

Diabetes



DIABETES

Self-Assessment/Pre-Test *(to be completed before reading Diabetes content)*

1. In people with diabetes, which of the following is at higher-than-normal levels in the blood?
 - a. water
 - b. glucose
 - c. sodium

 2. Which hormone is important in diabetes and helps cells absorb glucose?
 - a. insulin
 - b. glucagon
 - c. oxytocin
 - d. testosterone

 3. In which type of diabetes does the body stop producing enough insulin?
 - a. type I
 - b. type II
 - c. type III
 - d. type IV

 4. What is the most common type of diabetes?
 - a. type I
 - b. type II
 - c. type III
 - d. type IV

 5. Which of the following is not a possible complication of diabetes?
 - a. diabetic ketoacidosis
 - b. cardiovascular disease
 - c. nerve damage
 - d. Alzheimer's disease
 - e. digestive problems
 - f. sexual dysfunction

 6. Which of the following may indicate that someone has undiagnosed diabetes?
 - a. frequent urination
 - b. increased thirst
 - c. darkened skin folds
 - d. all of the above

 7. Which of the following is not a risk factor for developing type II diabetes?
 - a. under age 20
 - b. obesity
 - c. high blood pressure
 - d. high cholesterol
 - e. history of cardiovascular disease
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8. Which of the following is an appropriate treatment for diabetes?
- a. dietary modification
 - b. aerobic exercise
 - c. medications that reduce blood glucose levels
 - d. insulin therapy
 - e. all of the above
9. In general, how often should people with diabetes who are doing well see a health care professional for follow-up?
- a. once a year
 - b. at least once every three to six months
 - c. at least once a month
 - d. at least once a week

Answers: 1(b), 2(a), 3(a), 4(b), 5(d), 6(d), 7(a), 8(e), 9(b)

DIABETES

Supporting Information for Outreach Workers

Updated Sept 2014

What is diabetes, and why does it occur?

Diabetes is a group of diseases marked by high levels of blood glucose, also called blood sugar, resulting from problems in how insulin is produced, how insulin works, or both. People with diabetes may develop serious complications such as heart disease, stroke, kidney failure, blindness, and premature death.

When people eat and digest food, the body breaks down the food into molecules that circulate in the bloodstream. These molecules are absorbed by cells and used for energy production and growth. One of these molecules is glucose and is an especially important molecule which many cells need to be able to carry out their normal functions. To allow these cells to absorb glucose from the bloodstream, the body also produces a hormone called insulin. If the body stops producing enough insulin or the cells that absorb glucose become resistant to the action of insulin, glucose will not be removed from the bloodstream, causing high blood glucose levels. This condition is referred to as diabetes mellitus, or more commonly, just diabetes. Once an individual develops diabetes, it can be treated to reduce or delay the development of complications, but the disease cannot be cured. Although diabetes may run in families due to genetic factors, it is not a contagious disease and thus cannot be passed from person to person.

There are three main types of diabetes: Type I, Type II and Gestational Diabetes. Type I diabetes, which was previously called insulin-dependent or juvenile-onset diabetes, is caused when the body becomes unable to produce enough insulin. About 5% of adults with diabetes have Type I diabetes. Although Type I can occur at any age, the peak age for diagnosis is in the mid-teens. To survive, people with type I diabetes must have insulin delivered by injection or a pump. This type of diabetes is caused when the body's immune system attacks its own insulin-producing cells and is not related to obesity or a family history of diabetes. It often occurs in thin- to normal-weight people, and although its development may be affected by environmental factors, it cannot be prevented by lifestyle modifications. The life expectancy of people diagnosed with type I diabetes before age 30 is 10-15 years less than that of the general population, usually due to kidney failure or heart disease.

Type II diabetes, which was previously called non-insulin-dependent diabetes or adult-onset diabetes, is caused when cells become resistant to insulin and fail to remove the appropriate amount of glucose from the blood. About 95% of adults with diabetes have Type II diabetes. In the past it occurred primarily in individuals over age 40, although Type II diabetes is now developing more often in younger adults and children due to the increased prevalence of obesity, which is a significant risk factor. Type II diabetes usually begins with insulin resistance. The body compensates for this resistance by increasing the production of insulin. As the need for insulin rises, the body eventually becomes exhausted and loses the ability to produce sufficient quantities of the hormone. This explains why many Type II diabetics eventually need injections of insulin in addition to their diet and oral medication to control their blood glucose levels. The life expectancy in individuals with type II diabetes is about one-third less than individuals of the same age (e.g. a healthy 40-year-old might expect to live to age 85, whereas a 40-year-old with diabetes might only expect to live to age 70).

