# Educational Checklist

Please check box ☐ to indicate educational topics reviewed with patient based on their comprehension of program specific information.

<table>
<thead>
<tr>
<th>Diabetes Booklet Tab and Page #</th>
<th>Educational Assessment – Factors that may influence the patient's ability and readiness to learn:</th>
<th>Person(s) Taught</th>
<th>Evaluation of Comprehension</th>
<th>Date &amp; Time</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Diabetes Overview</td>
<td>☐ Hearing/Vision/Speaking impairments ☐ Motivation</td>
<td>F = Patient</td>
<td>V = Verbalized</td>
<td>NR = Needs</td>
<td>T = Translator</td>
</tr>
<tr>
<td>B Know Your Numbers</td>
<td>☐ Language Barriers ☐ Cognitive/Memory Limitations</td>
<td>F = Family</td>
<td>D = Demonstrated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C Hypoglycemia &amp; Hyperglycemia</td>
<td>☐ Religious Practices ☐ Psychological Factors</td>
<td>S = Support Person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Diabetic Ketoacidosis</td>
<td>☐ None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Diabetes Medications</td>
<td>☐ Cultural Practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Meal Planning and Sick Days</td>
<td>☐ None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G Exercise</td>
<td>☐ None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H Prevention</td>
<td>☐ None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I Resources</td>
<td>☐ None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Name | ID | Initials | Name | ID | Initials | Form part of the permanent Medical Record |
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Diabetes Overview
What is diabetes?

Diabetes mellitus is a condition in which the food we eat cannot be properly used by the body for energy. Normally, when food is eaten, it is broken down into glucose. Insulin, a hormone produced by the pancreas, takes the glucose from the bloodstream and transports it to body cells. The cells then use the glucose for energy. In the person who has diabetes mellitus, the pancreas is not producing enough insulin, not using the insulin effectively (insulin resistance), or it is producing no insulin at all. Without insulin, glucose cannot get into the body cells and remains in the blood. The symptoms of diabetes may include one or more of the following:

- weakness
- frequent urination
- hunger
- weight loss
- fatigue
- increased thirst
- dry mouth
- irritability

To date there is no cure for diabetes. Diabetes can be controlled through meal planning, regular exercise, and medication. Diabetes is not caught from another person; its exact cause is still unknown. However, certain factors are believed to lead to the development of diabetes. These include heredity, obesity, certain viruses, stress, pregnancy, aging and immunologic factors.

Pre-diabetes

This is when the blood glucose levels are higher than normal but not high enough to be diagnosed as diabetes. Research is now showing that some long-term damage (heart and circulatory system) may occur. However, If you take control of your blood glucose during pre-diabetes, it may delay or prevent Type 2 diabetes from developing. Your doctor can run tests to determine if you have pre-diabetes.

Types of diabetes: Type 1 and Type 2

There are two types of diabetes. The type of diabetes describes the amount of insulin, if any, your body produces. Knowing which type you have is important so you may better understand your treatment plan.

Type 1 diabetes

The pancreas of the person with Type 1 diabetes produces little or no insulin and insulin injections are required. Meal planning, exercise and self-blood glucose monitoring are also important in the control of Type 1 diabetes. Type 1 diabetes is usually found in children and adults under thirty.

Type 2 diabetes

Type 2 diabetes is more common than Type 1. The pancreas of the person with Type 2 diabetes does produce some insulin. Some degree of insulin resistance is generally present with Type 2 diabetes. Type 2 diabetes can be controlled with meal planning, exercise and medications. Type 2 diabetes usually comes on gradually. It tends to run in families and occurs more often in people who are overweight.

Treatment of diabetes

Treatment is aimed at balancing meals, exercise and diabetes medications.

Two other factors that will help you control your blood glucose are achieving and maintaining your desired body weight and monitoring your blood glucose levels regularly at home. A healthcare provider can show you how to monitor your blood glucose and keep daily records of your results. You will also be helped in developing a meal plan to help you control your blood glucose levels. You will be given information concerning not only your medications for diabetes, but also other medications that may affect your diabetes. By following an individualized treatment plan, you can lead an active, healthy life.
Know Your Numbers
**A1C testing (Hemoglobin A1C)**

The A1C test provides your estimated average blood glucose levels over a period of the past two to three months. In addition to testing your blood glucose yourself, it is important to have an A1C every three to four months at your doctor’s office.

Your blood glucose levels go up and down during the day. Obviously, it’s not practical to test your blood glucose levels constantly. Taking an A1C test can let you know what your estimated average blood glucose level has been over a period of several months, and it’s easy to include it as part of your regular care with your doctor.

An A1C test can tell if you are at greater risk for developing complications because of high blood glucose levels. If your results are high, you and your doctor need to determine if it is due to:

- too little exercise
- wrong kinds of food
- too little insulin or diabetes medication
- increased stress
- too much food
- infection or illness

Once you know the cause of the elevated A1C, your doctor can suggest changes in your therapy. Keep in mind that anything you can do to lower your A1C number, even a little, may help you live a longer, healthier life.

<table>
<thead>
<tr>
<th>A1C Value (%)</th>
<th>Avg Blood Glucose (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seriously Elevated Levels</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>298</td>
</tr>
<tr>
<td>11</td>
<td>269</td>
</tr>
<tr>
<td>10</td>
<td>240</td>
</tr>
<tr>
<td>Elevated Levels</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>212</td>
</tr>
<tr>
<td>8</td>
<td>183</td>
</tr>
<tr>
<td>In Control</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>154</td>
</tr>
<tr>
<td>Non-diabetic Levels</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>120</td>
</tr>
</tbody>
</table>
Self-blood glucose monitoring
Blood glucose monitoring will tell you how well your diabetes “plan” is working. The American Diabetes Association (ADA) recommends goals shown below, are blood glucose values that help most people feel their best day to day, and protect your long term health. Talk to your doctor about what your goals should be. Your diabetes plan is working if you reach your goals most of the time and “infrequently” have low blood glucose reactions or elevated blood glucose.

Advantages of self-blood glucose monitoring
- control of blood glucose levels by blood glucose monitoring may reduce or delay the occurrence and/or severity of complications associated with diabetes
- you can learn how food, exercise, stress, illness and medications affect your blood glucose
- the frequent monitoring of blood glucose levels on sick days is helpful in making adjustments in your diabetes treatment
- self-blood glucose monitoring is helpful to people who have trouble distinguishing high blood glucose from low blood glucose

• self-blood glucose monitoring helps YOU connect how you feel with your blood glucose level
• regular self-blood glucose monitoring helps YOU manage your diabetes on a day-to-day basis

When to self-test
The goal in diabetes management is to keep your blood glucose as normal as possible.
The usual times that people test is before meals and before going to bed. Another important time to test is if you think you may be having low blood glucose (hypoglycemia), or symptoms of high blood glucose (hyperglycemia). Your doctor will help you decide the best times to test.
Remember to always record the date, time and your blood glucose results and take this record to your doctor visits along with your meter to do a laboratory comparison for meter accuracy. Many meters have memory and store your blood glucose information, but you should still keep a written log.

