

Blood Glucose Levels for Diabetics

A1c <7.0%

Preprandial (meal) capillary plasma glucose
70–130 mg/dl

Peak postprandial (meal) capillary plasma glucose*
<180 mg/dl

*Postprandial glucose measurements should be made 1–2 h after the beginning of the meal, which is generally when BG is at peak level in people with diabetes.

Table 2. Combination Oral Glucose-Lowering Agents

Trade Name	Individual Medications	Relative Risk of Hypoglycemia
Glucovance [®]	glyburide-metformin	High
Metaglip [®]	glipizide-metformin	High
Avandaryl [™]	rosiglitazone-glimepiride	High
Avandamet [™]	rosiglitazone-metformin	Low
Actoplus Met [™]	pioglitazone-metformin	Low
Janumet [™]	sitagliptin-metformin	Low
Kombiglyze [™] XR	saxagliptin-metformin	Low

*See note on prescribing restrictions for rosiglitazone which also apply to these combination medications.

Table 3. Insulins with Timing of Actions

Category of Insulin by Timing of Action	Brand name (generic)	Timing of Onset	Timing of Peak Action	Duration of Action	Comments
Rapid-acting	Humalog [®] (lispro)	5-15 min	30-90 min	<5 hr	Little variability in absorption; used in continuous subcutaneous insulin infusion
	Novolog [®] (aspart)				
	Apidra [®] (glulisine)				
Short-acting	Humulin [®] R (regular)	30-60 min	2-3 hr	5-8 hr	Duration and intensity of action are dose-dependent; IV administration
	Novolin [®] R (regular)				
Intermediate-acting	Humulin [®] N (NPH)	2-4 hr	4-10 hr	10-16 hr	Duration and intensity are dose-dependent; highly variable absorption
	Novolin [®] N (NPH)				
Long-acting	Lantus [®] (glargine)	2-4 hr	No peak	20-24 hr	“Peakless;” should not be mixed in the syringe with other insulins
	Levemir [®] (detemir)	3-8 hr	No peak	5.7-23.2 hr	Dose-dependent onset
Fixed Combinations	Humulin [®] 70/30	30-60 min	Dual	10-16 hr	70% NPH and 30% regular
	Novolin [®] 70/30	30-60 min	Dual	10-16 hr	70% NPH and 30% regular
	Humulin [®] 50/50	5-15 min	Dual	10-16 hr	50% NPH and 50% regular
	Humalog [®] -Mix 75/25	5-15 min	Dual	10-16 hr	75% NPL and 25% lispro
	Novolog [®] Mix 70/30	5-15 min	Dual	10-16 hr	70% NPA and 30% aspart

NPL=NPH combined with lispro, NPA=NPH combined with aspart

Table 1. Oral Glucose-Lowering Agents

Drug Class	Action	Generic name	Trade name(s), generic	Comments
Sulfonylureas	Stimulate insulin release from beta cells	Tolbutamide	Orinase [®] , generics	Risk of hypoglycemia, gastric distress, and weight gain; is a first-generation, short half-life, kidney impairment may require a decreased dose; can be taken in divided doses to improve GI tolerance
		Tolazamide	Tolinase [®] , generics	Risk of hypoglycemia, gastric distress, and weight gain; is a first-generation, absorbed more slowly than other sulfonylureas, kidney impairment may require a decreased dose; doses over 500 mg/day should be given in divided doses
		Chlorpropamide	Diabinese [®] , generics	Risk of hypoglycemia, nausea, and weight gain; is a first-generation, longest duration of action of first-generation sulfonylureas; to be avoided in older adults; kidney impairment may require a decreased dose
		Glyburide	DiaBeta [®] , Micronase [®] , Glynase Prestabs [®] , generics	Risk of hypoglycemia and weight gain; is a second-generation; kidney impairment may require a decreased dose
		Glipizide	Glucotrol [®] , Glucotrol XL [®] , generics	Risk of hypoglycemia and weight gain; is a second-generation with the shortest half-life; kidney impairment may require a decreased dose; taken 30 minutes before meals
		Glimepiride	Amaryl [®] , generics	Risk of hypoglycemia and weight gain; is a second-generation; kidney impairment may require a decreased dose
Meglitinides (Nonsulfonylurea-secretagogues)	Stimulate insulin release from beta cells	Repaglinide	Prandin [®]	Risk of hypoglycemia and weight gain; precaution with poor kidney and hepatic function
		Nateglinide	Starlix [®]	
Biguanides	Inhibit hepatic glucose output and increases glucose uptake	Metformin	Glucophage [®] , generics	Contraindicated in those with poor kidney function; caution with congestive heart failure, liver disease, and alcohol abuse; side effects of diarrhea during first 7-10 days of use and nausea; risk of lactic acidosis (rare)
		Metformin extended release	Glucophage XR [®]	
Thiazolidinediones (Glitazones, TZDs)	Enhance insulin sensitivity at skeletal muscle, adipose tissue, and liver	Pioglitazone	Actos [®]	Risk of edema and weight gain; precaution with hepatic impairment, may cause or exacerbate heart failure; monitor for symptoms of heart failure (rapid weight gain, dyspnea, edema, etc.) and liver function tests; increased risk of fracture
		Rosiglitazone	Avandia [®]	Risk of edema and weight gain; precaution with hepatic impairment, may cause or exacerbate heart failure; monitor for symptoms of heart failure (rapid weight gain, dyspnea, edema, etc.) and liver function tests; increased risk of fracture; will have restricted availability due to increased risk of myocardial infarction
Alpha-glucosidase Inhibitors	Delay carbohydrate absorption from the intestines	Acarbose	Precose [®]	Dose-related diarrhea, abdominal pain, flatulence; must use oral glucose if hypoglycemia occurs since carbohydrate absorption is delayed
		Miglitol	Glyset [®]	
Incretins	Similar effects to glucagon-like peptide (GLP-1)	Exenatide	Byetta [®]	Precautions with gastroparesis and hypoglycemic unawareness; weight-friendly
		Liraglutide	Victoza [®]	
Amylin analog	Similar to amylin	Pramlintide	Symlin [®]	Approved for treatment of type 1 and type 2 diabetes; precautions with gastroparesis and hypoglycemic unawareness; weight-friendly
Dipeptidyl peptidase IV (DPP-IV) inhibitors	Restore GLP-1 levels; inhibition of enzymatic degradation of glucagon-like peptide-1 (GLP-1)	Sitagliptin	Januvia [®]	Side effects may not yet be known
		Saxagliptin	Onglyza [™]	
		Linagliptin	Tradjenta [®]	