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# Racial and Ethnic Disparities in Health Care



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## Introduction

Research indicates that racial and ethnic disparities exist within the current health care system. Research also indicates that minority populations, within the United States, are continuing to grow. Thus, it is increasingly important for health care professionals to possess insight into racial and ethnic disparities as well as the conditions and aspects of health care that are most affected by racial and ethnic disparities. This course provides health care professionals with insight into racial and ethnic disparities while reviewing conditions and aspects of health care that are most affected by racial and ethnic disparities. This course also explores methods to address the impact of racial and ethnic disparities among specific patient populations.

## Section 1: Racial and Ethnic Disparities

### *Case Study 1*

A 24-year-old, African American, first-time mother would like to continue breastfeeding her 4-month-old infant - however, she has a few concerns regarding breastfeeding. The new mother's concerns regarding breastfeeding center around her diet, breast milk storage, and breast enlargement. Unfortunately, the mother's residence is geographically isolated and she does not have access to health care-related support. The mother continues to breastfeed her infant, however her concerns and lack of access to health care-related support eventually cause her to stop breastfeeding and, ultimately, initiate formula. Shortly after stopping the breastfeeding process, and initiating formula as the infant's main source of nutrition, the new mother observes that her infant has become lethargic, often spits-up, and often forcibly vomits.

### *Case Study 2*

A 40-year-old Hispanic, obese male individual would like to lose weight. However, he is not sure how to go about losing weight in a healthy manner. The individual has tried to lose weight in the past but has been unsuccessful due to a lack of access to health care resources. The patient has many questions regarding how body mass index (BMI), waist circumference and physical activity apply to weight loss. The patient is eager to receive answers to his questions and lose weight, but he fears he will be unable to do so because of his lack of access to health care resources. Despondent by a lack of access to health care resources, the patient temporarily gives up on weight loss and continues to steadily gain weight.

The case studies presented above highlight individuals who may have been impacted by racial and ethnic disparities. The term racial and ethnic disparities, when applied to the health care system, may refer to differences in the quality of health care among specific racial and ethnic groups; differences in health care which often lead to a lower quality of health care, negative health care outcomes and higher patient morbidity and mortality rates among specific racial and ethnic groups (Centers for Disease Control and Prevention, 2020; World Health Organization, 2020). In an ideal health care system, racial and ethnic disparities would not exist. Unfortunately, evidence suggests, that racial and ethnic disparities do exist within the current health care system. That being the case, the question is, how can health care professionals prevent and/or limit racial and ethnic disparities when administering health care to patients in need? The straightforward answer to the aforementioned question is as follows: health care professionals can help prevent and/or limit racial and ethnic disparities when administering health care to patients in need by possessing insight into the ethic safeguards, laws and programs which have been established to address racial and ethnic disparities within the health care system. With that said, this section of the course will provide insight into the ethic safeguards, laws and programs which have been established to address racial and ethnic disparities within the health care system. The information found in this section was derived from materials provided by the Centers for Disease Control and Prevention (CDC), the U.S. Centers for Medicare & Medicaid Services, and the World Health Organization (WHO) (CDC, 2020; U.S. Centers for Medicare & Medicaid Services, 2020; WHO, 2020).

## ***Ethic Safeguards***



The administration of health care to patients within the current health care system is built upon four ethic principles, which include: patient autonomy, beneficence, nonmaleficence, and justice. The aforementioned ethic principles protect patient rights and allow for an equal allocation of health care resources to all patients, independent of race, ethnicity, religion, socioeconomic status and gender. In other words, the four major ethic principles of health care, when adequately applied, can help safeguard against racial and ethnic disparities. Therefore, health care professionals should understand and apply the ethic principles of health care to all patients to help limit and avoid racial and ethnic disparities. Specific information regarding each of the four major ethic principles of health care may be found below.

## **Patient Autonomy**

Patient autonomy may refer to a patient's right to make decisions regarding his or her own personal health care, without the direct influence of a health care professional. Essentially, patient autonomy grants patients the sole right to make decisions regarding their health, health care, and personal well-being. Health care professionals must respect patient autonomy when caring for patients. Violations of patient autonomy may occur if a health care professional makes health care-related decisions for a patient, influences a patient's health care-related decision, bullies a patient into making a health care-related decision, withholds health-care related information from a patient in order to steer a patient into making a specific decision, provides a patient with biased health care information and/or education, fails to provide vital health-related information to a patient, and/or simply does not give a patient an opportunity to make his or her own decision regarding the administration of health care (e.g., carries out a health care procedure without consent from a patient). Health care professionals may uphold patient autonomy by allowing patients to remain independent when making decisions about their health care. Health care professionals should note that they are allowed to provide patients with unbiased information and education to help them make a decision regarding their own health care - however, a health care professional must not make the final health care-related decision for a patient. Health care professionals should also note that there may be health care situations where patient autonomy concepts may not necessarily apply, such as emergency situations where life-saving interventions are required.

## **Beneficence**

Beneficence, as it relates to health care, may refer to the obligation of the health care professional to act in the best interest of the patient. Health care professionals must adhere to the principle of beneficence when caring for patients. Examples of potential violations of beneficence may include the following: a health care professional does not act in the best interest of a patient, a health care professional puts his or her own interest before a patient's best interest, a health care professional does not consider the risks and benefits of a health care intervention before it is administered to a patient, a health care professional does not consider a patient's pain, physical, and/or mental suffering when administering health care, a health care professional does not consider a patient's risk of disability, diminished health, and/or death when administering health care, and a health care professional does not promote a patient's health for racially driven reasons (e.g., a health care professional encourages a patient to follow a therapeutic regimen that will, ultimately, jeopardize his or her health, overall well-being, and quality of life). Health care professionals may uphold the ethic principle of beneficence by simply doing what is best for a

patient's health. Health care professionals may also uphold the ethic principle of beneficence by continuing their education and staying up to date on relevant health care topics, so they may be best equipped to safely and effectively serve patient needs, and ultimately, do what is best for a patient. Health care professionals should note that individual patients may have specific needs or requirements. Health care professionals should consider individual patient needs and requirements when attempting to uphold the ethic principle of beneficence.

## **Nonmaleficence**

Nonmaleficence, as it relates to health care, refers to the obligation of the health care professionals to act in a manner that does not cause harm to the individual patient; do no harm. In essence, the ethic principle of nonmaleficence dictates that health care professionals should do no harm to patients. With that in mind, many have argued that the ethic principle of nonmaleficence is the most important principle of health care. Many individuals have also argued that without nonmaleficence, there could be no health care system as it is known today. Thus, it is paramount that health care professionals adhere to the ethic principle of nonmaleficence. Examples of potential violations of nonmaleficence may include the following: a health care professional intentionally harms a patient due to racial and/or ethically driven reasons, a health care professional gives a patient a medication knowing it will only harm the patient, a health care professional chooses health care interventions for a patient that will harm the patient, a health care professional does not follow safety precautions while administering care to a patient, and a health care professional does not follow organizational policies and procedures, which have been put in place to safeguard patients' health. Health care professionals may uphold the ethic principle of nonmaleficence by adhering to organizational policies and procedures as well as safety precautions. Health care professionals may also uphold the ethic principle of nonmaleficence by simply acting in a manner that does not intentionally harm a patient. Health care professionals should note the following: although beneficence and nonmaleficence are related, they are two separate and distinct ethic principles of health care.

## **Justice**

Justice, as it relates to health care, refers to the fair and equitable distribution of health care resources to patients. Essentially, the ethic principle of justice stipulates that patients in similar situations should have access to the same health care or the same level of health care (health care professionals should note the following: the ethic principle of justice may be the most relevant to the prevention of racial and ethnic disparities). The following example highlights the previous concept. Two

patients are admitted into a hospital. One patient is a 67-year-old African American male. The other patient is a 68-year-old Caucasian female. Both patients have the same health insurance coverage and are both suffering from pneumonia (i.e., both patients are similar and in a similar situation). Therefore, they must receive the same level of health care. One patient cannot be neglected for any reason while the other patient receives extra attention or health care. Resources cannot be diverted from one patient and distributed to the other. The patients must receive an equal, unbiased allocation of health care resources. Health care professionals must administer health care in an objective, fair manner. A specific patient cannot be favored or receive different health care resources at the expense of the other patient. Both patients in the above example should receive of the same level of health care. Failure to provide similar patients in similar situations with the same level of health care may be viewed as a violation of justice, as it relates to health care.

Health care professionals can uphold justice by administering health care in an unbiased manner. Once a patient is admitted into a health care setting, health care professionals should treat patients equally and fairly. Health care should be administered to patients based on need. Race, ethnicity, religion, socioeconomic status and/or gender should not dictate how health care is administered to patients. Patients' personalities and/or personal backgrounds should also not dictate the administration of health care. In addition, personal relationships between health care professionals and patients should not affect the delivery of health care. A patient should not receive a higher level of health care due to a personal relationship with an individual health care professional; nor should health care be withheld based on a personal relationship. Justice, as it relates to health care, dictates the impartial allocation of available health care resources to patients in need. Similar patients in similar situations have the same right to available health care resources. A fair-minded approach to the administration of health care can ensure the aforementioned concepts are obtained.

### ***Affordable Care Act***

Research indicates that health care access and insurance coverage are major factors that contribute to racial and ethnic disparities. The Affordable Care Act was passed in 2010 to address both health care access and insurance coverage. The laws included within the Affordable Care Act are meant to help prevent and address racial and ethnic disparities. Specific information regarding the Affordable Care Act may be found below.

- The primary goals of the Affordable Care Act include the following: make affordable health insurance available to more people; expand the Medicaid program to cover all adults with income below 138% of the federal poverty level; support innovative medical care delivery methods designed to lower the costs of health care.
- The Affordable Care Act requires insurance plans to cover people with pre-existing health conditions, including pregnancy, without charging more.
- The Affordable Care Act provides free preventive care, when applicable.
- The Affordable Care Act gives young adults more coverage options.
- The Affordable Care Act ends lifetime and yearly dollar limits on coverage of essential health benefits.
- The Affordable Care Act helps individuals understand insurance coverage.
- The Affordable Care Act makes it illegal for health insurance companies to cancel individuals' health insurance just because they get sick.
- The Affordable Care Act protects individuals' choice of doctors and protects individuals from employer retaliation.
- The Affordable Care Act and related laws indicate that health insurance marketplace and Medicaid plans cover pregnancy and childbirth, even if the pregnancy begins before the coverage takes effect.
- The Affordable Care Act and related laws indicate that most marketplace plans must provide breastfeeding equipment and counseling for pregnant and nursing women.
- The Affordable Care Act and related laws indicate that health insurance plans must provide breastfeeding support, counseling, and equipment for the duration of breastfeeding.
- The Affordable Care Act and related laws indicate health insurance plans must cover the cost of a breast pump.
- The Affordable Care Act and related laws indicate plans in the health insurance marketplace must cover contraceptive methods and counseling for all women, as prescribed by a health care provider.
- The following FDA-approved contraceptive methods are covered under the Affordable Care Act and related laws: barrier methods, like diaphragms and sponges; hormonal methods, like birth control pills and vaginal rings; implanted devices, like intrauterine devices (IUDs); emergency contraception (i.e., Plan B); sterilization procedures; patient education and counseling.