**Blood Glucose Targets – American Diabetes Association**

<table>
<thead>
<tr>
<th></th>
<th>Goal</th>
<th>Additional Action Suggested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before meal glucose (mg/dL)</td>
<td>70-130</td>
<td>&lt;70 or &gt;140</td>
</tr>
<tr>
<td>A1C (%)</td>
<td>&lt;7</td>
<td>&gt;8</td>
</tr>
<tr>
<td>2 hours after meals glucose (mg/dL)</td>
<td>&lt;180</td>
<td></td>
</tr>
</tbody>
</table>

**Gestational Diabetes**

<table>
<thead>
<tr>
<th></th>
<th>Goal</th>
<th>Additional Action Suggested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting glucose (mg/dL)</td>
<td>60-90  mg/dL</td>
<td>call physician for glucose &lt;70 mg/dL</td>
</tr>
<tr>
<td>2 hours after meals glucose (mg/dL)</td>
<td>&lt;120 mg/dL</td>
<td>or &gt;120 mg/dL</td>
</tr>
</tbody>
</table>
Hypoglycemia & Hyperglycemia
Hypoglycemia – low blood glucose

Hypoglycemia, also known as low blood glucose, insulin shock, or insulin reaction, is a condition in which there is an abnormally low concentration of glucose in the blood. Hypoglycemia usually has a rapid onset and is a common acute complication seen in both types of diabetes. Blood glucose values vary from patient to patient, but overall, a value below 70 mg/dL shows hypoglycemia. Signs and symptoms of hypoglycemia can occur anytime of the day or night.

Causes of hypoglycemia

- delayed or skipped meal or snack; eating less food than usual
- increased amount or intensity of physical activity
- too large a dose of your diabetes medication
- interaction with other medications you may be taking
- alcohol

Signs and symptoms of hypoglycemia

Signs and symptoms of hypoglycemia may include one or more of the following:

- sweating
- blurred vision
- nervousness
- hunger
- personality change
- headache
- weakness
- increased pulse rate
- shakiness

Treatment of hypoglycemia

When a hypoglycemia reaction occurs, you must act quickly to supply the body with an easily absorbed, rapid acting form of a simple carbohydrate. Suggested food items include:

- commercially prepared concentrated glucose tablets or gels
- ½ cup fruit juice
- ¾ cup regular carbonated beverage
- 7 or 8 Lifesavers®
- 4 teaspoons sugar in any form
- 1 tablespoon of honey or corn syrup (such as Karo® syrup)

The above food items deliver approximately 15 grams (gm) of simple carbohydrates. If your symptoms do not subside within 10 or 15 minutes, repeat one of the above forms of simple carbohydrate.

When you are starting to feel better and your blood glucose is rising, follow the initial treatment of a rapid acting carbohydrate with a snack of ½ of a sandwich and a glass of milk or a scheduled meal.
Tips for prevention of low blood sugar

• eat your meals and snacks on time
• take only your prescribed dose of diabetic medication
• check your blood glucose before intense physical activity, immediately after the activity, and two hours after the activity and continue to monitor for the next 24 hours
• eat some form of a complex carbohydrate (see page 28) before strenuous activity
• always carry some form of glucose

Emergency treatment of hypoglycemia

If hypoglycemia causes a person to become unconscious and unable to swallow, the person should not be given food or fluid by mouth. Instead, a physician may prescribe glucagon which is given by injection. Glucagon is a drug used in treating unconscious people with diabetes having severe hypoglycemia. Glucagon and insulin work the opposite of one another: insulin lowers blood glucose, glucagon raises blood glucose.

Because glucagon is most likely used when the individual cannot swallow food or fluid, it is important that friends and/or family members be taught how to give glucagon. It is recommended that people taking insulin or those at high risk for developing hypoglycemia be instructed on the use of glucagon.

Hyperglycemia – high blood glucose

Hyperglycemia, also known as high blood glucose, happens when your body has too little insulin or your body cannot use insulin properly. Hyperglycemia is a major cause of complications with diabetes. Hyperglycemia happens from time to time to all people who have diabetes, so it is important for you to know how to identify the symptoms of hyperglycemia so you can treat it quickly.

Causes of hyperglycemia

• if you have Type 1 diabetes, you may not have given yourself enough insulin
• if you have Type 2 diabetes, your body may have enough insulin, but it is not as effective as it should be
• you ate more than planned or exercised less than planned
• you have stress from an illness, such as a cold or flu
• you have other stress, such as family conflicts or school or dating problems

Signs and symptoms of hyperglycemia

The signs and symptoms of hyperglycemia may include one or more of the following:

• frequent urination
• increased thirst
• dry skin
• hunger
• blurred vision
• drowsiness
• increased time for healing to occur
• high levels of glucose in the urine

Part of managing your diabetes is checking your blood glucose often. Ask your doctor how often you should check and what your blood glucose levels should be. Checking your blood and then treating high blood glucose early will help you avoid problems associated with hyperglycemia.
Treatment of hyperglycemia

You can often lower your blood glucose level by exercising. However, if your blood glucose is above 240 mg/dL, check your urine for ketones. Ketones are a waste product produced when fat is broken down. If you have ketones, do not exercise. Exercising when ketones are present may make your blood glucose level go even higher. You’ll need to work with your doctor to find the safest way for you to lower your blood glucose level.

Cutting down on the amount of food you eat might also help. Work with your dietitian to make changes in your meal plan. If exercise and changes in your diet don’t work, your doctor may change the amount of your medication or insulin or possibly the timing of when you take it.

- test blood glucose
- call physician if there is a change in the trend of your blood glucose levels
- call physician when there are two blood glucose levels >200 mg/dL in one day

Tips for prevention of hyperglycemia

Your best bet is to practice good diabetes management and learn to detect hyperglycemia so you can treat it early — before it gets worse.

Diabetes identification

If you have diabetes, you should carry “Diabetes Identification” (something that says you have diabetes). If you pass out or cannot talk, this identification will let people know what is wrong. This will help you get the treatment you need quickly. It could save your life. You can purchase identification, such as a bracelet or necklace, at most drugstores or from the American Diabetes Association. Diabetes identification cards are also available for your wallet.
Diabetes Ketoacidosis
Diabetic ketoacidosis (DKA)

Diabetic ketoacidosis, or DKA, is a result of too much glucose and not enough insulin. DKA occurs in both Type 1 and Type 2 diabetes when insulin is not available to move glucose into body cells. Without insulin, glucose accumulates in the blood (hyperglycemia) and is unable to go into body cells to be used for energy. When the blood glucose level exceeds the “renal (kidney) threshold,” glucose is found in the urine. This extra glucose pulls water and electrolytes out of the body tissues, leading to thirst, dehydration and electrolyte imbalance.

Since the body cells are without glucose, fat is broken down for energy. A result of fat breakdown is the production of ketones.

Ketones are a waste material produced when fat is broken down in the body and accumulates in the blood. When there is little or no insulin available in the body, the blood glucose rises to very high levels because the tissues cannot use the available blood glucose. As the blood is filtered through the kidneys, ketones can be found in the urine. This is known as ketonuria. If ketonuria develops, it can progress to diabetic ketoacidosis and diabetic coma. It is important to treat ketonuria before it progresses. The most common cause of ketonuria is illness.

Ketone strips can be purchased without a prescription at your local pharmacy. There are several products available on the market today for urine (ketone) testing. Your nurse educator can help you select the method that is best for you.

