biomedical services. It also found that those with a greater American Indian identity were more likely to utilize traditional medicine, and the northern Plains Indians tended to use biomedical services more frequently in comparison to the southwest tribes.

Community pharmacists practicing in geographic areas where American Indians reside should be familiar with the Indian Health Service Division of Diabetes and the preventative program called the Special Diabetes Program for Indians (SDPI). SDPI is a federally funded community-directed program that aims to evaluate and use a practice-based approach to promote diabetes and cardiovascular disease prevention among American Indians. The curriculum provides education in individual coaching and community activities and has improved outcomes related to weight loss, blood glucose and blood pressure measurement, and lipids. The program has also seen a decrease in tobacco use and increased levels of physical activity. The SDPI promotes traditional food, community gardening, and the use of traditional practices to increase diabetes awareness and knowledge. Traditional storytelling and talking circles were used for centuries to teach the culture and traditions of tribes and can now be used for health education and promotion. Storytelling is a valued native tradition that enables younger generations to maintain tribal history and native languages. Talking circles are also a common ancient practice utilized by tribes to construct collective decision making. In areas where SDPI programs are not available, community pharmacists may want to employ the strategies used by the SDPI in the development of diabetes education programs for American Indians.

Through education programs, health care providers are encouraged to work with lay health educators or tribal leaders to assist in advocating to the community about healthier practices such as medication adherence and obtaining recommended immunizations. A diabetes care provider can benefit from communicating with a tribe representative to help the pharmacist understand their traditional beliefs about the origins of diabetes. An individual's perception about diabetes will considerably affect how, why, and if a native diabetes patient will seek treatment. Tribal leaders who engage with their communities will achieve success in promoting lifestyle choices in accordance with diabetes treatment and prevention guidelines.

CONCLUSIONS

Many of the barriers patients with diabetes face can be overcome through diabetes self-management education and appropriate pharmacotherapy. With the United States becoming more culturally and ethnically diverse, culturally competent pharmacists are needed to provide effective communication and disease state management. Culturally competent pharmacists that provide tailored diabetes education while addressing the spiritual, cultural, lifestyle and educational needs of Middle Eastern, Hispanic, and Native American patients with diabetes have the potential to improve their health-related outcomes. Education programs should be culturally appropriate by accounting for the cultural values and religious belief as well as educational level, literacy level, language, nutritional patterns, and socioeconomic status.

It is important that the education program is designed to accommodate their literacy level and is available in Spanish or Arabic. Cultural competence is a continual learning process that requires on-going education about culture specific disease states and evidence-based intervention and applicable clinical practices. ■

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Editor's Note: For the list of references used in this article, please contact *America's Pharmacist* Managing Editor Chris Linville at 703-838-2680, or at chris.linville@ncpanet.org.

Continuing Education Quiz

Select the correct answer.

1. FL is a pharmacist who practices in a community pharmacy in a culturally diverse urban area. FL is concerned that his patients with diabetes who do not speak English as their primary language may not be receiving the same level of patient counseling and disease state management as his English-speaking patients. Which one of the following strategies would be most effective in overcoming language as a potential barrier to providing culturally competent care?

- Promote English as a second language (ESL) classes in the local community.
- Encourage patients to bring English-speaking friends as interpreters to the pharmacy.
- Use professional interpreters when counseling non-English speaking patients.
- Take a conversational Spanish course.

2. IM is a 54-year-old male who emigrated to the U.S. with his wife and two daughters from Iraq three years ago. IM was diagnosed with diabetes five years ago and also has a history of hypertension, dyslipidemia, obesity, and peripheral neuropathy. He currently takes the following prescription medications: metformin, insulin glargine, atorvastatin, losartan, amlodipine, and pregabalin. During a diabetes self-management education visit with his pharmacist, IM shares that he is discouraged by unsuccessful attempts at weight loss and would like to learn more about how he can better manage his diabetes through his diet. Which one of the following should IM's pharmacist avoid doing during the visit?

- Ask about how IM's cultural beliefs and values influence his food choices.
- Assume IM practices halal and provide him with lists of accepted foods.
- Use active listening skills while IM shares his concerns.
- Assist IM in adapting principles from the ADA to his dietary preferences.

3. Which one of the following is a potential cultural barrier to IM meeting his weight loss goals?

- Fasting during Ramadan
- Large family gatherings
- Tribal influences
- Folk healers

4. If IM chooses to observe the fast during Ramadan, which of the following is the best recommendation for IM's pharmacist to provide in regard to IM's metformin therapy?

- Metformin can cause hypoglycemia and should be avoided during the fast.
- Metformin is the drug of choice and can be continued during the fast.
- Metformin should be substituted with repaglinide taken just before the meal.
- Metformin can be continued but at a reduced dose.

5. If IM chooses to observe the fast during Ramadan, which of the following is the best recommendation for IM's pharmacist to provide in regard to IM's insulin glargine therapy?

- Continue current dose at bedtime.
- Give one-half of the normal dose at iftar.
- Switch to insulin degludec.
- Switch to NPH insulin at bedtime.