Supporting information for outreach workers: Diabetes – 2

If cells have developed some resistance to insulin, but the resistance is not severe enough to be classified as diabetes, an individual may be diagnosed with pre-diabetes which can later develop into type II diabetes. It is estimated that an astonishing 37% of the adults in the US have pre-diabetes. Studies have shown that by losing weight and increasing physical activity people can prevent or delay pre-diabetes from progressing to diabetes.

Gestational diabetes occurs in 2-10% of pregnancies. Gestational diabetes is a form of glucose intolerance diagnosed during the second or third trimester of pregnancy. It is important to diagnose and treat as increasing blood glucose levels during pregnancy increase the risk for both mother and fetus. Treatment may include diet, regular physical activity, oral medication or insulin. Shortly after pregnancy, 5% to 10% of women with gestational diabetes continue to have high blood glucose levels and are diagnosed as having diabetes, usually Type II. The risk factors for gestational diabetes are similar to those for Type II diabetes. The occurrence of gestational diabetes itself is a risk factor for developing recurrent gestational diabetes with future pregnancies and subsequent development of Type II diabetes. Women who have had gestational diabetes have a 35 to 60% chance of developing Type II diabetes in the next 10 to 20 years. Also, the children born to women who had gestational diabetes may be at increased risk themselves of eventually developing obesity and diabetes.

Diabetes is much more common than many people realize and rapidly increasing in prevalence. The prevalence of diabetes for various groups within the United States in 2012 is listed below: (source: National Diabetes Statistics Report – 2014, CDC)

Group	Prevalence
All U.S. residents	9.3%
People under 20	0.25%
People age 20 or older	12.3%
People age 65 or older	25.9%
Men over age 20	13.6%
Women over age 20	11.2%
Non-Hispanic whites over 20	7.6%
Non-Hispanic blacks over 20	13.2%
Mexican Americans over 20	13.9%
American Indians and Alaskan Natives over 20	15.9%

What can happen if diabetes is not treated appropriately?

Diabetes was the seventh leading cause of death listed on U.S. death certificates in 2010, even though it is likely to be under-reported as a cause of death. It is a serious disease that can have many complications if it is not kept under control. Two conditions that may occur in undiagnosed or untreated diabetes due to high blood sugar levels are diabetic ketoacidosis or non-ketotic hyperglycemia. These conditions can be life-threatening and must be treated immediately. Initial symptoms may include increased urination, increased thirst, and unintended weight loss, and as the condition worsens, individuals may develop visual changes, seizures, dizziness, confusion, nausea/vomiting, abdominal pain, and coma. An individual with these symptoms should seek medical care immediately.

Supporting information for outreach workers: Diabetes – 3

The most common chronic medical conditions that can be caused or worsened by diabetes are cardiovascular disease (heart attack and stroke) and diabetic neuropathy (damage to the nerves). Heart attack and stroke are the most lethal complications; about 68% of people with diabetes will ultimately die from heart disease or stroke.

Other common complications of diabetes include the following:

- High blood pressure: 71% of diabetics also have blood pressure greater than 140/90
- High blood cholesterol: 65% of diabetics have high cholesterol, due to their increased risk of heart attack and stroke, most are prescribed a cholesterol lowering medication
- Neuropathy: pain, numbness, burning of feet and hands
- Sexual problems: erectile dysfunction
- Eye damage and vision problems: may eventually cause blindness
- Kidney damage: may result in kidney failure
- Foot problems due to nerve damage or poor circulation: may result in foot ulcers or gangrene requiring amputations
- Skin problems: may include more frequent bacterial or fungal infections, itching, development of darkened, brown, or scaly patches, loss of sensation, rashes, bumps, and blisters
- Gastroparesis: nerve damage causes delay of stomach emptying, possibly resulting in heartburn, nausea, vomiting, abdominal bloating, and reflux
- Dry mouth, tooth decay, and gum disease
- Depression

What are some symptoms or signs that may indicate that a person has diabetes?

A symptom is something that an individual can feel but that cannot be directly observed by another person, like nausea, and a sign is something that can be directly observed and recorded by another person, like weight loss. Many of the symptoms or signs present in undiagnosed or untreated diabetes are due to the complications described above.

Frequent urination, increased thirst, and unintended weight loss are more commonly seen in type I diabetes. Most people with type II diabetes have no symptoms initially but can develop visual difficulties, unexplained numbness or tingling, and darkened skin folds around their neck. They may also be more susceptible to infections. In 2012, it was estimated that 8.1 million people living in the US have undiagnosed diabetes.

Who should be screened or tested for diabetes?

