



The Staggering True Cost of Diabetes

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GoodRx Research

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Key findings

Living with a chronic disease isn't just physically and mentally taxing. It also just costs a lot, right out of your pocket.

That's the bottom line from a new analysis by GoodRx researchers, looking at the cost of living with diabetes. When various out-of-pocket costs are tallied, including the cost of extra doctor visits, over-the-counter supplies, and lost wages, a typical person with diabetes taking insulin could spend a shocking **\$4,800 a year** in extra costs — even with health insurance. That figure represents about 10% of the average American's [annual wage](#).

Things get even more expensive for those with uncontrolled diabetes, with more than one chronic condition, or those lacking insurance altogether.

More than 30 million Americans have diabetes, and more than [7 million](#) of those people treat their condition using insulin. These out-of-pocket costs present a significant burden for people with diabetes, over and above the hardship of monitoring their disease, checking blood glucose levels, and the toil of regular insulin injections.

The bulk of this extra cost comes from paying over the counter for supplies to test blood glucose levels. Though blood glucose meters are relatively inexpensive, the cost for the accompanying test strips can add up. While insurance coverage varies, following the recommended testing guidelines (70 test strips a week) we estimate a typical patient would spend over \$3,200 out-of-pocket annually on these supplies.

The Cost of Controlling Diabetes for the Typical Insulin Patient with Insurance

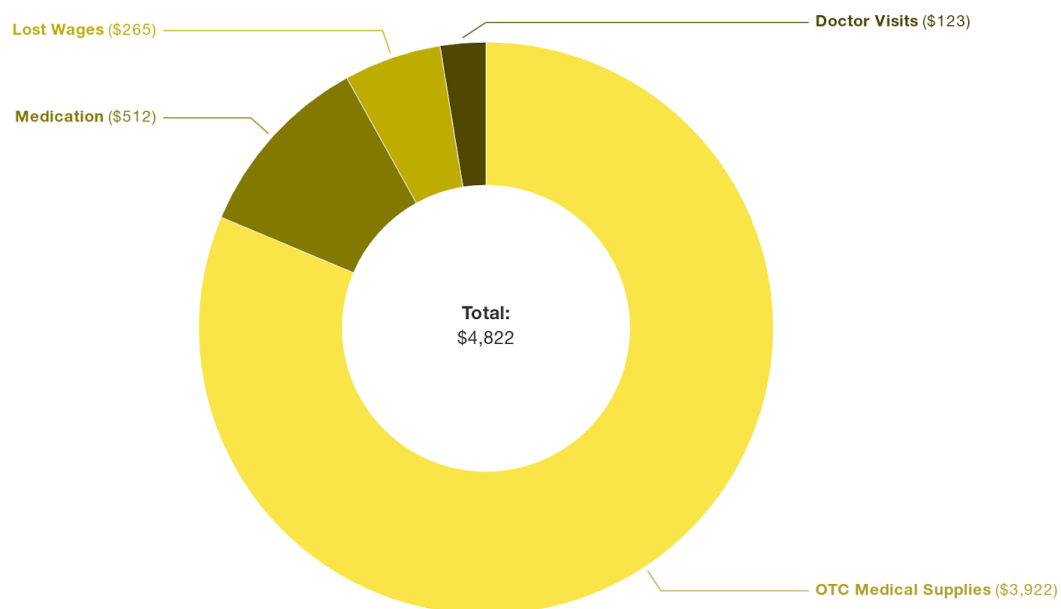


Table of Contents

1. The cost of controlled diabetes	7
The cost of controlling diabetes with medication	8
The cost of controlling diabetes with office and outpatient hospital visits	18
The cost of controlling diabetes with self-management	20
2. The cost of uncontrolled diabetes	21
3. The cost of chronic complications and comorbidities	23
The (indirect) cost of absenteeism	26
4. Adding it all up	27
Methodology	28

Diabetes: an expensive disease

[Diabetes](#) is one of the most common chronic conditions plaguing Americans. Diabetes makes it difficult for the body to process sugar (glucose) and can lead to serious health issues if there's too much glucose in the blood. [Over 9%](#) of the U.S. population has diabetes — that's [over 30 million](#) Americans, and another 1.5 million new patients are diagnosed every year.

While a patient can manage diabetes with proper diet, physical activity, regular screening, and sometimes medication, the consequences of uncontrolled diabetes can be dire. Poorly managed diabetes can cause a host of [complications](#) including heart disease, stroke, kidney failure, blindness, nerve damage, lower limb amputation, and death.

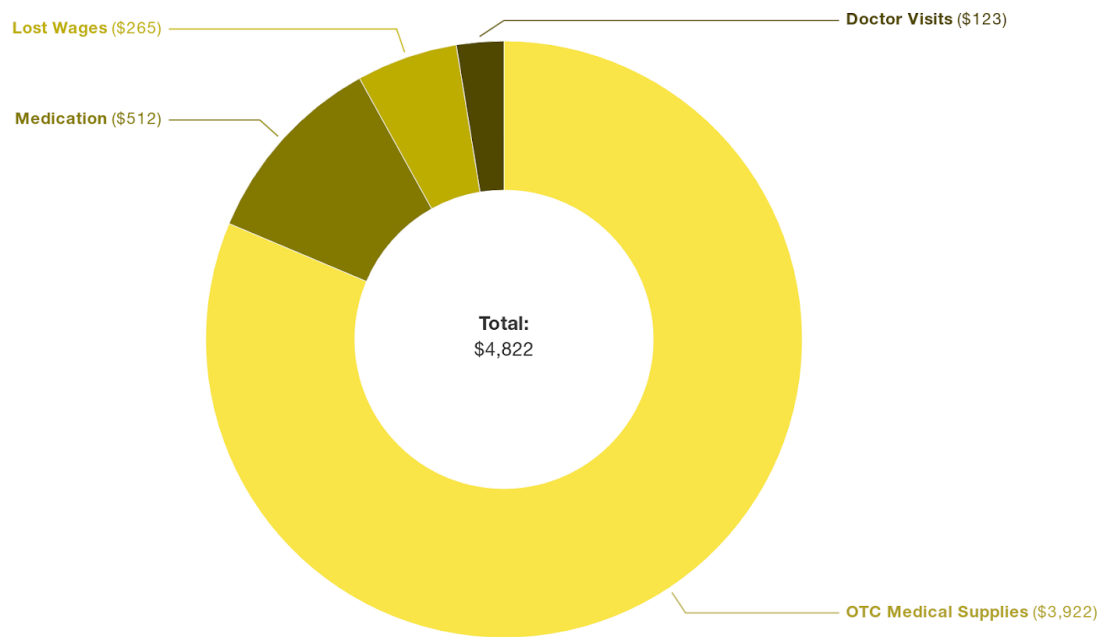
And while the health consequences of diabetes are severe, so are the economic costs associated with the condition. The American Diabetes Association estimates that the [economic burden](#) of diabetes includes \$237 billion in direct medical costs as well as \$90 billion in indirect costs due to increased absenteeism at work and reduced productivity.

But how does this translate to patients? What is the true cost of a diabetes diagnosis for them every year?

According to a GoodRx analysis, for the average insulin patient who has insurance, the price of living with diabetes can exceed **\$4,800** per year. These out-of-pocket costs vary from patient to patient, as costs depend on insurance status, severity of the disease, and even the presence of other chronic diseases. Diabetes patients who don't have insurance can spend an additional **\$1,300** in annual expenses just to control their diabetes.

On top of that, living with the chronic complications of diabetes can cost another **\$650** each year, on average. And if a patient's diabetes becomes uncontrolled to the point that they need to visit the ER, be admitted to a hospital, or use home health services, total costs can increase even more, to about **\$940** in additional annual expenses for all 3.

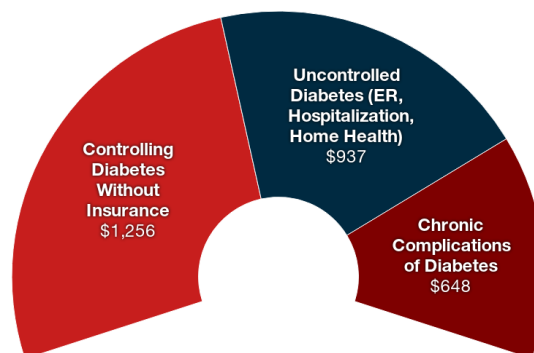
The Cost of Controlling Diabetes for the Typical Insulin Patient with Insurance



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Download the data: www.datawrapper.de/_/Z3XZx/

Other Costs Faced by Diabetes Patients



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To get a better understanding of the many costs that diabetes patients actually face, we'll discuss 3 categories of costs that diabetes patients may encounter throughout the course of their life, based on the severity of the disease:

- The cost of controlled diabetes — medications, doctor visits, outpatient care, and self-care to control blood glucose levels
- The cost of uncontrolled diabetes — ER visits, inpatient hospitalizations, and home healthcare related to diabetes
- The cost of chronic complications and comorbidities — direct medical costs related to chronic complications of diabetes (like heart and kidney disease) and common comorbidities (like anxiety and depression)

The cost of controlled diabetes

First, we look at the cost of keeping diabetes under control.