It is important to test the urine for ketones when you have:
- acute illness, especially accompanied by a fever
- nausea and vomiting
- surgery
- blood glucose greater than 240 mg/dL, or levels determined by your doctor
- excessive stress

Slow onset diabetic ketoacidosis

Causes of diabetic ketoacidosis
- too little insulin
- failure to follow diet
- infection, fever
- emotional stress

Signs and symptoms of diabetic ketoacidosis
- increased thirst and urination
- large amounts of glucose in the blood
- ketones in urine
- weakness, abdominal pains, generalized aches
- heavy, labored breathing
- loss of appetite, nausea and vomiting

Treatment of diabetic ketoacidosis
- call your doctor immediately
- drink fluids without sugar if able to swallow
- test blood or urine frequently for glucose
- test urine for ketones
Diabetes Medication
<table>
<thead>
<tr>
<th>MEDICATION CLASS AND HOW IT WORKS</th>
<th>BRAND NAME (GENERIC NAME)</th>
<th>DOSAGE</th>
<th>DOSES PER DAY</th>
<th>COMMENTS</th>
<th>POSSIBLE SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biguanides</strong>&lt;br&gt;Decreases glucose production by the liver&lt;br&gt;Decreases glucose absorption from intestines&lt;br&gt;Improves insulin sensitivity (how well your body uses insulin)</td>
<td>Glucophage (metformin)</td>
<td>500 – 1000 mg</td>
<td>1 – 3</td>
<td>Best time to check blood glucose is before meals</td>
<td>Diarrhea; nausea; vomiting; bloating; gas (less when dose is increased gradually or taken with a meal)</td>
</tr>
<tr>
<td></td>
<td>Riomet (metformin)</td>
<td>500 – 1000 mg</td>
<td>1 – 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glucophage XR (metformin)</td>
<td>500 – 2000 mg</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fortamet (metformin)</td>
<td>500 – 2500 mg</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glumetza (metformin)</td>
<td>500 – 2000 mg</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td><strong>Sulfonylureas</strong>&lt;br&gt;Increases insulin release from pancreas</td>
<td>Amaryl (glimepiride)</td>
<td>1 – 4 mg</td>
<td>1</td>
<td>Best time to check blood glucose is before meals</td>
<td>Hypoglycemia; weight gain; sensitivity to sun; stomach upset; nausea; diarrhea; rash</td>
</tr>
<tr>
<td></td>
<td>Glucotrol (glipizide)</td>
<td>5 – 20 mg</td>
<td>1 – 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glucotrol XL (glipizide)</td>
<td>5 – 20 mg</td>
<td>1 – 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabeta (glyburide)</td>
<td>1.25 – 10 mg</td>
<td>1 – 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Micronase (glyburide)</td>
<td>1.25 – 10 mg</td>
<td>1 – 2</td>
<td></td>
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<tr>
<td></td>
<td>Gynase (glyburide micronized)</td>
<td>1.5 – 6 mg</td>
<td>1 – 2</td>
<td></td>
<td></td>
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<tr>
<td><strong>Thiazolidinediones (glitazones)</strong>&lt;br&gt;Reduces glucose production by liver&lt;br&gt;Improves insulin sensitivity</td>
<td>Actos (pioglitazone)</td>
<td>15 – 45 mg</td>
<td>1</td>
<td>Best time to check blood glucose is 2 – 3 hours after eating</td>
<td>Fluid retention; may worsen heart failure (avoid in moderate-severe heart failure)</td>
</tr>
<tr>
<td></td>
<td>Avandia (rosiglitazone)</td>
<td>2 – 8 mg</td>
<td>1 – 2</td>
<td>Check liver function every 2 months for the first year, then periodically</td>
<td>Avandia may increase risk for heart attacks and is restricted to patients unable to achieve glucose control on other medications and are unable to take Actos (pioglitazone)</td>
</tr>
<tr>
<td><strong>DPP-4 Inhibitors</strong>&lt;br&gt;Enhances insulin release in response to meals&lt;br&gt;Decreases release of stored glucose into blood</td>
<td>Januvia (sitagliptin)</td>
<td>25 – 100 mg</td>
<td>1</td>
<td>Responds to high blood glucose by helping release more insulin only when it is needed</td>
<td>Stuffy/runny nose; sore throat; headache; upper respiratory infection</td>
</tr>
<tr>
<td></td>
<td>Onglyza (saxagliptin)</td>
<td>2.5 – 5 mg</td>
<td>1</td>
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</tr>
</tbody>
</table>
### Oral Medications for Type 2 Diabetes (continued)

<table>
<thead>
<tr>
<th>MEDICATION CLASS AND HOW IT WORKS</th>
<th>BRAND NAME (GENERIC NAME)</th>
<th>DOSAGE</th>
<th>DOSES PER DAY</th>
<th>COMMENTS</th>
<th>POSSIBLE SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meglitinides</strong></td>
<td>Prandin (repaglinide)</td>
<td>0.5 – 4 mg</td>
<td>3 – 4</td>
<td>Take within 30 minutes of a meal. If you skip a meal, skip the dose.</td>
<td>Hypoglycemia; weight gain; nausea; dizziness</td>
</tr>
<tr>
<td>Increases insulin release after meals</td>
<td>Starlix (nateglinide)</td>
<td>60 – 120 mg</td>
<td>3 – 4</td>
<td>Best time to check blood glucose is 2 hours after eating</td>
<td></td>
</tr>
<tr>
<td><strong>Alpha-glucosidase inhibitors</strong></td>
<td>Precose (acarbose)</td>
<td>25 – 100 mg</td>
<td>3</td>
<td>Take with first bite of a meal. If you skip a meal, skip the dose.</td>
<td>Abdominal pain; gas; cramping</td>
</tr>
<tr>
<td>Delay absorption of sugar from the intestines</td>
<td>Glyset (miglitol)</td>
<td>25 – 100 mg</td>
<td>3</td>
<td>Best time to check blood glucose is 2 hours after eating</td>
<td>Carry glucose tablets</td>
</tr>
<tr>
<td><strong>Combination Oral Medications</strong></td>
<td>Actoplus Met (pioglitazone + metformin)</td>
<td></td>
<td></td>
<td>Combination pills are usually taken 1 – 2 times per day</td>
<td></td>
</tr>
<tr>
<td>See individual components for more information on how they work</td>
<td>Avandamet (rosiglitazone + metformin)</td>
<td></td>
<td></td>
<td>See individual components for more information on side effects and additional comments</td>
<td></td>
</tr>
</tbody>
</table>
**Injectable Medications for Diabetes**

<table>
<thead>
<tr>
<th>MEDICATION CLASS AND HOW IT WORKS</th>
<th>BRAND NAME (GENERIC NAME)</th>
<th>DOSAGE</th>
<th>DOSES PER DAY</th>
<th>COMMENTS</th>
<th>POSSIBLE SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incretin Mimetics</td>
<td>Byetta (exenatide) injection</td>
<td>5 – 10 mcg</td>
<td>2</td>
<td>Lowers post-meal blood glucose</td>
<td>Nausea; vomiting; weight loss; headache</td>
</tr>
<tr>
<td></td>
<td>Victoza (liraglutide) injection</td>
<td>0.6 mg – 1.8 mg</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Symlin (pramlintide) injection</td>
<td>15 – 60 mcg</td>
<td>Before meals</td>
<td>Does not cause hypoglycemia by itself, but your risk of having low blood glucose is higher if you also take insulin</td>
<td>Nausea; vomiting; weight loss; headache</td>
</tr>
<tr>
<td>Amylin Analog</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Decreases the release of stored glucose into blood</td>
<td>Slows gastric emptying</td>
<td>Regulates food intake</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Insulins

Insulin is given as an injection under the skin (subcutaneously).

