Lemon-AID
Medical Management

UNDERSTANDING YOUR DIABETES

This guide explains what diabetes is, how it is treated, and what the medications actually do. The first part applies to everyone. The second part is written for people with type 1 diabetes and anyone else who uses insulin at every meal. The third part covers the medications used in type 2 diabetes. Read the part that applies to you, and bring your questions to your next visit.

Nothing in this guide replaces the plan your provider has written for you. Doses, targets, and medications are chosen for one person at a time. If something here does not match what you have been told, what you have been told is what applies to you — and it is worth asking us why.

WHAT DIABETES IS

Almost everything you eat that contains carbohydrate — bread, rice, pasta, potatoes, fruit, milk, sweets — is broken down into a sugar called glucose, which goes into your blood. Glucose is fuel. But it cannot get out of your blood and into your cells on its own. It needs a key.

INSULIN IS THAT KEY. It is a hormone made by your pancreas. When insulin is missing, or when your body stops responding to it, glucose stays in the blood instead of getting into the cells. Your blood sugar goes up, and your cells go hungry in the middle of plenty. That is diabetes.

High blood sugar over years quietly damages small blood vessels and nerves. That is why diabetes affects the eyes, the kidneys, the feet, the heart, and the nerves — not because sugar is poison, but because these are the places with the smallest and most delicate blood supply.

TYPE 1 AND TYPE 2 ARE NOT THE SAME DISEASE

They share a name and a blood test, but the underlying problem is different, and so is the treatment.

	Type 1 Diabetes	Type 2 Diabetes
What goes wrong	The immune system destroys the cells in the pancreas that make insulin. The body makes little or no insulin at all.	The body still makes insulin, but the cells stop responding to it well (insulin resistance). Over time the pancreas also gets tired and makes less.
Who gets it	Most often diagnosed in children, teens, and young adults, but it can begin at any age — including in your 40s, 50s, and beyond.	Most often adults, and more likely with extra weight, inactivity, family history, and certain ethnic backgrounds. It is also being diagnosed in teens now.
Is it caused by diet	No. Nothing you ate or did caused it. It is an autoimmune condition.	Diet, activity, weight, and genetics all contribute. Genetics matters more than most people think — plenty of people develop it without doing anything wrong.
How it starts	Usually over days or weeks — heavy thirst, constant urination, weight loss, exhaustion. It can be severe quickly.	Usually over years, with no symptoms at all. Many people are found on a routine blood test.

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	Type 1 Diabetes	Type 2 Diabetes
Treatment	Insulin, always, from diagnosis, for life. No pill replaces it.	Lifestyle changes plus one or more medications. Some people eventually need insulin too — that is the disease progressing, not a failure.
Can it go away	No. It can be managed very well, but the insulin-making cells do not come back.	It can go into remission, especially with significant early weight loss. That is not the same as cured — it can come back, and you still need monitoring.

THE NUMBERS THAT MATTER

Test	What It Measures	What To Know
Blood sugar (glucose)	Your sugar level at one moment, in mg/dL	Checked with a finger stick or a continuous glucose monitor. A single number is a snapshot — the pattern over days is what actually guides treatment.
A1C (hemoglobin A1C)	Your average blood sugar over the past 2 to 3 months, as a percentage	Usually checked every 3 to 6 months. A common goal is under 7 percent, but the right target depends on your age, other conditions, and how easily you have lows. Ask what yours is.
Time in range	The percentage of the day your sugar stays in your target range	Only available if you wear a continuous glucose monitor. A common goal is 70 percent or more of the day in range. It catches swings an A1C can hide.
Blood pressure	The pressure inside your arteries	Just as important as blood sugar for protecting your kidneys, eyes, and heart. Most people with diabetes are aimed at under 130 / 80.
Cholesterol (lipids)	Fats in your blood	Diabetes raises heart risk on its own. Most adults with diabetes end up on a statin regardless of their cholesterol number.
Kidney tests	Urine albumin and blood creatinine / eGFR	Checked at least once a year. Kidney damage is silent early and very treatable when caught early.