- The Affordable Care Act and related laws indicate that health plans sponsored by certain exempt religious employers, such as churches and other houses of worship, don't have to cover contraceptive methods and counseling.
- The Affordable Care Act and related laws indicate that all marketplace plans cover mental health and substance abuse services as essential health benefits.
- The Affordable Care Act and related laws indicate that all plans must cover behavioral health treatment, such as psychotherapy and counseling.
- The Affordable Care Act and related laws indicate that all plans must cover mental and behavioral health inpatient services.
- The Affordable Care Act and related laws indicate that all plans must cover substance abuse treatment.
- The Affordable Care Act and related laws indicate that marketplace plans can't deny an individual coverage or charge an individual more just because an individual has a pre-existing condition, including mental health and substance use disorder conditions (the term substance use disorder may refer to a medical condition characterized by a cluster of symptoms that do not allow an individual to stop using legal or illegal substances such as: alcohol, marijuana, cocaine, and/or opioids).
- The Affordable Care Act and related laws indicate that coverage for treatment of all pre-existing conditions begins the day the coverage starts.
- The Affordable Care Act and related laws indicate that marketplace plans can't put yearly or lifetime dollar limits on coverage of any essential health benefit, including mental health and substance use disorder services.
- The Affordable Care Act and related laws indicate that limits applied to mental health and substance abuse services can't be more restrictive than limits applied to medical and surgical services.
- The Affordable Care Act and related laws indicate the following: if a health insurer refuses to pay a claim or ends an individual's coverage, the individual has the right to appeal the decision and have it reviewed by a third party.
- The Affordable Care Act and related laws indicate the following: insurers have to inform individuals as to why they have denied a claim or ended coverage; insurers have to let an individual know how they can dispute insurer decisions.
- The Affordable Care Act and related laws indicate that an individual may appeal a health plan decision by requesting an internal appeal. An internal appeal, as it relates to the Affordable Care Act, may refer to an appeal review conducted by an insurance company.

- The Affordable Care Act and related laws indicate that an individual may also appeal a health plan decision by requesting an external review. An external review, as it relates to the Affordable Care Act, may refer to an appeal review conducted by an independent third party.
- The Affordable Care Act and related laws indicate that it is against the law for an employer to fire or retaliate against individuals because they get a premium tax credit when they buy a health plan in the marketplace.
- The Affordable Care Act and related laws indicate that it is against the law for an employer to fire or retaliate against an individual who reports violations of the Affordable Care Act's health insurance reform to an employer or to the government.
- The Affordable Care Act and related laws indicate that individuals may file a complaint with the U.S. Occupational Safety and Health Administration (OSHA) if they think they were fired or retaliated against because they received premium tax credits when they bought a health plan in the marketplace and/or they reported a violation of the reforms found in Title I of the Affordable Care Act.
- The Affordable Care Act and related laws indicate that individuals have the right to an easy-to-understand summary regarding a health plan's benefits and coverage.
- The Affordable Care Act and related laws indicate the following: insurance companies and job-based health plans must provide individuals with a short, plain-language Summary of Benefits and Coverage (SBC) and a Uniform Glossary of terms used in health coverage and medical care.
- The Affordable Care Act and related laws indicate that insurance companies cannot set a yearly dollar limit on what they spend for an individual's coverage.
- The Affordable Care Act and related laws indicate that insurance companies cannot set a dollar limit on what they spend on essential health benefits for an individual's care during the entire time he or she is enrolled in that plan.
- The Affordable Care Act and related laws indicate the following: protections against lifetime limits on coverage apply to all individual and job-based health plans.
- The Affordable Care Act and related laws indicate the following: individuals have the right to choose the doctor they want from their health plan's provider network.
- The Affordable Care Act and related laws indicate that an individual can use an out-of-network emergency room without penalty.
- The Affordable Care Act and related laws indicate that individuals are not required to get a referral from a primary care provider before they can get obstetrical or gynecological (OB-GYN) care from a specialist.

- The Affordable Care Act and related laws establish the 80/20 Rule. The 80/20 Rule generally requires insurance companies to spend at least 80% of the money they take in from premiums on health care costs and quality improvement activities; the other 20% can go to administrative, overhead, and marketing costs.
- The Affordable Care Act and related laws indicate the following: if an insurance company does not meet its 80/20 targets for the year, individuals should get back some of the premium that they paid.
- The Affordable Care Act and related laws indicate that insurance companies can't cancel individuals' coverage just because they made a mistake on their insurance application.
- The Affordable Care Act and related laws indicate that an insurance company must give an individual at least 30 days notice before coverage is canceled.

### ***The REACH Program***

In addition to ethic safeguards and laws, programs have been developed to address racial and ethnic disparities. One such program is referred to as REACH. REACH is a national program administered by the CDC to address and reduce racial and ethnic health disparities.

- REACH works to identify culturally appropriate programs to address a wide range of health issues among African Americans, American Indians, Hispanics/Latinos, Asian Americans, Alaska Natives, and Pacific Islanders.
- A core principle of REACH is that every person should be able to reach his or her full health potential; the CDC works through REACH to remove barriers to health linked to race or ethnicity, education, income, location, or other social factors.
- The CDC and REACH have identified that health gaps remain widespread among racial and ethnic minority groups.
- REACH allocates funds and support to state and local health departments, tribes, universities, and community-based organizations; recipients may use such funds to serve their communities and work to close any health gaps that may exist.
- The CDC and REACH funds over 30 recipients to reduce health disparities among racial and ethnic populations with the highest burden of chronic disease such as type 2 diabetes and obesity; those recipients work through culturally tailored strategies and interventions to address preventable risk behaviors such as: poor nutrition, physical inactivity, and tobacco use; examples of such strategies and interventions to address preventable risk behaviors include the following: increase access to healthy foods and beverages, increase physical activity access and

outreach, design street and communities for physical activity, and implement physical activity in early care and education.

- The CDC and REACH have identified that racial and ethnic health gaps are complex and are affected by factors related to individuals, communities, society, culture, and the environment; to address the aforementioned factors, REACH partners bring together members of their community to plan and carry out many different strategies to identify many different health issues and provide an impact to local communities.
- The strategies REACH and REACH partners utilizes often include specific key elements to optimize their effectiveness; these key elements include: trust, empowerment, culture and history, focus and causes, community investment and expertise, trusted organizations, community leaders, ownership, sustainability, and hope. Specific information regarding each of the aforementioned key elements may be found below.
  - **Trust** - any strategy aimed at reaching a given community must be built on trust. To build trust, individuals should reach out to members of the community and known community leaders.
  - **Empowerment** - to create a sense of empowerment within a given community, program strategies should give individuals within a specific community the knowledge and tools needed to create change by seeking and demanding better health and building on local resources.
  - **Culture and history** - program strategies should include health initiatives that acknowledge and are based in the unique historical and cultural context of the racial and ethnic populations within a community. For example, if a given community includes a large Cambodian population, then program strategies should include Cambodian cultural elements.
  - **Focus and causes** - program strategies should focus on the underlying causes of poor community health and should implement solutions designed to remain embedded in the community's infrastructure to achieve both short-term health goals and long-term health goals.
  - **Community investment and expertise** - program strategies should recognize and invest in community expertise and should work to motivate communities to mobilize and organize existing resources to promote desired outcomes.
  - **Trusted organizations** - program strategies should embrace and enlist community organizations valued by community members, including groups with a primary mission unrelated to health or health care, to extend the reach of the program.

- **Community leaders** - program strategies should help local community leaders and key organizations act as catalysts for change in the community, including forging unique partnerships.
  - **Ownership** - program strategies should develop a collective outlook within a given community to promote a shared interest in a healthy future through widespread community engagement and leadership.
  - **Sustainability** - program strategies should make changes to organizations, community environments, and policies to help ensure that health improvements are long-lasting and community activities and programs are self-sustaining.
  - **Hope** - program strategies should foster optimism, pride, and a promising vision for a healthier future within a given community to achieve both short-term health goals and long-term health goals.
- Examples of how REACH related programs can impact a community include the following: a REACH program in Georgia, increased access to healthy foods for approximately 242,000 African Americans, selling more than 1,000 units of fruits and vegetables each week and reporting an increase in consumption of fruits and vegetables among customers; a REACH program at Creighton University partnered with the Omaha Housing Authority to create safer places for physical activity for residents of three low-income housing towers in Omaha, Nebraska; in Orange County, California, a REACH program increased access to smoke free environments for more than 100,000 Asian American residents by increasing the number of commercial shopping plazas with voluntary smoke free policies; a REACH program included in The Toiyabe Indian Health Project increased the availability of healthy foods for over 3,000 American Indians in seven tribes and two tribal communities by increasing healthy food production in community gardens; in Los Angeles, California, the Community Health Council (CHC), in collaboration with the African Americans Building a Legacy of Health program, worked to increase access to healthy and affordable food and beverages through efforts to change institutional practices and promote local investment - the aforementioned efforts have helped to leverage support from California's \$200 million Fresh Food Financing Fund that seeks to eliminate food deserts and fight childhood obesity.

## **Section 1: Summary**

The term racial and ethnic disparities, when applied to the health care system, may refer to differences in the quality of health care among specific racial and ethnic groups; differences in health care which often lead to a lower quality of health care, negative health care outcomes, and higher patient morbidity and mortality rates among specific racial and ethnic groups. In an ideal health care system, racial and

ethnic disparities would not exist. Unfortunately, evidence suggests, that racial and ethnic disparities do exist within the current health care system. That being the case, health care professionals can help prevent and limit racial and ethnic disparities when administering health care to patients in need by possessing insight into the ethic safeguards, laws, and programs which have been established to address racial and ethnic disparities within the health care system.

### ***Section 1: Key Concepts***

- Health care professionals can help prevent and limit racial and ethnic disparities when administering health care to patients in need by possessing insight into the ethic safeguards, laws and programs which have been established to address racial and ethnic disparities within the health care system.
- The four major ethic principles of health care include: patient autonomy, beneficence, nonmaleficence, and justice; the aforementioned ethic principles of health care can help safeguard against racial and ethnic disparities.
- Research indicates that health care access and insurance coverage are major factors that contribute to racial and ethnic disparities; the Affordable Care Act was passed in 2010 to address both health care access and insurance coverage; the laws included within the Affordable Care Act are meant to prevent and address racial and ethnic disparities.
- REACH is a national program administered by the CDC to address and reduce racial and ethnic health disparities; REACH works to identify culturally appropriate programs to address a wide range of health issues among African Americans, American Indians, Hispanics/Latinos, Asian Americans, Alaska Natives, and Pacific Islanders; a core principle of REACH is that every person should be able to reach his or her full health potential; the CDC works through REACH to remove barriers to health linked to race or ethnicity, education, income, location, or other social factors.

