

Reducing Your Risk of Diabetes Related Complications

Purpose

This section is intended to provide information on preventing, recognizing, delaying, and treating long-term diabetes complications. It also describes personal health habits to prevent or delay acute and chronic complications.

Objectives

At the end of this section, you will be able to:

- Explain possible long-term complications related to your heart.
- Identify one way to decrease your risk of diabetes retinopathy.
- Identify one measurement of kidney function.
- List three symptoms of peripheral neuropathy.
- List four preventive foot care practices.
- State four signs or symptoms of infection.
- List two practices of good dental care.

Outline

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*The American Diabetes Association Recognizes this education service as meeting the National Standards for Diabetes Self-Management Education and Support.

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Complications and risk reduction

Diabetes increases your risk of developing certain health conditions or health complications, however your risk of having these complications can be reduced.

Practicing personal health habits and following up with your health care provider can prevent, delay, and treat any of these complications. There are two broad categories of diabetes related health complications:

- Medical conditions that develop because you have diabetes (known as long-term diabetes complications) such as:
 - Eye disease (retinopathy)
 - Nerve damage (neuropathy)
 - Heart disease (cardiovascular disease)
 - Kidney disease (nephropathy)
- Medical conditions that are more likely to occur and are difficult to treat because you have diabetes, such as:
 - Increased risk of infections
 - Increased risk of dental cavities/periodontal disease
 - Increased risk of depression

Three key practices can reduce your risk.

- Maintain blood glucose levels as near normal as possible.
- Practice personal health habits routinely.
- Know the signs and symptoms of these conditions and seek medical care as needed.

Occurrence of diabetes related complications

Knowing about diabetes related complications helps you make healthy decisions.

- Setting your blood glucose goals
- Taking an active role in the prevention of complications
- Recognizing early signs of complications
- Knowing which screening tests can be used to detect complications so they can be treated early

Both people with type 1 and type 2 diabetes are at risk for all the long-term complications of diabetes.

- Some people get no complications and others get 1 or more complications.

Causes for the development of long-term complications are related to:

- How long you have had diabetes
- Frequent and/or persistent high blood sugar
- Smoking
- High blood pressure (hypertension)
- High blood fats (hyperlipidemia)

The symptoms of complications usually appear after someone has had diabetes for many years, but can occur at any time even if your diabetes is in good control. Knowing what signs to watch for will give you a better chance at preventing or delaying problems.

Studies support good blood glucose control

DCCT: Diabetes Control and Complications Trial followed people with type 1 diabetes for over 9 years.

UKPDS: United Kingdom Prospective Diabetes Study followed people with type 2 diabetes for an average of 7 years.

Both studies found that keeping your blood glucose levels as near normal as possible had significant effects on preventing or delaying the onset of complications. The studies found any improvement in the A1C levels had some effect on decreasing the risk of developing complications. These studies found that the closer to normal the A1C became, the lower the risk of complications.

Blood vessel diseases

Blood vessels in your body

- You have large and small blood vessels in your body.
- Large blood vessels are called veins and arteries.
- Large blood vessels connect to all your internal organs; they allow large amounts of blood to move through your heart, lungs, arms, legs, and brain.
- Small blood vessels are called capillaries; capillaries provide blood to your eyes, kidneys, stomach, nerves, fingers, and toes.

Problems associated with the veins and arteries:

- Fats (cholesterol and triglycerides) are deposited along the walls of the vessels; this is called atherosclerosis.
- The vessels become stiff and less elastic; the inside diameter of the vessel gets smaller; it takes blood longer to pass through the smaller area, this is called arteriosclerosis.
- If this occurs in the heart arteries (coronary arteries), it can lead to a heart attack.
- When this occurs in the arteries in your brain (called cerebral arteries), it can lead to a stroke.
- If this occurs in the arteries in the legs and feet, the circulation slows down; many problems can occur such as blood clots, calf pain, foot ulcers, and delayed healing of leg and foot injuries.

Heart disease

Risk factors that can be changed	Risk factors that cannot be changed
Diabetes	Heredity
High blood fats (lipids)	Age
Smoking	Gender
Inactive lifestyle	
Obesity (more than 20% over desirable body weight)	
High blood pressure	

Diabetes and heart disease

People who have diabetes are at an increased risk of developing heart disease.

Atherosclerosis (blockage of the arteries) is 2 to 4 times more common in men with diabetes, and 4 to 8 times more common in women with diabetes.