Anyone with the symptoms listed above, especially excessive thirst, frequent urination, unintended weight loss, blurred vision, or fatigue, should be tested immediately for diabetes. People who do not have any symptoms may be screened once every three years if it is determined that they may be at increased risk for developing diabetes based on known risk factors for Type II diabetes. All individuals age 45 and above without symptoms should be screened once every 3 years. Anyone under age 45 and without symptoms, but with two or more of the following risk factors should be screened once every 3 years:

- High-risk ethnicity (African-American, Hispanic-American, Native American, Pacific-American, or Pacific Islander)
 - Overweight (BMI 25 or above)
-

Supporting information for outreach workers: Diabetes – 4

- Parent, sibling, or child has diabetes
- Sedentary lifestyle (does not exercise at least 3 times per week)
- History of gestational diabetes (diabetes caused by pregnancy) or giving birth to baby weighing over 9 lbs.
- Hypertension
- Polycystic ovarian syndrome
- High cholesterol
- History of cardiovascular disease (e.g. heart attack, blocked arteries, stroke)
- Acanthosis nigricans (areas of darkened skin in creases along neck, under arms, behind elbows and knees, and in groin area)
- Recurrent infections (particularly fungal infections)

Note that most of our farmworkers are of high risk ethnicity so most only need one more risk factor to qualify for screening.

Screening or testing is usually done in one or two visits to a doctor's office which may require fasting prior to the visit. Specific blood tests can usually determine if a person has prediabetes or diabetes (see "Supplemental Information" at the end of this section for an in-depth description of these tests).

How is diabetes treated?

Diabetes can be treated and managed by healthful eating, regular physical activity, and medications to lower blood glucose levels. Another critical part of diabetes management is reducing cardiovascular disease risk factors, such as high blood pressure, high lipid levels, and tobacco use. Patient education and self-care practices also are important aspects of disease management that help people with diabetes stay healthy.



- People with type 1 diabetes must have insulin delivered by injection or a pump to survive.
 - Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and a program of regular physical activity, losing excess weight, and taking medications. Medications for each individual with diabetes will often change during the course of the disease. Insulin also is commonly used to control blood glucose in people with type 2 diabetes.
 - Blood glucose control reduces the risk of developing the eye, nerve, and kidney complications of diabetes.
 - Hypoglycemia or low blood glucose is a complication of diabetes treatment with insulin or certain oral medications that can have serious consequences such as seizures, unconsciousness, or death. Older patients with type 2 diabetes and children with type 1 diabetes are at particularly high risk for adverse outcomes associated with hypoglycemia.
 - Individual blood glucose targets, with the selection of targets based on the potential risks and benefits to the patient, are encouraged for people with diabetes.
 - Self-management education or training focuses on self-care behaviors, such as healthy eating, being active, adhering to medications, learning coping skills, and monitoring blood glucose.
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Supporting information for outreach workers: Diabetes – 5

- Many people with diabetes also need to take medications to control their blood pressure and to control their cholesterol.
- Most patients with diabetes should be seen every 3 to 6 months by their physician. Blood glucose control should be monitored by checking Hemoglobin A_{1C} levels at their doctor's office every 3 – 6 months. This blood test measures the average level of blood glucose over the past 3 months and is used both to diagnose diabetes and assess control. Ideally, this should remain less than 7% in diabetic patients.
- All diabetics should have eye exams by an eye doctor (optometrist or ophthalmologist) every year to assess for retinopathy (the development of abnormal blood vessels in the retina that are fragile and bleed easily). Bleeding into the eye is what causes blindness in diabetics. Laser surgery can be done to prevent bleeding in diabetic patients with retinopathy.
- All diabetics should have an annual flu vaccine and one pneumovax vaccine as they are at higher risk of dying from influenza and pneumonia.
- All diabetics who use tobacco should be strongly counseled to stop as it greatly increases their already high risk of dying from heart attack or stroke.

How can Type II diabetes be prevented?

Research shows that modest weight loss and regular physical activity can help prevent or delay type 2 diabetes by up to 58% in people with prediabetes. Modest weight loss means 5% to 7% of body weight, which is 10 to 14 pounds for a 200-pound person. Getting at least 150 minutes each week of physical activity, such as brisk walking, also is important. It is important to find out early if one has prediabetes or Type II diabetes, because early treatment can prevent the serious problems that diabetes can cause, such as loss of eyesight or kidney damage.

Find out if you or your farmworker could have prediabetes by following these links to the following helpful quizzes. If the quiz shows you or your farmworker could have prediabetes, talk to a health care provider as soon as possible for a screening Hemoglobin A_{1C} test. [Prediabetes Screening Test](#)  [PDF-758 KB] or [Cuestionario para la detección de la prediabetes](#)  [PDF-455 KB].