TYPICAL BLOOD SUGAR TARGETS FOR ADULTS — your own may be different:

- Before meals: 80 to 130 mg/dL
- Two hours after the start of a meal: under 180 mg/dL
- Bedtime: 100 to 150 mg/dL for many people on insulin, to leave a cushion overnight
- Below 70 mg/dL is a low and needs to be treated right away

THE CARE THAT PREVENTS COMPLICATIONS

The medication is only part of it. These are the things that keep small problems from becoming large ones:

What	How Often and Why
Eye exam (dilated)	Every year. Diabetic eye damage has no symptoms until it is advanced, and it is treatable when found early. This is not the same as a vision test for glasses.
Foot check	Look at your own feet every day — tops, soles, and between the toes. Have us examine them at least once a year. Nerve damage means a serious wound can be painless.
Kidney testing	Blood and urine at least once a year, more often if already abnormal.
Dental care	Every 6 months. Gum disease and high blood sugar make each other worse.
Vaccines	Flu every year, COVID as recommended, pneumococcal, hepatitis B, shingles at the recommended age. Diabetes makes infections hit harder.
Activity	Aim for 150 minutes a week of something that gets you moving, plus resistance work twice a week. Exercise lowers blood sugar for hours afterward — if you use insulin, plan for that.
Not smoking	Smoking and diabetes damage the same blood vessels. Quitting does more for your feet, kidneys, and heart than any single medication.

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PART TWO: INSULIN AND TYPE 1 DIABETES

If you have type 1 diabetes, your body makes no insulin, so you have to supply all of it. The goal is to copy what a working pancreas does: a small steady trickle all day and night, plus a burst at each meal. That is what basal-bolus dosing means.

BASAL — background insulin	A long-acting insulin, usually once or twice a day. It covers the sugar your liver releases between meals and overnight. It is not meant to cover food. Take it even on days you do not eat.
BOLUS — mealtime insulin	A rapid-acting insulin taken with food. Each dose has two parts: enough to cover the carbohydrate you are about to eat, plus a correction if your blood sugar is already above target.

THE TYPES OF INSULIN

Insulins differ in one thing above all: timing. How fast they start, when they are strongest, and how long they last. That timing determines how a given insulin is used.

Kind	Examples — generic (brand)	Starts	Strongest	Lasts	What It Is For
Rapid-acting	lispro (Humalog, Admelog, Lyumjev) aspart (NovoLog, Fiasp) glulisine (Apidra)	10 to 20 min	1 to 2 hrs	3 to 5 hrs	Meals and corrections. The workhorse bolus insulin. Take it with the meal, or shortly before.
Inhaled rapid	human insulin powder (Afrezza)	About 12 min	About 1 hr	2 to 3 hrs	Meals, for people who want to avoid mealtime injections. Requires a lung function test first; not for people with asthma or COPD.
Short-acting (regular)	Human regular insulin (Humulin R, Novolin R, ReliOn R)	30 min	2 to 4 hrs	5 to 8 hrs	An older mealtime insulin. Take about 30 minutes before eating. Costs far less and is available without a prescription in many states.
Intermediate (NPH)	Human NPH insulin (Humulin N, Novolin N, ReliOn N)	1 to 2 hrs	4 to 12 hrs	12 to 18 hrs	An older background insulin, usually twice a day. Has a definite peak, so it can cause lows during that peak. Must be rolled to mix before use.
Long-acting	glargine (Lantus, Basaglar, Semglee, Rezvoglar) detemir (Levemir)	1 to 2 hrs	Little or no peak	18 to 24 hrs	Background insulin, usually once a day at the same time. Flat action means fewer surprise lows than NPH.
Ultra-long-acting	degludec (Tresiba) glargine U-300 (Toujeo)	1 to 6 hrs	No real peak	24 to 42 hrs	Background insulin with the steadiest, longest action. More forgiving if your dose time shifts by an hour or two.
Weekly basal	Insulin Icodec (Awiqli) Insulin efsitora alfa (Onswik)	Days	No real peak	About 1 week	Background insulin given once a WEEK instead of daily. Both are currently approved for adults with TYPE 2 diabetes only, not type 1. Ask us whether one is an option for you.
Premixed	lispro mix (Humalog Mix 75/25, Mix 50/50) aspart mix (NovoLog Mix 70/30) human 70/30 (Humulin 70/30, Novolin 70/30)	Varies	Two peaks	10 to 16 hrs	Background and mealtime insulin in one pen, usually twice a day. Simpler, but far less flexible — meals must be eaten on schedule. Rarely the right choice in type 1.