Preventing blood vessel disease

- Quit smoking.
- Maintain good blood glucose control as close to target range as possible.
- Eat a healthy diet; low in total fat and saturated fat.
- Exercise on a regular basis.
- Check with your doctor about beginning daily aspirin use.

Eye disease

Vision changes

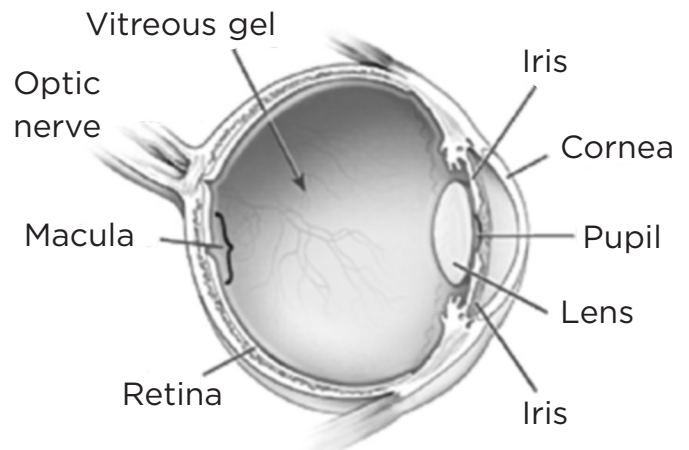
- Can be caused by the temporary changes high blood glucose causes in the lens of the eye
- Often resolve when blood glucose levels stabilize
- Should be checked out immediately if you notice floaters, spider-webs, or loss of vision
- Can also indicate serious problems such as diabetic retinopathy or glaucoma

Diabetic retinopathy

- Damage occurs in the eye's retina
- Starts with no obvious changes to your vision and then progresses to blindness
- Affects over half of Americans who have diabetes
- With early treatment, over 90% of those with retinopathy can be saved from going blind

What is the retina?

It is a thin, light sensitive area at the back of the eye that contains many small blood vessels. When you look at an object, an image is sent from the lens of your eye through the vitreous (area filled with clear gel-like fluid) to the retina. The retina sends signals along the optic nerve to communicate to the brain what is being seen.



Diabetes and the retina

- Weak spots may develop in the walls of the blood vessels found in the retina.
- Weak blood vessels tend to bulge (called microaneurysms or diabetic retinopathy).
- There may be no changes in eye sight.
- Blindness can occur if the bulging blood vessels break and begin to bleed.
- Have your eye doctor examine your retina yearly.

Treating diabetic retinopathy

- Treatment consists of laser therapy to the retina; laser treatment can slow or prevent the development of new abnormal blood vessel growth.
- Treatment at an early stage can prevent severe visual loss and blindness.

Glaucoma

- Glaucoma gradually causes partial to complete vision loss.
- It is caused from increased pressure inside the eye due to increased fluid in the eye; increased pressure permanently damages the optic nerve.
- People with diabetes have a greater chance of developing glaucoma than someone without diabetes.
- Glaucoma is also associated with high blood pressure (hypertension) and hardening of the arteries (arteriosclerosis).
- A family history of glaucoma will increase the risk of developing this disease.
- Glaucoma is treatable and responds well to early treatment.

In people 24 to 74 years old, diabetes is the leading cause of blindness, but is often the most preventable. In the Diabetes Control and Complications Trial (DCCT), keeping blood glucose levels under good control decreased the incidence of retinopathy by 76%.

Protecting your eyesight

- Keep blood glucose levels under control.
- Have yearly dilated eye exams. Fundus photographs can help detect retinopathy, ask your eye specialist about this.
- Wear sunglasses.
- Keep blood pressure under control.
- If you notice a sudden change in your vision, see your eye care specialist immediately.

Kidney disease

The kidney's role in the body is to filter waste products from the blood. These waste products are disposed of in the urine. Poorly controlled glucose levels can lead to kidney damage.

Diabetes and kidney damage

- Small blood vessels in the kidneys can thicken.
- Filtering process may not work as well as it should, and proteins used to build muscles are lost in the urine.
- In later stages of kidney damage, waste products such as creatinine and urea start to build up in the blood.

High blood pressure (hypertension) is a major factor in the development of kidney disease.