Controlled diabetes means that patients have achieved [stable blood glucose levels](#) and are managing their risk of chronic complications. Glucose is a type of sugar that the body creates by breaking down carbohydrates in food and drink. It is the main source of energy for the body's cells and needs to be kept at a steady level in the blood at all times. Diabetes makes it more difficult for the body to process glucose and can cause dangerous surges in blood glucose. While diabetes is a lifelong condition, patients can prevent complications by [managing their blood glucose levels, blood pressure, and cholesterol](#).

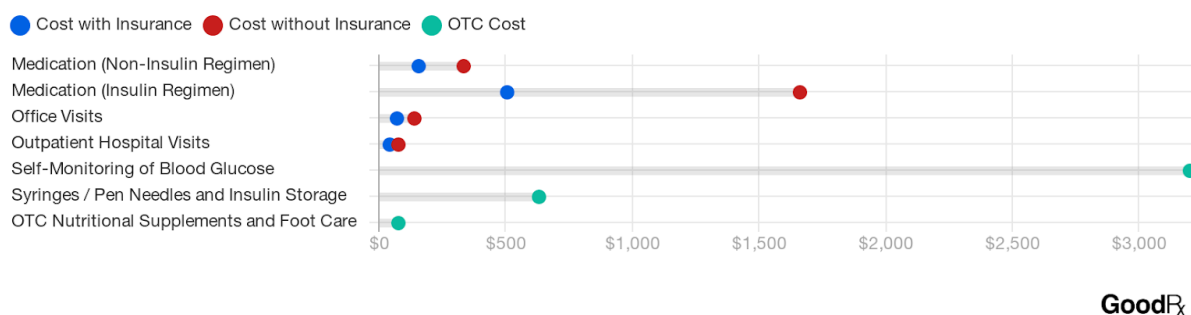
To do so, the first line of treatment for diabetes consists of [lifestyle changes, such as improving diet and exercise, and usually medication](#). Regular check-ups with a doctor and time spent on self-care are also important steps to controlling diabetes. While it takes time and money, investing in diabetes management can help prevent costly complications in the future.

So how much should someone expect to pay per year to control their diabetes? Based on a nationally representative sample of prescription claims from 2016 through 2017, we estimated the average amounts that patients pay out of pocket each year for their diabetes-related medication, doctor's office visits, and outpatient care.

On average, patients with insurance spend less than \$80 on office visits and less than \$50 on outpatient care for diabetes in a given year. The real bulk of patient spending depends on how much medication is needed to manage the condition. On average, diabetes patients with insurance who can manage their condition without insulin spend about \$160 on diabetes medication each year, while patients taking at least 1 insulin spend about \$512 each year. If a patient doesn't have insurance, those medication costs more than double, to nearly \$340 for non-insulin patients and over \$1,600 for patients on insulin.

On top of that, diabetes patients can face even more costs of up to nearly \$4,000 annually for over-the-counter medical supplies and diabetic products to keep their condition under control. Altogether, this totals over **\$4,500** annually in direct medical costs for the average diabetes patient who has insurance, takes insulin, sees their doctor regularly, and self-monitors their blood glucose levels as recommended.

Average Annual Cost of Controlling Diabetes



Download the data: www.datawrapper.de/_/Jgrw3/

We discuss these above components (and the trends that have contributed to them) in greater detail below.

The cost of controlling diabetes with medication

Along with regular exercise and a healthy diet, medication is often an important part of managing one's diabetes. In this section, we focus on anti-diabetic medications that are used to control blood glucose levels; however, medications that help manage blood pressure (such as [ACE inhibitors](#) or [ARBs](#)) and blood cholesterol levels (such as [statins](#)) may be necessary to control diabetes, too. We discuss the cost of managing those conditions alongside diabetes in the final section of this paper.

There are 2 types of diabetes, type 1 and 2, which are treated with [different medication regimens](#). Type 1 diabetes is often referred to as "insulin-dependent" diabetes because a patient's pancreas doesn't produce enough or any insulin. Type 1 diabetes patients must take insulin but generally do not take non-insulin anti-diabetic medications like [metformin](#) or [glipizide](#) (with the exception of [SymlinPen](#), an injectable [amlyn analogue](#) that is taken with insulin).

In contrast, not all type 2 diabetes patients need insulin to manage their condition. Type 2 diabetes is a different condition that is linked to both genetics as well as other lifestyle factors such as a patient's obesity level. Type 2 patients can usually still produce insulin, but their bodies just don't process it as well. The first-line drug therapy for patients with type 2 diabetes is [metformin](#), which is available as a relatively affordable generic.

If a patient still needs better blood glucose control, their doctor may add an [injectable](#) anti-diabetic medication (such as a [GLP-1 agonist](#) like [Trulicity](#)) or other [oral](#) medication (such as a [SGLT2 inhibitor](#) like [Jardiance](#)), alongside metformin. Alternatively, patients may take a basal (intermediate- and long-acting) [insulin](#) (like [Humulin-N](#), [Lantus](#), or [Basaglar](#)) in addition to metformin. As the condition progresses, they may add a mealtime (short- or rapid-acting) [insulin](#) (like [Humalog](#) or [Novolog](#)) for further control.

Not surprisingly, the cost to patients for these drugs varies, depending on the drug's price and how much a patient's insurance covers. Retail prices range from as little as \$24 per month to well into the thousands, so the type of medication that works for a particular patient to control their diabetes can have a substantial impact on their annual costs. In particular, as we discuss below, insulins are more expensive than many oral anti-diabetic medications, driving a large increase in cost when patients add them to their diabetes management program.

Diabetes patients who use insulin will pay more annually

[Retail \(cash\) drug prices](#) reflect the out-of-pocket costs patients face if either:

- They don't have insurance.
- Their drug isn't covered by insurance.
- They have a high pharmacy deductible and are still in the deductible phase of their insurance plan.

In this section, we've compiled the average retail price for a 30-day supply of every diabetes drug. While retail prices vary across drug class and manufacturer, insulins and brand-name non-insulins top the list of most expensive diabetes drugs.

The table below shows the average retail price for all non-insulin drug classes of anti-diabetic medications, which are primarily taken by [type 2 patients](#). As the table makes clear, there is a wide range of retail prices for these medications.

At one end of the spectrum, there are relatively affordable generic non-insulin medications that can effectively control diabetes when combined with a healthy diet and exercise. The most commonly prescribed non-insulin medication is [metformin](#), a [biguanide](#) that is available as a generic and has a retail price of about \$24 for a monthly supply. Another popular non-insulin drug, [glipizide](#), is from the [sulfonylureas](#) drug class and also available as a generic, with a retail price of about \$19 for a monthly supply.

At the other end of the spectrum, there are expensive brand-name drugs that may have restricted insurance coverage or no coverage at all. For example, [Byetta](#), an injectable [GLP-1 agonist](#), is not covered by 20% of [commercial plans with public formularies](#), and an additional 34% of commercial plans either require prior authorization or step therapy for coverage. With an average retail price of \$886, that means that cash-paying patients can end up spending hundreds of dollars on a single month's supply of their medication (and thousands of dollars on a full year's supply) — even if they have insurance.

A doctor may prescribe many of these more expensive brand-name drugs in addition to metformin when a patient needs better control of their blood glucose.

Looking at the average retail price of all non-insulin anti-diabetic medications (weighted by popularity), a 30-day supply of a single non-insulin retails for just over \$220. This is largely due to the wide use of affordable generics like metformin as the first line of diabetes treatment.