Insulins are NOT interchangeable. A unit of rapid-acting is not a unit of long-acting, and swapping one for the other — or mixing up two similar-looking pens — is one of the most dangerous mistakes in diabetes care. Keep your basal and bolus pens visibly different, and read the label every single time.

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- U-100 is the standard concentration. Some insulins come as U-200, U-300, or U-500, which are more concentrated. The pen counts units correctly, but a syringe does not — never draw a concentrated insulin into a standard syringe.
- Biosimilar and "unbranded" insulins (Basaglar, Semglee, insulin lispro) are the same medicine as the brand at a lower price. If cost is a problem, tell us — there is usually something we can do.

HOW MUCH INSULIN IN TOTAL

Everything else is built from one number: your TOTAL DAILY DOSE, or TDD. It is all the insulin you take in a day — basal plus every bolus — added together.

- A common starting point at diagnosis is about 0.4 to 0.5 units per kilogram of body weight per day. Some people need less, some much more.
- Roughly half of the total is basal and half is bolus split across meals, though this varies a lot between people.
- Your TDD is not fixed. It changes with weight, activity, illness, stress, puberty, pregnancy, and the seasons. Revisit the formulas below when it changes.

My total daily dose (TDD)	_____ units per day Date calculated: _____
My basal insulin and dose	_____ _____ units at _____
My mealtime insulin	_____

THE CARBOHYDRATE RATIO

Your carbohydrate ratio — also called the insulin-to-carb ratio, or I:C — answers one question: how many grams of carbohydrate does one unit of my insulin cover?

A ratio of 1:10 means one unit covers 10 grams of carbohydrate. A ratio of 1:15 means one unit covers 15 grams. The BIGGER the second number, the LESS insulin you need — so 1:20 is a smaller dose than 1:8 for the same plate of food.

HOW IT IS DETERMINED — THE 500 RULE. Divide 500 by your total daily dose. That gives the grams of carbohydrate one unit covers. Example: a person taking 50 units a day in total → 500 ÷ 50 = 10. Their starting ratio is 1 unit per 10 grams of carbohydrate.

That is a STARTING POINT, not an answer. It is a calculation that gets you close enough to begin, and then real life corrects it. Here is how it gets refined:

- Eat a meal where you counted the carbohydrate carefully, and take the dose the ratio gives you.
- Do not correct, snack, or exercise afterward. Check your blood sugar right before the meal and again 3 to 4 hours later, when the insulin has finished working.
- If you finish within about 30 mg/dL of where you started, the ratio is right for that meal.
- If you finish HIGHER, you needed more insulin — make the second number smaller (1:15 becomes 1:12).

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- If you finish LOWER, you took too much — make the second number bigger (1:15 becomes 1:18).
- Change it by one step at a time, and repeat the test two or three times before deciding. One meal can be thrown off by fat, protein, stress, or a bad carb count.

Many people need DIFFERENT RATIOS AT DIFFERENT MEALS. Most of us are more insulin-resistant in the morning — hormones released before dawn push blood sugar up — so breakfast often needs a stronger ratio than dinner. That is normal, not a mistake.

	Breakfast	Lunch	Dinner
My carb ratio	1 unit per _____ g	1 unit per _____ g	1 unit per _____ g

COUNTING CARBOHYDRATE IS THE OTHER HALF. The best ratio in the world is useless against a wrong carb count. Read labels, weigh what you can at home until your eye is trained, and remember that a "serving" on a package is often not the amount you actually eat. Ask us for a referral to a diabetes educator or dietitian — this is a skill that is taught, not guessed.

THE CORRECTION FACTOR

Your correction factor — also called the insulin sensitivity factor, or ISF — answers a different question: how far does one unit of my insulin lower my blood sugar?

A correction factor of 50 means one unit drops your blood sugar about 50 mg/dL.

HOW IT IS DETERMINED — THE 1800 RULE. Divide 1800 by your total daily dose. That gives the mg/dL one unit of rapid-acting insulin will lower you. Example: a person taking 50 units a day in total → 1800 ÷ 50 = 36. One unit lowers them about 36 mg/dL.