Nephropathy

- Nephropathy is a condition where the kidneys start to fail and do not filter the waste products from the blood as well as they should.
- In the early stages, no symptoms are noticed.
- When 90% of kidney function is lost, symptoms appear.
- When total kidney damage occurs, dialysis or kidney transplant is required.

Symptoms of kidney failure include:

- | | | |
|---|--------------------------|----------------|
| • Nausea | • Poor appetite | • Tiredness |
| • Numbness and tingling in hands and feet | • Slow thinking | • Confusion |
| • Dry itchy skin | • Irregular heart action | • Depression |
| | • Poor balance | • Irritability |

Testing for kidney problems

- It is important to detect kidney problems early.
- Have a urine “microalbumin” test to check for protein in your urine every year.
- Some providers recommend a blood test for urea nitrogen and creatinine; these are waste products that can build up in the blood when kidney disease begins.
- An estimated glomerular filtration rate (eGFR) is recommended every year; used with a blood test for creatinine, it is considered the best marker of kidney function.

Preventing and slowing kidney disease

- Keep blood glucose levels as near normal as possible.
- Keep blood pressure under good control. Discuss your blood pressure goal with your doctor.
- Have frequent medical visits to monitor blood pressure, kidney function, and other potential complications of diabetes.
- Follow your health care provider's recommendations on diet, exercise, and medicines to control blood glucose levels and blood pressure.
- Stop smoking.

In the Diabetes Control and Complication Trial (DCCT), lower blood glucose levels decreased the risk for nephropathy by 35 to 56%.

Nerve disease

Blood glucose and nerves:

- Nerve cells do not require insulin to take in glucose.
- Glucose enters nerve cells when blood glucose levels are high.
- High glucose levels injure nerve fibers.
- After years of high glucose levels, diabetic neuropathy (nerve damage) can occur.
- Research continues to try to explain how this happens and what to do to treat it.

Diabetic neuropathy occurs more commonly in:

- People over 40 years of age
- Smokers
- People who have problems controlling their blood glucose levels

Symptoms of diabetic neuropathy:

- Are different from person to person
- Often start with numbness and tingling in feet
- Tend to be mild at first and get worse over time
- Some people have no symptoms while others are severely disabled
- Include both pain and inability to feel pain in the same person
- Depend on what nerve or part of the body is affected
- May affect many parts of the body like the arms and legs (peripheral neuropathy) or the internal organs (autonomic neuropathy)
- Can also affect a specific nerve or part of the body like the vision, hearing, or facial muscles (focal neuropathy)

Peripheral neuropathy

- Affects the legs, feet, and hands
- Includes numbness and tingling, pain or burning, decreased sensation, and sometimes muscle weakness
- Tends to come and go and decrease with lower glucose levels

Treatments for peripheral neuropathy include:

- Improving blood sugar control
- Medicines
- Analgesic balms
- Walking to decrease leg pains
- Relaxation exercises, hypnosis, or biofeedback training

Prevent complications from peripheral neuropathy by:

- Wearing well-fitted shoes
- Examining feet daily
- Never going barefoot
- Seeking medical attention for foot injuries or ulcers
- Having your health care provider do a complete foot exam with monofilament at least yearly

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Foot care recommendations

Inspection

Look at your feet each day in a place with good light; use a mirror if you can not bend over to see the bottoms of your feet; if looking at your feet is hard for you, ask a family member to help.

- Look for any cracks in the skin, especially between the toes and around the heel.
- Check for ingrown toenails, corns, calluses, swelling, sores, or places that are red or pale; if corns, calluses, or other problems persist, see a foot doctor (podiatrist).

Bathing

- Wash your feet daily in warm (not hot) water; before you put your feet into the water, test the temperature with your wrist or elbow to prevent burning your feet.
- Do not soak your feet, because soaking will dry your skin.
- Use a mild soap and rinse well; thoroughly dry your feet with a soft towel, making sure to dry between the toes.
- Cracks in the skin are places where infection can enter; to soften dry feet and keep the skin from cracking, use a mild cream or lotion, **except between your toes**.
- If your feet sweat a lot, wear socks that are mostly cotton or have wicking properties; change them when they become damp.

Toenails

- Cut your toenails after bathing, when they are soft and easy to trim.
- Cut or file nails to follow the natural curve of your toe; avoid cutting nails shorter than the ends of your toes; sharp corners and rough edges of toenails need to be filed with an emery board so they do not cut the toes next to them.
- Do not use sharp objects to dig under the toenail or poke around the cuticle.
- Ingrown toenails or nails that are thick or tend to split when cut should be cared for by a foot doctor.

