Diabetes Teaching Guide
For Staff Use

Remember - Document in Power Chart each time you teach.

Resources
- Diabetes Folder
- Diabetes Self Management Classes – brochure in folder
- Med Counselor sheets - medications
- Insulin Folder

Safety – Survival Skills include:
- Blood Sugar Testing
- Medications
- Insulin
- Hyper-hypoglycemic Symptoms & Management
- Information for further learning opportunities – class information.

Patient Outcomes

Define diabetes.
- Food can not be used for energy by muscle cells because the body is not making enough insulin or the insulin is not working the way it should.
- Insulin is a hormone made by the beta cells of the pancreas, an organ located behind the stomach.

Describe own type of diabetes.
Type 1
- Body is making little to no insulin on its own.
- Requires daily insulin injections.
- Can develop in older adults, but is most common in children, adolescents, or young adults.
- Exact cause is unknown. Cause seems to be autoimmune destruction of Beta cells in pancreas
- May be genetic and is seen in many generations of the same family.
- About 10% of people with diabetes have Type 1.

Type 2
- Body makes insulin but the insulin doesn’t work the way it should or the body doesn’t make enough insulin.
- May or may not require medications to control blood sugar.
- Usually seen in adults age 40 or older, but it can occur in younger people.
- Associated with being overweight or obese and not being physically active.
- Often there is a family history of diabetes.
- About 90% of people with diabetes have Type 2.
State control measures for diabetes.
- Maintain the balance of food and exercise.
- Monitor blood sugar levels.
- Take oral medications if prescribed.
- Give insulin injections if required.
- Stress management.

Describe hyperglycemia, causes, signs and symptoms, treatment and prevention.

Hyperglycemia – high blood sugar
- When there is not enough insulin, glucose cannot leave the blood and enter the cells to be used for energy.
- Glucose builds up in the blood to high levels, resulting in hyperglycemia.
- Blood Glucose above 130 before meals or above 180 two hours after the beginning of a meal.

Causes of high blood sugar
- Eating too much carbohydrate at a time
- Skipping insulin or oral medication dose
- Not getting enough activity
- Illness, stress

Signs & symptoms of high blood sugar
- Increased thirst
- Increased urine output
- Fatigue, drowsiness, or lack of energy
- Hungry
- Blurred vision
- Dry skin
- Slow healing wounds
- Ketones in the urine – most likely to occur if Type 1

Treatment of high blood sugar
- Call doctor if blood sugar remains above target range for more than 1-2 days.
- Do not skip insulin dose.
- Drink plenty of sugar-free liquids if not vomiting.
- Follow meal plan, exercise if possible
Describe Hypoglycemia, causes, signs and symptoms, treatment, and prevention.

Hypoglycemia – low blood sugar
- Occurs when the glucose level in the blood drops below what the body needs to function normally
- Less than 70 mg/dl

Causes of low blood sugar
- Insulin peak action
- Too much insulin or oral medication
- Skipped or delayed meal or snack
- Not enough carbohydrate in meal
- Prolonged exercise
- More activity than usual
- Body’s peak sensitivity to insulin between 2 AM – 4 AM
- Alcohol use – alcoholic beverages should be consumed only in moderation and only with food. See handout in DM folder for further information.

Signs and symptoms of low blood sugar
- Sweating or shaking
- Feel confused, anxious, irritable
- Dizziness
- Rapid heartbeat
- Very Hungry
- Weakness or Fatigue
- Headache
- Double vision
- If not treated, can lead to seizures, coma and/or death

Treatment of low blood sugar
- Check blood sugar with monitor, if able
- If blood sugar is less than 70 mg/dl, treat with 15 gm carbohydrate by:
  - Drinking 10 oz skim milk OR
  - 4 oz juice OR
  - 4 oz regular soda OR
  - Taking 3 glucose tablets
- Recheck blood sugar after 15 minutes. Can repeat treatment x 3
- If symptoms don’t improve, call 911 or have someone drive you to the Emergency Room.
- If next meal is more than 1 hour away, eat 15 gm carbohydrate plus 1 oz of protein.
- Always carry something with you to treat low blood sugar episodes
Explain the need for blood sugar testing and reporting.