### ***Section 1: Key Terms***

- ***Racial and ethnic disparities*** (when applied to the health care system) - differences in the quality of health care among specific racial and ethnic groups; differences in health care which often lead to a lower quality of health care, negative health care outcomes, and higher patient morbidity and mortality rates among specific racial and ethnic groups
- ***Patient autonomy*** - a patient's right to make decisions regarding his or her own personal health care, without the direct influence of a health care professional

- **Beneficence** (*as it relates to health care*) - the obligation of the health care professional to act in the best interest of the patient
- **Nonmaleficence** (*as it relates to health care*) - refers to the obligation of the health care professional to act in a manner that does not cause harm to the individual patient; do no harm
- **Justice** (*as it relates to health care*) - the fair and equitable distribution of health care resources to patients
- **Substance use disorder** - a medical condition characterized by a cluster of symptoms that do not allow an individual to stop using legal or illegal substances such as: alcohol, marijuana, cocaine, and/or opioids
- **Internal appeal** (*as it relates to the Affordable Care Act*) - an appeal review conducted by an insurance company
- **External review** (*as it relates to the Affordable Care Act*) - an appeal review conducted by an independent third party

### **Section 1: Personal Reflection Question**

How can health care professionals work to prevent and address racial and ethnic disparities?

## **Section 2: Conditions and Aspects of Health Care Impacted by Racial and Ethnic Disparities**

It is important for health care professionals to possess insight into the ethic safeguards, laws, and programs that have been established to address racial and ethnic disparities so they may help prevent such disparities. It is also important for health care professional to possess an understanding of the conditions and aspects of health care that are most impacted by racial and ethnic disparities. With that sentiment in mind, this section of the course will review the conditions and aspects of health care that are most impacted by racial and ethnic disparities. The information found in this section was derived from materials provided by the CDC, the United States Food and Drug Administration (FDA), the U.S. Department of Health and Human Services, and the WHO (CDC, 2020; U.S. Department of Health and Human Services, 2015; United States Food and Drug Administration, 2020; WHO, 2020).

## **Diabetes**

Diabetes may refer to a chronic condition that affects how the body produces and/or responds to insulin. Evidence presented by the CDC indicates that over 122 million Americans are living with diabetes or prediabetes. Prediabetes may refer to a condition characterized by blood sugar levels that are higher than normal, but not high enough to be diagnosed as type 2 diabetes. Evidence presented by the CDC also indicates that diabetes is greatly impacted by racial and ethnic disparities. For example, evidence presented by the CDC indicates that the risk of having a diabetes diagnosis is higher among African Americans, Hispanics, and among Asian Americans when compared to non-Hispanic white adults.

To help address the impact of racial and ethnic disparities on diabetes, health care professionals should counsel all patients on diabetes. To effectively counsel patients on diabetes, health care professionals should possess an understanding of relevant diabetes information. When providing patients with information, education, and care regarding diabetes, health care professionals should be cognizant of local racial and ethnic groups' customs, beliefs and religious ideologies regarding aspects of diabetes care; health care professionals should customize their information and education regarding diabetes care to fit an individual patient's customs, beliefs and religious ideologies regarding aspects of diabetes care. Specific information regarding type 1 and type 2 diabetes may be found below.

### **Type 1 Diabetes**

Type 1 diabetes, also known as juvenile diabetes or insulin-dependent diabetes, may refer to a chronic condition in which the pancreas produces little or no insulin. Insulin may refer to a hormone that affects blood sugar and the conversion of blood sugar into energy. Type 1 diabetes may be caused by an autoimmune reaction, within the body, that destroys the cells in the pancreas that make insulin. Symptoms of type 1 diabetes include: thirst, frequent urination, hunger, fatigue, and blurred vision. Type 1 diabetes is typically diagnosed in children, teens, and young adults. Patients with type 1 diabetes should receive information and education regarding hypoglycemia. Hypoglycemia may refer to low blood sugar and/or a condition characterized by low blood sugar. Symptoms of hypoglycemia include: shakiness, nervousness or anxiety, sweating, chills, or clamminess, irritability, dizziness, difficulty concentrating, hunger, nausea, blurred vision, weakness and/or fatigue. The treatment and management of type 1 diabetes typically centers around blood sugar monitoring, diet, exercise, and insulin.

## Type 2 Diabetes

Type 2 diabetes, otherwise known as adult onset diabetes, may refer to a chronic condition that affects the way the body processes and uses insulin. Type 2 diabetes typically develops when an individual's body becomes resistant to insulin or when an individual's pancreas is unable to produce enough insulin to meet the needs of the body. Symptoms of type 2 diabetes include: thirst, frequent urination, hunger, fatigue, and blurred vision. Type 2 diabetes is often diagnosed in adult individuals or individuals over the age of 18. Patients with type 2 diabetes should receive information and education regarding hyperglycemia. Hyperglycemia may refer to high blood sugar and/or a condition characterized by high blood sugar. Symptoms of hyperglycemia include: excess thirst, frequent urination, and blurred vision. The treatment and management of type 2 diabetes typically centers around blood sugar monitoring, diet, exercise, and medications. Information on medications that may be used to treat type 2 diabetes can be found below.

### Glyburide

*Medication notes* - glyburide is an oral blood-glucose-lowering drug belonging to the sulfonylurea medication class. Glyburide appears to lower blood glucose levels by stimulating the release of insulin from the pancreas. Glyburide is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. Potential side effects of glyburide include hypoglycemia, nausea, and heartburn.

*Safety notes* - contraindications associated with glyburide include: known hypersensitivity or allergy to glyburide; diabetic ketoacidosis, with or without coma; type 1 diabetes mellitus. Warnings and precautions associated with glyburide include the following: the administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin; all sulfonylureas are capable of producing severe hypoglycemia; proper patient selection and dosage and instructions are important to avoid hypoglycemic episodes; renal or hepatic insufficiency may cause elevated drug levels of glyburide; when a patient stabilized on any diabetic regimen is exposed to stress such as fever, trauma, infection or surgery, a loss of control may occur.

*Considerations for special patient populations* - health care professionals should note the following: older adult patients may be particularly susceptible to the hypoglycemic action of glucose-lowering drugs; hypoglycemia may be difficult to recognize in older adult patients; the initial and maintenance dosing should be conservative to avoid hypoglycemic reactions.

### Glipizide

*Medication notes* - glipizide is an oral blood-glucose-lowering drug belonging to the sulfonylurea medication class. The primary mechanism of action of glipizide appears to be the stimulation of insulin secretion from the beta cells of pancreatic islet tissue. Glipizide is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. Potential side effects of glipizide include: diarrhea, constipation, nausea, vomiting, and hypoglycemia.

*Safety notes* - contraindications associated with glipizide include: known hypersensitivity to glipizide; type 1 diabetes mellitus, diabetic ketoacidosis, with or without coma. Warnings and precautions associated with glipizide include the following: the administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin; all sulfonylurea drugs are capable of producing severe hypoglycemia; proper patient selection, dosage, and instructions are important to avoid hypoglycemic episodes; when a patient stabilized on any diabetic regimen is exposed to stress such as fever, trauma, infection, or surgery, a loss of control may occur.

*Considerations for special patient populations* - health care professionals should note the following: dose selection for an older adult patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal or cardiac function, and of concomitant disease or other drug therapy.

## **Repaglinide**

*Medication notes* - repaglinide is an oral blood-glucose-lowering drug belonging to the meglitinide medication class. Repaglinide lowers blood glucose levels by stimulating the release of insulin from the pancreas. Repaglinide is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. There is no fixed dosage regimen for the management of type 2 diabetes with repaglinide. Potential side effects of repaglinide include: diarrhea, constipation, nausea, vomiting, and hypoglycemia.

*Safety notes* - contraindications associated with repaglinide include: known hypersensitivity to repaglinide or its inactive ingredients; type 1 diabetes; diabetic ketoacidosis, with or without coma; co-administration of gemfibrozil. Warnings and precautions associated with repaglinide include the following: all oral blood glucose-lowering drugs including repaglinide are capable of producing hypoglycemia; proper patient selection, dosage, and instructions to the patients are important to avoid hypoglycemic episodes; hepatic insufficiency may cause elevated repaglinide blood levels and may diminish gluconeogenic capacity, both

of which increase the risk of serious hypoglycemia; older adults, debilitated, or malnourished patients, and those with adrenal, pituitary, hepatic, or severe renal insufficiency may be particularly susceptible to the hypoglycemic action of glucose-lowering drugs.

*Considerations for special patient populations* - health care professionals should note the following: hypoglycemia may be difficult to recognize in older adults and in people taking beta-adrenergic blocking drugs; hypoglycemia is more likely to occur when caloric intake is deficient, after severe or prolonged exercise, when alcohol is ingested, or when more than one glucose-lowering drug is used; the frequency of hypoglycemia is greater in patients with type 2 diabetes who have not been previously treated with oral blood glucose-lowering drugs.

### **Metformin hydrochloride**

*Medication notes* - metformin is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. The recommended starting dose of metformin hydrochloride tablets are 500 mg orally twice a day. Potential side effects of metformin include: hypoglycemia, diarrhea, and nausea.

*Safety notes* - contraindications associated with metformin include: hypersensitivity to metformin; severe renal impairment (eGFR below 30 mL/min/1.73 m<sup>2</sup>); acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma. Warnings and precautions associated with metformin include the following: postmarketing cases of metformin-associated lactic acidosis have resulted in death, hypothermia, hypotension, and resistant bradyarrhythmias; the onset of metformin-associated lactic acidosis is often subtle, accompanied only by nonspecific symptoms such as malaise, myalgias, respiratory distress, somnolence, and abdominal pain; metformin-associated lactic acidosis was characterized by elevated blood lactate levels (>5 mmol/Liter), anion gap acidosis (without evidence of ketonuria or ketonemia), an increased lactate/pyruvate ratio; and metformin plasma levels generally >5 mcg/mL; risk factors for metformin-associated lactic acidosis include renal impairment, concomitant use of certain drugs (e.g. carbonic anhydrase inhibitors such as topiramate), age 65 years old or greater, having a radiological study with contrast, surgery and other procedures, hypoxic states (e.g., acute congestive heart failure), excessive alcohol intake, and hepatic impairment; metformin-associated lactic acidosis is suspected, immediately discontinue metformin hydrochloride tablets and institute general supportive measures in a hospital setting, prompt hemodialysis is recommended.

*Considerations for special patient populations* - health care professionals should note the following: assess renal function prior to initiation of metformin hydrochloride tablets and periodically thereafter; metformin hydrochloride tablets are contraindicated in patients with an estimated glomerular filtration rate (eGFR) below 30 mL/minute/1.73 m<sup>2</sup>; caution should be used when prescribing to older adult patients because reduced renal functions are associated with increasing age.

### **Metformin hydrochloride XR (Glucophage XR)**

*Medication notes* - Glucophage XR is an extended-release product used in the management of type 2 diabetes. Glucophage XR is indicated as an adjunct to diet and exercise to improve glycemic control in adults and children with type 2 diabetes mellitus. There is no fixed dosage regimen for the management of hyperglycemia in patients with type 2 diabetes with Glucophage XR. The maximum recommended adult daily dose of Glucophage XR is 2000 mg. Potential side effects of Glucophage XR include: diarrhea, nausea, and abdominal discomfort.