You can use:
- syringe and needle
- pre-filled insulin pens (see page 20)
- insulin pumps – small machines that continuously deliver insulin through a needle under the skin

<table>
<thead>
<tr>
<th>TYPE OF INSULIN</th>
<th>BRAND NAME (GENERIC NAME)</th>
<th>STARTS WORKING</th>
<th>PEAKS</th>
<th>EFFECTS LAST</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAPID-ACTING</td>
<td>Novolog (Insulin aspart)</td>
<td>15 minutes</td>
<td>30 to 90 minutes</td>
<td>3 to 5 hours</td>
<td>Do not use if solution is cloudy or thick. Ensure your meal or snack is ready before injecting any rapid acting insulin.</td>
</tr>
<tr>
<td></td>
<td>Apidra (Insulin glulisine)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humalog (Insulin lispro)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHORT-ACTING</td>
<td>Humulin R (Insulin regular)</td>
<td>30 to 60 minutes</td>
<td>2 to 4 hours</td>
<td>5 to 8 hours</td>
<td>Do not use if solution is cloudy or thick.</td>
</tr>
<tr>
<td></td>
<td>Novolin R (Insulin regular)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERMEDIATE-ACTING</td>
<td>Humulin N (Insulin NPH)</td>
<td>1 to 3 hours</td>
<td>8 hours</td>
<td>12 to 16 hours</td>
<td>Solution is usually cloudy or milky. Do not use if solution has clumps or white substance on the bottom of the vial.</td>
</tr>
<tr>
<td></td>
<td>Novolin N (Insulin NPH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONG-ACTING</td>
<td>Lantus (Insulin glargine)</td>
<td>3 to 4 hours</td>
<td>Peakless</td>
<td>10 to 24 hours</td>
<td>Do not use if solution is cloudy or thick. Do not mix this type of insulin with any other type of insulin.</td>
</tr>
<tr>
<td></td>
<td>Levemir (Insulin detemir)</td>
<td>3 to 4 hours</td>
<td>3 to 9 hours</td>
<td>10 to 24 hours</td>
<td></td>
</tr>
<tr>
<td>TYPE OF INSULIN</td>
<td>BRAND NAME (GENERIC NAME)</td>
<td>STARTS WORKING</td>
<td>PEAKS</td>
<td>EFFECTS LAST</td>
<td>COMMENTS</td>
</tr>
<tr>
<td>----------------</td>
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<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>PREMIXED INTERMEDIATE-ACTING AND SHORT-ACTING</td>
<td>Humulin 70/30 (70% insulin NPH and 30% insulin regular)</td>
<td>30 to 60 minutes</td>
<td>2 to 12 hours</td>
<td>18 to 24 hours</td>
<td>Do not mix this type of insulin with any other type of insulin.</td>
</tr>
<tr>
<td></td>
<td>Novolin 70/30 (70% insulin NPH and 30% insulin regular)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humulin 50/50 (50% insulin NPH and 50% insulin regular)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREMIXED INTERMEDIATE-ACTING AND RAPID-ACTING</td>
<td>Humalog 75/25 (75% insulin lispro protamine and 25% insulin lispro)</td>
<td>10 to 15 minutes</td>
<td>1 to 5 hours</td>
<td>14 to 24 hours</td>
<td>Ensure your meal or snack is ready before injecting any rapid acting insulin. Do not use if solution has clumps or white substance on the bottom of the vial. Do not mix this type of insulin with any other type of insulin.</td>
</tr>
<tr>
<td></td>
<td>Humalog 50/50 (50% insulin lispro protamine and 50% insulin lispro)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREMIXED INTERMEDIATE-ACTING AND RAPID-ACTING</td>
<td>Humalog 75/25 (75% insulin lispro protamine and 25% insulin lispro)</td>
<td>10 to 15 minutes</td>
<td>1 to 5 hours</td>
<td>14 to 24 hours</td>
<td>Ensure your meal or snack is ready before injecting any rapid acting insulin. Do not use if solution has clumps or white substance on the bottom of the vial. Do not mix this type of insulin with any other type of insulin.</td>
</tr>
<tr>
<td></td>
<td>Humalog 50/50 (50% insulin lispro protamine and 50% insulin lispro)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREMIXED INTERMEDIATE-ACTING AND RAPID-ACTING</td>
<td>NovoLog Mix 70/30 (70% insulin aspart protamine and 30% insulin aspart)</td>
<td>10 to 15 minutes</td>
<td>1 to 4 hours</td>
<td>18 to 24 hours</td>
<td>Do not mix this type of insulin with any other type of insulin.</td>
</tr>
</tbody>
</table>
**Insulin pens**

- Insulin pens can be divided into two main categories: disposable and reusable
- Disposable pens contain pre-filled insulin while reusable pens require pre-filled insulin cartridges which are sold separately
- Insulin pens also use specific pen needles that must be purchased separately
- Most pens need to be “primed” before administering doses. Priming involves removing air bubbles from the needle by squirting out tiny amounts of insulin

<table>
<thead>
<tr>
<th>INSULIN PEN</th>
<th>TYPE OF INSULIN USED</th>
<th>UNITS DELIVERED</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autopen (Reusable)</td>
<td>Humalog</td>
<td>1 unit increments (maximum of 21 units per injection) and 2 unit increments (maximum of 42 units per injection)</td>
<td>Delivery button is on the side of the pen. See package insert for priming instructions.</td>
</tr>
<tr>
<td>Humalog Kwik Pen (Disposable)</td>
<td>Humalog, Humalog Mix 75/25, Humalog Mix 50/50</td>
<td>1 unit increments (maximum of 60 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>HumaPen Luxura HD (Reusable)</td>
<td>Humalog</td>
<td>½ unit increments (maximum of 30 units per injection)</td>
<td>Suitable for children.</td>
</tr>
<tr>
<td>HumaPen Memoir (Reusable)</td>
<td>Humalog</td>
<td>1 unit increments (maximum of 60 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>Original Pre-filled Pen (Disposable)</td>
<td>Humalog, Humalog Mix 75/25, Humalog Mix 50/50, Humulin N, Humulin 70/30</td>
<td>1 unit increments (maximum of 60 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>FlexPen (Disposable)</td>
<td>Levemir, NovoLog, or NovoLog Mix 70/30</td>
<td>1 unit increments (maximum of 60 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>NovoPen 3 (Reusable)</td>
<td>NovoLog</td>
<td>1 unit increments (maximum of 70 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>NovoPen Junior (Reusable)</td>
<td>NovoLog</td>
<td>½ unit increments (maximum of 35 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
<tr>
<td>SoloStar ( Disposable)</td>
<td>Apidra, Lantus</td>
<td>1 unit increments (maximum of 80 units per injection)</td>
<td>Uses 2 units to prime – complete before each injection</td>
</tr>
</tbody>
</table>
Preparing an insulin dose for injection

- You will need:
  - syringe
  - needle
  - insulin
  - alcohol swab

- Wash your hands

- Check labels and expiration dates on insulin bottles. NEVER use outdated insulin

- Clean the rubber stopper on the insulin bottle with the alcohol swab and remove needle cap

