W H I T E P A P E R

Diabetes

The Quiet Dependency Engine

Type 2 · Type 1 · Prediabetes · Retinopathy · Nephropathy · Neuropathy

A Complete Guide for Patients, Families, and Caregivers

Diagnosis · Medications & Devices · Complications · Caregiver Support

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1. EXECUTIVE SUMMARY

Diabetes is the most quietly devastating chronic disease in the United States. It does not kill the way a heart attack or a stroke kills. It kills — and disables — by erosion. Over years and decades, persistently elevated blood sugar damages every organ system that matters for independent living: the eyes, the kidneys, the nerves, the blood vessels, the heart, and the brain. By the time a family sits down to talk about care, the patient has usually accumulated three or four complications that, taken together, define the trajectory.

Today, 38.4 million Americans are living with diabetes — 11.6% of the population. Another 97.6 million adults have prediabetes. Roughly 1 in 4 people who have the disease do not yet know it. Prevalence in adults 65 and older is approximately 29.2% — nearly one in three. The Southeastern U.S. anchors a 'Diabetes Belt' that runs 2–3 percentage points above national rates.

Diabetes is the leading cause of new blindness in working-age adults, the leading cause of kidney failure (44% of new dialysis starts), the leading cause of non-traumatic lower-extremity amputation (~150,000 per year), a doubling of cardiovascular event risk, and a 2–3x increase in dementia risk. Each of these complications is, by itself, a dependency event. Most patients with poorly controlled diabetes for 15–20 years will collect several of them.

Key Facts at a Glance

- **Prevalence:** 38.4 million Americans have diabetes; 97.6 million more have prediabetes. Nearly 1 in 4 people with diabetes are undiagnosed.
- **Function:** Diabetic retinopathy, neuropathy, amputation, dialysis, and dementia each independently produce loss of Activities of Daily Living (ADLs).
- **Complications compound:** Most long-duration patients accumulate two, three, or four complications — retinopathy plus neuropathy plus CKD is a common triad.
- **Hypoglycemia in older adults:** A single severe episode is often the sentinel event that ends independent living.
- **The good news:** The GLP-1 era (semaglutide, tirzepatide) and SGLT2 inhibitors now independently reduce cardiovascular events and slow CKD progression. Once-weekly insulin (Awiqli) was FDA-approved March 2026. Stem-cell-derived beta cells produced insulin independence in the majority of trial recipients.

> *Diabetes is one of the most modifiable causes of dependency in older adults — yet only a minority of eligible patients receive optimal, guideline-directed therapy. Families who fare best learn what A1C and Time in Range mean, understand which complications are silent until they aren't, and mobilize palliative and community support before crisis hits.*

2. UNDERSTANDING DIABETES

Diabetes is a group of metabolic disorders defined by chronically elevated blood glucose. The common thread is impaired insulin signaling — either the pancreas does not produce enough insulin, the body's cells do not respond to it, or both. Sustained hyperglycemia is what causes the long-term damage.

The Scale of the Problem

38.4 million Americans living with diabetes (CDC)

97.6 million American adults with prediabetes

~1 in 4 people with diabetes remain undiagnosed

29.2% prevalence in adults age 65 and older

#8 diabetes ranks eighth among leading causes of death in the U.S.

The Major Types

Type 2 Diabetes (T2D)

By far the most common form — roughly 90–95% of all diabetes cases, or about 34 million Americans. T2D develops gradually, usually over years of insulin resistance and progressive beta-cell decline. It is strongly linked to obesity, sedentary lifestyle, family history, age, and certain ethnic backgrounds. Once considered an adult disease, T2D is now increasingly diagnosed in children and adolescents — and youth-onset T2D progresses more aggressively to complications.

Type 1 Diabetes (T1D)

An autoimmune disease in which the immune system destroys the pancreatic beta cells that make insulin. Approximately 1.6–2 million Americans have T1D. It can develop at any age but classically presents in childhood or young adulthood. T1D requires lifelong insulin therapy from day one — there is no oral medication that substitutes for what the missing beta cells used to do.

Prediabetes

A1C 5.7–6.4%, fasting glucose 100–125 mg/dL. Approximately 97.6 million American adults — 38% of the adult population — have prediabetes. Without intervention, 15–30% will progress to Type 2 within five years. This is the cohort where the CDC's Diabetes Prevention Program (DPP) demonstrates a 58% reduction in conversion to T2D through modest weight loss and exercise.

Gestational Diabetes

Diabetes diagnosed during pregnancy, affecting roughly 5–9% of pregnancies. Usually resolves after delivery, but increases the mother's lifetime risk of Type 2 diabetes by approximately 7-fold.