Reasons for Testing

- Identify blood sugar level
- Shows how diet, exercise and treatment affect blood sugar levels
- Shows patterns that guide treatment adjustments. Always bring Blood Sugar Test Diary to doctor’s visits for review.

Blood Sugar Goals

- Fasting and/or before meals – 70-130 mg/dl
- 2 Hours after meals – less than 180 mg/dl
- Bedtime – 100-140 mg/dl
- Call your doctor if your blood sugars are above target range for more than 1-2 days or below 70 1-2 times in one week.
- The A1C test is blood test that indicates an average for blood sugars over the past 2-3 months. The goal is less than 7. See handout in DM folder for further information.

Perform blood sugar test.

Gather equipment:

- Meter
- Lancets
- Lancet device
- Test strips
- Cotton balls or tissue

Follow these steps:

1. Wash hands with warm soapy water. Dry well.
2. If meter requires coding, code meter according to manufacturer’s instructions.
3. Load the lancet and insert the test strip into the meter. This varies with type of meter.
4. Perform the stick on the side of the finger or thumb. May need to milk the finger before sticking to promote blood flow. Vary fingers/thumbs to reduce discomfort.
5. Touch test strip to blood drop. This varies with the type of meter.
6. Record the results in the Blood Sugar Test Diary. Bring your diary to your doctor’s visits.
7. Dispose of lancet in sharps container or a hard plastic or metal container such as a detergent bottle or coffee can. Keep the container out of reach of children.
Alternate site testing:
- Can use the palm of the hand below the thumb or forearm for testing, if meter is approved for alternate site testing. Check owner’s manual.
- Do not use these sites when:
  - first learning to do testing
  - insulin is peaking
  - low blood sugar is suspected
  - have eaten in the last 2 hours
  - have exercised in last 2 hours
- Adjusting the lancet device setting may be needed to attain enough blood.
- Use clear cap on lancet device to do alternate site testing.

Describe meal planning for diabetes control.
- Make referral to Registered Dietitian for meal planning education.
- Reinforce RD recommendations if patient has further questions or concerns.

Purpose of healthy eating and counting carbohydrates
- Assist in controlling blood sugar.
- Improves the body’s use of insulin.
- Impacts general health.

Healthy Eating Principles
- Identify ways to reduce dietary fat if weight control is a goal.
- Encourage eating a minimum of 3 meals 4-5 hours apart.
- Explain rationale for eating on a consistent schedule.
- Review carbohydrate food groups: starch, fruit, milk, sweets.
- Define carbohydrate choice: 1 Carbohydrate choice = 15 Grams.
- Explain importance of portion sizes.
- Identify 2 key pieces of information on food labels: serving size, and total carbohydrate
- Use food label to determine carbohydrate choices in 1 serving
- Count the carbohydrates in a simple meal.
- Describe 2 strategies for curbing hunger:
  - Always include protein with carbohydrate at meals and snacks.
  - Snack on high fiber non-starchy vegetables.
Explain the rationale for use of oral medications.
- Check physician’s order for prescribed medications.
- Print appropriate Med Counselor sheets.
- Use oral diabetes medication handout in DM folder.

Diabetes medications taken by mouth helps glucose get into the body’s cells.
- Pills work to lower blood sugar in different ways:
  - Some help the pancreas release more insulin.
  - Some work on the cells to accept more glucose.
  - Some make the liver release less glucose into the blood stream.
  - Some slow down the absorption of carbohydrates
- Combination pills contain more than one medication to work on several areas of the body to lower blood sugar.
- Pills may be used in combination with other diabetes oral medication or with insulin.

Explain insulin use and differences among various types of insulin.
- Check physician’s order for prescribed insulin.
- Review type, dose and action time of insulin.
- Have patient verbalize prescribed dosage for understanding.

Review proper storage of insulin.
- Refrigerate all unopened vials, or pre-filled pens of insulin.
- Do not freeze insulin.
- Do not place insulin in direct sunlight.
- Check each vial or pen before use. Do not use if insulin is clumped, frosted, or changes color or appearance.
- Keep on hand an extra vial or pen of every type of insulin used
- Open insulin does not need to be refrigerated, but do not expose to temperatures over 85°.
- Open insulin storage varies for room temperature (considered 59° - 86°). See manufacturer’s recommendations.