- If taking a cloudy insulin, roll insulin bottle gently between your hands about 10 times to mix and warm. Improperly mixed insulin can lead to an erratic blood glucose

**Procedure**

**Step 1**
- Pull back syringe plunger until tip reaches the number of units you want to give

**Step 2**
- Put needle through rubber stopper of insulin bottle and push down plunger to put air into the bottle

**Step 3**
- Turn bottle upside down and pull insulin into syringe by pulling plunger back to the number of units you want to give. Flick the syringe with finger if air bubbles are present

**Step 4**
- Push plunger to force air back into bottle (do not push insulin into bottle). Pull the plunger back to the number of units you want to give

**Step 5**
- Take the needle out of the bottle. Now you are ready to give the injection
Filling the syringe for a MIXED insulin injection

Step 1
• Wash your hands
• Check labels and expiration dates on insulin bottles. NEVER use out-dated insulin

Step 2
• Gently roll the intermediate acting (CLOUDY) bottle slowly between your hands
• DO NOT SHAKE the bottle. It will create air bubbles in the bottle causing difficulty in drawing up the insulin. It is NOT necessary to mix the short acting (CLEAR) insulin

Step 3
• Cleanse the rubber stoppers on the insulin bottles with an alcohol wipe
• Remove the needle cap

Step 4
• Take the syringe and pull down on the plunger to draw air into the syringe equal to the amount of CLOUDY insulin you will take
• Push the needle through the rubber stopper of the CLOUDY insulin bottle and inject the air
• Keep the bottle on a flat surface while injecting the air and withdraw the needle.
• You are NOT going to draw any CLOUDY insulin yet

Step 5
• Pull down on the plunger to draw air into the syringe equal to your dose of the CLEAR insulin
• Push the needle through the rubber top of the CLEAR insulin and inject the air. Do NOT remove the needle
• Leaving the needle in the bottle, turn the bottle upside down and withdraw the correct dose of CLEAR insulin
• If you have air bubbles, push the insulin back into the bottle, remove needle and start from the beginning of Step 5

Step 6
• Pull slowly on the plunger to avoid getting air bubbles in the syringe
• Air bubbles mean there will be less insulin in the syringe
• Check the syringe to make sure that you have the correct number of units of CLEAR insulin and no air bubbles
• Pull the needle out of the CLEAR insulin bottle

Step 7
• Push the needle through the top of the CLOUDY insulin bottle.
• Pull down on the plunger to the total number of units you will be taking NO FURTHER.

Example:
5 units of CLEAR insulin plus 20 units of CLOUDY insulin equals a total dose of 25 units
• DO NOT push any insulin back into the bottle
• If you should withdraw more insulin than you need, discard the syringe and begin again
• Do NOT try to return any of the insulin back into the bottle
Selecting and rotating the injection area

The shaded areas in the figure show the best sites for insulin injection.

Be sure to rotate sites with each injection.

Giving the insulin injection

Step 1
• Wipe the area with an alcohol swab. Firmly pinch up skin. Holding the syringe like a pencil, quickly push needle all the way straight into the pinched-up area.

Step 2
• Push plunger all the way in to inject insulin. Release skin and hold syringe in place for a few seconds to make sure you receive the full dose.

Step 3
• Remove syringe. If slight bleeding occurs, apply pressure for a few seconds. DO NOT RUB (this may cause insulin to be absorbed too quickly).

Step 4
• Place syringes, needles, lancets in a metal or hard plastic container with a screw on or tightly secured lid, such as a liquid detergent bottle or coffee can.
**Insulin pens**

**Step 1. Getting started**
- Wash your hands
- All insulin pens except those containing rapid-acting insulin, insulin glargine or detemir should be rolled between the palms gently
- Remove the pen cap and clean the rubber stopper with alcohol
- Remove the protective tab from the single-use needle and screw onto the prefilled insulin pen
- Remove the outer and inner needle caps

**Step 2. Performing the airshot (priming)**
- Turn the dial to 2 units
- While holding the pen with the needle pointing up, tap the syringe gently with your finger a few times
- Press the push button and observe for a drop of insulin to appear
- If a drop of insulin does not appear, repeat this procedure
- Perform this procedure before every injection

**Step 3. Setting the dose**
- Before beginning, ensure that the dose selector is set at zero
- Dial the number of units prescribed. If you turn the dial past your desired number of units; it can be turned in either direction to correct

**Step 4. Giving the injection**
- Select the injection site and pinch up a fold of skin
- Push the needle into the skin at a 90 degree angle
- Press the push button completely in
- Leave the needle in the skin for at least 10 seconds (i.e. count to 10) to ensure all the insulin is delivered
- Remove the needle, release the skin, and replace the pen cap
- Do not reuse pen needles, they must be thrown into a puncture resistant container

*Note: These instructions are not intended to encompass all the features of a particular pen but provide basic guidelines for insulin pen administration.*
Meal Planning and Sick Days
Meal planning

Basic meal planning guidelines for diabetes

- Eat a wide variety of foods
- Eat meals and snacks at the same time each day
- Eat about the same amounts of carbohydrate foods each day
- Plan meals every four to five hours; **do not skip meals**

Meal planning and serving sizes

<table>
<thead>
<tr>
<th>Protein – choose low-fat meats</th>
<th>Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>• eat 5-7 ounces (oz) lean meat, poultry, or fish each day</td>
<td>To prevent weight gain, consider a total of three fat servings per day, or one per meal. The following is one fat serving:</td>
</tr>
<tr>
<td>• one egg or two egg whites may be eaten in place of 1 oz of meat</td>
<td>• 1 teaspoon soft margarine, mayonnaise or vegetable oil (olive, canola, peanut)</td>
</tr>
<tr>
<td>• 1 oz low-fat cheese or ¼ cup cottage cheese may be eaten in place of 1 oz meat</td>
<td>• 1 tablespoon reduced fat margarine or mayonnaise</td>
</tr>
<tr>
<td>• vegetarian protein sources – beans and legumes may contain both protein and carbohydrate; they should be considered as part of a healthy diet</td>
<td>• 1 tablespoon salad dressing</td>
</tr>
</tbody>
</table>

Carbohydrate foods and portions

Carbohydrate foods affect blood glucose levels the most. Include 3-5 carbohydrate food servings at each meal, and 1 or 2 carbohydrate food servings between meals (depending on energy needs). See the following lists of carbohydrate food servings.

The following foods in the amounts listed are considered to be one carbohydrate food serving (containing 12-15 gm of carbohydrates).