References

CDC: *National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States, 2014*. Atlanta, GA: U.S. DHHS
CDC: *National Diabetes Prevention Program*
<http://www.cdc.gov/diabetes/prevention/prediabetes.htm>

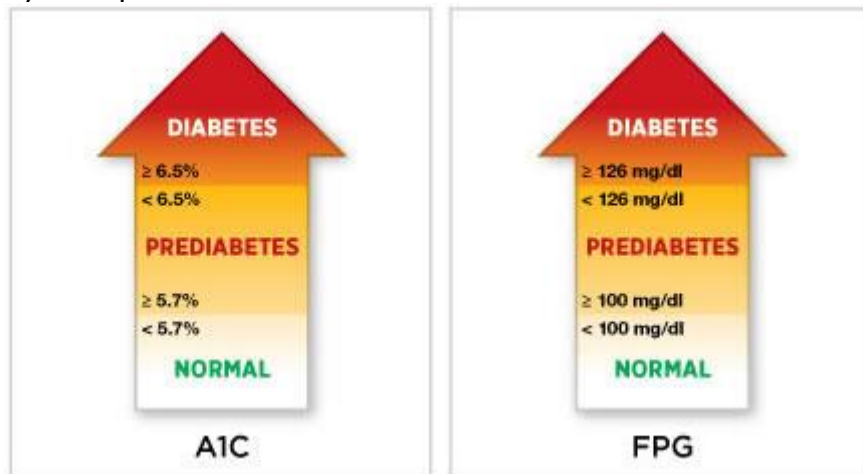
Supplemental Information

This information is more in-depth and may be reviewed if you would like to know more about how diabetes is diagnosed but does not need to be included in farmworker health education discussions (unless you are really motivated).

How is diabetes screened for and diagnosed?

Diabetes is diagnosed by measuring the level of glucose (sugar) in the blood. A person with diabetes will have higher blood glucose levels resulting from the inability of cells to take glucose out of the bloodstream due to decreased insulin production (Type I diabetes) or decreased sensitivity to insulin (Type II diabetes). One or more of the following blood tests is often used to establish a diagnosis of diabetes:

- 1) *Hemoglobin A1C test (HA1C)*: This is newly approved for diagnosis of diabetes and prediabetes and is much more convenient as the patient does not need to be fasting. Point of care (performed on site with results in 10 minutes) HA1C tests are increasingly available, although more expensive than plasma glucose tests. HA1C greater than or equal to 6.5% is diagnostic of diabetes, between 5.7% and 6.5% is diagnostic of prediabetes. Less than 5.7% is normal.
- 2) *Fasting plasma glucose (FPG)*: This used to be the ideal test for screening individuals for diabetes or confirming a diagnosis. The person being tested needs to abstain from smoking, drinking, or eating for 8 or more hours before the test. An FPG below 100 is normal. If the FPG level is between 100-125, the person may have pre-diabetes and should be re-tested in 6-12 months and then annually thereafter. If the FPG level is 126 or greater, the person may have diabetes and should be re-tested on another day as soon as possible, since two consecutive tests where the FPG level is at least 126 are required to confirm a diagnosis of diabetes.
- 3) *Random plasma glucose measurement*: This test is often used for convenience, especially on outreach, since it does not require fasting, but a person with an abnormal result (>200) must also have signs or symptoms of diabetes to be diagnosed with the condition. If the person does not have any symptoms but has an elevated test result, follow-up testing should be done to determine if he/she may have prediabetes or diabetes.



Reference:

American Diabetes Association <http://www.diabetes.org/diabetes-basics/diagnosis/>

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Self Assessment/Post-Test *(to be completed after reading Diabetes content)*

1. What causes diabetes?
 2. What are some differences between type I and type II diabetes?
 3. What are some short-term and long-term medical problems that can be caused by diabetes?
 4. List some symptoms and signs that may indicate undiagnosed diabetes.
 5. When deciding whether someone should be screened or tested for diabetes, what risk factors should be considered?
 6. Why is it important for diabetic individuals to closely monitor their blood glucose levels?
 7. What are some treatment options for someone who has been diagnosed with diabetes?
 8. Describe some diet or exercise goals that would be appropriate for treating or preventing diabetes.
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DIABETES

Self Assessment/Post-Test answers

1. What causes diabetes?

[the body becomes unable to produce enough insulin or becomes resistant to the effects of insulin, which keeps cells from utilizing glucose normally; glucose levels in the bloodstream then increase; processing of fats may also be abnormal]

2. What are some differences between type I and type II diabetes?

Type I Diabetes	Type II Diabetes
Body stops producing enough insulin	Cells become resistant to insulin
Type I = 10% of diabetes cases	Type II = 90% of diabetes cases
Usually occurs in thin or normal-weight people	Usually occurs in overweight or obese people
Generally cannot be prevented by lifestyle modifications	Can reduce risk of development through diet, exercise, and weight loss
Always requires insulin therapy	May or may not require insulin therapy
Cannot be treated with glucose-lowering (hypoglycemic) drugs	Can be treated with glucose-lowering (hypoglycemic) drugs