Average Retail Price of Non-Insulin Anti-Diabetic Medication

Drug Name	Drug Class	Form	Average Retail Price for 30-Day Supply
Miglitol	Alpha Glucosidase Inhibitors	Tablet (25mg)	\$178
Acarbose	Alpha Glucosidase Inhibitors	Tablet (25mg)	\$78
SymlinPen**	Amlyn Analogues	Carton (2 pens)	\$2,605
Glumetza	Biguanides	Tablet (1000mg)	\$8,288
Metformin ER (Glumetza)	Biguanides	Tablet (1000mg)	\$7,821
Metformin ER (Fortamet)	Biguanides	Tablet (1000mg)	\$1,117
Riomet	Biguanides	Oral Solution (500mg/5mL)	\$525
Glucophage XR	Biguanides	Tablet (500mg)	\$82
Glucophage	Biguanides	Tablet (500mg)	\$81
Metformin ER (Glucophage XR)	Biguanides	Tablet (500mg)	\$39
Metformin	Biguanides	Tablet (500mg)	\$24
Welchol	Bile Acid Sequestrants	Tablet (625mg)	\$825
Colesevelam	Bile Acid Sequestrants	Tablet (625mg)	\$583
Cycloset	Ergot Derivatives	Tablet (0.8mg)	\$631
Repaglinide	Glinides	Tablet (2mg)	\$306
Nateglinide	Glinides	Tablet (120mg)	\$156
Janumet	Gliptin / Biguanide Combinations	Tablet (50mg/1000mg)	\$567
Janumet XR	Gliptin / Biguanide Combinations	Tablet (50mg/1000mg)	\$561
Jentadueto	Gliptin / Biguanide Combinations	Tablet (2.5mg/1000mg)	\$541
Jentadueto XR	Gliptin / Biguanide Combinations	Tablet (2.5mg/1000mg)	\$534
Kombiglyze XR	Gliptin / Biguanide Combinations	Tablet (2.5mg/1000mg)	\$498
Alogliptin/Metformin	Gliptin / Biguanide Combinations	Tablet (12.5mg/1000mg)	\$246
Alogliptin/Pioglitazone	Gliptin / Glitazone Combinations	Tablet (25mg/30mg)	\$240
Januvia	Gliptins	Tablet (100mg)	\$558
Tradjenta	Gliptins	Tablet (5mg)	\$539
Nesina	Gliptins	Tablet (25mg)	\$520
Onglyza	Gliptins	Tablet (5mg)	\$518
Alogliptin	Gliptins	Tablet (25mg)	\$228
Pioglitazone/Metformin	Glitazone / Biguanide Combinations	Tablet (15mg/850mg)	\$296
Pioglitazone/Glimepiride	Glitazone / Sulfonylurea Combinations	Tablet (30mg/4mg)	\$439

Average Retail Price of Non-Insulin Anti-Diabetic Medication

Drug Name	Drug Class	Form	Average Retail Price for 30-Day Supply
Avandia	Glitazones	Tablet (4mg)	\$206
Pioglitazone	Glitazones	Tablet (30mg)	\$182
Victoza	GLP-1 Agonists	Carton (3 pens)	\$1,122
Ozempic	GLP-1 Agonists	Carton (1 pen)	\$944
Trulicity	GLP-1 Agonists	Carton (4 pens)	\$912
Byetta	GLP-1 Agonists	Pen (10mcg)	\$886
Bydureon	GLP-1 Agonists	Kit (4 pens)	\$856
Bydureon Bcise	GLP-1 Agonists	Carton (4 pens)	\$842
Adlyxin	GLP-1 Agonists	Carton (two 3mL pens)	\$743
Invokamet	SGLT2 Inhibitor / Biguanide Combinations	Tablet (150mg/1000mg)	\$601
Synjardy	SGLT2 Inhibitor / Biguanide Combinations	Tablet (12.5mg/1000mg)	\$601
Synjardy XR	SGLT2 Inhibitor / Biguanide Combinations	Tablet (12.5mg/1000mg)	\$601
Invokamet XR	SGLT2 Inhibitor / Biguanide Combinations	Tablet (150mg/1000mg)	\$597
Xigduo XR	SGLT2 Inhibitor / Biguanide Combinations	Tablet (5mg/1000mg)	\$597
Segluromet	SGLT2 Inhibitor / Biguanide Combinations	Tablet (7.5mg/1000mg)	\$345
Steglujan	SGLT2 Inhibitor / Gliptin Combinations	Tablet (15mg/100mg)	\$676
Glyxambi	SGLT2 Inhibitor / Gliptin Combinations	Tablet (25mg/5mg)	\$660
Qtern	SGLT2 Inhibitor / Gliptin Combinations	Tablet (5mg/5mg)	\$598
Invokana	SGLT2 Inhibitors	Tablet (300mg)	\$605
Jardiance	SGLT2 Inhibitors	Tablet (25mg)	\$602
Farxiga	SGLT2 Inhibitors	Tablet (10mg)	\$599
Steglatro	SGLT2 Inhibitors	Tablet (15mg)	\$348
Glipizide/Metformin	Sulfonylurea / Biguanide Combinations	Tablet (5mg/500mg)	\$121
Glyburide/Metformin	Sulfonylurea / Biguanide Combinations	Tablet (5mg/500mg)	\$93
Amaryl	Sulfonylureas	Tablet (4mg)	\$313
Glucotrol XL	Sulfonylureas	Tablet (5mg)	\$65
Glimepiride	Sulfonylureas	Tablet (4mg)	\$57
Glipizide ER	Sulfonylureas	Tablet (10mg)	\$51
Glyburide Micronized	Sulfonylureas	Tablet (6mg)	\$35
Glyburide	Sulfonylureas	Tablet (5mg)	\$30
Glipizide	Sulfonylureas	Tablet (5mg)	\$19
All Non-Insulins***			\$222

** Indicates the medication is used to treat both type 1 and type 2 diabetes. All other non-insulin medications are used to treat type 2 diabetes only.

***Average retail price for all non-insulins is weighted by total days supplied.

Download the data: www.datawrapper.de/_hmroD/

If a diabetes patient needs better blood glucose control than metformin alone, a doctor may suggest adding an insulin to their medication regimen. Insulins, however, have very [few generic options](#) — in part due to [manufacturer patents](#) and [regulatory changes](#) that affect the FDA approval process for new insulins. As a result, the average cash price of a 30-day supply of insulin (weighted by popularity) is over twice that of non-insulins. In other words, insulin is the most expensive frequently used diabetes medication.

If a patient needs more than one type of insulin to manage their blood glucose levels, such as a combination of a long-acting insulin (like [Tresiba](#)) and a rapid-acting insulin (like [Humalog](#)), prescription drug costs can add up quickly. On top of that, as we discuss in the next section, taking insulin requires a host of medical supplies that can add up over the year.

Average Retail Price of Insulin

Drug Name	Drug Class	Form	Average Retail Price for 30-Day Supply
Humulin N	Intermediate-Acting	Vial (10 mL)	\$183
Novolin N	Intermediate-Acting	Vial (10 mL)	\$92
Humalog 75/25	Intermediate-Acting/Rapid-Acting	Kwikpen (3 mL)	\$708
Humalog 50/50	Intermediate-Acting/Rapid-Acting	Carton (five 3 mL Kwikpens)	\$700
Novolog 70/30	Intermediate-Acting/Rapid-Acting	Carton (five 3 mL Flexpens)	\$685
Humulin 70/30	Intermediate-Acting/Short-Acting	Vial (10 mL)	\$183
Novolin 70/30	Intermediate-Acting/Short-Acting	Vial (10 mL)	\$93
Xultophy*	Long-Acting	Package (five 3 mL pens)	\$1,266
Soliqua 100/33*	Long-Acting	Carton (5 Solostar pens)	\$862
Tresiba	Long-Acting	Carton (three 3 mL Flextouch pens)	\$743
Toujeo Max	Long-Acting	Carton (2 prefilled 3 mL)	\$630
Levemir	Long-Acting	Flextouch Pen (3 mL)	\$567
Lantus	Long-Acting	Carton (5 Solostar pens)	\$505
Toujeo	Long-Acting	Carton (3 prefilled 1.5 mL pens)	\$477
Basaglar	Long-Acting	Carton (five 3 mL Kwikpens)	\$407
Afrezza	Rapid-Acting	Titration Pack (180 cartridges)	\$1,181
Apidra	Rapid-Acting	Carton (5 Solostar pens)	\$722
Fiasp	Rapid-Acting	Flextouch Pen (3 mL)	\$678
Novolog	Rapid-Acting	Carton (5 Flexpens)	\$669
Humalog	Rapid-Acting	Kwikpen (3 mL)	\$663
Admelog	Rapid-Acting	Carton (5 Solostar pens)	\$514
Insulin Lispro	Rapid-Acting	Kwikpen (3 mL)	\$344
Humulin R	Short-Acting	Vial (10 mL)	\$185
Novolin R	Short-Acting	Vial (10 mL)	\$92
All Insulins***			\$476

*Indicates the medication is only used to treat type 2 diabetes. ***Average retail price for all insulins is weighted by total days supplied.

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Download the data: www.datawrapper.de/_/TG8eS/

The added cost of diabetes medical supplies

The cost of controlling diabetes not only includes the cost of diabetes drugs, but also the cost of diabetes medical supplies, which are used to check blood glucose levels and administer medication.

Diabetes medical supplies are generally available over the counter (OTC), and many items are covered by insurance. We primarily discuss OTC prices in this section, which represent the high end for medical supplies costs. With insurance, medical supplies may be cheaper, but they may be less convenient to access since a prescription is required to use insurance. Patients may also have less flexibility on the brands and quantity they can get with insurance, depending on their plan.