If you use regular (short-acting) insulin instead of rapid-acting, do the same calculation with 1500 rather than 1800, because regular insulin is a little less potent hour for hour.

You also need a TARGET — the number you are trying to land on. For most adults, that is somewhere between 100 and 120 mg/dL before meals, and often higher at bedtime to leave room for error overnight.

The correction dose is then:

(Current blood sugar − Target) ÷ Correction factor = Correction units

Example: using a correction factor of 36 and a target of 110, your blood sugar is 250. 250 − 110 = 140. 140 ÷ 36 = 3.9, which rounds to about 4 units of correction.

Like the carb ratio, refine this by testing: correct a high when you have not eaten for several hours and are not about to eat, then recheck in 3 to 4 hours. If you land well above target, your factor number is too big. If you drop below target, it is too small. Adjust in small steps.

My correction factor	1 unit lowers me about _____ mg/dL	

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My target before meals	_____ mg/dL	
My target at bedtime	_____ mg/dL	

PUTTING IT TOGETHER: DOSING A MEAL

Every mealtime dose is two separate calculations added together.

CARB DOSE + CORRECTION DOSE = TOTAL MEALTIME DOSE

(grams of carbohydrate ÷ carb ratio) + ((current blood sugar − target) ÷ correction factor)

A WORKED EXAMPLE. Carb ratio 1:10. Correction factor 36. Target 110. Blood sugar before dinner is 190. Dinner has 60 grams of carbohydrate.

Step	Math	Result
Carb dose	60 g ÷ 10 g per unit	6 units
Correction dose	(190 − 110) ÷ 36 = 80 ÷ 36	2.2 units
Add them together	6 + 2.2	8.2 units
Round to what your pen can give	Half-unit pen → 8 units; whole-unit pen → 8 units	Take 8 units

THINGS THAT CHANGE THE ANSWER:

- EXERCISE. Activity makes insulin work harder for up to 24 hours afterward. Many people reduce the meal dose before or after exercise, or eat extra carbohydrate. Ask us how to plan yours — do not just guess once and give up.
- FAT AND PROTEIN. A high-fat meal like pizza digests slowly, so the sugar arrives late. Some people split the dose, taking part with the meal and part an hour or two later. This needs to be worked out with us.
- ALCOHOL. Alcohol blocks the liver from releasing sugar, which can cause a low HOURS later, often overnight. Eat carbohydrate when you drink, check before bed, and tell whoever you are with.
- ILLNESS AND STEROIDS. Both drive blood sugar up sharply and often need temporary dose increases. Never stop basal insulin because you are not eating.
- THE TIME OF DAY. Most people are more resistant in the morning. That is why a separate breakfast ratio is so common.

CORRECTION (SLIDING) SCALE — GENERAL REFERENCE

Some people use a calculated correction factor as above. Others — especially when starting out, or when the math is not practical — use a fixed scale. A scale is a simplified version of the same idea: the higher your blood sugar, the more correction insulin you take. Your provider will tell you which column applies to you, if any.

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Blood Sugar Before Meal (mg/dL)	Low Scale	Medium Scale	High Scale	My Dose (units)
Below 70	Treat the low first — no correction insulin on any scale			
70 to 149	0	0	0	
150 to 199	1 unit	2 units	4 units	
200 to 249	2 units	4 units	8 units	
250 to 299	3 units	6 units	12 units	
300 to 349	4 units	8 units	16 units	
350 to 399	5 units	10 units	20 units	
400 or higher	6 units	12 units	24 units	

- LOW SCALE — for people who are sensitive to insulin and take smaller total daily doses
- MEDIUM SCALE — the usual starting point for most adults
- HIGH SCALE — for people who need larger total daily doses to get the same effect
- This correction is IN ADDITION TO your mealtime carb dose, not instead of it, and it never replaces your basal insulin.

DO NOT STACK CORRECTIONS. Wait at least 3 to 4 hours after any rapid-acting insulin before giving another correction. Insulin is still working even after your blood sugar starts coming down, and giving more too soon is the most common cause of a severe low.

- If you need a correction at the same time of day most days, the problem is your basal or your carb ratio, not the correction. Tell us — that is a dose adjustment.