Review proper disposal of sharps.
- Dispose of syringes, lancets, and pen needles using:
  - biohazard container
  - hard plastic container such as detergent or bleach bottle
  - coffee can
- Keep container out of reach of children and pets.
- Do not throw needles into the regular garbage.
Demonstrate the proper steps for insulin preparation for vial & syringe use.
- Supply pt with alcohol wipe, syringe, and saline.
- Have patient inject self.

- For both vial & pen preparation:
  1. Wash hands with warm soapy water
  2. Check the vial/cartridge label to insure correct insulin is chosen
  3. Cloudy insulin (NPH or pre-mixed insulin) should be mixed by gently rotating the vial/pen back & forth several times to ensure proper mixing. Pens will also need to be mixed vertically by holding pen in the hand and flexing elbow up and down gently.
  4. Wipe top of vial /pen with alcohol swab

- For vial/syringe preparation:
  1. Remove needle cover & draw air into syringe equal to dose.
  2. Place needle into bottle & inject air.
  3. Hold bottle in one hand, turn it upside down & slowly draw out insulin dose.
  4. Check for and remove any air bubbles.

- For pen preparation:
  1. Attach pen needle to device.
  2. 2 unit “air shot” preparation.
  3. Dial to turn the knob to the ordered dose of insulin.

Explain proper insulin injection procedure and site rotation.

- For vial or pen use:
  1. Clean the injection site with alcohol and wait for area to air-dry before injecting.
  2. Inject insulin under the skin into the subcutaneous layer of fat (avoiding muscle) of the following areas:
    - posterior upper arm
    - front or outer thigh
    - buttocks
    - abdomen (except area within 2 inches of the navel or scars)
  3. When using a syringe, push the plunger all the way down then remove the needle after the injection.
  4. When using a pen, push the dose knob all the way down and count to at least 6 or more seconds before removing needle.
  5. Use disposable needle once & dispose of properly.
  6. Rotate sites to avoid developing hard callused areas & scar tissue.
  7. Discuss special concerns such as physical activity (increased absorption rates).
Discuss the need for exercise in self-management plan.

- Check with physician regarding the need for any activity restrictions.
- Benefits of exercise – helps with:
  - Blood sugar control
  - Weight loss
  - Blood pressure control
  - Cholesterol management
  - Stress management
- Set realistic plan of activity
  - types of exercise
  - frequency & duration
- Precautions to prevent hypoglycemia if on insulin:
  - snacks
  - blood glucose monitoring before and after activity
- May need to check blood sugar levels with meter before and after exercise to avoid hypoglycemia.

Discuss actions to take with sick days.

- During an illness or infection blood glucose levels may rise even though food intake is decreased.
- It is important to continue taking your diabetes medication and following your meal plan while ill.
- Also monitor and record your blood glucose levels every 4 hrs.
- Drink plenty of sugar-free, caffeine-free liquids to keep the body hydrated.
- This lists contains 15 Gram Carbohydrate choices to eat when you are not eating your regular meals because of an upset stomach or GI problems or symptoms:
  - ½ c regular soda drinks, caffeine free
  - 6 saltine crackers
  - ½ c fruit juice
  - 1 c soup w/noodles or rice
  - ½ c regular sweetened Jell-O
  - ½ c cooked cereal
  - 1 popsicle (single, NOT SUGAR FREE)
  - ½ c ice cream
  - ¼ c sherbet
- Contact your doctor if:
  - your blood glucose level is > 240mg/dl on two consecutive occasions
  - your blood glucose falls < 70mg/dl more than once during your illness and if you have symptoms of low blood glucose (refer to section on Hypoglycemia)
  - you are vomiting or have persistent diarrhea for more than 4-6 hours.
State need for regular visits with the health care team.
- Bring blood glucose log to health care team visits
- Obtain medical identification to alert others of your diabetes in case of an emergency
- Visit a diabetes educator and/or dietitian on a regular basis for current diabetes education