6. IM returns several months later. His primary care provider is concerned that his glycemic control is not at goal and would like to add a third agent to his diabetes regimen. IM would prefer an add-on agent that he could safely use and not require adjustment during Ramadan. Which one of the following should IM's pharmacist recommend?

- Canagliflozin
- Glimepiride
- Insulin lispro
- Liraglutide

7. HF is a 60-year-old female from Qatar who was diagnosed with type 2 diabetes when she came to live in the U.S. about 14 years ago. HF also has hypertension and atrial fibrillation. She takes lisinopril, warfarin, metoprolol succinate, and metformin, and uses NPH insulin 25 units with breakfast and dinner, insulin lispro 12 units with breakfast and lunch, and 16 units at dinner. HF would like to use a more holistic approach to managing her diabetes and asks about natural supplements. Which one of the following products would be least likely to interfere with her current drug therapy?

- Fenugreek
- Olive
- Wormwood
- Mulberry

- 8.** HF plans to observe the fast this Ramadan and you are counseling her on how to manage her medications during this time. Which one of the following is most appropriate to recommend?
- HF will continue to inject her insulins at the same time she always does.
 - The timing of HF's insulin injections will change but her doses will stay the same.
 - HF will need to check her blood glucose more frequently.
 - HF should exercise more frequently during fasting to reduce her blood glucose.
- 9.** Which one of the following recommendations is most appropriate for HF's bolus insulin during Ramadan?
- Continue insulin lispro 12 units with breakfast and lunch, and 16 units at dinner.
 - Continue insulin lispro 12 units with breakfast, and 16 units at dinner. Omit lunch dose.
 - Inject insulin lispro six units at sunset and 12 units at sunrise.
 - Inject insulin lispro eight units at sunrise and 12 units at sunset
- 10.** Which one of the following recommendations is most appropriate for HF's basal insulin during Ramadan?
- Continue NPH insulin 25 units at breakfast and before bed.
 - Administer NPH insulin 50 units at sunrise.
 - Administer NPH insulin 25 units at sunset.
 - Switch to insulin glargine 40 units at bedtime.
- 11.** HF is concerned about hypoglycemia. Which of the following is/are an appropriate recommendation to treat hypoglycemia episodes?
- Half a cup of apple or orange juice
 - One cup of milk
 - One tablespoon of sugar or honey
 - A and C only
 - All of the above are appropriate.
- 12.** During fasting, HF reports new symptoms and she is not sure if they are due to hyper- or hypoglycemia. In addition to testing her blood sugar, which symptom would suggest the blood sugar is elevated?
- Shakiness
 - Weakness
 - Frequent urination
 - Dizziness
- 13.** MR is a 45-year-old Hispanic American female with a history of diabetes and hypertension. She has lived in the U.S. for 12 years in an urban area just a few blocks from a community health center, and she is uninsured. She has taken English as a second language classes and is able to speak and understand English. MR lives with her three children, husband, and mother-in-law. Her husband works two jobs in restaurants and is the sole earner in the household. She follows a traditional Mexican dietary pattern. Which of the following risk factors is likely to play a role in her achieving glycemic control?
- Language barriers
 - Inadequate access to care
 - Lack of insurance coverage
 - Acculturation
- 14.** As a member of MR's health care team, the pharmacist should be concerned with which screenings due to a higher risk of diabetes complications in MR compared to other non-Hispanic patients?
- Fasting lipid panel for coronary artery disease
 - Doppler studies to screen for peripheral artery disease
 - Urine microalbumin/creatinine to screen for nephropathy
 - Foot exams to screen for neuropathy and to prevent amputations
- 15.** As MR's community pharmacist you notice that she is overdue for refills on metformin and lisinopril. Which of one of the following cultural barriers is not likely to be a factor in MR's refill history?
- Hispanics are generally more noncompliant to medications compared to other cultures.
 - There may be a lack of trust between MR and her medical providers.
 - MR may place the needs of her family over those of her own.
 - MR may rely more on family for advice than her health care team.
- 16.** MR approaches her pharmacist for advice on dietary changes she can make to assist with weight loss and improved diabetes control. Which one of the following would be most appropriate to suggest?
- Substitute canned beans for dried beans to reduce carbohydrates.
 - Switch from tortillas to whole grain bread and pastas.
 - Use the plate method to limit portion sizes.
 - Substitute beans for vegetables and fruit.

17. LW is a 32-year-old Native American male from the Dakota tribe. LW lives with his family on a reservation and places a high value on his heritage and culture. LW is diagnosed with pre-diabetes and has scheduled an appointment with a local pharmacist to discuss prevention of progression to type 2 diabetes. Which one of the following is an example of LW's pharmacist demonstrating cultural sensitivity?

- a. Encourage LW to consider a more traditional diet as a return to tribal ways.
- b. Encourage LW to consider moving from the reservation to improve access to healthy foods.
- c. LW should avoid the approaches of traditional healers as they lack evidence for being effective.
- d. Prohibit involvement of family members in diabetes education visits due to HIPAA.

18. True or false: LW's risk of diabetes is primarily a result of genetic factors and not likely to be prevented?

- a. True
- b. False