PUMPS AND CONTINUOUS GLUCOSE MONITORS

- A CONTINUOUS GLUCOSE MONITOR (CGM) is a small sensor worn on the skin that reads your sugar every few minutes and sends it to a phone or reader. Examples include Dexcom, the FreeStyle Libre, and the Eversense implant. It shows not just the number but the direction it is moving, and it can alarm before a low. For most people with type 1 it is now considered standard care.
- AN INSULIN PUMP delivers rapid-acting insulin continuously through a small tube or patch, replacing long-acting injections. You still tell it about meals. Examples include Tandem t:slim, Omnipod, and Medtronic MiniMed.
- AUTOMATED INSULIN DELIVERY, sometimes called a closed loop or artificial pancreas, is a pump and CGM that talk to each other — the pump adjusts your background insulin automatically based on where your sugar is heading. It does not remove the need to count carbohydrate, but it takes a great deal of the overnight and between-meal work off you.
- All of this still runs on the same numbers in this guide. A pump is programmed with your basal rates, your carb ratios, and your correction factor — so knowing what they mean matters more with a pump, not less.

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KETONES AND DKA — THE TYPE 1 EMERGENCY

Without enough insulin, the body burns fat for fuel and produces acids called ketones. When they build up, the blood turns acidic. This is DIABETIC KETOACIDOSIS, and it is life-threatening. It can develop in under a day, especially during illness, after missed insulin, or if a pump site fails.

- Check ketones any time your blood sugar is over 250 mg/dL twice in a row, any time you are vomiting, and any time you are sick — even if your sugar looks normal.
- Warning signs: nausea, vomiting, stomach pain, deep or rapid breathing, breath that smells sweet or fruity, extreme thirst, confusion, or drowsiness.
- Keep ketone strips — urine or blood — at home, and check that they have not expired.
- Moderate or large ketones, or any vomiting you cannot stop, means call us immediately or go to the emergency department. Do not wait it out.

PART THREE: MEDICATIONS FOR TYPE 2 DIABETES

In type 2 diabetes the body still makes insulin but does not use it well. Different medications attack that problem from different directions — some help your own insulin work better, some make your pancreas release more, some remove sugar through the urine, and some slow down digestion. Most people end up on more than one, because they work in different ways and add up.

Two things have changed the way these medications are chosen. First, some of them protect the heart and kidneys in their own right, beyond what lowering blood sugar does. Second, some cause meaningful weight loss while others cause weight gain. Your other conditions — not just your A1C — should decide what you are on.

Class	Medicines — generic (brand)	What It Does	What To Know
Biguanide	metformin (Glucophage, Glucophage XR, Glumetza, Fortamet, Riomet liquid)	Tells the liver to release less sugar and helps your cells respond better to your own insulin.	The usual first medication for almost everyone. Does not cause lows on its own and does not cause weight gain. Stomach upset and loose stools are common at first and usually settle — taking it with food and starting low helps. Long-term use can lower vitamin B12. Held before some scans with contrast dye and not used in advanced kidney disease.
SGLT2 inhibitors	empagliflozin (Jardiance) dapagliflozin (Farxiga) canagliflozin (Invokana) ertugliflozin (Steglatro) bexagliflozin (Brenzavvy)	Makes the kidneys dump extra sugar into the urine instead of returning it to the blood.	Also protects the heart and the kidneys, and is often prescribed for heart failure or kidney disease even apart from diabetes. Modest weight loss and a small drop in blood pressure. Raises the risk of yeast and urinary infections — genital hygiene matters. Rarely causes ketoacidosis even with a near-normal blood sugar. Usually stopped for a few days before surgery.
GLP-1 receptor agonists	semaglutide (Ozempic injection, Rybelsus tablet) dulaglutide (Trulicity) liraglutide (Victoza) exenatide (Byetta, Bydureon BCise) lixisenatide (Adlyxin)	Copies a gut hormone: more insulin when your sugar is high, less sugar released by the liver, slower stomach emptying, and less appetite.	Strong A1C lowering with real weight loss, and several protect the heart. Mostly weekly or daily injections; semaglutide also comes as a daily tablet. Nausea is the main side effect and usually fades — the dose is raised slowly for that reason. Not used with a personal or family history of medullary thyroid cancer or MEN2.