Corns and calluses

- After washing your feet, gently rub any corns and callused areas with a pumice stone to control buildup.
- Avoid using do-it-yourself corn or callus removers; these can cause burns and may harm healthy skin around the problem area.
- Never cut your corns and calluses with a sharp object like a razor blade or knife.

Socks

- Socks should fit well and not bunch or fold in your shoes.
- Socks should be free of seams, darns, or holes that might reduce the blood supply or cause skin irritation.
- Wear socks that are mostly natural fibers, such as cotton or wool, to allow the skin to breathe.
- Preferred socks are the athletic type with wicking action (i.e. Dry-Fit®, Cool-Max®, Smartwool®).

Shoes

- Wear shoes or hard-soled slippers to cover and protect your feet.
- Avoid going barefoot; use common sense about wearing sandals; “flip-flops” can cause blisters between your toes and should not be worn.
- At the beach, avoid walking barefoot on hot sand or shells; wear water shoes and put sunscreen on the tops of your feet.
- Choose the shoes that are most comfortable for your activities each day.
- The top part of the shoe should be soft and pliable; the shoe lining should not have ridges, wrinkles, or seams; the toe area should be round and high to fit your toes; you may need to see an orthotics specialist for inserts, special shoes, or to have your shoes adapted to your feet.
- Before you put on your shoes, shake them out and then carefully feel inside for stones or rough spots that might hurt your feet.
- Shop for shoes in mid-afternoon when feet are largest; buy shoes that feel good and have room for all the toes to wiggle; try on both shoes, and if one of your feet is slightly larger than the other, buy for the bigger foot.
- Avoid shoes that are too tight or pinch; shoes that do not fit well can lead to sores, blisters, and calluses.
- Break in new shoes slowly by wearing them for only 1 or 2 hours a day until comfortable.
- Change your shoes at least once during the day.

Tips

You need to check the correct shoe fit; especially if you have numb feet. To check shoe fit, try one or both of these methods:

- While standing, have someone trace your bare feet on a sheet of paper; when trying shoes on, set the shoe on the traced foot; if you can see any part of the traced foot, the shoe is too small.
- Again while standing, have someone trace an outline of your bare feet onto stiff paper; cut out these outlines and insert them into the shoes you are considering buying; if the outlines do not fit correctly, neither will your feet.

Improving circulation (blood flow)

- Exercise each day.
- If you smoke, try to quit or cut down.
- Wear wool socks to keep your feet warm; wear waterproof shoes or boots for outside winter activities.
- Avoid heating pads, hot water bottles, or microwavable warmers; these can burn the skin.

Treatment of injuries

- Look at your feet if you stumble or bump a hard object to be sure there is no damage.
- If your foot is hurt, do not keep walking on it – that can cause more damage.
- Treat blisters, cuts, and scratches immediately; wash with soap and warm water and apply a mild antiseptic. Never use strong chemicals such as boric acid, Epsom salts, or any antiseptic that contains a dye; do not open blisters yourself, this can lead to infections.
- Cover all injuries with an adhesive bandage or dry sterile dressing.
- If sores do not begin to heal within 2 days, or look worse after the first day, seek medical attention.
- Bandages/dressings should be changed at least daily or as directed by your health care provider.

Foot care plan, special notes to myself

It is especially important for me to:

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Autonomic neuropathy

This neuropathy affects nerves that serve the heart and blood vessels, stomach and intestines, bladder, and other organs.

Heart and blood vessels

Some nerves affect your blood pressure and heart rate. When these nerves are damaged, you can feel dizzy, light-headed, unsteady, or faint when you stand up. This is caused by your blood pressure dropping sharply and it is called orthostatic hypotension. This type of nerve damage can also disguise normal symptoms of a heart attack. This is sometimes called a “silent” heart attack.

Digestion

Damage to the nerves in the stomach can cause the stomach to empty too slowly. When the condition is severe, a person may have persistent nausea, vomiting, bloating, and loss of appetite. This problem is called gastroparesis. Blood glucose levels can jump up and down with this condition. Damage to the intestinal (bowel) nerves leads to slowing of the emptying of the intestines. This can cause a buildup of bacteria and stool causing constipation and/or diarrhea.