For diabetes patients, the ability to check their own blood glucose is crucial to managing their condition. It's typically done with a small, portable device known as a blood glucose meter, which works with test strips to display the amount of glucose in the patient's blood.

The cost of a standard glucose meter is comparatively low (with an average OTC cost of \$25 per meter). But the cost of test strips can add up — similar to purchasing a printer with pricey ink cartridges.

The recommended practice for testing blood glucose is once in the morning and once at night, as well as once before and after every meal. Ideally, diabetes patients should test twice each time to confirm the blood glucose level. That means that the average person, eating an average of 3 meals a day, is expected to go through about 70 test strips in a single week.

Additionally, self-monitoring of blood glucose requires control solution (to check the accuracy of the meter and test strips), lancets (to draw blood for the test), and a lancing device. In order to limit infection and minimize pain, it is best practice to change lancets with each test.

Altogether, the cost of traditional self-monitoring of blood glucose can exceed \$3,200 over the course of a year.

Average Annual Cost of Self-Monitoring of Blood Glucose

Medical Equipment	Recommended Amount	Average OTC Price
Glucose meter	1 meter	\$25
Test strips	70 per week	\$2,663
Lancets	70 per week	\$488
Lancing device	1 device	\$12
Control solution	2 bottles	\$20
Total for one year:		\$3,207

Download the data: www.datawrapper.de/_/4f3Rq/

Alternatively, patients can use a [continuous glucose monitor](#) to get constant feedback on their blood glucose levels. These devices are inserted under the skin and are often used alongside an [insulin pump](#) to make incremental adjustments to control blood glucose levels throughout the day. Continuous glucose monitors are [more expensive](#) than traditional glucose meters, but they are often covered by insurance.

Diabetes patients who take injectable drugs such as insulin may also need to purchase medical supplies such as syringes and pen needles. The average retail price (weighted by popularity) for a typical 30-day supply is just over \$50. So, a patient paying cash might expect to spend over \$610 each year on additional medical equipment to administer insulin. What's more, diabetes patients who regularly take insulin may want to purchase an insulin cooling travel case, which costs on average about \$23.

Average Retail Price of Selected Pen Needles and Syringes

Name	Description	Average Retail Price for 30-Day Supply
Novotwist	Pen Needle	\$74
Novofine	Pen Needle	\$66
Bd Ultra-Fine	Pen Needle	\$54
Surecomfort	Syringe	\$40
Bd Precisionglide	Syringe	\$2
All Syringes and Pen Needles***		\$51

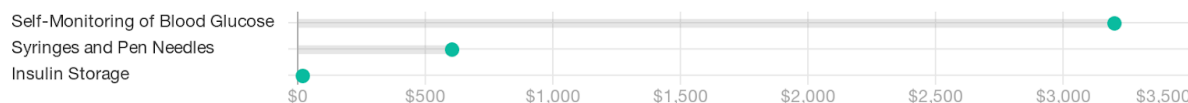
***Average retail price for all syringes and pen needles is weighted by total days supplied.

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Download the data: www.datawrapper.de/_/USWrT/

In total, diabetes patients who take insulin can face **over \$3,800** in additional OTC costs for the medical supplies needed to monitor their blood glucose and administer their medications.

Average Annual Out-of-Pocket Spending on OTC Medical Supplies



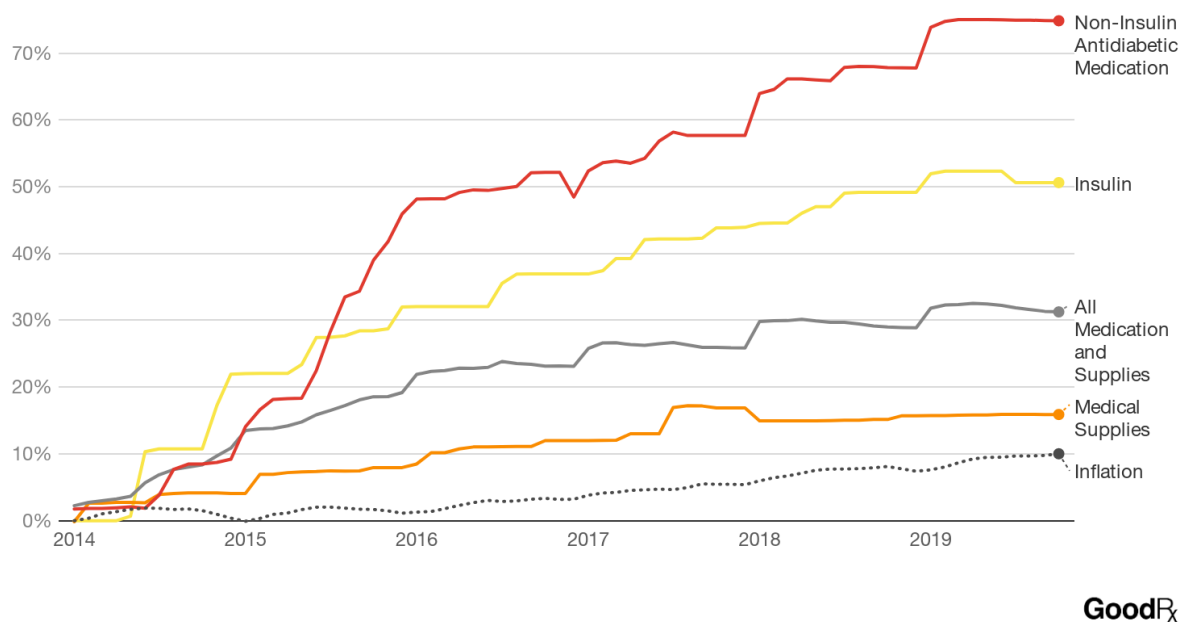
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For all diabetes patients, drug prices have been rising

Not only do many costs go into a diabetes medication regimen, but those costs have also been rising over time. Prices for diabetes medication and supplies have steadily increased over the last 5 years, outpacing inflation and the price of all drugs. The higher costs make it increasingly more difficult for patients to control their diabetes with medication.

Change in List Price Index for Diabetes Medication and Supplies



See the interactive chart and download the data: www.datawrapper.de/_/cFc6S/

Since the start of 2014, insulin list prices have increased by over 50%, while list prices for non-insulin anti-diabetic medications have increased by over 75% — a substantially steeper increase than the price of all drugs, which increased by over 31%. List prices for diabetes medical supplies such as glucose meters, test strips, lancets, and insulin pumps have also gone up, by about 16%.

These numbers are based on the GoodRx list price index, which uses published list prices as set by drug manufacturers and the prescription drug mix as dispensed by community retail pharmacies. Manufacturer list prices determine the retail cost of different medication regimens, which, combined with a patient's insurance coverage, determine out-of-pocket drug spending.

Out-of-pocket drug costs are highest for patients who need insulin and don't have insurance

Now that we've laid out the landscape of drug prices that diabetes patients face, we turn to how much patients are actually spending to control their diabetes.

In particular, we find that diabetes patients who take insulin usually end up paying more at the pharmacy than patients who can manage their diabetes with non-insulin medications like metformin alone. Insurance coverage status is also a key determinant of out-of-pocket medication costs.

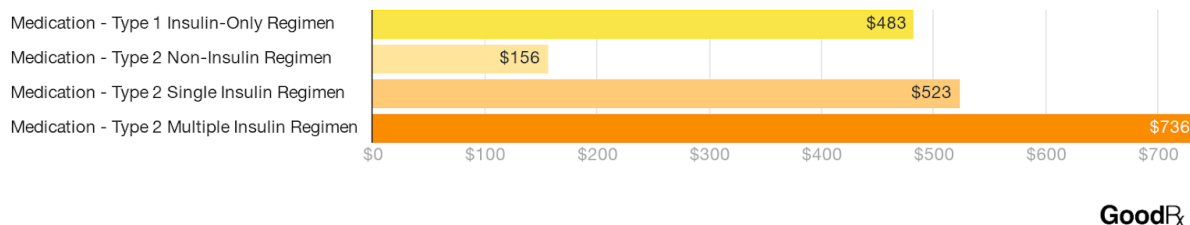
Ultimately, how much patients actually spend will depend on what type of diabetes they have, how expensive their medication is, and if they can afford it.

Using nationally representative data from 2016 through 2017, we estimated the average annual out-of-pocket spending by diabetes patients on diabetes-related medication and supplies. Our calculations include all drugs and supplies associated with a primary diagnosis of diabetes, not just anti-diabetic medications. We focus on patients' out-of-pocket spending, which includes deductible payments, insurance copays, and cash payments.

Not surprisingly, the more medication a patient needs to take, the more costly it is for them to control their diabetes. There is also a stark difference in out-of-pocket medication costs between non-insulin and insulin diabetes patients.