<table>
<thead>
<tr>
<th>Breads, cereals, grains, pasta</th>
<th>Starchy vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1 slice bread or toast</td>
<td>• ½ cup cooked beans (kidney, garbanzo, navy, white, pinto, split or black-eyed peas, lentils)</td>
</tr>
<tr>
<td>• ½ cup cooked cereal</td>
<td>• ½ cup corn or peas</td>
</tr>
<tr>
<td>• ½ small bagels</td>
<td>• ½ cup mashed potatoes or sweet potatoes</td>
</tr>
<tr>
<td>• ¾ cup dry, unsweetened cereal</td>
<td>• 1 cup winter squash</td>
</tr>
<tr>
<td>• ½ english muffin</td>
<td>• 1 small corn on the cob, 5 oz</td>
</tr>
<tr>
<td>• ½ small hamburger or hotdog bun</td>
<td>• 1 small potato</td>
</tr>
<tr>
<td>• 1 pancake, 4” wide</td>
<td></td>
</tr>
<tr>
<td>• 1 low-fat waffle, 4” square</td>
<td></td>
</tr>
<tr>
<td>• ¼ cup cooked rice or cooked pasta</td>
<td></td>
</tr>
</tbody>
</table>
### Crackers and Snacks
- 6 saltine cracker squares
- 3 graham cracker squares
- 15-20 pretzels or fat-free potato or tortilla chips
- 8 animal crackers
- 3 cups popped popcorn

### Fruits and Juices
- 1 small apple, orange or banana
- 1 medium peach
- ½ cup unsweetened canned fruit
- 1 cup small cantaloupe
- 17 small grapes
- ½ grapefruit
- ¾ cup fresh pineapple
- ½ cup orange, grapefruit, apple or pineapple juice
- ½ cup cranberry, grape, prune or fruit juice blends

### Milk
- 8 oz low-fat or fat-free milk or buttermilk
- ¼ cup plain low-fat yogurt or light (sugar free) yogurt

### Low carbohydrate vegetables
The following vegetables can be eaten at both lunch and dinner, up to 1 cup if cooked or 2 cups if raw for a serving:
- Broccoli
- Bell peppers
- Cabbage
- Carrots
- Cauliflower
- Celery
- Green beans
- Greens (collard, turnip, mustard)
- Lettuce
- Mushrooms
- Onions
- Pea Pods
- Salad greens
- Spinach
- Summer Squash
- Tomatoes
- Up to 1 cup vegetable juice can also be used for a vegetable serving

**NOTE:** Consultation with a registered dietitian is recommended for an individualized meal plan.

### Sample meal plan

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td>• 3-4 carbohydrate food servings (choose from starch, fruit or milk lists)</td>
</tr>
<tr>
<td></td>
<td>• Protein serving (optional)</td>
</tr>
<tr>
<td></td>
<td>• Fat serving (optional)</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>• 3-4 or more carbohydrate food servings (choose from starch, fruit or milk lists)</td>
</tr>
<tr>
<td></td>
<td>• Protein serving</td>
</tr>
<tr>
<td></td>
<td>• Low carbohydrate vegetable serving</td>
</tr>
<tr>
<td></td>
<td>• Fat serving (optional)</td>
</tr>
<tr>
<td><strong>Mid Afternoon Snack</strong></td>
<td>(Between lunch and dinner)</td>
</tr>
<tr>
<td></td>
<td>*1-2 carbohydrate food servings</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td>• 3-4 or more carbohydrate food servings (choose from starch, fruit or milk lists)</td>
</tr>
<tr>
<td></td>
<td>• Protein serving</td>
</tr>
<tr>
<td></td>
<td>• Low carbohydrate vegetable serving</td>
</tr>
<tr>
<td></td>
<td>• Fat serving (optional)</td>
</tr>
<tr>
<td><strong>Evening Snack</strong></td>
<td>(About 3 hours after dinner)</td>
</tr>
<tr>
<td></td>
<td>*1-2 carbohydrate food servings</td>
</tr>
</tbody>
</table>

*The amount of “carbohydrate servings” you will need will depend on your calorie needs; plan this with your dietitian.*
Sick Day Rules

Understanding sick day rules

Minor illnesses can alter your blood glucose and require some changes in your daily diabetes management. Your diabetes can become uncontrolled quickly when you are ill. By following a few simple guidelines, you can minimize the effects of an illness on your diabetes.

Need for insulin

During an illness, blood glucose levels tend to rise. As a result of this increase, your body requires more insulin. Illness causes a greater than normal demand for insulin due to the release of stress hormones. These hormones are triggered by such things as fever, loss of body fluid (dehydration), and infection.

Monitoring your blood glucose during illness

Careful and frequent blood glucose monitoring is especially important during an illness. Blood glucose should be monitored every two to four hours. If your blood glucose level exceeds 240 mg/dL, it is also important to test the urine for ketones when you are ill. Testing for ketones should also be done every four hours. Report the presence of ketones to your doctor immediately.

Eating meals

Loss of appetite is common during illness. Nausea and vomiting may prevent you from eating your usual meals. However, you need food and fluids to help you get better. Sip or eat slowly, especially if you are nauseated.

The rules

- Always take your usual daily dose of insulin or diabetes medication. Never omit your medication, even if you are unable to eat unless directed by your doctor. Illness may be a time when you need additional insulin
- Test your blood glucose every two to four hours. If your blood glucose is 240 mg/dL or greater, you should also check your urine for ketones and notify your doctor if ketones are present in your urine. Keep a record of your results to be reported to your doctor
- Weigh yourself frequently during an illness. This can help the doctor estimate any fluid loss you may be experiencing
- Drink four to eight oz of fluid (e.g. water/broth/teas/other liquids) every one to two hours. Keep a record of total fluid intake that can be reported to your doctor
- If you are unable to eat regular meals, try to consume liquid or soft foods that equal 15 gm of carbohydrates every hour or 50 gm every three to four hours
- Rest and stay warm. Do not exercise. If possible, have someone available to help you take care of yourself
- If you should be alone during an illness, contact a neighbor, friend or relative who will check on you several times a day
- Check with your doctor to determine at what blood glucose level he/she wants to be notified
- Call your doctor if:
  - fever persists
  - vomiting and/or diarrhea is severe
  - illness persists beyond one to two days
- Once the illness has passed, gradually return to your usual diabetes meal plan
What to eat and drink when you are sick

Drink four to eight oz (½ – 1 cup) of fluid every one to two hours.

• Drink extra liquid to prevent dehydration.
• Calorie-free, caffeine-free liquids are best (water, diet pop, broth), if able to eat.
• If unable to eat, drink ½ cup of juice or regular pop or sports drink.

Try to eat your regular meals.
If blood sugars are high, eat slightly smaller meals.

• If having difficulty eating, eat or drink 15 gm of carbohydrate every hour or 50 gm carbohydrate every three to four hours.
• Soft foods (soup, pudding, regular gelatin) may be easier to eat.

The following foods contain about 15 gm of carbohydrate:

• 1 slice toast
• ½ cup rice
• 5 vanilla wafers
• ½ cup pudding
• 8 oz Gatorade
• 1 popsicle
• 3 square graham crackers
• ½ cup mashed potatoes
• ½ cup applesauce
• ½ cup ice cream / yogurt
• ½ cup canned fruit
• ½ cup regular gelatin
• 1 cup milk
• ½ cup hot cereal
• ¼ cup unsweetened, cold cereal
• ½ cup 100% juice
• ½ cup juice blend
• 1 cup soup
• 6 saltines
• ¼ cup sherbet

Tips for nausea and vomiting

Blood glucose over 250 mg/dL

• Drink calorie-free, caffeine-free liquids in place of meal. Include salty liquids (broth, bouillon).

Blood glucose 180-250 mg/dL

• Drink/eat 15 gm carbohydrate in place of meal (refer to chart at left).
• Drink additional calorie-free, caffeine-free liquids.

Blood glucose under 180 mg/dL

• Try to drink/eat usual mealtime carbohydrate amount.
• If vomiting occurs after insulin is taken, may need to sip sugar water, regular pop, popsicle or juice every 20-30 minutes to maintain blood sugars of 100-180 mg/dL.