Urination

Autonomic neuropathy most commonly affects the organs involved with urination. Damage to the nerves in the bladder region can prevent the bladder from completely emptying. This can lead to urinary tract infections. Damage to these nerves can also lead to difficulty controlling the bladder. The bladder does not sense it is full and needs to be emptied; it overflows resulting in urinary incontinence.

Sexual function

The nerve damage and the circulation problems associated with diabetes can result in gradual loss of sexual response, (but the sex drive is unchanged). This occurs in both males and females. Men may experience impotence (erectile dysfunction). Women may experience vaginal dryness. If you experience any of these problems, please tell your health care providers. Help is available for urination and sexual problems.

Hypoglycemia

Autonomic neuropathy can make it more difficult for a person to recognize signs of low blood sugar or hypoglycemia (hypoglycemia unawareness).

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Sweating

Nerve damage can also affect the activity of the sweat glands. Sweat helps to cool the body, regulating its temperature. Some people may experience extreme sweating at night or while eating. It may also interfere with the body's ability to sweat in order to cool itself and result in over heating (sunstroke).

Personal health habits – reducing your risk

Healthy habits are important to your well-being; healthy habits should include:

- Exercising 3 to 5 times a week
- Eating a well balanced diet
- Daily dental care
- Daily foot exam
- Getting adequate sleep; 7 or more hours each night.

Some habits can be harmful to your general health and diabetes. These habits include:

- Smoking – Combined with diabetes can greatly increase the risk of cardiovascular (heart) disease, kidney disease (nephropathy) and nerve disease (neuropathy)
- Alcohol – Affects blood glucose levels and weight; and interferes with most medicines
- Inactivity – Affects your weight, glucose use, breathing capacity, and heart strength

Dental care guidelines

People with diabetes have a higher risk for cavities and other dental problems. Gum disease is common and may lead to infections.

Tips

- Brush your teeth at least twice a day.
- Floss your teeth daily, this prevents bacteria build up leading to gum disease.
- Contact your dentist if you notice sores, bleeding gums, or signs of gum and mouth infections as these occur more often with high blood glucose levels.
- Have regular dental check-ups; (about every 6 months); let your dentist know you have diabetes.
- Plan your dental appointment around the time you take your diabetes medicine and eat meals to prevent varying your schedule.
- Remember to use sick day guidelines (Acute Complications, Section J) if you are unable to eat due to dental procedures.



Sleep problems and sleep disorders

A large number of people with diabetes experience some kind of sleep problem or sleep disorder but do not realize it is health related. On average we need 7.5 hours of sleep per night. Well controlled diabetes leads to better sleep and better sleep leads to better control of blood glucose levels. As the amount of sleep decreases blood sugar increases.

How do you know if you are getting enough sleep? Specialists say if you are getting enough sleep your brain will awaken you before the alarm goes off.

How can I get more sleep? Specialists use “sleep hygiene” to describe the daily practices that help a person get the sleep needed to feel alert and refreshed the next day. There are general health rules of sleep that many people do not learn as they grow up.

To help create a mindset and environment to help get adequate rest:

- Follow a routine. Your body follows natural biological rhythms. Go to bed at the same time and wake up at the same time.
- Avoid stimulants. Caffeine, exercising, smoking and working too close to bedtime make it difficult to fall asleep. Plan a time to unwind before bed (ex. A warm shower, reading a book).
- Avoid alcohol. A glass of wine may be relaxing and help you to fall asleep but not stay asleep.
- Turn off the lights. Electronic devices have a small colored light to indicate the device is turned on. This light also tells the brain it is day time. Turn off these devices when you go to bed.
- Provide an environment free of disruption. Turn your phone to emergency calls only. Keep the room at a cooler temperature. Perhaps you will need to ban the dog or cat from your bed.
- Control your glucose. Keep your glucose close to normal to prevent hyperglycemia and hypoglycemia symptoms that can keep you awake.



Sleep disorders with diabetes

The most common sleeping disorder is sleep apnea. Because many people with diabetes are overweight, this leads to extra fat in the neck that narrows the throat and airway. Oxygen levels start to go down which triggers the brain to wake you enough to take a deep breath. A person with sleep apnea stops and starts breathing over and over while they sleep. Signs of sleep apnea include:

- Drowsiness during the day
- Nighttime snoring

To treat sleep apnea:

- Lose the extra pounds. If enough weight is lost you can get rid of sleep apnea. We know this is difficult.
- Get tested. If you are told you snore all night or feel drowsy during the day ask your provider about a sleep test. There are several treatments for sleep apnea (CPAP, dental appliances etc.).