*Safety notes* - contraindications associated with Glucophage XR include: known hypersensitivity to metformin hydrochloride; severe renal impairment (eGFR below 30 mL/min/1.73 m<sup>2</sup>); acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma. Warnings and precautions associated with Glucophage XR include the following: postmarketing cases of metformin-associated lactic acidosis have resulted in death, hypothermia, hypotension, and resistant bradyarrhythmias; the onset of metformin-associated lactic acidosis is often subtle, accompanied only by nonspecific symptoms such as malaise, myalgias, respiratory distress, somnolence, and abdominal pain; metformin-associated lactic acidosis was characterized by elevated blood lactate levels (>5 mmol/Liter), anion gap acidosis (without evidence of ketonuria or ketonemia), an increased lactate/pyruvate ratio; and metformin plasma levels generally >5 mcg/mL; if metformin-associated lactic acidosis is suspected, immediately discontinue Glucophage XR and institute general supportive measures in a hospital setting; prompt hemodialysis is recommended.

*Considerations for special patient populations* - health care professionals should note the following: the risk of metformin-associated lactic acidosis increases with the patient's age because older adult patients have a greater likelihood of having hepatic, renal, or cardiac impairment than younger patients; assess renal function more frequently in older adult patients.

### **Glipizide and metformin (Metaglip)**

*Medication notes* - Metaglip is a combination product. It contains two oral antihyperglycemic drugs used in the management of type 2 diabetes, glipizide and metformin hydrochloride. Metaglip is available for oral administration in tablets containing 2.5 mg glipizide with 250 mg metformin hydrochloride, 2.5 mg glipizide with 500 mg metformin hydrochloride, and 5 mg glipizide with 500 mg metformin hydrochloride. Metaglip is indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. Health care professionals should note the following: dosages of Metaglip must be individualized on the basis of both effectiveness and tolerance while not exceeding the maximum recommended daily dose of 20 mg glipizide/2000 mg metformin. Potential side effects of Metaglip include: diarrhea, nausea, vomiting, and hypoglycemia.

*Safety notes* - contraindications associated with Metaglip include: known hypersensitivity to glipizide or metformin hydrochloride; renal disease or renal dysfunction (eg, as suggested by serum creatinine levels  $\geq 1.5$  mg/dL [males],  $\geq 1.4$  mg/dL [females], or abnormal creatinine clearance) which may also result from conditions such as cardiovascular collapse, acute myocardial infarction, and septicemia; acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma. Warnings and precautions associated with Metaglip include the following: lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation during treatment with Metaglip; lactic acidosis may also occur in association with a number of pathophysiologic conditions, including diabetes mellitus, and whenever there is significant tissue hypoperfusion and hypoxemia; lactic acidosis is characterized by elevated blood lactate levels ( $>5$  mmol/L), decreased blood pH, electrolyte disturbances with an increased anion gap, and an increased lactate/pyruvate ratio; Metaglip treatment should not be initiated in patients  $\geq 80$  years of age unless measurement of creatinine clearance demonstrates that renal function is not reduced, as these patients are more susceptible to developing lactic acidosis; Metaglip should be withheld in the presence of any condition associated with hypoxemia, dehydration, or sepsis; because impaired hepatic function may significantly limit the ability to clear lactate, Metaglip should generally be avoided in patients with clinical or laboratory evidence of hepatic disease; patients should be cautioned against excessive alcohol intake, either acute or chronic, when taking Metaglip, since alcohol potentiates the effects of metformin hydrochloride on lactate metabolism; Metaglip should be temporarily discontinued prior to any intravascular radiocontrast study and for any surgical procedure; the administration of oral hypoglycemic drugs has been reported to be associated with increased cardiovascular mortality as compared to treatment with diet alone or diet plus insulin.

*Considerations for special patient populations* - Metaglip is not recommended for use during pregnancy or for use in pediatric patients. The initial and maintenance dosing of Metaglip should be conservative in patients with advanced age, due to the potential for decreased renal function. Any dosage adjustment requires a careful assessment of renal function. Older adults, debilitated, and malnourished patients should not be titrated to the maximum dose of Metaglip to avoid the risk of hypoglycemia. Health care professionals should note the following: monitoring of renal function is necessary to aid in prevention of metformin-associated lactic acidosis, particularly in the older adult patient populations.

## **Obesity**

Obesity may refer to a condition characterized by abnormal or excessive fat accumulation, which may impair health. An adult may be considered to be obese when his or her body mass index (BMI) is greater than or equal to 30 kg/m<sup>2</sup>. Body mass index (BMI) may refer to a value derived from an individual's weight and height. Obesity may be subdivided into the following categories: Class 1 (BMI of 30 kg/m<sup>2</sup> to < 35 kg/m<sup>2</sup>); Class 2 (BMI of 35 kg/m<sup>2</sup> to < 40 kg/m<sup>2</sup>); Class 3 (BMI of 40 kg/m<sup>2</sup> or higher; Class 3 obesity may be categorized as extreme or severe obesity). The fundamental cause of obesity is an energy imbalance between the calories consumed and the calories expended. Health care professionals should note the following: some illnesses, such as Cushing's disease and polycystic ovary syndrome, may lead to obesity or weight gain; medications such as steroids and some antidepressants may also cause weight gain. Health care professionals should also note the following: obesity is often associated with poorer mental health outcomes, reduced quality of life, and the leading causes of death in the U.S. and worldwide, which include: diabetes, heart disease, stroke, and some types of cancer.

The CDC provides the following information regarding obesity: from 1999 - 2000 through 2017 - 2018, the prevalence of obesity increased by approximately 12%, and the prevalence of severe obesity increased by approximately 5%; the estimated annual medical cost of obesity in the U. S. was \$147 billion in 2008 US dollars; the medical cost for people who are obese was \$1,429 higher than those of normal weight.

Research suggests that the prevalence of obesity in the U.S. is greatly impacted by racial and ethnic disparities. For example, research presented by the CDC indicates that from 2015 - 2016, Hispanic and non-Hispanic black adults had a higher prevalence of obesity than non-Hispanic white adults.

To help address the impact of racial and ethnic disparities on obesity, health care professionals should counsel all patients on obesity and the importance of weight loss

as well as provide weight loss treatment, when applicable. To effectively counsel patients on obesity and the importance of weight loss as well as provide weight loss treatment to patients in need, health care professionals should possess an understanding of relevant BMI information. Specific information regarding BMI may be found below:

- BMI is an anthropometric index of weight and height that is defined as body weight in kilograms divided by height in meters squared (the term anthropometric may refer to the science which deals with the measurement of the size, weight, and proportions of the human body).
- Health care professionals may use the following formula to calculate an individual's BMI:  $BMI = \text{weight (kg)} / \text{height (m)}^2$ ; health care professionals may also use the following formula to calculate an individual's BMI:  $BMI = \text{weight (lb)} / [\text{height (in)}]^2 \times 703$ .
- Health care professionals should note that BMI does not measure body fat directly.
- Health care professionals should note the following: BMI can be used to help determine if an individual is underweight, at a normal weight, overweight, and obese.
- Underweight - an individual may be considered to be underweight if his or her BMI is less than 18.5 kg/m<sup>2</sup>.
- Normal weight - an individual may be considered to be at a normal weight if his or her BMI is between 18.5 - 24.9 kg/m<sup>2</sup>.
- Overweight - an individual may be considered to be overweight if his or her BMI is between 25.0 - 29.9 kg/m<sup>2</sup>.
- Obese - an individual may be considered to be obese if his or her BMI is greater than or equal to 30.0 kg/m<sup>2</sup>.

When counseling patients on obesity and the importance of weight loss, health care professionals should provide individuals with relevant information regarding weight loss. Specific information regarding weight loss may be found below:

- Waist circumference should be used to assess abdominal fat content. Waist circumference may refer to a measurement taken around an individual's abdomen at the level of the umbilicus, otherwise referred to as the belly button. Health care professionals should note the following: measuring waist circumference can help screen patients for possible health risks that come with being overweight and obesity; if most of a patient's fat is around the waist rather than at the hips, then he or she may be at a higher risk for heart disease

and type 2 diabetes; the aforementioned risk goes up with a waist size that is greater than 35 inches for women/greater than 40 inches for men. Health care professionals should also note the following: to effectively measure a patient's waist circumference, health care professionals should follow the steps found below:

### **Steps for Measuring Waist Circumference**

1. Identify and procure necessary medical equipment (e.g., tape measure); identify and procure required personal protective equipment (PPE), when applicable (personal protective equipment (PPE) may refer to equipment designed to protect, shield and minimize exposure to hazards that may cause serious injury, illness and/or disease); don required PPE, when applicable, and follow relevant PPE protocols and measures; identify and engage in required hand hygiene practices (hand hygiene may refer to any action of hand cleansing).
  2. Instruct the patient to stand up.
  3. Place a tape measure around the patient's middle, just above the hipbones.
  4. Make sure the tape measure is horizontal around the patient's waist.
  5. Ensure the tape measure is snug around the patient's waist, but is not compressing the patient's skin.
  6. Instruct the patient to slowly breath in and out.
  7. Measure the patient's waist just after the patient breathes out.
  8. Record relevant information.
- Health care professionals should note the following: the initial goal of weight loss treatment should be to reduce the patient's body weight by about 10 percent from baseline.
  - Patient weight loss should be about 1 - 2 pounds per week for a period of approximately 6 months.
  - Reducing dietary fat alone without reducing calories is not sufficient for weight loss.
  - A diet that is individually planned to help create a deficit of 500 - 1,000 kcal/day may be used to help patients achieve a weight loss of 1 to 2 pounds per week.
  - Portion control may help patients lose weight. Portion control may refer to a method of moderating an individual's diet by determining the number of calories

in each serving of food, and limiting consumption to fall below a predetermined number of calories to help individuals lose and maintain a healthy weight.

- Patients should be encouraged to self-monitor their weight in order to maintain a healthy weight. The term self-monitor, as it relates to weight loss and maintenance, may refer to the act of observing and recording aspects of behavior related to weight, weight loss and weight maintenance (e.g., calorie intake per day).

Finally, when counseling patients on obesity and the importance of weight loss, health care professionals should provide individuals with relevant information regarding physical activity. Physical activity may refer to any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level; generally refers to the subset of physical activity that enhances health. Health care professionals should note that physical activity is an integral part of weight loss treatment and weight maintenance. Specific information regarding physical activity may be found below:

- Children and adolescents (ages 6 - 17) should do 60 minutes (1 hour) or more of physical activity daily.
- Aerobic recommendations for children and adolescents (ages 6 - 17) - most of the 60 or more minutes a day should be either moderate - or vigorous - intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.
- Muscle-strengthening recommendations for children and adolescents (ages 6 - 17) - as part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.
- Bone-strengthening recommendations for children and adolescents (ages 6 - 17) - as part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.
- It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.
- All adults (ages 18 - 64 years) should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits.
- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15

minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity.

- Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
- For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond the aforementioned amount.
- Adults should also include muscle-strengthening activities that involve all major muscle groups on 2 or more days a week.
- Older adults (individuals 65 years and older) should follow the aforementioned adult recommendations. When older adults cannot meet the adult guidelines, they should be as physically active as their abilities and conditions will allow.
- Older adults should do exercises that maintain or improve balance if they are at risk of falling.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.
- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.