On average (across all diabetes patients regardless of insurance status), adding a single insulin to a type 2 patient's medication regimen can increase out-of-pocket spending on drugs for the year by nearly \$370. Patients who take multiple types of insulin (such as a "basal-plus" insulin regimen) can expect to spend nearly \$740 each year on medication to control their diabetes.

Average Annual Out-of-Pocket Spending on Diabetes-Related Medication

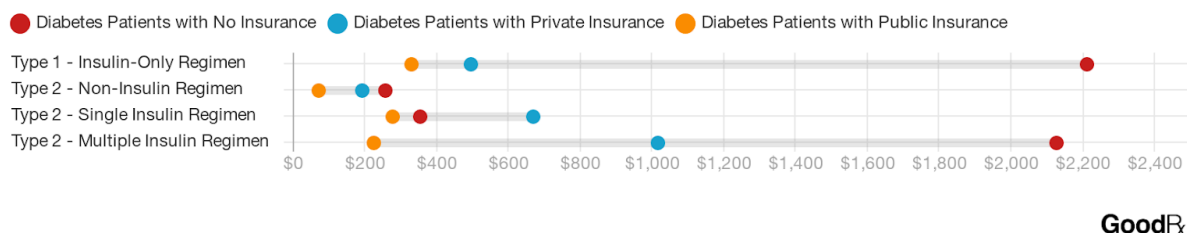


Download the data: www.datawrapper.de/_/9CFKG/

Insurance is another key determinant of out-of-pocket drug costs for diabetes patients. Without insurance, patients typically have to pay the retail price of their diabetes medication, which, as discussed earlier, can be very expensive. In some cases, uninsured patients may not be able to afford to fill as many prescriptions as their insured counterparts.

On average, uninsured diabetes patients still spend the most out of pocket for their medications, despite filling less prescriptions in a year. The difference in out-of-pocket drug spending between insured and uninsured patients is also much wider for insulin patients versus non-insulin patients. In other words, diabetes patients without insurance stand to see a much larger increase in out-of-pocket spending if they need to add insulin to their medication regimen.

Average Annual Out-of-Pocket Spending on Diabetes-Related Medication



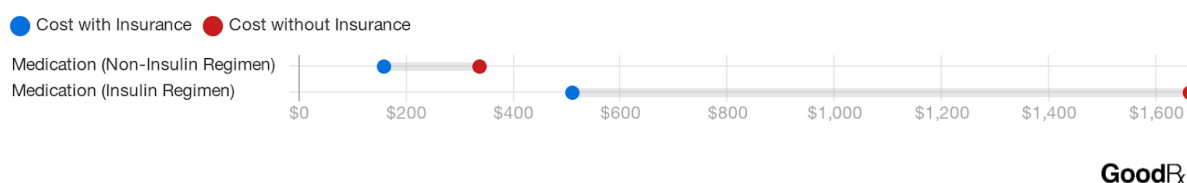
See the interactive chart and download the data: www.datawrapper.de/_/rTIsZ/

Out-of-pocket spending varies for diabetes patients with insurance as well. Diabetes patients with Medicaid or Medicare on average spend less on their diabetes drugs than their privately insured counterparts. While insurance plans typically cover at least 1 insulin and at least 1 drug in each class of anti-diabetic medications, there are many drugs that are not covered or have high copays. Pharmacy deductibles have also become an increasingly popular insurance plan feature, so many insured patients may still need to pay a deductible on the cost of their medications before their copay kicks in.

Finally, it's important to keep in mind that these patients are paying insurance premiums *on top of* their out-of-pocket cost-sharing amounts. So even if diabetes patients have great insurance coverage for their medication, they may be paying hefty premiums to maintain that coverage.

Altogether, the average diabetes patient *with insurance* who can manage their condition without insulin spends about **\$160** on diabetes medication each year, while the average patient taking at least 1 insulin spends about **\$512** each year. If a patient doesn't have insurance, those medication costs more than double, to nearly **\$340** for non-insulin patients and over **\$1,600** for patients on insulin.

Average Annual Out-of-Pocket Spending on Medication to Control Diabetes



Download the data: www.datawrapper.de/_/9Ejzq/

The cost of controlling diabetes with office and outpatient hospital visits

Another important aspect of diabetes management is checking in with healthcare providers regularly and forming a plan for care. From diagnosis, to discussing changes in diet and exercise, to figuring out the right medications to take — regular doctor visits are important for controlling diabetes. Patients should [see their doctor](#) as often as every 3 months to check their

blood glucose, as well as get regular lab tests for cholesterol and kidney function, foot exams, and eye exams.

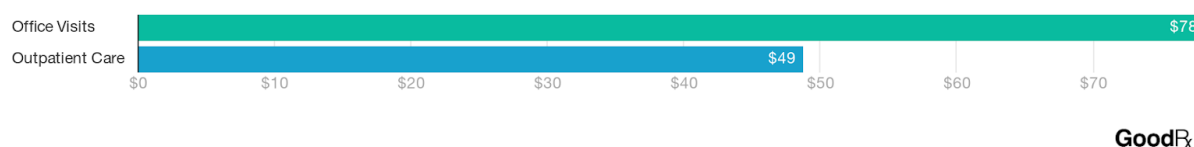
In addition to seeing a primary care provider, patients may need to see specialists such as an endocrinologist, ophthalmologist, podiatrist, dentist, and registered dietitian as part of their [diabetes care team](#). Coordinating care with these providers is crucial for monitoring and treating any diabetes-related complications, but the costs can add up.

To measure the direct cost of these visits to the patient, we looked at the annual out-of-pocket spending on diabetes-related office-based and outpatient hospital visits. Office-based services commonly include general checkups, follow-ups or post-operative visits, diagnosis or treatment, lab tests, and vision exams, while outpatient services can include general checkups, diagnosis or treatment, lab tests, and diabetes self-management training. [Diabetes self-management training](#) often includes instructions in self-monitoring of blood glucose, education about diet and exercise, and development of an insulin treatment plan.

Other outpatient services related to diabetes may include foot health, eye clinics, kidney clinics, dental checkups, heart checkups and tests, psychological support, specialized dietitian consultations, vaccinations, and smoking cessation support.

Based on a nationally representative dataset, we estimated how much the average diabetes patient (regardless of insurance status) spends on provider visits to control diabetes. We find that the average diabetes patient spends less than \$80 per year on office visits and less than \$50 per year on outpatient hospital visits.

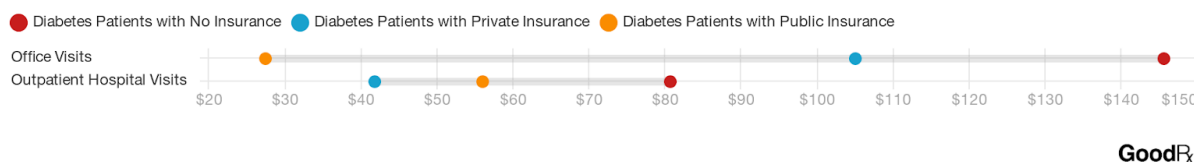
Average Annual Out-of-Pocket Spending on Office & Outpatient Visits for Diabetes



Download the data: www.datawrapper.de/_/zijTl/

Yet again, insurance status plays a big factor in the amount a patient will pay yearly. Many office and outpatient services are covered by private insurance and Medicare/Medicaid, but others such as diet and exercise consultations may not be covered. On average, diabetes patients without insurance spent nearly \$150 per year on office visits and over \$80 per year on outpatient services related to their diabetes.

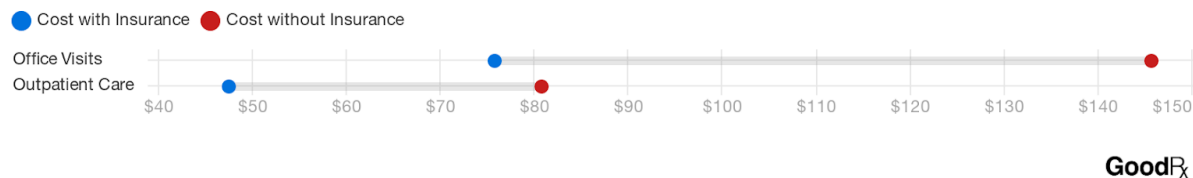
Average Annual Out-of-Pocket Spending on Office & Outpatient Visits for Diabetes



See the interactive chart and download the data: www.datawrapper.de/_/2FsAt/

In total, diabetes patients with any kind of insurance can spend, on average, over **\$120** on provider visits every year to manage their diabetes. If a patient doesn't have insurance, they can expect to spend an additional **\$100** each year.