Another sleep disorder seen is leg movement/restless leg syndrome. Restless leg syndrome is the uncontrollable urge to move your legs before falling sleep. This can be caused by high blood sugar levels, thyroid disorders and kidney problems. This is different than neuropathy as the uncontrollable urge to move your legs goes away in the morning whereas the nerve pain or tingling found with neuropathy does not.

Treatment for restless leg syndrome includes:

- Checking iron levels for deficiency as this may cause leg movement. Your personal care provider will prescribe the correct amount of iron supplements as needed as they should not be used in excess.
- Quit smoking. Tobacco triggers restless leg syndrome and it is very hard to get the legs under control when someone is smoking.
- Discuss medication with your personal care provider. Many medications that help with neuropathy also help with restless leg problems.

Discuss any problems you may have sleeping with your personal care provider. Well controlled diabetes leads to better sleep and better sleep leads to better control of blood sugar levels.

Infections

People with diabetes tend to have more infections. These infections usually are more serious than in a person without diabetes. Signs of infection include:

- Redness
- Swelling
- Fever
- Drainage
- Warmth
- Rise in blood glucose
- Pain

Infections do not always occur with an open wound or injury. Urinary tract infections and pneumonia are examples of infections that can occur. Seek medical attention immediately if you suspect an infection.

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Vaccinations needed

Vaccines can help prevent illnesses. If you have diabetes, make sure you keep updated on your vaccinations.

Influenza vaccine (“flu shot”)

Get a “flu shot” every year. Influenza is a virus that spreads when an infected person coughs or sneezes and droplets, containing the virus, are inhaled by another person.

Symptoms of influenza:

- Fever
- Cough
- Chills
- Body/muscle aches
- Headache
- Sore throat

Influenza affects people differently. Some people may be ill for only a few days. Others have to be hospitalized. Influenza causes thousands of deaths every year. Influenza can affect people of any age.

The types of influenza viruses frequently change. The vaccine must be updated every year. Protection from influenza starts about 2 weeks after receiving the vaccine. It usually lasts up to 4 to 6 months. It is recommended that people with serious long-term health problems, such as diabetes, get an annual flu shot. Flu shots are usually offered beginning in October. Check with your health care provider regarding the flu shot.

Pneumococcal polysaccharide vaccine (PPV)

Pneumococcal disease can cause serious infections. Some of these infections are:

- Pneumonia - infection in the lungs
- Meningitis - infection of the covering of the brain
- Bacteremia - infection in the blood

These conditions can lead to death. People with diabetes are at a higher risk of getting this disease. It is recommended that all people, 2 years or older, receive a pneumonia vaccination. The PPV protects against 23 different types of the pneumococcal bacteria. Most healthy adults develop protection within 2 to 3 weeks after getting the vaccine. The PPV is usually given once before the age of 65 and repeated after the age of 65 (at least five years after the previous PPV). Talk with your health care provider to learn more about the pneumococcal polysaccharide vaccine.

Tetanus and diphtheria vaccine (Td)

Tetanus (or lockjaw) and diphtheria are serious illnesses. Tetanus develops from a germ that enters a cut or wound. It can cause serious, painful muscle spasms. This can lead to “locking” of the jaw making it impossible to open the mouth or swallow.

Diphtheria spreads from an infected person to the nose or throat of other people. It can cause a thick coating in the nose, throat, or airway. This can lead to breathing problems, heart failure, paralysis, and death. Check with your health care provider to learn more about the Tetanus and Diphtheria Vaccine.

Tdap – tetanus, diphtheria, pertussis (whooping cough) is now available for people age 11 to 64. It gives the same protection of TD with an added protection against pertussis (whooping cough). Pertussis is a highly contagious bacterial infection that causes violent coughing with a deep “whooping” sound when they breath in.

Shingles vaccine (Zoster Vaccine Live)

Shingles is a painful skin rash, often with blisters. The Varicella-zoster virus, the same virus that causes chicken pox, causes shingles. Shingles is most likely to occur in people 60 years or older who have had chickenpox or the chickenpox vaccine.

A single dose of shingles vaccine is indicated for adults 60 years or older. No serious problems have been identified with the shingles vaccine. However, individuals with a weakened immune system should not get the vaccine.