## **Nutrition**



Evidence suggests that nutrition is an aspect of health care that is often impacted by racial and ethnic disparities. For example, evidence presented by the CDC suggests that African Americans are less likely to consume fruits and vegetables 5 or more times per day, when compared to other racial or ethnic groups.

To help address the impact of racial and ethnic disparities on nutrition, health care professionals should provide all patients with information and education regarding adequate nutrition. Health care professionals should note the following: when providing patients with information and education regarding adequate nutrition, health care professionals should be cognizant of local racial and ethnic groups' customs, beliefs and religious ideologies regarding the consumption of foods and beverages; health care professionals should customize their information and education regarding adequate nutrition to fit an individual patient's customs, beliefs

and religious ideologies regarding the consumption of foods and beverages. Specific information regarding adequate nutrition may be found below:

- Individuals should follow a healthy eating pattern across their lifespan (an eating pattern may refer to the combination of foods and beverages that constitute an individual's complete dietary intake over time; an eating pattern may describe a customary way of eating or a combination of foods recommended for consumption). All food and beverage choices matter. Individuals should choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.
- Individuals should focus on variety, nutrient density, and amount; to meet nutrient needs within calorie limits, individuals should choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.
- Individuals should limit calories from added sugars and saturated fats and reduce sodium intake. Individuals should consume an eating pattern low in added sugars, saturated fats, and sodium. Individuals should cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.
- Individuals should shift to healthier food and beverage choices. Individuals should choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Individuals should consider cultural and personal preferences to make these shifts easier to accomplish and maintain.
- Individuals should support healthy eating patterns for all; everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.
- Individuals should consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.
- A healthy eating pattern includes:
  - A variety of vegetables from all of the subgroups - dark green, red and orange, legumes (beans and peas), starchy, and other
  - Fruits, especially whole fruits
  - Grains, at least half of which are whole grains
  - Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages

- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils
- A healthy eating pattern limits:
  - Saturated fats and trans fats, added sugars, and sodium
- Individuals should consume less than 10 percent of calories per day from added sugars.
- Individuals should consume less than 10 percent of calories per day from saturated fats.
- Individuals should consume less than 2,300 milligrams (mg) per day of sodium.
- If alcohol is consumed, it should be consumed in moderation - up to one drink per day for women and up to two drinks per day for men.
- Vegetables are important sources of many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B6, folate, iron, manganese, thiamin, niacin, and choline.
- The recommended amount of vegetables in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2½ cup-equivalents of vegetables per day.
- Individuals should include variety of vegetables from all five subgroups - dark green, red and orange, legumes (beans and peas), starchy, and other.
- Individuals may include all fresh, frozen, canned, and dried vegetable options in cooked or raw forms, including vegetable juices.
- Fruits are important source of many nutrients, including dietary fiber, potassium, and vitamin C.
- The recommended amount of fruits in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 2 cup-equivalents per day. One cup of 100% fruit juice counts as 1 cup of fruit.
- Whole grains are a source of nutrients, such as dietary fiber, iron, zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B6, phosphorus, selenium, riboflavin, and vitamin A.
- The recommended amount of grains in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 6 ounce-equivalents per day. At least half of this amount should be whole grains.

- The dairy group contributes many nutrients, including calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium.
- The recommended amounts of dairy in the Healthy U.S.-Style Pattern are based on age rather than calorie level.
- The recommended amounts of dairy for adults is 3 cup-equivalents per day.
- Protein foods are important sources of nutrients in addition to protein, including B vitamins (e.g., niacin, vitamin B12, vitamin B6 , and riboflavin), selenium, choline, phosphorus, zinc, copper, vitamin D, and vitamin E).
- Nutrients provided by various types of protein foods differ. Meats provide the most zinc, while poultry provides the most niacin. Meats, poultry, and seafood provide heme iron, which is more bioavailable than the non-heme iron found in plant sources. Seafood provides the most vitamin B12 and vitamin D, in addition to polyunsaturated omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). Eggs provide the most choline, and nuts and seeds provide the most vitamin E. Soy products are a source of copper, manganese, and iron, as are legumes.
- The recommendation for protein foods in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie level is 5½ ounce equivalents of protein foods per day.
- A specific recommendation for at least 8 ounce equivalents of seafood per week also is included for the 2,000-calorie level.
- Caffeine is not a nutrient; it is a dietary component that functions in the body as a stimulant.!
- Caffeine can be found in coffees, teas and soda.
- Moderate coffee consumption (three to five 8-oz cups/day or providing up to 400 mg/day of caffeine) can be incorporated into healthy eating patterns.
- Individuals who do not consume caffeinated coffee or other caffeinated beverages should not be encouraged to incorporate them into their eating pattern.
- Alcohol is not a component of the USDA Food Patterns.
- The Dietary Guidelines does not recommend that individuals who do not drink alcohol start drinking for any reason.
- In addition to the information found above, health care professionals may also provide patients, depending on the individual patient's customs, beliefs and religious ideologies regarding the consumption of foods and beverages, with

information regarding specific healthy eating patterns like the ones found below:

- ***The Healthy Mediterranean-Style Eating Pattern*** - the Healthy Mediterranean-Style Eating Pattern encourages the consumption of fruits, vegetables, breads, cereals, beans, nuts and seeds as well as fish, olive oil; dairy products (mainly cheese and yogurt); and small amounts of occasional red meat. To follow the Healthy Mediterranean-Style Eating Pattern, individuals should identify the appropriate calorie level, choose a variety of foods in each group and subgroup over time in recommended amounts, and limit choices that are not in nutrient-dense forms so that the overall calorie limit is not exceeded.
- ***A Healthy Vegetarian Eating Pattern*** - a Healthy Vegetarian Eating Pattern encourages the consumption of fruits, vegetables, whole grains, nuts, soy products, and fiber while omitting specific animal-derived foods.

## ***Breastfeeding Support***

Breastfeeding support may refer to any effort made to assist, guide and/or facilitate breastfeeding. Breastfeeding support can be essential to the health care of new mothers and infants. Research indicates the following: breastfeeding is recognized as the best source of nutrition for most infants; breastfeeding often results in improved infant health outcomes; breastfeeding can help lower mothers' risk of high blood pressure, type 2 diabetes, ovarian cancer, and breast cancer; breastfeeding can help women lose weight; breastfeeding may help a mother's uterus return to its pre-pregnancy size; breastfeeding may have positive psychological effects for new mothers (i.e., evidence suggests that breastfeeding may help mothers bond with their infants, which in turn can help mothers avoid any anxiety or postpartum depression associated with giving birth). Therefore, health care professionals should make efforts to provide breastfeeding support to new parents. Unfortunately, evidence suggests that breastfeeding support is an aspect of health care that is often impacted by racial and ethnic disparities. For example, evidence presented by the CDC suggests that fewer non-Hispanic black infants are ever breastfed compared with non-Hispanic white infants and Hispanic infants.

To help address the impact of racial and ethnic disparities on breastfeeding support, health care professionals should provide all patients with information and education regarding safe and effective breastfeeding (effective breastfeeding occurs when an infant receives human breast milk for ingestion; the American Academy of Pediatrics recommends exclusive breastfeeding for a period of about 6 months, followed by continued breastfeeding, while introducing complementary foods, until the child is 12

months old or older). Health care professionals should note the following: when providing patients with information and education regarding safe and effective breastfeeding, health care professionals should be cognizant of local racial and ethnic groups' customs, beliefs and religious ideologies regarding breastfeeding; health care professionals should customize their information and education regarding safe and effective breastfeeding to fit an individual patient's customs, beliefs and religious ideologies regarding breastfeeding. Health care professionals should also note the following: when developing services for breastfeeding support, health care professionals should consider the key elements of breastfeeding support, which include: the breastfeeding mother's diet, signs an infant is receiving enough breast milk, breast pumps, breast milk storage, and obstacles to breastfeeding. Specific information regarding the aforementioned key elements of breastfeeding support may be found below:

- ***Breastfeeding mother's diet*** - a healthy diet for mothers during breastfeeding is important to support the health of both the mother and the infant. Health care professionals may consider reviewing the counseling points found below when discussing diet with a breastfeeding mother or new parent:
  - Breastfeeding mothers typically require more calories to meet their nutritional needs while breastfeeding; an additional 450 to 500 kilocalories (kcal) of healthy food calories per day is recommended for well-nourished breastfeeding mothers.
  - Typically, women do not need to limit or avoid specific foods while breastfeeding.
  - Breastfeeding mothers should be aware of the following: fish is an excellent source of protein and contains essential vitamins and minerals for breastfeeding women; however, some care must be taken in deciding on the amount and types of seafood to consume; most fish contain some amount of mercury, which accumulates in fish flesh and can pass from mother to infant through breast milk; mercury can have adverse effects on the brain and the nervous system of the breastfed infant; thus, breastfeeding mothers should limit some types of fish.
  - Breastfeeding mothers should be aware of the following: caffeine passes from the mother to the infant in small amounts through breast milk, but usually does not adversely affect the infant when the mother consumes low to moderate amounts (about 300 milligrams or less per day, which is about 2 - 3 cups of coffee).

- If mothers are consuming more than 2 - 3 cups of coffee per day they should monitor their infant for the following signs of too much caffeine intake: irritability, poor sleeping patterns, fussiness, and jitteriness.
- **Signs an infant is receiving enough breast milk** - it is important for new parents to know some of the signs indicating an infant is receiving enough breast milk. The more widely accepted signs that an infant is receiving enough breast milk include the following: the child passes clear/pale yellow urine (i.e., a child passing mostly clear/pale yellow urine can be an apparent sign that a child is receiving enough breast milk; in essence, the clear/pale yellow urine can be an indication that a child is hydrated and well nourished); the child is producing consistent bowel movements; consistent sleep patterns (i.e., a child receiving enough breast milk should switch between short sleep periods and wakeful, alert periods); the child appears content after breastfeeding; the breasts feel different after breastfeeding is complete (i.e., if the child received enough breast milk, the individual breastfeeding should notice that the breast(s) feels different and/or softer).
- **Breast pumps** - breast pumps may play an important role in breastfeeding. The term breast pump may refer to any device designed and used for the removal of milk from a woman's breast. Individuals should know how to use and clean a breast pump. Health care professionals may consider reviewing the counseling points found below when discussing breast pumps and the use of breast pumps with patients and/or other individuals.
  - Individuals should wash their hands with soap and water for 20 seconds before using and/or handling a breast pump.
  - Individuals should inspect a breast pump before using it.
  - If a breast pump, or related parts, has any mold growing on it, the breast pump should be appropriately discarded.
  - For extra germ removal, individuals should sanitize breast pumps and breast pump parts at least once daily.
  - Sanitizing is especially important if a child is less than 3 months old, was born prematurely, or has a weakened immune system due to illness or medical treatment.
  - After sanitization is complete, individuals should allow the breast pump parts to air dry.
  - Once the breast pump parts are clean, individuals should store the breast pump parts in a clean, protected area to prevent contamination during storage.

