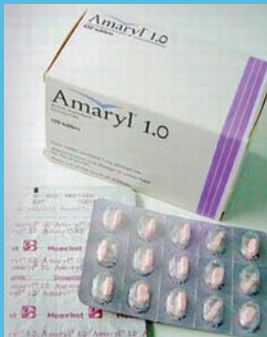




TYPE 2 MEDICATIONS

Drug Class	How It Works	Brand and Generic Names	Manufacturers	Usual Starting Dose
LONG-ACTING SECRETAGOGUES	<p>Sulfonylureas: The first three types of oral diabetes medications listed here—the sulfonylureas, the meglitinides and the phenylalanine derivatives—act by causing the pancreas to secrete more insulin. Because of this action of increasing insulin production, which in turn has the potential to cause hypoglycemia (low blood glucose), these three types of drugs are also called hypoglycemic agents or insulin secretagogues.</p> 	AMARYL (glimepiride)	Aventis	1 mg to 2 mg once a day, taken with the first meal.
		DIABINESE (chlorpropamide)	Pfizer	100 mg to 250 mg
		DIABETA (glyburide)	Aventis	2.5 mg or 5 mg a day, taken at the first meal of the day. For those more sensitive to hypoglycemic agents, the recommended dose is 1.25 mg.
		MICRONASE (glyburide)	Pharmacia & Upjohn	2.5 mg or 5 mg a day, taken at the first meal of the day. For those more sensitive to hypoglycemic agents, the recommended dose is 1.25 mg.
		GLYNASE (glyburide)	Aventis	2.5 to 5.0 mg a day, taken at the first meal of the day. For those more sensitive to hypoglycemic agents, the recommended dose is 1.25 mg.
		GLUCOTROL (glipizide)	Pfizer	5 mg a day, taken before the first meal of the day. For the elderly and those with liver disease, the recommended dose is 2.5 mg.
		GLUCOTROL XL extended-release tablets (glipizide)	Pfizer	5 mg a day, taken at the first meal of the day.
SHORT-ACTING SECRETAGOGUES	<p>Meglitinides: Hypoglycemic agents or insulin secretagogues; see the entry for sulfonylureas.</p> 	PRANDIN (repaglinide)	Novo Nordisk	If you've never taken an oral hypoglycemic agent or your A1C is less than 8%, the starting dose is 0.5 mg before each meal. If you've previously been treated with an oral hypoglycemic agent and your A1C is greater than or equal to 8%, the starting dose is 1 mg or 2 mg before each meal.
		STARLIX (nateglinide)	Novartis	The recommended starting dose is 120 mg before each main meal. In patients who are near their A1C goal, 60 mg is the starting dose.
SENSITIZERS	<p>Biguanides: These drugs work by decreasing the liver's glucose production.</p> 	GLUCOPHAGE* (metformin)	Bristol-Myers Squibb	Generally, significant effects are not seen with doses below 1,500 mg a day, but starting with lower doses and gradually increasing is recommended to minimize gastrointestinal reactions. The suggested starting dose is one 500 mg tablet taken with both the morning and evening meals, or one 850 mg tablet taken once a day with the morning meal.
		RIOMET* (metformin oral solution)	Ranbaxy	500 mg (5 ml) twice a day with meals or 850 mg (8.5 ml) once a day with a meal.
		GLUCOPHAGE XR* Extended-release tablets (metformin)	Bristol-Myers Squibb	The usual starting dose is 500 mg or 750 mg, taken once daily with the evening meal.

* Lactic acidosis—a rare but very serious (often fatal) complication—has been associated with the use of Glucophage (metformin). However, the reported incidence of lactic acidosis in people taking this medication is very low. Lactic acidosis happens more often in people with kidney problems. Signs of lactic acidosis are feeling very weak, tired, or uncomfortable; experiencing unusual muscle pain, trouble breathing, or unusual stomach discomfort; feeling cold, dizzy, or lightheaded, or suddenly developing a slow or irregular heartbeat. Contact your physician if your medical condition suddenly changes.