Average Annual Out-of-Pocket Spending on Provider Visits to Control Diabetes



Download the data: www.datawrapper.de/_/XTEHM/

The cost of controlling diabetes with self-management

The true cost of controlling diabetes extends beyond just the costs of doctor visits and medication. It involves time, planning, and additional spending on OTC treatments and products formulated specifically for diabetes patients to help manage their condition. These products can include foot creams, anti-inflammatories, antifungal products, sugar-free or diabetes-friendly oral medications, smoking cessation products, shampoo for dry skin and scalp care, dental care products such as fluoride toothpaste and floss, and eye care products such as glasses.

We looked at the average prices for popular products targeting 2 important areas of diabetes self-management: nutritional supplements and foot care. A variety of nutritional products help diabetes patients manage their blood glucose. Glucose supplements, which average about \$24 for a 50-tablet bottle, can be taken during hypoglycemic episodes to quickly raise blood glucose back to normal range. Diabetes patients can also use healthy, low-sugar meal replacement drinks or snacks to stabilize their blood glucose levels throughout the day. These nutritional supplements cost less than \$2 per serving, on average.

We also looked at the cost of common foot care products used by diabetes patients. Foot pain creams, which cost about \$18 per container, help with symptoms such as pain, burning, tingling, itching, numbness, and other foot issues related to diabetes and diabetic neuropathy. Because diabetes patients with nerve damage in their feet are less likely to feel small skin injuries, they have a higher risk of fungal infections such as athlete's foot. Antifungal foot products, which cost about \$13 per container, help prevent these infections. Compression socks, which cost about \$7 per pair, help reduce swelling, improve circulation, and decrease the risk of foot injury — especially if the patient is experiencing foot problems.

In total, if diabetes patients purchase at least one of each item every year, they can expect to spend an additional **\$81** on OTC nutritional supplements and foot care, or more if they need to refill any items.

Average Cost of Nutritional Supplements and Foot Care for Diabetes

Description	Use	Amount	Average OTC Price
Glucose supplements	Nutritional supplements	1 bottle (50 tablets)	\$24
Diabetic nutrition drinks and snacks	Nutritional supplements	1 item (11.4 servings)	\$19
Foot pain cream	Foot care	4 oz. container	\$18
Antifungal foot products	Foot care	1 oz. container	\$13
Compression socks	Foot care	1 pair	\$7
Total			\$81

GoodRx

Download the data: www.datawrapper.de/_/nssAQ/

Diabetes self-management not only costs money but also time. It takes time to practice the recommended diabetes self-management routine — self-testing, foot care, exercise, and food planning. One [study](#) found that, on average, diabetes patients spend about an hour on self-management each day, though few patients in the study practiced all recommended elements of self-management regularly.

Altogether, many costs go into controlling diabetes — prescription drugs, medical supplies, healthcare provider visits, and time. How much patients spend directly on healthcare ultimately depends on how much they invest in getting good health insurance, adopting a healthy lifestyle, and practicing diabetes self-management.

For the average insulin patient who has insurance and adopts best practices for diabetes self-management, the total cost of controlling their condition can exceed **\$4,500** in direct medical costs each year. Those who don't have insurance can spend an additional **\$1,300** each year.

The cost of uncontrolled diabetes

While controlling diabetes can be costly, uncontrolled diabetes can be even more expensive. When diabetes patients lose control of their blood glucose, it can lead to complications that require more healthcare and more out-of-pocket spending down the line.

Any illness or infection can throw a diabetes patient off course. Common complications that can send diabetes patients to the hospital include hyperglycemia and hypoglycemia (high and low blood glucose, respectively), ulcers, infections, heart attack, and acute kidney failure.

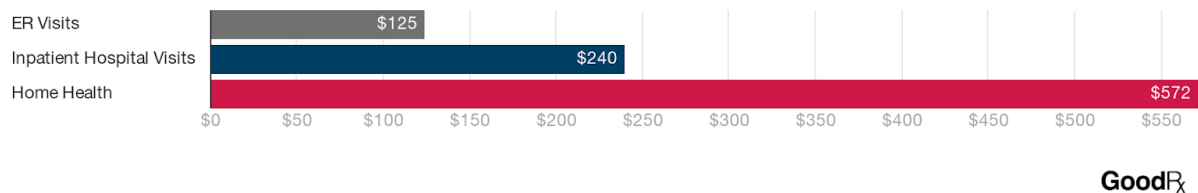
In this section, we focus on complications that are primarily attributed to diabetes. For example, if patients [can't afford the medications](#) they need to control their blood glucose, they may resort to dangerous practices such as [rationing medication](#) doses. Rationing can result in potentially fatal hyperglycemic emergencies, such as diabetic ketoacidosis, hyperglycaemic hyperosmolar non-ketotic coma, and hyperosmolar hyperglycemic state.

To measure the cost of uncontrolled diabetes, we looked at how much diabetes patients spent out of pocket each year on emergency room visits, inpatient hospitalizations, and home healthcare where the primary diagnosis was diabetes. While these medical events are rare (just over 6% of diabetes patients in a nationally representative sample had them), they can be very costly and indicate a progression in disease severity.

Diabetes patients who visited the ER spent about \$125 in a year, on average. Those who had to be hospitalized in an inpatient setting spent an average of about \$240 out of pocket. Diabetes patients who used home health services spent the most, averaging around \$572 in annual out-of-pocket expenses. The home health services used by diabetes patients included visits from home care aides, certified nursing assistants (CNAs) and licensed vocational nurses (LVNs), dietitians, physical therapists, and lab technicians.

The average cost of care for all 3 services (ER, inpatient, home health services) totals nearly **\$940** in a year.

Average Annual Out-of-Pocket Spending on Uncontrolled Diabetes

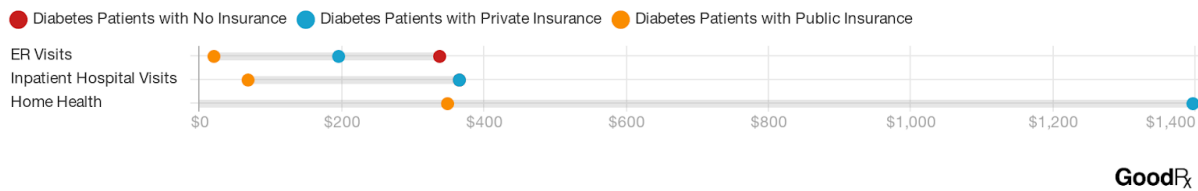


Download the data: www.datawrapper.de/_/wQ4i5/

Like prescription drugs, office visits, and outpatient care, how much patients spend on these additional healthcare services will depend greatly on their insurance coverage. In general, diabetes patients on Medicare or Medicaid tend to spend less out of pocket than their privately insured and uninsured counterparts.

While Medicare patients spent less than \$100 on ER visits and hospitalizations, diabetes patients with private or no insurance spent roughly \$200 to \$400 on each service. Home health costs vary widely depending on insurance status, from \$350 for Medicare patients to nearly \$1,400 for privately insured patients. Not surprisingly, the vast majority of diabetes patients who used home healthcare had some kind of insurance.

Average Annual Out-of-Pocket Spending on ER, Inpatient, Home Care for Diabetes



See the interactive chart and download the data: www.datawrapper.de/_/S6wXC/

Our calculations do not account for [uncompensated care](#) or unmet need. For example, an uninsured patient may be taken to the ER and admitted for a lengthy inpatient stay. The hospital must treat the patient, even if they don't pay out of pocket. Additionally, many diabetes patients need extra care such as home health services but cannot afford it. Thus, the real cost of uncontrolled diabetes may be even greater than reflected here.

The cost of chronic complications and comorbidities

Living with diabetes isn't just about keeping blood glucose levels under control; it's a complex condition that requires managing health on many different fronts, including [blood pressure and cholesterol](#). If the condition progresses, it can lead to costly, chronic complications — even if blood glucose levels are stable.

There are also many conditions that tend to occur alongside diabetes (also known as comorbidities) that can make managing diabetes even more difficult.

So how much will patients pay if they develop a complication or comorbidity?

In order to measure that, we first looked at the direct medical costs of care for different categories of [chronic diabetes complications](#), as identified by the American Diabetes Association. Over 86% of diabetes patients in the nationally representative sample used in our analysis had at least 1 chronic complication.

- Commonly treated cardiovascular (heart disease) complications include high blood pressure, coronary artery disease, and heart attack.
- Common renal complications include kidney infection, chronic kidney disease, urinary tract infection, and incontinence.
- Among endocrine and metabolic complications, high cholesterol was the most commonly treated chronic complication for diabetes patients, as well as obesity.
- Other commonly treated chronic diabetes complications include erectile dysfunction and yeast infections.