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Class	Medicines — generic (brand)	What It Does	What To Know
Dual GIP / GLP-1	tirzepatide (Mounjaro)	Acts on two gut hormones instead of one, with the same general effects as above but stronger.	Currently the most effective non-insulin medicine for both A1C and weight. Weekly injection. Same nausea pattern and the same thyroid cancer precaution. Zepbound is the same medicine approved for weight rather than diabetes.
DPP-4 inhibitors	sitagliptin (Januvia) saxagliptin (Onglyza) linagliptin (Tradjenta) alogliptin (Nesina)	Keeps your own gut hormones from being broken down so quickly, giving a gentle boost after meals.	Well tolerated, one pill a day, weight neutral, and does not cause lows on its own. The A1C lowering is modest. Not combined with a GLP-1 — they work on the same pathway. Rare joint pain and rare pancreatitis. Linagliptin does not need a dose change in kidney disease.
Sulfonylureas	glipizide (Glucotrol, Glucotrol XL) glimepiride (Amaryl) glyburide (DiaBeta, Glynase PresTab)	Pushes the pancreas to release more insulin whether or not your sugar is high.	Inexpensive and works quickly. Because it releases insulin regardless of your sugar, it CAN cause lows — especially if you skip a meal, drink alcohol, or have kidney trouble. Usually causes some weight gain. If you are on one of these, know the signs of a low and carry fast sugar.
Meglitinides	repaglinide (Prandin) nateglinide (Starlix)	Same idea as a sulfonylurea but short and sharp, taken with each meal.	Useful for people whose sugar spikes mainly after eating, or whose mealtimes are unpredictable — skip the meal, skip the dose. Can still cause lows. Taken two to four times a day.
Thiazolidinediones (TZDs)	pioglitazone (Actos) rosiglitazone (Avandia) — rarely used now	Makes muscle and fat tissue more sensitive to your own insulin.	Durable effect and no lows on its own, but causes fluid retention and weight gain, and is avoided in heart failure. Raises fracture risk, particularly in women. Takes several weeks to show its full effect.
Alpha-glucosidase inhibitors	acarbose (Precose) miglitol (Glyset)	Slows the breakdown of starch in the gut so sugar arrives more gradually after a meal.	Taken with the first bite of each meal. Gas and bloating are common and limit its use. If you have a low while on one of these together with insulin or a sulfonylurea, you must treat it with glucose tablets — table sugar will not work fast enough.
Insulin	See the insulin table in Part Two. The same insulins are used in type 2, usually starting with a long-acting basal insulin once a day.	Replaces or supplements what your pancreas can still make.	Needing insulin is the disease progressing, not a personal failure, and it is very often temporary at first — after illness, surgery, or steroids. Many people with type 2 do well on basal insulin alone, added to their pills. Can cause lows and some weight gain.
Amylin analog	pramlintide (SymlinPen)	Slows stomach emptying and reduces the sugar your liver releases after meals.	An injection taken with meals alongside insulin. Used rarely, and requires a reduction in mealtime insulin when it is started because of the risk of severe lows.

COMBINATION PILLS

Many of these are sold combined into a single tablet. Fewer pills means fewer missed doses, but it also means two medicines that cannot be adjusted separately. Common combinations include:

Brand	What Is In It	Class Combination
Janumet, Janumet XR	sitagliptin + metformin	DPP-4 + biguanide
Jentadueto	linagliptin + metformin	DPP-4 + biguanide
Synjardy, Synjardy XR	empagliflozin + metformin	SGLT2 + biguanide
Xigduo XR	dapagliflozin + metformin	SGLT2 + biguanide
Invokamet, Invokamet XR	canagliflozin + metformin	SGLT2 + biguanide

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Brand	What Is In It	Class Combination
Glyxambi	empagliflozin + linagliptin	SGLT2 + DPP-4
Trijardy XR	empagliflozin + linagliptin + metformin	SGLT2 + DPP-4 + biguanide
Qtern	dapagliflozin + saxagliptin	SGLT2 + DPP-4
Soliqua 100/33	insulin glargine + lixisenatide	Basal insulin + GLP-1
Xultophy 100/3.6	insulin degludec + liraglutide	Basal insulin + GLP-1
Actoplus Met	pioglitazone + metformin	TZD + biguanide
Duetact	pioglitazone + glimepiride	TZD + sulfonylurea

Generic versions exist for metformin, the sulfonylureas, pioglitazone, acarbose, repaglinide, and now some of the newer classes. If cost is keeping you from filling a prescription, tell us before you start skipping doses — there is almost always an alternative, a manufacturer program, or a different pharmacy price.