Community Resources
- Central Ohio Diabetes Association
- Mount Carmel Health Systems Diabetes Self-Management Program for group classes or individual session and support groups (614 546-4582)

Discuss possible long term complications of diabetes.
- Studies have shown that good blood glucose control can decrease or delay the onset of any of these complications.
- High blood glucose can lead to serious health complications.
- These complications may affect your:
  - Heart and blood vessels – heart attack, stroke
  - Eyes - retinopathy
  - Kidneys - nephropathy
  - Feet & Nerves - neuropathy
  - Sexual function
  - Emotional health

Discuss strategies to manage stress.
- Eat properly
- Exercise and stretch
- Deep breathing
- Sharing feelings
- Rest and relaxing activities
- Visualization
## Diabetes Medications
### Oral Agents

<table>
<thead>
<tr>
<th>Generic Name (Trade name)</th>
<th>Common Starting Dose</th>
<th>Maximum Dose</th>
<th>Schedule for taking</th>
<th>Generic form available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sulfonylureas (stimulates insulin release from beta cells and increases circulating insulin levels)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glyburide (DiaBeta®)</td>
<td>1.25-5 mg</td>
<td>20 mg</td>
<td>1-2 times daily with meals</td>
<td>Yes</td>
</tr>
<tr>
<td>Glyburide (Micronase®)</td>
<td>1.25-5 mg</td>
<td>20 mg</td>
<td>1-2 times daily with meals</td>
<td>Yes</td>
</tr>
<tr>
<td>Glyburide (Glynase®)</td>
<td>1.5-3 mg</td>
<td>12 mg</td>
<td>1-2 times daily with meals</td>
<td>Yes</td>
</tr>
<tr>
<td>Glipizide (Glucotrol®)</td>
<td>5 mg</td>
<td>40 mg</td>
<td>1-2 times daily 30 minutes before meals</td>
<td>Yes</td>
</tr>
<tr>
<td>Glipizide Extended release(Glucotrol XL®)</td>
<td>2.5-5 mg</td>
<td>20 mg</td>
<td>1 time daily with meal</td>
<td>Yes</td>
</tr>
<tr>
<td>Glimepiride (Amaryl®)</td>
<td>1-2 mg</td>
<td>8 mg</td>
<td>1 time daily with meal</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Meglitinides (stimulates insulin release from pancreatic beta cells)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repaglinide (Prandin®)</td>
<td>0.5-1 mg</td>
<td>16 mg</td>
<td>Up to 4 times daily with meals</td>
<td>No</td>
</tr>
<tr>
<td><strong>D-Phenylalalnine Derivatives (stimulates insulin release from pancreatic beta cells)</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Nateglinide (Starlix®)</td>
<td>60-120 mg</td>
<td>360 mg</td>
<td>Up to 3 times daily with meals</td>
<td>No</td>
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<tr>
<td><strong>Biguanides (increases insulin sensitivity in both peripheral and hepatic tissue)</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Metformin (Glucophage®)</td>
<td>500mg</td>
<td>2550 mg</td>
<td>1-3 times daily with meals</td>
<td>Yes</td>
</tr>
<tr>
<td>Metformin extended release (Glucophage®XR)</td>
<td>500-750 mg</td>
<td>2000 mg</td>
<td>1 time daily with evening meal</td>
<td>Yes</td>
</tr>
<tr>
<td>Metformin extended release (Glumetza®)</td>
<td>1,000 mg</td>
<td>2,000mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td><strong>Thiazolidinediones (improves insulin sensitivity and glucose uptake in skeletal muscle and adipose tissue)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pioglitazone (Actos®)</td>
<td>15-30 mg</td>
<td>45 mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>Rosiglitazone (Avandia®)</td>
<td>4 mg</td>
<td>8 mg</td>
<td>1-2 times daily</td>
<td>No</td>
</tr>
<tr>
<td><strong>Alpha-Glucosidase Inhibitors (slows the body’s absorption of carbohydrate)</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Acarbose (Precose®)</td>
<td>25 mg</td>
<td>300 mg</td>
<td>3 times daily with meals</td>
<td>No</td>
</tr>
<tr>
<td>Miglitol (Glyset®)</td>
<td>25 mg</td>
<td>300 mg</td>
<td>3 time daily with meals</td>
<td>No</td>
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</tbody>
</table>
### Oral Agents (continued)