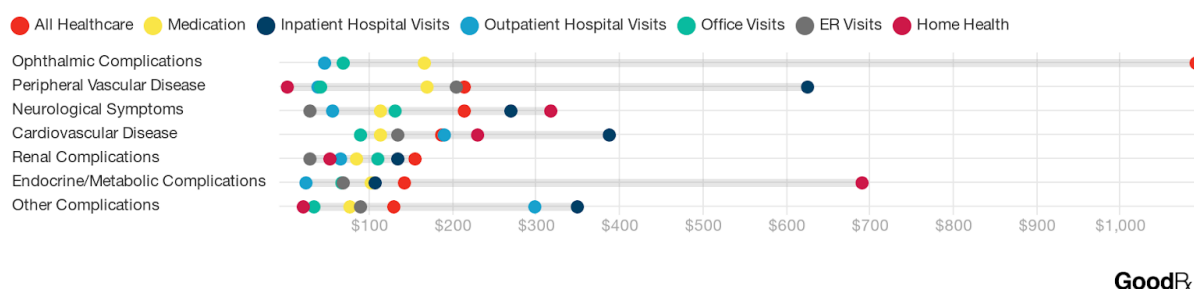
Among diabetes patients who were also treated for a chronic complication, we calculated the average amount spent out of pocket in a year on all medical care associated with that chronic complication, including medications, hospital visits, office visits, ER visits, and home health.

These numbers may include multiple chronic complications within a category (for example, if a diabetes patient has high blood pressure and a heart attack, we would add their expenditures for the 2 conditions together to represent their total spending on cardiovascular complications).

According to the below chart, average out-of-pocket spending varies widely by the chronic complication and necessary health service. Generally, more preventive care such as office visits and medication have lower out-of-pocket costs, while more intensive services such as home health and inpatient hospitalizations are the most expensive medical services.

In total, ophthalmic (eye) complications, which include glaucoma and blindness, can be the costliest to treat, followed by peripheral vascular disease (such as blood clots) and neurological symptoms (such as pain associated with diabetic neuropathy).

Average Annual Out-of-Pocket Spending on Chronic Complications of Diabetes



See the interactive chart and download the data: www.datawrapper.de/_/NjIV9/

We also broke down the costs of treating specific conditions, focusing on some of the most commonly treated complications and comorbidities among diabetes patients in the sample.

In addition to the chronic complications discussed above, mental health and other neurological conditions are also often comorbid with diabetes, and their treatment is especially important for effective diabetes care.

Studies have found that diabetes patients are significantly more likely to have [depression](#) and [anxiety](#), and living with diabetes can even make those conditions worse. Older diabetes patients have a higher risk of developing [dementia](#), as well, and sleep disorders such as [sleep apnea](#) are also common comorbidities for diabetes patients. These conditions can make [adherence](#) to diabetes medication more difficult and diabetes care more prolonged and complex.

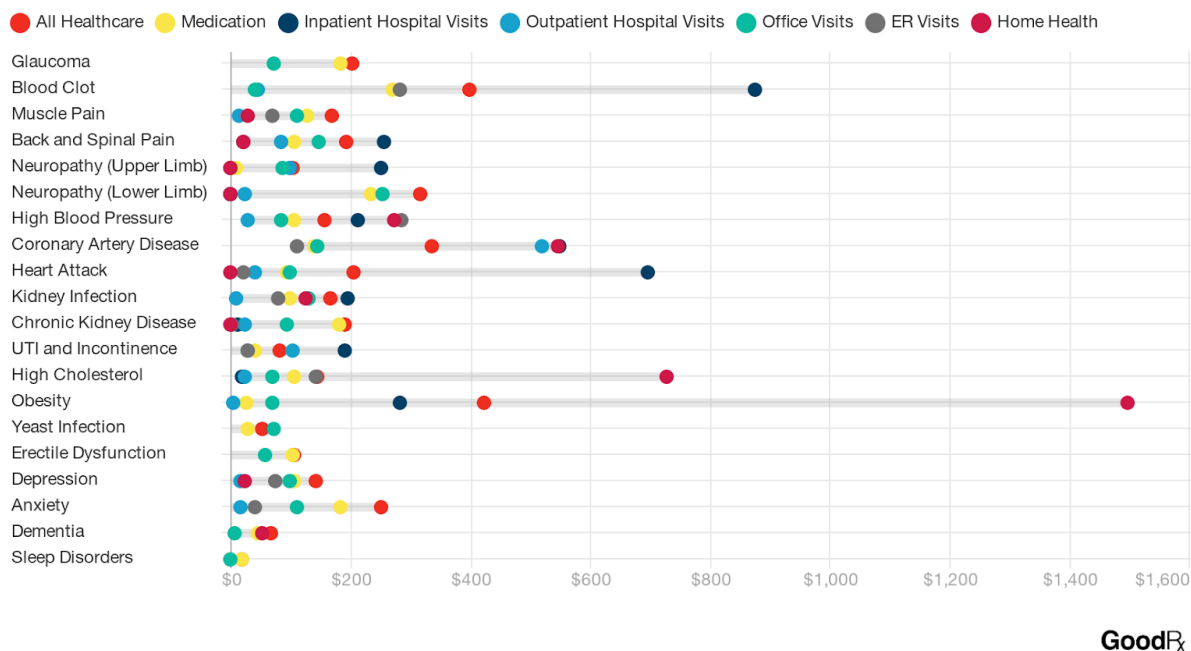
We estimated the average annual out-of-pocket spending for diabetes patients on medical care in which the primary diagnosis was listed as one of the commonly treated conditions below. These estimates only reflect the insurance status of the diabetes patients with these comorbidities, so the mix of uninsured, privately insured, and publicly insured patients may differ across conditions. For example, dementia has a higher share of Medicare patients than depression and anxiety, which may impact the average out-of-pocket spending reflected here.

As with the cost of chronic complications, the cost of specific diabetes-related conditions depends on the type of healthcare needed and the severity of the condition.

- Most office visits cost less than \$150 per year (with the exception of lower limb neuropathy), while most outpatient services cost less than \$100 per year (with the exception of coronary artery disease).
- Medication costs ranged from less than \$50 per year for conditions like urinary tract infection, incontinence, yeast infection, and sleep disorder, to over \$150 per year for conditions like blood clot, lower limb neuropathy, glaucoma, chronic kidney disease, and anxiety.
- Medications to control high blood pressure and high cholesterol each cost about \$105 annually, so a diabetes patient managing both conditions alongside their blood glucose may need to spend an additional \$210 each year, on top of their diabetes medications.

Blood clots and high blood pressure had the highest out-of-pocket costs for ER visits, at over \$280 each. The average cost of inpatient hospitalizations was highest for conditions like coronary artery disease (about \$550), heart attack (about \$700), and blood clots (about \$875). And finally, home healthcare, while rarer, accounted for the highest out-of-pocket costs, with some diabetes patients spending thousands of dollars out of pocket.

Average Annual Out-of-Pocket Spending on Commonly Treated Chronic Complications and Comorbidities

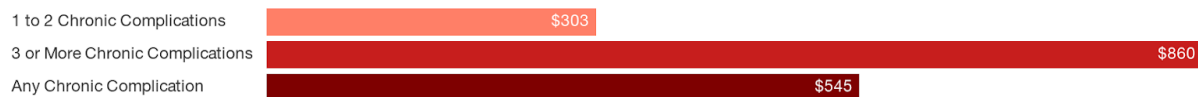


See the interactive chart and download the data: www.datawrapper.de/_/ADfMG/

Overall, the cost of diabetes complications depends on how many other conditions a patient has, how severe their conditions are, and how good their insurance coverage is. On average,

diabetes patients with 1 to 2 complications spend over \$300 on healthcare for their chronic complications, while diabetes patients with 3 or more complications spend \$860 annually.

Average Annual Out-of-Pocket Spending on Chronic Complications of Diabetes



GoodRx

Download the data: www.datawrapper.de/_/Y3Fws/

In total, having any chronic complication of diabetes costs patients an average of **\$545** in additional out-of-pocket spending each year.

The (indirect) cost of absenteeism

On top of paying for medications, doctors, and hospital visits, some diabetes patients may need to take time off work if their condition becomes severe enough. Studies have shown that diabetes patients have statistically [higher rates of absenteeism](#) than people without diabetes.

To estimate the cost of absenteeism caused by diabetes and its complications, we looked at the number of days of work missed in a year due to illness, as reported by diabetes patients in a nationally representative sample.

Average Number of Days of Work Missed by Diabetes Patients Due to Illness



GoodRx

Download the data: www.datawrapper.de/_/0I9ty/

Here's what we found:

- On average, diabetes patients with no chronic conditions missed about 5 days of work due to illness, which translates to roughly **\$265** in lost wages, based on the average total wage income reported by diabetes patients in the sample.
- Patients with more than 2 chronic diabetes complications reported missing at least twice as many days of work as diabetes patients with fewer complications.
- Among diabetes patients with the most chronic complications (6 or more), 10% reported missing at least 2 months of work due to illness. That translates to roughly \$3,317 in lost

wages for those patients with the most severe diabetes conditions and associated complications.