3. What are some short-term and long-term medical conditions that can be caused by diabetes?

[diabetic ketoacidosis, non-ketotic hyperglycemia, cardiovascular disease, diabetic neuropathy (nerve damage), eye damage and vision problems, digestive problems including gastroparesis, urinary problems, sexual dysfunction, kidney damage, foot problems, skin problems, gum disease and tooth decay, depression]

4. List some symptoms and signs that may indicate undiagnosed diabetes.

[frequent urination, increased thirst, unintended weight loss, frequent infections, vision changes, unexplained numbness or tingling, acanthosis nigricans (areas of darkened skin in creases around neck, under arms, behind elbows and knees, and in groin area)]

5. When deciding whether someone should be screened or tested for diabetes, what risk factors should be considered?

[anyone with symptoms listed above or individuals above age 45, with two or more of the following risk factors, or with a high-risk ethnicity (African-American, Hispanic-American, Native American, Pacific-American, or Pacific Islander) who also has one or more of the following risk factors: overweight or obese, immediate family member with diabetes, sedentary lifestyle, glucose intolerance or pre-diabetes, history of gestational diabetes or baby over 9 lbs. at birth, hypertension, polycystic ovarian syndrome, high cholesterol, history of cardiovascular disease, acanthosis nigricans, recurrent infections]

6. Why is it important for diabetic individuals to closely monitor their blood glucose levels?

[complications of diabetes can be delayed or prevented by keeping blood glucose in a normal range; monitoring blood glucose levels also helps determine diet, exercise, and medication needs]

Self Assessment/Post-Test Answers: Diabetes – 2

7. What are some treatment options for someone who has been diagnosed with diabetes?

[dietary modification, aerobic exercise, medications that reduce blood glucose levels, insulin therapy]

8. Describe some diet or exercise goals that would be appropriate for treating or preventing diabetes.

[healthy diet that is high in fiber, is low in fats and sweets, and follows the Diabetic Food Pyramid; weight loss through decreasing sugars, fats, and calories if obese or overweight; aerobic exercise at least 30 minutes per day five days a week]

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Teaching objectives

The facilitator and farmworker participants will discuss:

1. What is diabetes and what causes it?
 - a. inability of body to produce or respond appropriately to insulin
 - b. causes high blood glucose as well as many other complications
 - c. type I vs. type II diabetes – may be caused by body attacking insulin-producing cells or cells becoming unresponsive to insulin

 2. What are the consequences of not treating diabetes?
 - a. diabetic ketoacidosis/ non-ketotic hyperglycemia
 - b. cardiovascular disease
 - c. diabetic neuropathy (nerve damage)
 - d. other complications which may be due to or exacerbated by (b) or (c): eye damage/ vision problems, digestive problems including gastroparesis, urinary problems, sexual dysfunction, kidney damage, foot problems, skin problems, gum disease and tooth decay, depression

 3. Who should be tested or screened for diabetes?
 - a. individuals with frequent urination, increased thirst, unintended weight loss, blurred vision, and/or fatigue
 - b. individuals over age 45
 - c. individuals with two or more of the listed risk factors
 - d. individuals of high-risk ethnicity with one or more of the listed risk factors

 4. How can diabetes be treated?
 - a. monitoring and keeping blood glucose levels in normal range
 - b. insulin therapy
 - c. dietary modification
 - d. exercise
 - e. medications that lower blood glucose levels

 5. How can diabetes be prevented?
 - a. weight loss/ maintaining healthy weight
 - b. healthy diet low in fat and sugar and high in fiber
 - c. aerobic activity at least 30 minutes per day five days a week
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Motivating/Learning Activity

The motivating / learning activity is an opportunity to support knowledge acquisition and comprehension among participants on a given health topic. These activities should be interactive and should begin to engage farmworkers in critical thought about the application of health information.

This is an opportunity to engage the group and to assess the comfort level and knowledge on the subject. You may find that the workers are very familiar with the topic and only require a review, or you may find that this topic is new or that there are misconceptions or mistaken ideas among the group. For this reason, it is a good idea to briefly note comments by the workers for further discussion.