Blood glucose under 100 mg/dL and vomiting persists

• Call your doctor.
• May require hospitalization.
Exercise
Exercise is essential

Exercise
- choose an exercise you like and start out gradually
- exercise uses the sugar in your body for energy and lowers the blood sugar
- exercise improves the working of the heart, lungs and condition of the muscles

Sugar levels
- check levels before and after exercising
- if sugar is above 240mg/dL and there are ketones in the urine, don’t exercise
- if sugar is below 70mg/dL don’t exercise until you’ve had a snack

Shoes & socks
- feet may swell during the day so buy shoes later in the day when you get the best fit
- make sure you have ½ inch space at end of shoe
- check for flexibility in forefoot and cushioning
- change to a dry pair of socks following exercise
- wear socks made with no seams

Energy
- exercise stimulates more energy for daily activities
- exercise reduces stress

Nutrition
- drink plenty of fluids
- always have at least 15g of carbohydrate (glucose tablets) with you if blood sugar gets low

Time
- exercise one to two hours after eating
- exercise three to five times per week for at least a total of 20-30 minutes a day

Insulin
- avoid injecting insulin in the muscles used for activity
- insulin works better with exercise

Attention
- choose indoor activities if too hot or humid
- postpone exercise if insulin is peaking and you have not eaten
- wear diabetes identification

Lower cholesterol and weight
- exercise burns calories
- exercise can improve cholesterol levels
Prevention
Immunizations

Flu vaccine

People with diabetes can be more susceptible to experience complications from illnesses such as the flu. Immunization against the flu is an important component of preventative health care for patients with diabetes. The American Diabetes Association (ADA) and the Advisory Committee on Immunization Practices (ACIP) stress that vaccinating individuals at high risk before flu season each year (in particular September to March) is the most effective measure for reducing the risk of contracting the flu, as well as decreasing the risk of complications.

Because the flu can be transmitted from person to person, vaccination of health care workers and family members of people with diabetes is also recommended. The flu vaccine contains only non-infectious viruses, and cannot cause the flu or other respiratory diseases. The main side effect may be mild soreness at the injection site. People with allergies to chicken eggs or thimeresol may have a higher incidence of adverse effects and should not be given the vaccine. The flu vaccine is also contraindicated in persons with a history of Guillain-Barre syndrome.

Pneumonia vaccine

Patients with diabetes are also more susceptible to pneumonia, as well as patients with chronic cardiovascular, pulmonary, or renal disease. Pneumonia vaccination is indicated for persons over the age of 65 to reduce invasive disease from pneumonia. Other candidates for revaccination include nephrotic syndrome, chronic renal disease, or other immuno-compromised states, such as post-organ transplantation.

About ⅓ to ½ of patients who receive the pneumonia vaccine experience mild local side effects similar to the flu, lasting less than 48 hours. The pneumonia vaccine may be administered in a separate syringe along with other vaccines without an increase in side effects or a decrease in potency.

Additional immunizations to consider

- Tetanus/Diptheria/Pertussis - A booster every 10 years for all persons over age 18 is good if the adult has had the pertussis containing vaccine. Adults who have not had the (newer) TdaP (only Td was available prior to 2005) should not wait for 10 years for their booster. They can get it as soon as two years after the Td shot
- Measles, Mumps, Rubella (MMR) – As a catch-up on childhood vaccinations from ages 19-49
- Varicella – two doses (four to eight weeks apart) for susceptible persons
- Hepatitis A – two doses (six months apart) for persons with medical, behavioral, or occupational risk for exposure
- Hepatitis B – three doses (two to three months apart) for persons with medical, behavioral, or occupational risk for exposure
Taking care of your feet

Protect your feet from foot ulcers and amputation by checking for risk factors and by getting early treatment.

Risk factors for diabetic foot ulcers and amputations

- loss of feeling in your legs and/or feet
- foot changes (bunions, corns, calluses or hammer toes)
- skin or nail conditions (dry rough skin, athlete's foot, ingrown toenails or fungal infections of the nails)
- self treatment of foot changes
- decreased circulation, causing leg pain with exertion that is relieved by five or 10 minutes of rest
- previous foot or leg ulcer
- poor control of blood glucose, blood pressure

Guidelines for diabetes foot care

- If you have diabetes, have your feet checked yearly for sensation by a doctor to detect high-risk foot conditions
- If you have diabetes, have a nurse or a doctor look at your feet at each visit
- If you see a red area, blister, or cut on your foot, contact your doctor if there is no sign of healing within 24 hours

Tips for foot care

Check Feet

- Check your feet daily for cuts, blisters, bruises, cracks, red areas, or any changes
- If you cannot bend to see your entire foot, use a mirror or ask a family member to help
- Get a complete foot care exam by your doctor or health care professional at least once a year

Toenail care

- Trim nails straight across
- File sharp edges of toenails with an emery board
- Cut toenails after bathing, when nails are soft and easy to trim
- If toenails are too thick or you can not see well, have toenails cut by a podiatrist

Skin care

- Wash feet daily in warm (not hot) water. Dry thoroughly, especially between toes
- Do not soak feet
- If skin is dry, use lotion on top and bottom (but NOT in between the toes)
- Smooth corns or calluses gently with pumice stones. Do not use corn pads/plasters or chemicals

Keep the blood flowing

- Put your feet up when sitting.
- Wiggle your toes and move your ankles up and down for five minutes, two to three times a day
- Do not cross your legs for long periods of time.
- Keep blood glucose and blood pressure as close to normal as you can
- If you smoke or use any tobacco products, STOP

Protection

- Always wear shoes and socks, even indoors. NEVER GO BAREFOOT
- Make sure shoes fit well
- Never buy shoes with open toes or heels
- Break shoes in slowly. Wear new shoes for only 1 or 2 hours at a time
• Look for shoes with a roomy toe area and cushioned sole
• Feel inside your shoes before putting them on each time to make sure the lining is smooth and no objects are inside
• Always wear socks or stockings with your shoes. Socks made of natural fibers (cotton or wool) are best or polypropylene dry socks
• Avoid knee-high stocking, socks with tight elastic or darned socks
• Protect your feet from hot and cold. Wear shoes at the beach or on hot pavement
• Do not use heating pads or hot water bottles on feet

• Wear socks at night if your feet get cold.
• Protect feet against sunburn with sunscreen lotion

**Physician communication**
• Be sure to see your doctor three to four times every year. Be sure all your doctors know you have diabetes
• See your doctor or podiatrist promptly if you develop a blister, puncture or sore on your foot, or if a callus or corn appears
• Remove your shoes and socks when you visit your doctor

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**Suggested health maintenance for adults with diabetes mellitus**

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Evaluation</th>
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<tbody>
<tr>
<td>Every office visit or hospitalization</td>
<td>• blood pressure</td>
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<td>• body weight</td>
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<td>• evaluation of feet</td>
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<td>• eye exam (by primary care physician)</td>
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<td>• assessment of patient’s educational needs (e.g. diet, exercise, drug therapy)</td>
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<tr>
<td>Every three months if there is a change in therapy or treatment goals are not met, OR every six months (if goals are met)</td>
<td>• A1C</td>
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<tr>
<td>Every year</td>
<td>• dilated eye examination (by ophthalmologist)</td>
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<td>• fasting lipid panel</td>
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<td>• renal function and urine chemistry</td>
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<td>• flu vaccine</td>
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<td>Other recommendations</td>
<td>• pneumonia vaccine*</td>
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<td>• administer tetanus/diphtheria vaccine every 10 years</td>
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<td>• screen for modifiable cardiovascular risk factors (e.g. smoking)</td>
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<td>• trim toenails (performed by a qualified practitioner, such as a podiatrist)</td>
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</table>