<table>
<thead>
<tr>
<th>Generic Name (Trade name)</th>
<th>Common Starting Dose</th>
<th>Maximum Dose</th>
<th>Schedule for taking</th>
<th>Generic form available</th>
</tr>
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<tbody>
<tr>
<td><strong>Combination Pills</strong></td>
<td></td>
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</tr>
<tr>
<td>Glyburide/Metformin</td>
<td>1.25mg/250mg or 2.5mg/500mg</td>
<td>20mg/2000mg</td>
<td>1-2 times daily</td>
<td>Yes</td>
</tr>
<tr>
<td>(Glucovance®)</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Glipizide/Metformin</td>
<td>2.5mg/250mg or 2.5mg/500mg</td>
<td>20mg/2000mg</td>
<td>1-2 times daily</td>
<td>No</td>
</tr>
<tr>
<td>(Metaglip®)</td>
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<tr>
<td>Linagliptin/metformin</td>
<td>2.5mg/500mg or 2.5mg/850mg</td>
<td>2.5mg/1000mg</td>
<td>2 times daily</td>
<td>No</td>
</tr>
<tr>
<td>(Jentadueto®)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosiglitazone/Metformin</td>
<td>1mg/500mg or 2mg/500mg</td>
<td>8mg/2000mg</td>
<td>1-2 times daily</td>
<td>No</td>
</tr>
<tr>
<td>(Avandamet®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioglitazone/Glimepiride</td>
<td>30 mg/2 mg or 30 mg/4 mg</td>
<td>30mg/4mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>(Duetact®)</td>
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<tr>
<td>Rosiglitazone/ Glimepiride</td>
<td>4mg/1mg or 4mg/2mg</td>
<td>8mg/4mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>(Avandaryl®)</td>
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<tr>
<td>Pioglitazone/ Metformin</td>
<td>15mg/500mg or 15mg/850mg</td>
<td>45mg/2550</td>
<td>1-3 times daily</td>
<td>No</td>
</tr>
<tr>
<td>(Acto Plus Met®)</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>DPP-4 Inhibitors</strong></td>
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</tr>
<tr>
<td>Januvia (Sitagliptin®)</td>
<td>25mg-100mg</td>
<td>100mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>Linagliptin (Trajenta®)</td>
<td>5 mg</td>
<td>5 mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>Onglyza (Saxagliptin®)</td>
<td>2.5mg-5mg</td>
<td>5mg</td>
<td>1 time daily</td>
<td>No</td>
</tr>
<tr>
<td>Alogliptin (Nesina®)</td>
<td>25mg (12.5mg –mod. renal impairment; 6.25mg - severe renal impairment)</td>
<td>25mg</td>
<td>1 time daily With or without food</td>
<td>No</td>
</tr>
<tr>
<td><strong>SGLT2 Inhibitor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Canagliflozin (Invokana®)</td>
<td>100mg</td>
<td>300mg</td>
<td>1 time daily</td>
<td>No</td>
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<tr>
<td><strong>Dopamine Receptor Agonist</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Cyclosset</td>
<td>0.8mg</td>
<td>4.8mg</td>
<td>1 time daily within 2 hours of waking with food</td>
<td>No</td>
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</table>
## Injectable Medications for Diabetes Management