A few suggested activities are:

- Cabbage game with questions related to diabetes, causes, consequences, prevention, treatment, control, etc.
 - Show pictures of diabetes-related complications (available on <http://www.diabetes.org>) and brainstorm ways to prevent these from occurring
 - Work through one or more online tutorials on diabetes (see Recommended Resources) with farmworkers and their families (requires computer with high-speed Internet connection); choose prevention or treatment topics as appropriate
 - Read through fotonovela “Un Cambio para Lucia” with farmworker families; compare and contrast their lives with Lucia’s
 - Use “Jeopardy” game to review specifics about diabetes (especially if the group seems familiar with the topic)
 - If farmworkers already have diabetes, review their management regimen with them to assess knowledge of medications and lifestyle modifications
 - Brainstorm ways to integrate exercise and healthy eating into daily lives; discuss benefits and ways to overcome challenges
 - Put sugar water or corn syrup (“high glucose blood”) in a clear plastic bottle and water (“normal glucose blood”) in another clear plastic bottle; color both with red food color. Show farmworkers how the liquids flow differently within the bottle and explain how this is similar to the way that blood with high glucose levels (syrupy blood) flows through smaller vessels. This can help individuals better understand the impact and potential damage of high blood glucose levels.
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Empowerment Activity

The goal of an empowerment activity is to develop skills, learn a new task, consider action to change one's situation, and / or begin exploring how to help oneself.

This is an important opportunity to identify what the farmworkers can do to reduce the likelihood of developing type II diabetes themselves.

- Are they aware of the risk factors for developing type II diabetes?
- Do they know which of the risk factors affect them personally and which risk factors can be modified?
- Do they have a plan to reduce their number of modifiable risk factors for diabetes?

Discuss the risk factors for developing type II diabetes (see list below). Help farmworkers and their families identify which of the factors affect them personally and which of the factors can be changed. Brainstorm ways to reduce or eliminate these risk factors and help individuals make a time-specific plan detailing the steps they are going to take to reduce their risk of developing type II diabetes.

Risk factors for type II diabetes:

- Age 45 or greater
- High-risk ethnicity (African-American, Hispanic-American, Native American, Pacific-American, or Pacific Islander)
- Overweight (BMI 25 or above)
- Parent, sibling, or child has diabetes
- Sedentary lifestyle (does not exercise)
- Previously identified glucose intolerance or pre-diabetes
- History of gestational diabetes (diabetes caused by pregnancy) or giving birth to baby weighing over 9 lbs.
- Hypertension
- Polycystic ovarian syndrome
- High cholesterol
- History of cardiovascular disease (e.g. heart attack, blocked arteries, stroke)
- Acanthosis nigricans (areas of darkened skin in creases along neck, under arms, behind elbows and knees, and in groin area)
- Recurrent infections

(Note: modifiable risk factors tend to be those related to diet or exercise.)

Reality check

- If you have not previously done diabetes-related health education activities with the farmworkers, they may be unfamiliar with some of the health terminology. Make sure to involve farmworkers in the discussion and invite them to ask questions whenever something is unclear.
 - Farmworkers may have multiple modifiable risk factors for type II diabetes, and making plans to reduce or eliminate all of the factors at one time may be impractical. It is okay to attempt to eliminate one risk factor at a time.
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Sample Class Plan

Subject: Diabetes

Date:

Time:

Topic: ***What are the consequences of not treating diabetes?***
(teaching objective 2 from diabetes module)

Key points, information, skills, or activities

As a result of this health education session, participants will:

1. Identify conditions that can result from not treating diabetes.
2. Increase their perceived susceptibility and the perceived severity of this disease, increasing the likelihood of behavior change.
3. Identify ways to monitor the development of complications.

Teaching methods

- Use of visual aids and drawing
- Discussion of handout materials
- Interactive tutorials
- Brainstorming
- Personal sharing
- Self-empowerment
- Cabbage game/Jeopardy game

Materials and preparation needed

- Large sheet of paper, markers or crayons, and stickers
- Diabetes Prevention Series handouts
- Computer with Internet access
- “cabbage” with questions (if using)
- “Jeopardy” question cards (if using)
- brochures from clinics or health department

Supporting media

Brochures or flyers appropriate for language and reading levels to distribute NCFHP-approved content in case of questions

Sample Class Plan: Diabetes-2

Class Outline

To begin, invite participants to reflect on their experiences with diabetes. What do participants already know? What would they like to learn?

1. Identify conditions that can result from not treating diabetes.

Diabetes-related illnesses or complications can occur if an individual has undiagnosed diabetes or if the disease is not kept under control. Diabetic ketoacidosis and non-ketotic hyperglycemia can develop rapidly (over the course of a few hours) and are medical emergencies. Chronic conditions that develop over a longer period of time may include cardiovascular disease, diabetic neuropathy (nerve damage), eye damage and vision problems, digestive problems including gastroparesis, urinary problems, sexual dysfunction, kidney damage, foot problems, skin problems, gum disease and tooth decay, and depression.