- **Breast milk storage** - breast milk storage may play an important role in breastfeeding, especially for those individuals providing expressed breast milk to infants (expressed breast milk may refer to milk that has been removed from the breast(s)). Health care professionals may consider reviewing the counseling points found below when discussing the storage of breast milk with patients and/or other individuals.
  - Freshly expressed breast milk may be stored at room temperature for up to four hours; freshly expressed breast milk may be stored in the refrigerator for up to four days.
  - Freshly expressed breast milk may be stored in the freezer for up to 12 months, although frozen breast milk is best six months after freezing.
  - When storing breast milk individuals should use breast milk storage bags or clean food-grade containers with tight fitting lids made of glass or plastic to store expressed breast milk.
  - Individuals should never store breast milk in disposable bottle liners or plastic bags that are not intended for storing breast milk.
  - Individuals should not store breast milk in the door of the refrigerator or freezer due to the potential for temperature changes when the refrigerator/freezer door is opened.
  - If freshly expressed breast milk will not be used within four hours of removal from the breast, it should be frozen right away to help to protect the quality of the breast milk.
  - Individuals should use breast milk within 24 hours of thawing in the refrigerator.
  - Once breast milk is brought to room temperature after storing in the refrigerator or freezer, it should be used within 2 hours.
  - Individuals should never refreeze breast milk once it has been thawed.
  - Breast milk does not need to be warmed; it can be served to a child at room temperature or cold.
  - Before providing the breast milk to a child, individuals should swirl the breast milk to mix the fat, which may have separated.
  - If a child does not finish his or her breast milk, the leftover breast milk may still be used within 2 hours after the child is finished feeding. However, after 2 hours, leftover breast milk should be appropriately discarded.

- **Obstacles to breastfeeding** - for many individuals the breastfeeding process will be enjoyable and free of obstacles. However, breastfeeding is not without its potential difficulties. Therefore, a portion of breastfeeding support should focus on the potential obstacles associated with breastfeeding and strategies to overcome such obstacles. Information on the potential obstacles of breastfeeding and strategies to overcome such obstacles may be found below.
  - **An insufficient breast milk supply** - most women will produce enough breast milk to sustain their infants. However, for some mothers, an insufficient breast milk supply may be a concern. To overcome an insufficient breast milk supply mothers should remember the following: the more often the breasts are emptied, the more milk they will produce; mothers can offer both breasts at breastfeeding sessions to encourage emptying and, ultimately, the production of more breast milk.
  - **An oversupply of breast milk** - some women may be concerned with producing too much breast milk. To overcome the possibility of an oversupply of breast milk, parents may want to consider the following: if a breast feels too full and/or uncomfortable, a woman may remove the breast milk by hand or by breast pump; burp the infant during breastfeeding to encourage breast milk consumption and the emptying of breast milk from the breast.
  - **Strong let-down reflex** - along with producing too much milk, some women may be concerned that they may have a strong let-down reflex. A strong let-down reflex may cause milk to rush out of the breast. Women can overcome a strong let-down reflex by holding their nipples with their fingers when breastfeeding to compress the milk ducts and reduce the flow of milk.
  - **Breast enlargement** - it is natural for women's breasts to become larger, heavier and slightly tender when they begin producing milk. However, some women's breasts can become so large that they experience pain, tenderness, warmth, and/or redness. When breasts reach the point where they cause pain, tenderness, warmth, and/or redness they are said to be engorged. Essentially, breast engorgement is a result of breast milk build up, and should be avoided when possible. Health care professionals may consider reviewing the following counseling points when discussing breast engorgement: breast engorgement typically occurs between the 3 - 5 day after a woman gives birth; it should be noted that breast engorgement may occur at any time during breastfeeding, especially when breast milk is not regularly removed from the breast; women can prevent breast engorgement by breastfeeding often after giving birth; women can overcome breast

engorgement by removing breast milk by hand or with a breast pump; women can overcome the pain associated with engorgement by massaging the breasts.

- **Plugged duct(s)** - plugged duct(s), otherwise referred to as a plugged milk duct(s), can be common in breastfeeding women. When a milk duct is plugged it typically feels like a hard, tender swelling in the breast(s). Women can overcome plugged ducts by adhering to the following recommendations: women should breastfeed on the affected side every two hours, which will help loosen the plug and keep breast milk flowing; women should massage the area, starting behind the sore spot, by moving their fingers in a circular motion toward the nipple; women should try to relax and get as much sleep as possible; relaxation and sleep can help release tension, which in turn may help heal the plugged duct.
- **Sore nipples** - one of the more common obstacles women may face while breastfeeding is sore nipples. Sore nipples can often prevent women from breastfeeding infants. Thus, health care professionals should provide women with methods or strategies to overcome or prevent sore nipples. Health care professionals may consider reviewing the following methods/strategies to overcome or prevent sore nipples: women should change positions or breastfeeding holds each time they breastfeed; after breastfeeding, women should express a few drops of milk and gently rub it over the nipples with clean hands; human breast milk has natural healing properties and oils that often soothe tender areas; women should allow the nipples and breast(s) to air-dry after breastfeeding.
- **Breast infection** - breast infections may present as soreness or a lump in the breast and may lead to the following symptoms: fever, nausea, vomiting, and/or yellow discharge from the nipple(s). Health care professionals may consider reviewing the following counseling points when discussing breast infections: breast infections may require health care treatment; women should seek health care if both breasts are affected and/or they observe pus or blood in their breast milk.
- **Breastfeeding an infant with jaundice** - some infants may experience jaundice. Jaundice results from a buildup of bilirubin. Jaundice typically presents as a yellowing of the skin and eyes. Health care professionals may consider reviewing the following counseling points when discussing jaundice and breastfeeding: jaundice can occur early on in an infant's life; jaundice may develop if an infant does not get enough breast milk; jaundice is typically not harmful; more frequent breastfeeding can help clear up

jaundice; some infants may require health care if they develop jaundice, although jaundice often clears up naturally on its own.

- ***Gastroesophageal reflux disease (GERD)*** - some infants may develop GERD. Health care professionals may consider reviewing the following counseling points when discussing GERD and breastfeeding: symptoms of GERD include the following: spitting up, projectile vomit, inconsolable crying, obvious discomfort, refusing to eat, waking during the night, and problems swallowing; it is important for a woman to continue breastfeeding even if an infant exhibits signs of GERD; severe GERD cases may require health care intervention.
- ***Colic*** - the term colic may refer to periods of frequent and/or prolonged distress from an otherwise healthy infant. Typically, when infant colic occurs, the infant may inconsolably cry and/or fuss. Health care professionals may consider reviewing the following counseling points when discussing colic and breastfeeding: infant colic usually starts between 2 and 4 weeks after birth; infant colic will likely improve or disappear by 3 or 4 months after birth; infant colic may be caused by a breastfeeding woman's diet; dietary changes, such as limiting caffeine, can help alleviate colic; infant colic may be a sign of an underlying issue with an infant.

## ***Section 2: Summary***

It is important for health care professionals to possess an understanding of the conditions and aspects of health care that are most impacted by racial and ethnic disparities. The conditions and aspects of health care that are most impacted by racial and ethnic disparities include: diabetes, obesity, nutrition and breastfeeding support. To help address the impact of racial and ethnic disparities on diabetes, obesity, nutrition and breastfeeding support, health care professionals should counsel all patients on the aforementioned conditions and aspects of health care as well as provide related health care to all patients in need.

## ***Section 2: Key Concepts***

- Evidence presented by the CDC indicates that diabetes is greatly impacted by racial and ethnic disparities; evidence presented by the CDC indicates that the risk of having a diabetes diagnosis is higher among African Americans, Hispanics, and among Asian Americans when compared to non-Hispanic white adults.
- Research suggests that the prevalence of obesity in the U.S. is greatly impacted by racial and ethnic disparities; research presented by the CDC indicates that from

2015 - 2016, Hispanic and non-Hispanic black adults had a higher prevalence of obesity than non-Hispanic white adults.

- Evidence suggests that nutrition is an aspect of health care that is often impacted by racial and ethnic disparities; evidence presented by the CDC suggests that African Americans are less likely to consume fruits and vegetables 5 or more times per day, when compared to other racial or ethnic groups.
- Evidence presented by the CDC suggests that fewer non-Hispanic black infants are ever breastfed compared with non-Hispanic white infants and Hispanic infants.
- To help address the impact of racial and ethnic disparities on diabetes, obesity, nutrition and breastfeeding support, health care professionals should counsel all patients on the aforementioned conditions and aspects of health care as well as provide related health care to all patients in need, when applicable.
- When providing patients with information, education, and care regarding diabetes, obesity, nutrition and breastfeeding support, health care professionals should be cognizant of local racial and ethnic groups' customs, beliefs and religious ideologies regarding diabetes, obesity, nutrition and breastfeeding support; health care professionals should customize their information and education regarding diabetes, obesity, nutrition and breastfeeding support to fit an individual patient's customs, beliefs and religious ideologies regarding diabetes, obesity, nutrition and breastfeeding support.

## Section 2: Key Terms

- **Diabetes** - a chronic condition that affects how the body produces and/or responds to insulin
- **Prediabetes** - a condition characterized by blood sugar levels that are higher than normal, but not high enough to be diagnosed as type 2 diabetes
- **Type 1 diabetes** (otherwise referred to as *juvenile diabetes* or *insulin-dependent diabetes*) - a chronic condition in which the pancreas produces little or no insulin
- **Insulin** - a hormone that affects blood sugar and the conversion of blood sugar into energy
- **Hypoglycemia** - low blood sugar and/or a condition characterized by low blood sugar
- **Type 2 diabetes** (otherwise referred to as *adult onset diabetes*) - a chronic condition that affects the way the body processes and uses insulin

- **Hyperglycemia** - high blood sugar and/or a condition characterized by high blood sugar
- **Obesity** - a condition characterized by abnormal or excessive fat accumulation, which may impair health
- **Body mass index (BMI)** - a value derived from an individual's weight and height
- **Anthropometric** - the science which deals with the measurement of the size, weight, and proportions of the human body
- **Waist circumference** - a measurement taken around an individual's abdomen at the level of the umbilicus, otherwise referred to as the belly button
- **Personal protective equipment (PPE)** - equipment designed to protect, shield and minimize exposure to hazards that may cause serious injury, illness and/or disease
- **Hand hygiene** - any action of hand cleansing
- **Portion control** - a method of moderating an individual's diet by determining the number of calories in each serving of food, and limiting consumption to fall below a predetermined number of calories to help individuals lose and maintain a healthy weight
- **Self-monitor (as it relates to weight loss and weight maintenance)** - the act of observing and recording aspects of behavior related to weight, weight loss and weight maintenance
- **Physical activity** - any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level; the subset of physical activity that enhances health
- **Older adults** - individuals 65 years and older
- **Eating pattern** - the combination of foods and beverages that constitute an individual's complete dietary intake over time; a customary way of eating or a combination of foods recommended for consumption
- **Breastfeeding support** - any effort made to assist, guide and/or facilitate breastfeeding
- **Breast pump** - any device designed and used for the removal of milk from a woman's breast
- **Expressed breast milk** - milk that has been removed from the breast(s)
- **Colic** - periods of frequent and/or prolonged distress from an otherwise healthy infant

## ***Section 2: Personal Reflection Question***

How can health care professionals address conditions and aspect of health care impacted by racial and ethnic disparities?