Demographics and Disparities

- Black and Hispanic/Latino Americans are more than 50% more likely to have diabetes than non-Hispanic white Americans
- American Indian/Alaska Native adults have the highest prevalence at approximately 14.5%
- Asian Americans, at 9.0%, have higher prevalence than white Americans despite lower average BMI
- The Southeastern U.S. forms a 'Diabetes Belt' running 2–3 percentage points above national rates
- Lower income and educational attainment are strongly associated with higher prevalence and worse outcomes

Why the Numbers Will Keep Rising

Three demographic forces ensure diabetes will be a larger, not smaller, problem over the next 20 years: population aging (the 65+ population is the highest-prevalence cohort and the fastest-growing), childhood obesity driving youth-onset Type 2 patients now entering their 30s and 40s with decades of disease ahead of them, and improved diagnostic screening (the ADA's 2026 recommendation to begin screening at age 35 will newly diagnose millions who were previously undetected).

3. THE DEPENDENCY CASCADE

This section is the clinical heart of why diabetes matters for independence. Each complication below is, in clinical terms, a separate disease in its own right. Taken together, they form the pathway by which a diabetes diagnosis at age 50 becomes a dependency admission at age 75. Most long-duration patients eventually accumulate two, three, or four of these.

3.1 Diabetic Retinopathy and Blindness

Diabetes is the leading cause of new cases of blindness in working-age adults (ages 20–74) in the developed world. Approximately one in three people with diabetes has some form of diabetic retinopathy (DR), and up to 80% of patients who have had Type 1 diabetes for 20 or more years are affected. About 175,000 new cases are diagnosed each year in the U.S.

The disease progresses in stages: non-proliferative DR → proliferative DR (with abnormal new blood vessels) → diabetic macular edema → legal blindness. Anti-VEGF injections (Avastin, Lucentis, Eylea, Vabysmo) and laser therapy can slow or halt progression but rarely reverse vision already lost.

> *Dependency link: Legal blindness or severe vision impairment from diabetic retinopathy directly impairs bathing, grooming, dressing, meal preparation, and — critically — medication management. A visually impaired insulin-using patient cannot reliably draw up a syringe. The complication that begins as a 'minor' eye exam finding ends, for many patients, as the trigger for supervised living.*

3.2 Diabetic Nephropathy and Kidney Failure

Diabetes is the single leading cause of end-stage renal disease (ESRD) in the United States, responsible for approximately 44% of new diagnoses. Approximately 37 million Americans have chronic kidney disease, and over 808,000 are living with ESRD, the majority on dialysis.

The progression: microalbuminuria → macroalbuminuria → declining eGFR → Stage 4–5 CKD → dialysis or transplant. Black patients have approximately 3x higher ESRD risk than white patients. SGLT2 inhibitors (Jardiance, Farxiga, Invokana) have transformed this picture by demonstrably slowing CKD progression — but only if started before significant damage is done.

> *Dependency link: In-center hemodialysis requires 3–4 hour sessions, three times per week, indefinitely. Functional status declines sharply in the first 12 months after dialysis initiation in older patients. Roughly 40% of adults aged 67+ die within a year of starting dialysis; many survivors require skilled nursing care. Transportation alone — to and from dialysis — becomes its own caregiving job.*

3.3 Diabetic Neuropathy

Diabetic neuropathy is the single most common complication of diabetes — up to 50% of patients develop it over the course of their disease.

Peripheral Neuropathy

Presents as numbness, tingling, burning pain, or loss of protective sensation in the feet and hands. The loss of protective sensation is the silent precursor to diabetic foot ulcers and amputations. Painful diabetic peripheral neuropathy is treated with duloxetine, pregabalin, or gabapentin, but treatment is frequently inadequate.

Autonomic Neuropathy

Affects the involuntary nervous system. Cardiovascular autonomic neuropathy causes resting tachycardia and orthostatic hypotension — a doubled to tripled mortality risk. Gastrointestinal autonomic neuropathy causes gastroparesis. Genitourinary autonomic neuropathy causes bladder dysfunction and erectile dysfunction.

> *Dependency link: Peripheral neuropathy is a direct pathway to falls. The patient cannot feel where the foot is landing, balance deteriorates, and a single fall — hip fracture, head injury, vertebral compression — often defines the moment of permanent dependency. Loss of protective sensation also means the patient cannot feel an injured foot until infection has set in.*

3.4 Diabetic Foot Ulcers and Amputations

Diabetes is the leading cause of non-traumatic lower-extremity amputations in the United States. Approximately 150,000 amputations occur each year because of diabetes — above-knee, below-knee, or partial foot. People with diabetes are 10–30x more likely to undergo a lower-extremity amputation than people without diabetes.