Learning activities

- Draw a large outline of a person; if children are present, this could be done by tracing the outline of the child, or the drawing could be done beforehand. Have farmworkers place stickers on, draw, or circle the areas of the body that can be affected by diabetes-related complications. Discuss the symptoms related to these problems (e.g. foot problems can include sores, areas of numbness, or even gangrene leading to amputation).
- Use handouts from the Diabetes Prevention Series (see “Recommended Resources” section) to discuss complications that the farmworker identifies as of interest or concern.

2. Increase farmworkers’ perceived susceptibility and the perceived severity of this disease, increasing the likelihood of behavior change.

According to the Health Belief Model, increasing farmworkers’ awareness of their susceptibility to diabetes and the severity of the conditions that can result from not treating diabetes properly can increase the likelihood that they will be willing to make lifestyle changes to decrease their risk of developing diabetes.

Learning activities

- Share statistics about the percentage of individuals in farmworker-specific groups (e.g. males or females, children, Hispanics/Latinos or African-Americans, age groups) that are affected by diabetes or diabetes-related complications to make farmworkers aware of the prevalence of these conditions.
 - If activities are done in a group setting, invite individuals who have diabetes to share any problems or struggles they have had with the disease and how they dealt with these problems. (It may be a good idea to identify these individuals beforehand and make sure that they are comfortable with sharing this information with the group.)
 - Work through online tutorials to help farmworkers become aware of the severity of complications.
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Sample Class Plan: Diabetes-3

3. Identify ways to monitor the development of complications.

Farmworkers may be unaware of their health care options, including screening or treatment options. Once they are aware of the potential complications of diabetes, they can watch for symptoms themselves or seek further medical care.

Learning activities

- Invite a nurse or other health care professional to talk with and show farmworkers about what health care workers look for when screening for diabetic complications.
- Brainstorm ways that farmworkers with diabetes can help each other remember to watch for diabetes-related medical problems.
- Distribute brochures from local health departments or clinics that describe available services and discuss ways that farmworkers might be able to access these services.
- Work through online tutorials (e.g. Diabetes-Eye Complications, Diabetes-Foot Care) to help farmworkers become more aware of their own abilities to monitor health conditions.

Suggested review activities (choose one or two)

- play the cabbage game with a variety of questions to assess learning
 - play “Jeopardy” or other competitive game with prizes
 - ask if there were any points that were unclear
 - invite questions from the group
 - distribute written/pictorial information to reinforce the information learned
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Support for Learning Activities

These are a few suggested questions for the cabbage game. Feel free to write your own questions in addition to or instead of these. If the question is true/false, have the worker or another participant restate the sentence so that it will be true.

- Are blood sugar levels usually too high or too low in diabetes?
- Is diabetes contagious?
- What is the most common kind of diabetes?
- You should call 911 immediately if a diabetic person is having what kind of symptoms?
- What are some medical problems that can be caused by diabetes?
- Name some symptoms that people who don't know they have diabetes might have.
- At what age should people start regular screening for diabetes?
- Name some risk factors for developing type II diabetes.
- What are some ways that diabetes can be treated?
- How are obesity and diabetes related?

Possible "Jeopardy" questions (with suggested point values):

- 100: Are older people or younger people more at risk for type II diabetes?
- 100: True or false: overweight people are more likely to develop type II diabetes.
- 100: True or false: diabetes can cause vision problems.
- 200: Which is more common: type I or type II diabetes?
- 200: True or false: diabetes doesn't really lead to any other medical problems.
- 200: At what age should people start regular screening for diabetes?
- 300: Name three risk factors for developing type II diabetes.
- 300: Why is type II diabetes becoming more common?
- 300: Are people with high cholesterol more at risk for developing diabetes?
- 400: What is the BMI range for normal body weight?
- 400: To help prevent diabetes, how often should a person do aerobic exercise?
- 400: Which type of diabetes occurs more often in children?
- 500: What are the two most common chronic medical conditions that can be caused by diabetes?
- 500: How often should people with diabetes see a doctor?
- 500: How many daily servings of fats, sweets, and alcohol does the Diabetic Food Pyramid recommend?
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Recommended Resources for Outreach Workers

Handout **Daily Foot Care**

Migrant Clinicians Network

1 page, English or Spanish

Farmworkers, outreach workers

This handout provides practical steps that diabetic patients should take regarding care for their own feet. It emphasizes that self-care is integral to preventing the serious foot health problems that diabetic patients sometimes face. It is written in a manner accessible to all literacy levels and provides helpful illustrations.

Available at <http://www.migrantclinician.org/files/DailyFootCareColorEngSpn09.pdf>

Handout **Why is nutrition important?**

Migrant Clinicians Network

English or Spanish

Farmworkers, outreach workers

This handout explains the specific meaning and importance of each nutrient (fat, carbohydrate, etc.) to diabetic patients. It outlines why balanced diets are so critical to diabetic patients for maintaining their health. This basic nutrition education could be quite useful to a farmworker recently diagnosed with diabetes or any farmworker seeking to learn more about healthy diets.