* For patients 65 years of age and over, revaccination is recommended if it has been five or more years since they received the vaccine, or the patient was under 65 years old at the time of the vaccination.
Resources
Beaumont Diabetes Education Programs

Outpatient Diabetes Self-Management Education

Outpatient diabetes education classes are available through Grosse Pointe, Royal Oak, Troy and West Bloomfield. Pre-registration and referrals are required for all classes at all sites. Day and evening classes are available. The schedules are as follows:

Grosse Pointe Diabetes Self-Management Education
• classes are held at Bon Brae Center, 22300 Bon Brae St, St Clair Shores
• classes held every month (day and evening) and Saturday
• to register for classes, or for more information, call 586-779-7900

Royal Oak Diabetes Outpatient Education
• classes are held every month (day and evening classes alternate months) at Beaumont, Royal Oak
  – day classes 9 a.m. to 12 noon
  Administration Building
  - evening classes 6 to 9 p.m.
  Administration Building
• to register for classes or for more information, please call 248-551-0952

Troy Outpatient Diabetes Self-Management Education
• classes are held at Beaumont, Troy
  – Outpatient Service Building – East Campus
  – First floor, Classrooms A and B
  – next to Sterling Pizza
• monthly series classes are available, day, evening and Saturdays

Additional resources/websites

American Diabetes Association
www.diabetes.org

American Diabetes Association - Michigan Affiliate
1-800-525-9292
1-248-433-3830

American Dietetic Association
www.eatright.org
1-312-899-0040

National Diabetes Information Clearinghouse
www.diabetes.niddk.nih.gov
1-301-496-3583
1-800-860-8747

American Association of Diabetes Educators
www.diabeteseducator.org

Diabetes Monitor
www.diabetesmonitor.com/advocate.htm

Diabetes in Control
www.diabetesincontrol.com

Diabetes Education Network
www.healthtalk.com/den/

Emmi Solutions – Free, animated online program for diabetes education
www.emmisolutions.com

• to register for classes or for more information, please call 248-964-8144

West Bloomfield Outpatient Diabetes Education
• classes are held every other month at the Beaumont Medical Building on Orchard Lake Road
• class time is 3 to 5:30 p.m.
• classes are held on the 3rd floor
• to register for classes or for more information, please call 248-551-0952
Beaumont Resources – Physician Referral Service: 1-800-633-7377

Beaumont Laboratory Locations – Please call lab for hours of operation

Imaging Center ........................................................................................................................................... 248-551-3401
3601 W. Thirteen Mile Road, Royal Oak, 48073

Grosse Pointe Hospital .......................................................................................................................... 313-343-1782
468 Cadieux Road, Grosse Pointe, 48230

Royal Oak Medical Office Bldg ........................................................................................................... 248-551-8000
3535 W. Thirteen Mile Road, Royal Oak, 48073

Troy Hospital – East ............................................................................................................................... 248-964-0504
44300 Dequindre Road, Sterling Heights, 48314

Off Campus Labs

Beaumont Health Center ......................................................................................................................... 248-655-3088
4949 Coolidge Highway, Royal Oak, 48073

Beaumont Medical Center ..................................................................................................................... 586-443-2920
25515 Little Mack, Suite # 101, St. Clair Shores, 48081

Lake Orion Medical Bldg ......................................................................................................................... 248-656-4390
1455 S. Lapeer Road, Suite #111, Lake Orion, 48360

North Mack Medical Center ...................................................................................................................... 586-416-8420
15979 Hall Road, Suite #120, Macomb Twp, 48044

Northpointe Medical Bldg ......................................................................................................................... 248-542-0638
27901 Woodward, Suite #250, Berkley, 48072

Rochester Hills Medical Bldg .................................................................................................................... 248-650-1506
6700 N. Rochester Road, Rochester Hills, 48306

St Clair Shores Medical Bldg .................................................................................................................... 586-443-2920
25631 Little Mack, St. Clair Shores, 48081

Sheffield Office Plaza ............................................................................................................................... 248-816-2245
3290 W. Big Beaver, Suite #415, Troy, 48084

Tri-County Medical Clinic ...................................................................................................................... 586-795-1419
37450 Dequindre Road, Sterling Heights, 48310

Warren Medical Bulding .......................................................................................................................... 586-393-3020
8545 Common Road, Suite 140, Warren, 48093

Wellness Center – RMA .......................................................................................................................... 734-466-9697
17888 Farmington Road, Livonia, 48152

Wellspring Health Center ......................................................................................................................... 248-293-0808
4600 Investment Drive, Suite #180, Troy, 48083

West Bloomfield Medical Bldg .................................................................................................................. 248-855-7430
6900 Orchard Lake, West Bloomfield, 48322

West Oaks Phlebotomy Service Center ................................................................................................. 248-539-8836
3320 Fourteen Mile Road, Suite 170, West Bloomfield, 48322
Diabetes Outpatient Education Referral Form

All portions MUST be COMPLETELY filled out

Patient name: ________________________________ Date: _____________
Address: ____________________________________

Patient name: ________________________________ D.O.B.: _____________

Type of Diabetes

☐ Type 1 Diabetes (250.01) ☐ Type 2 Diabetes (250.00)
☐ Type 1 Diabetes/uncontrolled (250.03) ☐ Type 2 Diabetes/uncontrolled (250.02)
☐ Pre-Diabetes (790.29) ☐ Insulin Resistance (277.7) ☐ Other:

Reason for education (mandatory):

Educational program requested (please check all that apply)

DSMT:
☐ Comprehensive Diabetes Education Program (10 hours, four sessions) including dietary consultation
   ☐ Group ☐ Individual
☐ Outpatient Insulin Pump Education Program (Royal Oak Campus ONLY)
☐ Insulin Administration Education (attach prescription for type and dose of insulin requested)
☐ Pre-Diabetes Education Program

MNT
☐ Medical nutritional therapy (one hour/individual) Number of one hour sessions________________________

End Organ Complications: (Mandatory)

☐ Retinopathy ☐ Neuropathy ☐ Hypertension ☐ Cardiovascular disease
☐ Peripheral Vascular Disease ☐ Nephropathy ☐ Hyperlipidemia ☐ Other:

Laboratory data/vitals/medical clearance (mandatory)

<table>
<thead>
<tr>
<th>FBG #1</th>
<th>FBG #2 (or)</th>
<th>Random BG (or)</th>
<th>OGTT</th>
<th>A1C</th>
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<tr>
<td>Cholesterol</td>
<td>Triglycerides</td>
<td>LDL</td>
<td>HDL</td>
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<td>Creatinine</td>
<td>Urine Microalbumin</td>
<td>Blood Pressure</td>
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Medical clearance for exercise: ☐ Yes ☐ No Limitations _____________________________

Please send any other pertinent information and a copy of laboratory results if not already included above to the Diabetes Education office.

Physician signature: ___________________________________________ Date: ______________
Address: ______________________________________________________

Phone: __________________________ Fax: __________________________

Follow-up orders: _____________________________________________ Date: ______________

Signature: ____________________________________________________
Daily Glucose Tracker

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- forgetting to take your diabetes medication
- exercising (what kind and how long?)
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