Overall, having at least 1 chronic complication of diabetes increases estimated lost wages due to absenteeism by roughly **\$100**. That means that chronic complications of diabetes can cost patients an extra **\$650** every year, from additional out-of-pocket spending on healthcare, plus lost wages due to increased absenteeism.

Estimated Average Lost Wages Due to Absenteeism

Diabetes with no chronic complications	\$265
Diabetes with at least one chronic complication	\$368

GoodRx

Download the data: www.datawrapper.de/_/1SnEQ/

The impact of absenteeism can also compound beyond simply missed days of work and lost wages. If diabetes patients are unable to work because of their illness and lose their job, they may risk losing employer-sponsored health insurance, which can be critical to affording diabetes medication and regular doctor visits.

Besides absenteeism, patients may also experience diabetes-related economic losses stemming from reduced productivity at work and at home, unemployment, long-term disability, and premature death. These indirect costs can be prevented with consistent self-management to keep diabetes under control.

Adding it all up

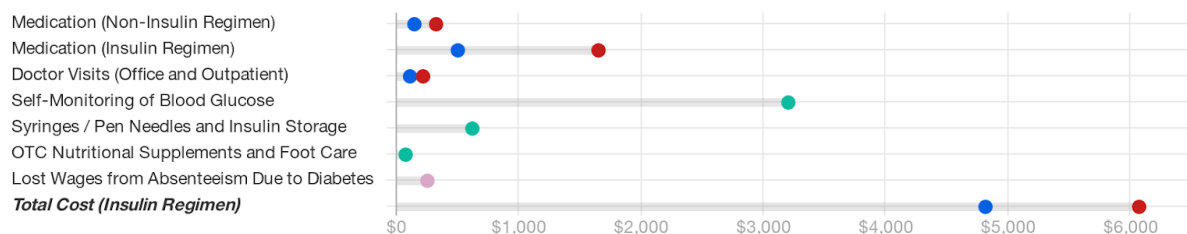
So how much does diabetes cost patients?

Based on our analysis, diabetes patients who use insulin and have insurance can spend over **\$4,800** a year on caring for their condition. Losing insurance coverage or developing complications of diabetes drives those costs even higher. And, if recent trends in diabetes drug and healthcare prices continue, we can expect that the true cost of diabetes is likely to climb even higher through 2020.

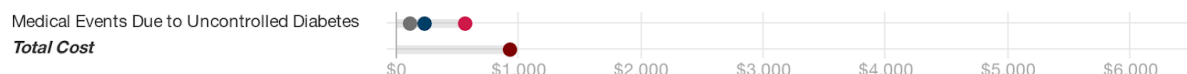
Average Annual Cost of Living with Diabetes

● Cost with Insurance ● Cost without Insurance ● OTC Cost ● Lost Wages ● Cost of All Healthcare ● Cost of ER Visits
● Cost of Inpatient Hospital Visits ● Cost of Home Health ● Total Cost

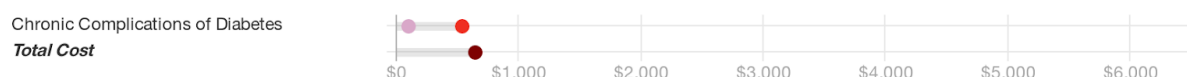
Controlled Diabetes



Uncontrolled Diabetes



Chronic Complications



GoodRx

See the interactive chart and download the data: www.datawrapper.de/_/lwggqy/

Co-contributors: Diane Li and Sara Kim, MS

Methodology

Average annual out-of-pocket spending on diabetes. Average annual out-of-pocket spending for medication, office visits, outpatient and inpatient hospital visits, ER visits, and home health are calculated using the [Medical Expenditure Panel Survey \(MEPS\)](#) for 2016 and 2017. Specifically, we use the Full Year Consolidated Data Files (HC-192 and HC-201), Medical Conditions Files (HC-190 and HC-199), Prescribed Medicines Files (HC-188A and HC-197A), Inpatient and Outpatient Stay Files, Emergency Department Files, Office-Based Visit Files, and Home Health Files. We identified diabetes patients as having at least 1 expenditure with a primary diagnosis of diabetes mellitus, type 1 or type 2, using ICD-10 code E10 or E11. Medical events were identified as diabetes-related if the primary diagnosis for the event had a 3-digit ICD-10 code of E10 or E11.

To calculate diabetes medication out-of-pocket costs, we placed diabetes patients into 4 categories: (1) patients who filled at least 1 prescription for insulin and no prescriptions for non-insulin anti-diabetic medications, with the exception of SymmlinPen (categorized as type 1 patients); (2) patients who filled at least 1 prescription for non-insulin anti-diabetic medications and filled no prescriptions for insulin (categorized as type 2 non-insulin patients); (3) patients who filled at least 1 prescription for non-insulin anti-diabetic medications and at least one

prescription for one type of insulin (for example, a long-acting insulin) (categorized as type 2 single-insulin patients); and (4) patients who had at least 1 prescription for non-insulin anti-diabetic medications, at least 1 prescription for 1 type of insulin, and at least 1 prescription for a different type of insulin (for example, a long-acting insulin and a rapid-acting insulin) (categorized as type 2 multiple-insulin patients).

For each medical event category, we calculated the annual out-of-pocket cost per diabetes patient by summing all relevant self or family-funded expenditures in each year for each patient. We then calculated the average annual out-of-pocket cost per diabetes patient, weighted by the patient's survey weight. Patient insurance status is based on whether a patient had any private insurance during the year, only had public insurance (Medicare, Medicaid, TRICARE, SCHIP, or other public hospital/physician programs) during the year, or did not have any insurance during the year. Average annual out-of-pocket costs are only reported when there are sufficient observations in the sample of diabetes patients.

Average retail price of diabetes medications and select pen needles/syringes. This GoodRx analysis is based on a representative sample of U.S. prescription fills (not GoodRx fills) and comes from several sources, including pharmacies and insurers. The reported prices are based on average retail prices, the so-called "usual and customary" prices or retail prices at the pharmacy (not including insurance copays or coinsurance). All prices listed on this article are based on data from January 1, 2019 to September 30, 2019. The prices presented are based on the most common quantity for a 30-day supply.

To obtain an average aggregate retail price for non-insulin, insulin, and pen needles/syringes, we obtained the average retail price per day for each drug in each group. Next, we took an average of all the drugs in the group, weighted by the total days supplied across all claims for each drug. To note, the pen needles/syringes included in our analysis may also be offered OTC depending on state regulations. However, our analysis displays the retail price of prescriptions filled for the pen needles/syringes.

Average cost of OTC diabetes medical supplies. This analysis is based on prices for the top 10 most popular items in each category, across 4 online diabetes medical supplies sources: [Walgreens](#), [CVS Pharmacy](#), [Walmart](#), and [Diabetes Warehouse](#).

Change in list price index for diabetes medication and supplies. The change in list price index is calculated monthly, taking into account monthly changes in list prices and quarterly changes in the prescription drug mix. Since the index is based on the drug mix as dispensed by pharmacies, price changes in high volume and high-cost drugs will have more impact on the index than changes in low-volume and low-cost drugs.

The list price index starts on December 31, 2013, using the Q4 2013 drug mix and published list prices on December 31, 2013. The base of the index is set to 100 on December 31, 2013. The change in list price index is shown through September 30, 2019.

U.S. inflation is measured by the historical consumer price index for all urban consumers, published by the [Bureau of Labor Statistics](#).

Average annual out-of-pocket spending on chronic complications. This analysis is based on the 2016 to 2017 MEPS data for diabetes patients. Medical events were identified as related to a diabetes chronic complication if the primary diagnosis for the event had a 3-digit ICD-10 code listed in Appendix 2 of the American Diabetes Association's [Supplementary Data](#) to the Economic Costs of Diabetes in 2017. Average annual out-of-pocket costs are only reported when there are sufficient observations in the sample of diabetes patients with chronic complications.

Average annual out-of-pocket spending on commonly treated comorbidities. This analysis is based on the 2016 to 2017 MEPS data for diabetes patients. Diabetes comorbidities were identified by the 3-digit ICD-10 codes for all medical events recorded for diabetes patients. Average annual out-of-pocket costs are only reported when there are sufficient observations in the sample of diabetes patients with comorbidities.

Estimated average lost wages due to absenteeism. This analysis is based on the 2016 to 2017 MEPS data for diabetes patients. An average daily wage for diabetes patients was estimated using the wage income variable. Estimated average lost wages were calculated as the average daily wage for diabetes patients, multiplied by the average number of days of work missed due to illness for diabetes patients. This is likely a conservative estimate, as the wage income variable is top-coded for confidentiality and may include diabetes patients who are not working.