WHICH MEDICATIONS CAN CAUSE A LOW BLOOD SUGAR

This matters more than most people realize, because it decides whether you need to carry fast-acting sugar with you.

Can Cause Lows On Its Own	Does Not Cause Lows on Its Own (usually)
Insulin of any kind Sulfonylureas — glipizide, glimepiride, glyburide Meglitinides — repaglinide, nateglinide Pramlintide (with insulin)	Metformin SGLT2 inhibitors — Jardiance, Farxiga, Invokana GLP-1 agonists — Ozempic, Trulicity, Victoza, Rybelsus Tirzepatide — Mounjaro DPP-4 inhibitors — Januvia, Tradjenta, Onglyza Pioglitazone Acarbose, miglitol

The medicines in the right-hand column CAN still contribute to low blood sugar when they are combined with insulin or a sulfonylurea. When you add one, the insulin or sulfonylurea dose often has to come down.

LOW BLOOD SUGAR — EVERYONE ON INSULIN OR A SULFONYLUREA

A blood sugar below 70 mg/dL is too low and must be treated right away. Signs include shakiness, sweating, a fast heartbeat, hunger, confusion, irritability, blurred vision, or sudden weakness. Some people stop feeling these warnings over time — tell us if that is happening to you.

TREAT WITH THE 15-15 RULE. Take 15 grams of fast-acting sugar, wait 15 minutes, and check again. If you are still below 70, repeat. Once you are above 70, eat a snack or meal if your next one is more than an hour away.

- 15 grams is: 4 glucose tablets, or one tube of glucose gel, or 4 ounces of juice or regular soda, or 1 tablespoon of sugar or honey.

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- Do not treat a low with chocolate or ice cream — the fat slows the sugar down when you need it fast.
- GLUCAGON is emergency treatment when someone cannot swallow safely. It now comes as a nasal spray (Baqsimi) and as pre-filled injections (Gvoke, Zegalogue) that need no mixing. If you use insulin, you should have one, and the people around you should know where it is.

CALL 911 IF SOMEONE WITH DIABETES IS UNCONSCIOUS, HAVING A SEIZURE, OR CANNOT SWALLOW

WHEN TO CALL US

CALL THE OFFICE

- Blood sugars consistently above or below your target for several days
- Lows more than twice a week, lows you cannot explain, or lows overnight
- You have stopped feeling your low blood sugar warning signs
- You are sick, not eating normally, or starting a steroid such as prednisone
- You are starting or stopping any other medication, including over-the-counter ones
- Side effects you think are coming from a diabetes medication — do not just stop it, call us
- You are running out of medication or supplies, or having trouble affording them
- A sore or wound on your foot that is not healing
- You are planning a pregnancy, or think you may be pregnant — several of these medications are changed or stopped, and blood sugar targets are different

SEEK EMERGENCY CARE — CALL 911

- A low that does not come up after two rounds of the 15-15 rule
- Confusion, seizure, or loss of consciousness
- Blood sugar above 300 mg/dL with nausea, vomiting, abdominal pain, deep or rapid breathing, breath that smells fruity, or drowsiness — this may be ketoacidosis and it is an emergency
- Chest pain or pressure, sudden weakness or numbness on one side, or trouble speaking

QUESTIONS WORTH ASKING AT YOUR NEXT VISIT

- What is my A1C, and what number are we aiming for?
- What is each of my medications actually doing, and which ones can cause a low?
- Am I on anything that protects my heart or kidneys, and should I be?
- Am I checking my blood sugar at the right times, and would a continuous glucose monitor help me?
- When were my eyes, feet, and kidneys last checked?
- What should I do on a day when I am sick or cannot eat?
- Is there a cheaper version of anything I am taking?

My questions: _____

_____

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Reviewed with patient by: _____ Date: _____ / _____ / _____

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