<table>
<thead>
<tr>
<th>Insulin</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
<th>Available Forms</th>
<th>Storage</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rapid Acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humalog (Lispro)</td>
<td>5-15 mins</td>
<td>1-2 hrs</td>
<td>3-4 hrs</td>
<td>Vial and Pen</td>
<td>28 days</td>
<td>$$$</td>
</tr>
<tr>
<td>Novolog (Aspart)</td>
<td>10-20 mins</td>
<td>40-50 mins</td>
<td>3-5 hrs</td>
<td>Vial and Pen</td>
<td>28 days</td>
<td>$$$</td>
</tr>
<tr>
<td>Apidra (Glulisine)</td>
<td>5-15 mins</td>
<td>1-2 hrs</td>
<td>3-4 hrs</td>
<td>Vial and Pen</td>
<td>28 days</td>
<td>$$$</td>
</tr>
<tr>
<td><strong>Short Acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular (Novolin, Humulin)</td>
<td>30-45 mins</td>
<td>2-3 hrs</td>
<td>4-8 hrs</td>
<td>Vial only</td>
<td>28 days</td>
<td>$</td>
</tr>
<tr>
<td><strong>Intermediate Acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPH (Novolin, Humulin)</td>
<td>2-4 hrs</td>
<td>4-8 hrs</td>
<td>10-16 hrs</td>
<td>Vial and Pen</td>
<td>Vial: 28 days Pen: 14 days</td>
<td>$</td>
</tr>
<tr>
<td><strong>Long Acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lantus (Glargine)</td>
<td>1-2 hrs</td>
<td>None</td>
<td>24 hrs</td>
<td>Vial and Pen</td>
<td>28 days</td>
<td>$$$</td>
</tr>
<tr>
<td>Levemir (Detemir)</td>
<td>1-2 hrs</td>
<td>Relatively flat</td>
<td>Up to 24 hrs</td>
<td>Vial and Pen</td>
<td>42 days</td>
<td>$$$</td>
</tr>
<tr>
<td><strong>PreMixed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humulin or Novolin 70/30</td>
<td>30-45 mins</td>
<td>3-8 hrs</td>
<td>10-16 hrs</td>
<td>Vial and Pen</td>
<td>Vial: 28 days Pen: 10 days</td>
<td>$</td>
</tr>
<tr>
<td>Humulin 50/50</td>
<td>30-45 mins</td>
<td>3-8 hrs</td>
<td>10-16 hrs</td>
<td>Vial only</td>
<td>28 days</td>
<td>$$</td>
</tr>
<tr>
<td>Humalog Mix 50/50</td>
<td>5-15 mins</td>
<td>30-90 mins</td>
<td>10-16 hrs</td>
<td>Vial and Pen</td>
<td>Vial: 28 days Pen: 10 days</td>
<td>$$$</td>
</tr>
<tr>
<td>Humalog Mix 75/25</td>
<td>15 mins</td>
<td>30 mins-2 ½ hrs</td>
<td>16-20 hrs</td>
<td>Vial and Pen</td>
<td>Vial: 28 days Pen: 10 days</td>
<td>$$$</td>
</tr>
<tr>
<td>Novolog Mix 70/30</td>
<td>10-20 mins</td>
<td>2.4 hrs</td>
<td>24 hours</td>
<td>Vial and Pen</td>
<td>Vial: 28 days Pen: 14 days</td>
<td>$$$</td>
</tr>
</tbody>
</table>

## Other Injectable Medications for Diabetes Management

**Incretin hormones** mimic the enhancement of glucose-dependent insulin secretion and several other antihyperglycemics following release into circulation from the gut.

<table>
<thead>
<tr>
<th>Medication Name</th>
<th>Common Starting Dose</th>
<th>Maximum Dose</th>
<th>Schedule for Taking</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byetta (exenatide)</td>
<td>5 mcg</td>
<td>10 mcg</td>
<td>2 times daily</td>
<td>$$$</td>
</tr>
<tr>
<td>Bydureon (exenatide)</td>
<td>2 mg</td>
<td>2 mg</td>
<td>Weekly (1 time every 7 days)</td>
<td>$$$</td>
</tr>
<tr>
<td>Symlin (liraglutide)</td>
<td>0.6 mg</td>
<td>1.8 mg</td>
<td>1 time daily</td>
<td>$$$</td>
</tr>
</tbody>
</table>

**Synthetic form of amylin**, a hormone that is secreted from the pancreas with insulin that helps control how fast sugar gets into the blood from the stomach after meals.

| Symlin (pramlintide acetate) | 2 ½ units 15 mcg (type 1 DM)  | 10-20 units 60 mcg (type 1) 120 mcg (type 2) | 3 times daily | $$$   |

$ = cheapest
$ = moderate cost
$$$ = expensive

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