Max Daily Dose	Side Effects and Special Considerations	Price Range*
8 mg	All sulfonylureas can cause hypoglycemia and weight gain. May cause sun sensitivity. Sulfonylureas are not approved for use during pregnancy or lactation.	\$
750 mg	Diabinese is very long-acting (72 hours). Caution advised for use by the elderly and those with kidney disease. Diabinese may cause a flushing (reddened face) reaction with alcohol use. May cause low blood sodium problems.	\$
20 mg. Doses of 15 mg or more should be divided and given twice a day before meals.	N/A	\$
20 mg. Doses of 15 mg or more should be divided and given twice a day before meals.	N/A	\$
12 mg. Doses of more than 6 mg a day should be divided and given twice a day before meals.	N/A	\$
40 mg	Take 30 minutes before a meal for greater effectiveness.	\$
20 mg	May be taken with a meal. Do not divide, crush or chew these tablets.	\$
16 mg	Prandin may be used by people with kidney disease. However, patients with severe kidney disease should start Prandin with the 0.5 mg dose. Prandin and Starlix work faster than sulfonylureas and have a shorter duration of action. They may cause hypoglycemia, but this is less likely than with sulfonylureas. Prandin and Starlix also cause less weight gain than sulfonylureas. Do not take a dose if you are skipping a meal. Prandin has not been studied in combination with sulfonylureas.	\$ \$ \$
360 mg	Prandin is not indicated for use in combination with NPH insulin. Prandin or Starlix may be used in combination with metformin or a TZD. Not approved for use during pregnancy or lactation.	\$ \$ \$
Maximum effective dose is 2,000 mg per day.	Metformin rarely causes hypoglycemia when used alone. Metformin does not cause weight gain and does improve triglycerides. Gastrointestinal disturbances such as diarrhea, nausea, vomiting, abdominal bloating and flatulence occur in up to one-third of users. Minimize side effects by taking with food. Do not use if kidney disease or active liver disease is present. Use caution with people 80 years old and older, or if heart failure is present. Do not use during medical tests that involve IV contrast drugs. Do not use for people who are going to have surgery. Do not use for people with significant alcohol intake. Not approved for use during pregnancy or lactation.	\$ \$ \$
2550 mg (25.5 ml) in divided doses with meals.	N/A	\$ \$
Dosage increases should be made in increments of 500 mg weekly, up to a maximum of 2,000 mg taken once daily with the evening meal.	See the entry for Glucophage/metformin. In some clinical trials, Glucophage XR lost the triglyceride-lowering benefit. Do not divide, crush or chew these tablets.	\$

* Price Range: \$ = \$50 or less \$\$ = \$51 - \$99 \$\$\$ = \$100 - \$149 \$\$\$\$ = \$150 or more

Printer-friendly charts are available at www.DiabetesHealth.com/charts

TYPE 2 MEDICATIONS





Drug Class	How It Works	Brand and Generic Names	Manufacturers	Usual Starting Dose
SENSITIZERS	<p>Thiazolidinediones (glitazones, "TZDs"): These drugs help the muscle cells respond to insulin and use glucose more effectively.</p> 	<p>AVANDIA (rosiglitazone maleate)</p>	GlaxoSmithKline	4 mg a day, given as a single dose or in two divided doses.
		<p>ACTOS (pioglitazone HCl)</p>	Takeda	15 mg once daily, taken with or without food.
STARCH BLOCKERS	<p>Alpha-Glucosidase Inhibitors: These drugs work in the intestines to slow the digestion of some carbohydrates so that after-meal blood glucose peaks are not so high.</p>	<p>PRECOSE (acarbose)</p>	Bayer	25 mg (half a 50 mg tablet), taken orally three times a day at the start of each main meal.
		<p>GLYSET (miglitol)</p>	Pharmacia Upjohn	25 mg to 50 mg taken with meals.
DPP-4 INHIBITOR	<p>This drug enhances a natural body system called the incretin system, which helps to regulate glucose by affecting the beta cells and alpha cells in the pancreas. The novel mechanism of action of DPP-4 inhibitors is glucose-dependent, responding to the presence of elevated glucose and resulting in the release of insulin and decrease of glucagons only when needed, thereby lowering the potential for hypoglycemia.</p>	<p>JANUVIA (sitagliptin phosphate)</p>	Merck & Co., Inc.	<p>100 mg once daily, with or without food, for all approved indications.</p> 
INCRETIN MIMETIC	<p>Incretin Mimetics are first-in-class injectable medications used to improve glucose (blood sugar) control in a number of ways. BYETTA increases insulin secretion when glucose rises, decreases inappropriate glucagon secretion, which raises blood glucose, restores rate of stomach emptying back to normal, and decreases food intake. BYETTA is add-on or combination therapy for people currently using metformin, a sulfonylurea, or a thiazolidinedione.</p> 	<p>BYETTA[®] (exenatide) injection</p>	<p>Amylin Pharmaceuticals, Inc. Eli Lilly and Company</p>	5 mcg pre-filled pen, twice a day.
AMYLIN MIMETIC	<p>First-in-class injectable medication used with mealtime insulin to control blood sugar in adults with type 1 or type 2 diabetes. When eating, amylin is co-secreted in the beta cells of the pancreas along with insulin.</p> 	<p>SYMLIN[®] (pramlintide acetate) injection SYMLINPEN[™] (pramlintide acetate) pen-injector</p>	Amylin Pharmaceuticals, Inc.	<p>The amount of Symlin used depends on whether the patient has type 1 or type 2 diabetes.</p> <ul style="list-style-type: none"> • For type 2: Start SYMLIN at 60 mcg injected subcutaneously, just before major meals (meal must have at least 250 calories or 30 grams of carbohydrate). • For type 1 - Start SYMLIN at 15 mcg injected subcutaneously, just before major meals (meal must have at least 250 calories or 30 grams of carbohydrate).