Available at http://www.migrantclinician.org/files/mcnutrition09_engspan.pdf

Manual **Meal Planning for People with Diabetes**

National Center for Farmworker Health

1999

41 pages, English and Spanish

Farmworkers, outreach workers

This manual provides extensive practical information on what diabetes is, lifestyle methods for controlling it, and the importance of planning good meals for diabetic patients.

Organized in a two column English and Spanish format, this could be a great resource for outreach workers to review with farmworkers who are learning to deal with diabetes. The National Center for Farmworker Health makes it available for free on their website.

Available at <http://www.ncfh.org/uploads/3/8/6/8/38685499/mealplanning.pdf>

Recommended Resources: Diabetes – 2

CD Diabetes: Information for Healthy Living

National Center for Farmworker Health

English and Spanish

Farmworkers, outreach workers

This is a bilingual and interactive CD-ROM developed by the National Center for Farmworker Health. Its intended uses are for patients learning at home or by a diabetes educator for guiding a newly diagnosed patient through the disease. It is available to order at no cost.

Available at

[http://www.ncfh.org/store/p50/Diabetes%3A Information for Healthy Living%2F La Diabetes%3A Informaci%C3%B3n para una Vida Saludable .html](http://www.ncfh.org/store/p50/Diabetes%3A%20Information%20for%20Healthy%20Living%2F%20La%20Diabetes%3A%20Informaci%C3%B3n%20para%20una%20Vida%20Saludable%20.html)

Newsletter Health Tips: Exercise and Nutrition

National Center for Farmworker Health

2012: Volume 18, Issue 1

Two columns, English and Spanish

Farmworkers, outreach workers

This newsletter contains 3 articles that denote the importance of healthy exercise habits. They discuss how exercise helps to prevent diabetes and heart disease, consider exercise options available to farmworkers, and walk through the next steps that farmworkers should take after choosing to begin exercising. It also includes a short article with practical nutrition advice. This newsletter could be a great resource for farmworkers considering developing an exercise routine.

Available online at

http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/2012Exercise.pdf

Newsletter: Health Tips: Child Diabetes

National Center for Farmworker Health

July 2012

Two columns, English and Spanish

Farmworkers, outreach workers

In these four articles, parents learn what diabetes and its symptoms are, what they should be doing to prevent their kids from getting diabetes, and how to make healthy nutrition choices for their family. It's written in a very accessible manner, in the format of two mothers having a conversation with a nurse about diabetes, with many helpful charts and illustrations. It is useful for educating parents on both how and why to encourage their families to make healthy choices.

Available online at

http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/2012ChildDiabetes.pdf

Recommended Resources: Diabetes – 3

Newsletter **What is Diabetes?**

National Center for Farmworker Health
Fall 2003

3 pages, English and Spanish

This newsletter contains three articles relevant to diabetes in farmworkers. One provides a brief overview of the risk factors, symptoms, and preventive measures associated with diabetes and would be useful as a follow-up handout to reinforce presented information. The second article is a dialogue between two mothers discusses symptoms that might be related to diabetes in children; this article might be relevant for farmworker families with children. The third article discusses diabetes and oral health.

Available at

http://www.weebly.com/editor/uploads/3/8/6/8/38685499/custom_themes/919123595410423472/files/03_issue_04.pdf

Fotonovela **Un Cambio para Lucia (A Change for Lucy)**

Migrant Clinicians Network

32 pages, English and Spanish

Farmworkers, outreach workers

Bilingual fotonovela for diabetes education and awareness that walks through the discovery of one woman that she has developed Type II Diabetes, and the emotions and life style changes that she goes through to adjust to the reality of having diabetes.

Available at <http://www.migrantclinician.org/files/Fotonovela2005.pdf>

Website **American Diabetes Association**

English/Spanish

Health care providers, outreach workers, and farmworkers

This Internet site provides everything you ever wanted to know about diabetes. Pages within the “In My Community” section provide information specifically relevant to Latinos and African-Americans. Information about the Diabetes Food Pyramid and exercise recommendations are also available in the corresponding sections.

Available at <http://www.diabetes.org>

Handouts **Diabetes Prevention Series**

National Institute of Diabetes and Digestive and Kidney Diseases

Available in English/Spanish

Farmworkers, outreach workers

These handouts address various complications that may result from diabetes and how to treat them or prevent them from occurring. Handouts contain charts and diagrams to help readers think more about their own healthy behaviors.

Available at <http://diabetes.niddk.nih.gov/dm/pubs/complications/index.htm>