The shingles vaccine was licensed in 2006. The cost of the vaccine is not covered by all insurance companies. If you are considering receiving the shingles vaccine, contact your insurance company regarding coverage.

Preconception counseling

Diabetes does not affect your ability to become pregnant. Women with diabetes have an excellent chance of having healthy babies. Preconception planning helps prevent complications for both you and your baby. Regardless of the type of diabetes you have or how long you have had diabetes, there are important steps you can take before conception to help prepare for a healthy pregnancy.



Preparing for a healthy pregnancy

- Control blood glucose levels; check with your health care team to determine your specific goal levels, (A1C goals are usually less than 6.0 - 6.5% before conception)
- Quit smoking
- Avoid alcohol
- Complete a physical exam
- Get an eye exam
- Start taking an over-the-counter prenatal vitamin

Oral medicines

Some diabetes medication is unsafe during pregnancy.

Generally it is recommended women using oral diabetes medicines change to insulin before conception. You will need to discuss this issue with your health care provider.

Talk with your health care team regarding your plans for pregnancy. They can help you identify risks to you or your baby. They will also give you specific advice regarding diet, exercise, and medicines.

The what, why and when of good diabetes care

You are the person in charge of your diabetes management. Management is a combination of personal health habits and routine medical care. Knowing which habits to develop and what medical exams and tests need to be done will make you an expert in your diabetes care. Below is a summary of the habits and exams currently recommended.

What	Why	When
Self-Management education	The more you know about the factors that affect your blood glucose, the better you will be able to make decisions regarding your diabetes management.	At diagnosis and every 6 to 12 months as needed
Nutrition therapy	The pleasure of eating is key to your life; food is key to diabetes control. The dietitian can provide the knowledge and assistance you need to meet your diabetes goals as your lifestyle changes.	At diagnosis and every 6 to 12 months, more frequently if needed
Glucose control A1C	This test provides an overall view of how well your diabetes is controlled	Type 1: every 3 months Type 2: every 3 to 6 months Goal: below 7%
Self blood glucose monitoring	Home monitoring lets you see the affect of food and activity on your blood glucose. It also lets you see if there is any pattern to when your glucose may be too high or too low.	As recommended by your doctor; 1 to 4 times a day is often recommended
Hypoglycemia	Knowing how often, when and how you treat it helps to make changes in your medicine to prevent frequent hypoglycemia	Record the details when hypoglycemia occurs; tell your doctor at next visit; if you have 2 or more episodes in a week, call your doctor
Heart care <ul style="list-style-type: none"> • Blood fats • Blood pressure 	<p>People with diabetes are at higher risk for heart disease</p> <p>High blood pressure makes your heart work harder and can also cause damage to your kidneys and eyes</p>	<p>Every year; more frequently if abnormal</p> <p>At each medical visit</p>

What	Why	When
<ul style="list-style-type: none"> • Low dose aspirin therapy • Stop smoking 	<p>Lowers the risk of heart attack and stroke</p> <p>Smoking increases your risk of heart disease and kidney disease</p>	<p>Men older than 50 Women older than 60 With one other risk factor for heart attack or stroke</p> <p>Immediately</p>
Kidney care	Kidney disease can be a complication of diabetes; routine screening can detect kidney disease and promote early treatment	At diagnosis and every year; check microalbumin/creatinine ratio (GFR)
Dilated eye exam	Routine eye care can help detect early diabetes eye disease and help prevent blindness	At diagnosis and every year
Foot care	Feet may become less sensitive to pain, allowing injury and infections to happen more frequently and not be noticed; the yearly exam will help determine if any sensitivity has been lost	Daily self exam, foot check each medical visit, comprehensive yearly foot exam
Dental care	People with diabetes are at a greater risk for gum disease and cavities	At diagnosis, every 6 months; if you wear dentures, every 12 months
Sleep	Better sleep leads to better control of blood glucose levels.	Get more than 7 hours a night; discuss with your doctor if sleep is a problem
Emotional/ Social health	Any chronic disease and its' complications have emotional burdens that at times may lead to depression or a feeling of being overwhelmed	Be aware of your sense of well-being; discuss as needed with your doctor
Immunizations	Flu and pneumonia can lead to serious complications	Yearly flu shot; Tetanus booster every 10 years; Pneumovax per medical provider recommendation
Preconception care	Uncontrolled diabetes increases the risk of birth defects	At diagnosis; 3 - 4 months before conception