## **Section 3: Case Studies Revisited**

The case studies presented at the beginning of this course will be revisited in this section to further explore the concepts found in this course. Each case study will be re-presented below followed by a case study review. The case study review includes the types of questions health care professionals should ask themselves when attempting to address racial and ethnic disparities. Additionally, reflection questions will be posed, within the case study review, to encourage further internal debate and consideration regarding the presented case study and racial and ethnic disparities. The information found in this section of the course was derived from materials provided by the CDC, the U.S. Department of Health and Human Services, and the WHO (CDC, 2020; U.S. Department of Health and Human Services, 2015; WHO, 2020).

### ***Case Study 1***

A 24-year-old, African American, first-time mother would like to continue breastfeeding her 4-month-old infant - however, she has a few concerns regarding breastfeeding. The new mother's concerns regarding breastfeeding center around her diet, breast milk storage, and breast enlargement. Unfortunately, the mother's residence is geographically isolated and she does not have access to health care-related support. The mother continues to breastfeed her infant, however her concerns and lack of access to health care-related support eventually cause her to stop breastfeeding and, ultimately, initiate formula. Shortly after stopping the breastfeeding process, and initiating formula as the infant's main source of nutrition, the new mother observes that her infant has become lethargic, often spits-up, and often forcibly vomits.

### **Case Study 1 Review**

**What details may be relevant to racial and ethnic disparities as well as potential patient care?**

The following details may be relevant to racial and ethnic disparities as well as potential patient care: the woman is a 24-year-old, African American first-time mother; the new mother would like to continue breastfeeding her 4-month-old infant;

the new mother has concerns regarding her diet; the new mother has concerns regarding breast milk storage; the new mother has concerns regarding breast enlargement; the new mother's residence is geographically isolated and she does not have access to health care-related support; the new mother's concerns and lack of access to health care-related support eventually cause her to stop breastfeeding and, ultimately, initiate formula as the infant's main source of nutrition; the new mother observes her infant has become lethargic, often spits-up, and often forcibly vomits.

*Are there any other details that may be relevant to racial and ethnic disparities as well as potential patient care; if so, what are they?*

**How are each of the aforementioned details relevant to racial and ethnic disparities as well as potential patient care?**

Each of the previously highlighted details may be potentially relevant to racial and ethnic disparities as well as potential patient care. The potential relevance of each detail may be found below:

The woman is a 24-year-old, African American first-time mother - the previous detail may be potentially relevant to racial and ethnic disparities due to the following evidence presented by the CDC: fewer non-Hispanic black infants are ever breastfed compared with non-Hispanic white infants and Hispanic infants. The previous detail may be possibly relevant to potential patient care because it indicates a possible lack of experience regarding breastfeeding, and, thus, the possible need for breastfeeding support. Health care professionals should note the following: first-time mothers, typically, lack experience breastfeeding; health care professionals should be sure to identify first-time mothers to ensure they receive breastfeeding support; when providing breastfeeding support to new mothers, health care professionals should be sure to review the importance of breastfeeding, relevant breastfeeding recommendations, as well as address any questions and concerns the new mother may have.

The new mother would like to continue breastfeeding her 4-month-old infant - the previous detail may be potentially relevant because it indicates the woman wants to breastfeed her infant. Often the first step to effective breastfeeding occurs when the mother decides she wants to breastfeed her infant. Mothers that want to breastfeed should be encouraged to do so, unless contraindications are present. When providing breastfeeding support to individuals that want to breastfeed their infants, health care professionals can reinforce the idea of breastfeeding by providing information relevant to the health benefits of breastfeeding (e.g., a health care professional could review the following potential health benefits associated with breastfeeding: breastfeeding may reduce/prevent infant digestion issues; breastfeeding can help lower mothers' risk of high blood pressure, type 2 diabetes, ovarian cancer, and breast

cancer; breastfeeding can help women lose weight; breastfeeding may help a mother's uterus return to its pre-pregnancy size; breastfeeding may have positive psychological effects for new mothers and can help mothers avoid any anxiety or postpartum depression associated with giving birth). Essentially, just because a woman wants to breastfeed it does not mean she fully understands the reasons why she should breastfeed. Providing information relevant to the health benefits of breastfeeding or the reasons to breastfeed could help solidify a woman's dedication to effective breastfeeding.

The new mother has concerns regarding her diet - the previous detail may be relevant because a breastfeeding mother's diet is a key element of breastfeeding support. A healthy diet for mothers during breastfeeding is important to support the health of both the mother and the infant. Health care professionals may consider reviewing the counseling points found below when discussing a breastfeeding mother's diet: breastfeeding mothers typically require more calories to meet their nutritional needs while breastfeeding; an additional 450 to 500 kilocalories (kcal) of healthy food calories per day is recommended for well-nourished breastfeeding mothers; typically, women do not need to limit or avoid specific foods while breastfeeding; breastfeeding mothers should be aware of the following: fish is an excellent source of protein and contains essential vitamins and minerals for breastfeeding women; however, some care must be taken in deciding on the amount and types of seafood to consume; most fish contain some amount of mercury, which accumulates in fish flesh and can pass from mother to infant through breast milk; mercury can have adverse effects on the brain and the nervous system of the breastfed infant; thus, breastfeeding mothers should limit some types of fish; breastfeeding mothers should be aware of the following: caffeine passes from the mother to the infant in small amounts through breast milk, but usually does not adversely affect the infant when the mother consumes low to moderate amounts (about 300 milligrams or less per day, which is about 2 - 3 cups of coffee); if mothers are consuming more than 2 - 3 cups of coffee per day they should monitor their infant for the following signs of too much caffeine intake: irritability, poor sleeping patterns, fussiness, and jitteriness.

The new mother has concerns regarding breast milk storage - the previous detail may be relevant because breast milk storage is a key element of breastfeeding support. Individuals who are providing expressed breast milk to an infant should understand how to effectively store breast milk to ensure infant safety. Health care professionals should provide, at the very least, some practical information regarding breast milk storage such as the following: freshly expressed breast milk may be stored at room temperature for up to four hours; freshly expressed breast milk may be stored in the refrigerator for up to four days; freshly expressed breast milk may be stored in the freezer for up to 12 months, although frozen breast milk is best six months after

freezing; when storing breast milk individuals should use breast milk storage bags or clean food-grade containers with tight fitting lids made of glass or plastic to store expressed breast milk; individuals should never store breast milk in disposable bottle liners or plastic bags that are not intended for storing breast milk; individuals should not store breast milk in the door of the refrigerator or freezer due to the potential for temperature changes when the refrigerator/freezer door is opened; if freshly expressed breast milk will not be used within four hours of removal from the breast, it should be frozen right away to help to protect the quality of the breast milk; individuals should use breast milk within 24 hours of thawing in the refrigerator; once breast milk is brought to room temperature after storing in the refrigerator or freezer, it should be used within 2 hours; individuals should never refreeze breast milk once it has been thawed; breast milk does not need to be warmed; breast milk can be served to a child at room temperature or cold; before providing the breast milk to a child, individuals should swirl the breast milk to mix the fat, which may have separated; if a child does not finish his or her breast milk, the leftover breast milk may still be used within 2 hours after the child is finished feeding - however, after 2 hours, leftover breast milk should be appropriately discarded.

The new mother has concerns regarding breast enlargement - the previous detail may be relevant because breast enlargement may represent an obstacle to breastfeeding. Health care professionals should note the following: it is natural for a woman's breasts to become larger, heavier and slightly tender when they begin producing milk; however, some women's breasts can become so large that they experience pain, tenderness, warmth, and/or redness; when breasts reach the point where they cause pain, tenderness, warmth, and/or redness they are said to be engorged. Health care professionals may consider reviewing the following counseling points when discussing breast engorgement with parents: breast engorgement typically occurs between the 3 - 5 day after a woman gives birth; it should be noted that breast engorgement may occur at any time during breastfeeding, especially when breast milk is not regularly removed from the breast; women can prevent breast engorgement by breastfeeding often after giving birth; women can overcome breast engorgement by removing breast milk by hand or with a breast pump; women can overcome the pain associated with engorgement by massaging the breasts.

The new mother's residence is geographically isolated and she does not have access to health care-related support - the aforementioned detail may be relevant because it represents a possible roadblock to care/breastfeeding support.

The new mother's concerns and lack of access to health care-related support eventually cause her to stop breastfeeding and, ultimately, initiate formula as the infant's main source of nutrition - the previous detail is relevant because of the following recommendation: the American Academy of Pediatrics recommends

exclusive breastfeeding for a period of about 6 months, followed by continued breastfeeding, while introducing complementary foods, until the child is 12 months old or older (in the context of this course the term formula may refer to any human milk substitute intended for infant consumption).

The new mother observes her infant has become lethargic, often spits-up, and often forcibly vomits - the previous patient detail is relevant because it may indicate the infant is experiencing digestive problems as a result of the formula. Health care professionals should note the following: evidence suggests that human breast milk is easier for infants to digest when compared to formulas. Health care professionals should also note that an infant may require health care if he or she exhibits the following symptoms: lethargy, often spitting-up, vomiting forcibly or often, and vomiting blood or bile.

*What other ways, if any, are the previous details relevant to racial and ethnic disparities/potential patient care?*

**What health care-related services and/or tools may be used to provide the individual in Case Study 1 with relevant health care?**

Many different health care-related services and/or tools may be used to provide the individual in Case Study 1 with relevant care. However, based on the following identified, potential roadblock to care, telehealth may be the most useful: the new mother's residence is geographically isolated and she does not have access to health care-related support. Telehealth may refer to the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration. Essentially, telehealth may be used to provide the individual in Case Study 2 with access to breastfeeding support. Health care professionals should note the following information regarding telehealth: a range of technologies may be used to support the delivery of telehealth including the following: text messaging, smartphone apps for mobile phones, websites and computers, standard and wireless telephones, live and asynchronous video, virtual reality, and/or artificial intelligence (AI). Health care professionals should also note the potential benefits of telehealth, which may be found below.

Telehealth has the potential to reach more individuals compared to the traditional in-person programs - telehealth is less restricted by distance, geography, and time barriers - potentially creating greater accessibility to individuals seeking health care.

Patient convenience - as previously alluded to, telehealth may be more convenient for patients. Essentially, telehealth can help patients avoid traveling to health care facilities, transportation costs associated with traditional in-person health care, any anxiety typically associated with traditional in-person health care, and long wait

times. Additionally, telehealth offers patients the option to receive access to health care in locations where they are most comfortable.

Timely access to locally unavailable health care services - telehealth can potentially offer individuals timely access to vital health care services that may not be, otherwise, available in their local vicinity or area of residence (e.g., breastfeeding support programs). In other words, telehealth can potentially provide patients with increased access to health care specialists, health care services, and health care programs which may not be available and/or offered to them in the traditional in-person health care capacity.

Increased communication - telehealth-related technologies, such as specific mobile health applications, can allow patients and health care professionals the option to communicate health care information in a timely, effortless manner not offered in the traditional in-person health care capacity.