Chart prepared by Jane Seley, NP CDE & Rebecca Longo, RN

Max Daily Dose	Side Effects and Special Considerations	Price Range*
8 mg per day, if not taking insulin	Blood tests to check for serious liver problems should be conducted before therapy and periodically thereafter as determined by a physician. TZDs rarely cause hypoglycemia when used alone. Not approved for use during pregnancy or lactation. TZDs generally take four weeks or more to become effective. Must be used carefully in people with congestive heart failure. Possibility of fluid retention; contact your physician if this occurs. Your doctor should check your eyes regularly. Very rarely, some people have experienced vision changes due to swelling in the back of the eye while taking Avandia. The coadministration of Avandia and insulin is not recommended, nor is the use of Avandia with nitrates.	\$\$\$
45 mg per day	Actos must be used with caution in people with congestive heart failure. Blood tests to check for serious liver problems should be conducted before therapy and periodically thereafter as determined by a physician. ACTOS in combination with insulin may be initiated at 15 mg and should not exceed or 30 mg when taken with insulin.	\$\$\$
150-300 mg per day (100 mg with each meal)	Abdominal pain, flatulence, and diarrhea tend to return to pretreatment levels as therapy continues. Take with the first bite of food for maximum effectiveness. Not approved for use during pregnancy or lactation. When these medications are used in combination with insulin, meglitinides, or sulfonylureas, hypoglycemia may occur and must be treated with pure glucose (tablets or gel) or milk because Precose and Glyset delay the absorption of other carbohydrates.	\$\$
300 mg per day (100 mg with each meal)		\$\$
100 mg once daily	In clinical trials, Januvia demonstrated an overall incidence of side effects comparable to placebo. The most common side effects reported with Januvia (≥ 5 percent and higher than placebo) were stuffy or runny nose and sore throat, upper respiratory infection, and headache. Across the clinical program, Januvia once-daily was weight neutral compared to placebo, and the overall incidence of hypoglycemia was similar to placebo. Because Januvia is renally eliminated, and to achieve plasma concentrations of Januvia similar to those in patients with normal renal function, a dosage adjustment is recommended in patients with moderate renal insufficiency and in patients with severe renal insufficiency or with end-stage renal disease (ESRD) requiring hemodialysis or peritoneal dialysis. Safety and effectiveness of Januvia in pediatric patients have not been established. There are no adequate and well-controlled studies in pregnant women. Januvia should be used during pregnancy only if clearly needed. Caution should be exercised when Januvia is administered to a nursing woman.	\$\$\$\$
5 mcg/twice a day 10 mcg/twice a day	Byetta is not recommended for use in patients with severe problems digesting food or those who have severe disease of the stomach or kidney. When Byetta is used with a medicine that contains a sulfonylurea, hypoglycemia (low blood sugar) is a possible side effect. To reduce this possibility, the dose of sulfonylurea medicine may need to be reduced while using Byetta. The signs and symptoms of low blood sugar may include headache, drowsiness, weakness, dizziness, confusion, irritability, hunger, fast heartbeat, sweating, and feeling jittery. Your healthcare provider should tell you how to treat low blood sugar. Other common side effects with Byetta include nausea, vomiting, diarrhea, dizziness, headache, feeling jittery, and acid stomach. Nausea is most common when first starting Byetta, but decreases over time in most patients. If patients experience the following severe and persistent symptoms (alone or in combination): abdominal pain, nausea, vomiting, or diarrhea, they should talk to their healthcare provider because these symptoms could be signs of serious medical conditions. Byetta may reduce appetite, the amount of food eaten, and body weight. No changes in dose are needed for these side effects. These are not all the side effects with Byetta. A healthcare provider should be consulted about any side effect that is bothersome or does not go away.	\$\$\$\$
Type 2: 120 mcg Type 1: 60 mcg with main meals	Insulin-induced low blood sugar (severe hypoglycemia): Low blood sugar is a serious side effect of insulin therapy. When you use Symlin and insulin, your blood sugar may drop too low, especially if you have type 1 diabetes. If this low blood sugar (severe hypoglycemia) happens, it is seen within 3 hours after a Symlin injection. Severe low blood sugar makes it hard to think clearly, drive a car, use heavy machinery, or do other risky activities where you could hurt yourself or others. When you first start Symlin, your healthcare professional should tell you to reduce the dose of insulin you take before meals by 50 percent. Future insulin changes should be directed by your healthcare professional based on blood sugar testing. It is critical to the safe and effective use of Symlin that you understand your healthcare professional's instructions, follow them carefully, and take your Symlin exactly as prescribed. Nausea is the most common side effect of Symlin. Mild nausea is more likely during the first weeks after starting Symlin and usually does not last long. Talk to your healthcare professional for advice on how to manage nausea.	\$\$\$\$

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