Allows for real-time interactions between patients and health care professionals - live video telehealth services can provide patients and health care professionals the opportunity to communicate in real time in order to simulate and achieve the goals of traditional in-person health care interactions as well as share vital health care information. Health care professionals should note that live video telehealth technologies may be used by health care professionals to provide health care services to patients that may not have access to health care due to their geographic location. Health care professionals should also note that live video telehealth technologies may be used by health care professionals to provide health care services to patients that may not be able to obtain health care in traditional in-person settings due to a physical disability or other health-related reason(s).

Allows for the transmission of recorded health information (e.g., an x-ray or prerecorded video) - store-and-forward telehealth technologies can transmit recorded health care information (e.g., an x-ray or prerecorded video) through electronic communication systems to health care professionals who may use such information to evaluate and provide health care services to patients in need. Health care professionals should note that store-and-forward telehealth technologies may be used by health care professionals to provide health care services to patients that may not have accessible access to health care due to their geographic location. Health care professionals should also note that store-and-forward telehealth technologies may be used by health care professionals to provide health care services to patients that may not be able to obtain health care in traditional in-person settings due to a physical disability or other health-related reason(s).

Remote patient monitoring - telehealth can allow for remote patient monitoring. Remote patient monitoring may refer to the use of telehealth-related technologies to

collect individuals' health care-related data in one location and electronically transmit it to health care professionals in a different location for assessment and recommendations. Health care professionals should note the following: remote patient monitoring programs can collect a wide range of health care data from the point of care, such as: vital signs, weight, blood pressure, blood sugar, blood oxygen levels, heart rate, and electrocardiograms; remote patient monitoring may also be beneficial to disabled individuals. Health care professionals should also note the following: remote patient monitoring may be used by health care professionals as a means to help reduce hospital admissions and hospital readmissions.

Patient prescriptions may be ordered via telehealth technologies - patient prescriptions may be ordered via telehealth technologies based on information obtained by telehealth platforms and data collected via remote patient monitoring.

Improved patient outcomes - telehealth can potentially increase individuals' access to health care, allow for remote patient monitoring, and be used as a means to reduce hospital admissions and hospital readmissions as well as the transmission of infectious diseases - all of which can lead to improved patient outcomes.

*Are there any other health care-related services and/or tools that may be used to provide the individual in Case Study 1 with relevant health care; if so, what are they?*

**Is it possible that breastfeeding support, via telehealth, could help the new mother from Case Study 1?**

Yes, based on the information presented in the case study, it does appear breastfeeding support, via telehealth, may possibly help the mother effectively breast feed her infant.

Retrospectively, breastfeeding support could have addressed the mother's questions and concerns regarding breastfeeding. Moreover, it is possible that breastfeeding support could have prevented the mother from stopping breastfeeding and initiating formula as her 4-month-old infant's main source of nutrition, which in turn may have prevented the infant's potential digestive issues.

Health care professionals should note that, moving forward, breastfeeding support could still be beneficial to the new mother. For example, adequate breastfeeding support, via telehealth, could help the new mother address her infant's potential digestive issues/problems and reinstate effective breastfeeding.

*Are there any other ways breastfeeding support, via telehealth, could help the new mother effectively breastfeed her infant; if so, what are they?*

## Case Study 2

A 40-year-old Hispanic, obese male individual would like to lose weight. However, he is not sure how to go about losing weight in a healthy manner. The individual has tried to lose weight in the past but has been unsuccessful due to a lack of access to health care resources. The individual has many questions regarding how body mass index (BMI), waist circumference and physical activity apply to weight loss. The individual is eager to receive answers to his questions and lose weight, but he fears he will be unable to do so because of his lack of access to health care resources. Despondent by a lack of access to health care resources, the patient temporarily gives up on weight loss and continues to steadily gain weight.

### Case Study 2 Review

**What details may be relevant to racial and ethnic disparities as well as potential patient care?**

The following details may be relevant to racial and ethnic disparities as well as potential patient care: a 40-year-old Hispanic, obese male individual would like to lose weight; the individual is not sure how to go about losing weight in a healthy manner; the individual has tried to lose weight in the past but has been unsuccessful due to a lack of access to health care resources; the individual has questions regarding body mass index (BMI); the individual has questions regarding waist circumference; the individual has questions regarding physical activity; the individual is eager to receive answers to his questions and lose weight; despondent by a lack of access to health care resources, the patient temporarily gives up on weight loss and continues to steadily gain weight.

*Are there any other details that may be relevant to racial and ethnic disparities as well as potential patient care; if so, what are they?*

**How are each of the aforementioned details relevant to racial and ethnic disparities as well as potential patient care?**

Each of the previously highlighted details may be potentially relevant to racial and ethnic disparities as well as potential patient care. The potential relevance of each detail may be found below.

A 40-year-old Hispanic, obese male individual would like to lose weight - the previous detail may be potentially relevant to racial and ethnic disparities due to the following evidence presented by the CDC: from 2015 - 2016, Hispanic and non-Hispanic black adults had a higher prevalence of obesity than non-Hispanic white adults. The previous detail may be possibly relevant to potential patient care because it indicates a need for weight loss treatment.

The individual is not sure how to go about losing weight in a healthy manner - the previous detail may be potentially relevant because it also indicates the need for weight loss treatment.

The individual has tried to lose weight in the past but has been unsuccessful due to a lack of access to health care resources - the previous detail is potentially relevant because it provide a context for possible weight loss treatment. The previous detail is also potentially relevant because it points to the presence of a possible roadblock to health care (i.e., there is an element, which may be social, cultural, economical or related to geographic isolation, that is preventing the individual from accessing health care/health care resources).

The individual has questions regarding body mass index (BMI) - the aforementioned detail is relevant because BMI may be used to help a health care professional identify obese individuals. Health care professionals should note the following: BMI may refer to a value derived from an individual's weight and height; an adult may be considered to be obese when his or her BMI is greater than or equal to 30 kg/m<sup>2</sup>; health care professionals may use the following formula to calculate an individual's BMI:  $BMI = \text{weight (kg)} / \text{height (m)}^2$ ; health care professionals may also use the following formula to calculate an individual's BMI:  $BMI = \text{weight (lb)} / [\text{height (in)}]^2 \times 703$ .

The individual has questions regarding waist circumference - the aforementioned detail is relevant because waist circumference may be used to assess abdominal fat content. Health care professional should note the following: waist circumference may refer to a measurement taken around an individual's abdomen at the level of the umbilicus, otherwise referred to as the belly button. Health care professionals should also note the following: measuring waist circumference can help screen patients for possible health risks that come with being overweight and obesity; if most of a patient's fat is around the waist rather than at the hips, then he or she may be at a higher risk for heart disease and type 2 diabetes; the aforementioned risk goes up with a waist size that is greater than 35 inches for women/greater than 40 inches for men.

The individual has questions regarding physical activity - the aforementioned detail is relevant because physical activity may be instrumental to weight loss. Health care professionals should note the following: all adults (ages 18 - 64 years) should avoid inactivity; some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits; for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity; aerobic activity should be performed in episodes

of at least 10 minutes, and preferably, it should be spread throughout the week; for additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity; additional health benefits are gained by engaging in physical activity beyond the aforementioned amount; adults should also include muscle-strengthening activities that involve all major muscle groups on 2 or more days a week.

The individual is eager to receive answers to his questions and lose weight - the previous detail may be relevant because it reveals that the individual, at some level, is willing to commit to losing weight. Health care professionals should note that often patient commitment is the first step to successful weight loss.

Despondent by a lack of access to health care resources, the patient temporarily gives up on weight loss and continues to steadily gain weight - the previous detail may be relevant because it indicates a need for weight loss treatment. The previous detail may be relevant because it reveals the need for a health care-related service or tool that can help increase access to health care and health care resources.

*What other ways, if any, are the previous details relevant to racial and ethnic disparities/potential patient care?*

**What health care-related services and/or tools may be used to provide the individual in Case Study 2 with relevant health care?**

Many different health care-related services and/or tools may be used to provide the individual in Case Study 2 with relevant health care. With that said, the individual from Case Study 2 may also benefit from telehealth. It is not overall apparent as to why the individual in Case Study 2 cannot access health care, however, telehealth may be a means to help increase potential access to needed care.

*Are there any other health care-related services and/or tools that may be used to provide the individual in Case Study 2 with relevant health care; if so, what are they?*

**Is it possible that weight loss treatment, via telehealth, could help the individual from Case Study 2?**

Yes, based on the information presented in the case study, it does appear weight loss treatment, via telehealth, may possibly help the individual from Case Study 2. Essentially, weight loss treatment, via telehealth, could help the individual answer any question he may have and could help the individual receive weight loss information, education, monitoring and the necessary support to, ultimately, lose weight.

*Are there any other ways weight loss treatment, via telehealth, could help the individual from Case Study 2 effectively lose weight; if so, what are they?*

### **Section 3: Summary**

Health care professionals should make an effort to identify individuals impacted by racial and ethnic disparities. Health care professionals should also make an effort to reach such individuals in order to ensure they receive safe and effective health care, when applicable. Such efforts can help address racial and ethnic disparities and limit its impact on those who require care.

### **Section 3: Key Concepts**

- Health care professionals should make an effort to identify individuals impacted by racial and ethnic disparities.
- Health care professionals should work to identify health care-related services and/or tools that may be used to provide individuals with access to relevant and needed health care.
- Telehealth may be a means to provide individuals with access to relevant and needed health care.

### **Section 3: Key Terms**

- **Formula (in the context of this course)** - any human milk substitute intended for infant consumption
- **Telehealth** - the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration
- **Remote patient monitoring** - the use of telehealth-related technologies to collect individuals' health care-related data in one location and electronically transmit it to health care professionals in a different location for assessment and recommendations

### **Section 3: Personal Reflection Question**

How can health care professionals use relevant health care-related services and/or tools to address racial and ethnic disparities and provide care to individuals in need?

## Conclusion

The term racial and ethnic disparities, when applied to the health care system, may refer to differences in the quality of health care among specific racial and ethnic groups; differences in health care which often lead to a lower quality of health care, negative health care outcomes, and higher patient morbidity and mortality rates among specific racial and ethnic groups. In an ideal health care system racial and ethnic disparities would not exist. Unfortunately, evidence suggests, that racial and ethnic disparities do exist within the current health care system. That being the case, health care professionals can help prevent and limit racial and ethnic disparities when administering health care to patients in need by possessing insight into the ethical safeguards, laws, and programs which have been established to address racial and ethnic disparities within the health care system.

The conditions and aspects of health care that are most impacted by racial and ethnic disparities include: diabetes, obesity, nutrition, and breastfeeding support. To help address the impact of racial and ethnic disparities on diabetes, obesity, nutrition, and breastfeeding support, health care professionals should counsel all patients on the aforementioned conditions and aspects of health care as well as provide related health care to all patients in need, when applicable.

Finally, health care professionals should make an effort to identify individuals impacted by racial and ethnic disparities. Health care professionals should also make an effort to reach such individuals, via health care related services and tools such as telehealth, in order to ensure they receive safe and effective health care, when applicable. Such efforts can help address racial and ethnic disparities and limit its impact on those individuals who require care.

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