The pathway is depressingly predictable: peripheral neuropathy → loss of protective sensation → minor trauma the patient does not feel → ulceration → infection → osteomyelitis → amputation. One in five hospitalizations among people with diabetes involves a diabetic foot problem.

The mortality numbers should be more widely known: 5-year mortality after a major lower-extremity amputation in a diabetic patient is 50–80% — comparable to many cancers. The amputation itself is rarely the end-state event; it is the threshold across which functional decline accelerates.

> *Dependency link: A major lower-extremity amputation creates immediate, often permanent ADL dependency. Ambulation, bathing, dressing, transfers — all are affected. Above-knee amputees frequently never return to fully independent living; most require home modifications, ongoing prosthetic care, and many transition to skilled nursing or supervised living.*

3.5 Cardiovascular Disease

Cardiovascular disease is the leading cause of death among people with diabetes. Compared to the general population, people with Type 2 diabetes are 2–4x more likely to develop CVD, 2x more likely to have a heart attack, 1.5x more likely to have a stroke, and have up to 22% prevalence of heart failure. Peripheral arterial disease (PAD) is also dramatically more common and contributes directly to the foot ulcer / amputation cycle. SGLT2 inhibitors and GLP-1 receptor agonists are now first-line not just because they lower glucose, but because they independently reduce major adverse cardiovascular events (MACE).

> *Dependency link: Stroke, heart failure, and post-MI deconditioning — all dramatically more common in diabetes — each create some of the most severe forms of functional impairment. Post-stroke disability is a leading driver of skilled nursing placement; heart failure exacerbations drive recurring hospitalizations and progressive ADL loss.*

3.6 Diabetic Ketoacidosis and Hyperosmolar States

Diabetic ketoacidosis (DKA) is an acute, life-threatening complication of insulin deficiency — most common in T1D but increasingly reported in T2D, particularly in patients on SGLT2 inhibitors during illness. Hyperosmolar hyperglycemic state (HHS) affects primarily older adults with T2D and carries 10–20% mortality in elderly patients. The U.S. records approximately 220,000 DKA hospitalizations each year. Common precipitants: infection, missed insulin doses, new-onset T1D, physiologic stress. Each episode in an older person often results in prolonged hospitalization, cognitive decline, deconditioning, and a step down in functional baseline that does not return.

3.7 Cognitive Impairment and Dementia

Diabetes roughly doubles to triples the risk of developing Alzheimer's disease and vascular dementia. The mechanisms are multiple: chronic hyperglycemia generates advanced glycation end-products in brain tissue; insulin resistance impairs brain glucose metabolism; cerebrovascular disease damages white matter; and recurrent severe hypoglycemia causes direct neuronal injury.

The clinical pattern usually starts subtly — slower processing speed, mild memory complaints, executive dysfunction — and can progress to frank dementia requiring 24-hour supervised care. This is one of the most consequential pathways: it tends to combine with other diabetes complications to produce particularly complex care needs.

3.8 Gastroparesis

Delayed gastric emptying caused by vagal autonomic neuropathy affects an estimated 5–12% of T1D patients and long-duration T2D patients. Symptoms include nausea, vomiting, early satiety, bloating, and — critically — erratic blood glucose because nutrient absorption is unpredictable. Severe gastroparesis

can require enteral or parenteral nutrition. Treatment options are limited: metoclopramide has a black-box warning for tardive dyskinesia; domperidone is not FDA-approved in the U.S.

3.9 Hypoglycemia in the Elderly

Severe hypoglycemia — blood glucose below 54 mg/dL — is one of the most underappreciated dangers in elderly diabetic patients, particularly those on insulin or sulfonylureas (glipizide, glimepiride, glyburide). Older patients lose their counter-regulatory hormonal response, so they often have no warning symptoms before becoming confused or unconscious.

Hypoglycemia in the elderly can cause falls, fractures, seizures, cardiac arrhythmias, strokes, and death. Nocturnal hypoglycemia is especially dangerous because it can go undetected until catastrophic. This is why ADA Standards of Care now recommend less aggressive A1C targets (7.5–8.5%) for frail elderly — a deliberate trade-off accepting somewhat higher long-run risk to prevent immediate-risk hypoglycemic events.

> *Dependency link: A single severe hypoglycemic episode requiring outside assistance is a sentinel event. From that point, the family caregiver and any home health aide must be trained in glucagon administration, blood glucose monitoring, and dose adjustment. Many families discover, in the aftermath of one bad episode, that the patient can no longer live alone safely.*

4. DIAGNOSIS AND MONITORING

Diagnostic Criteria (ADA 2026 Standards)

The American Diabetes Association's 2026 Standards of Medical Care maintain the established diagnostic thresholds and update screening recommendations. A diabetes diagnosis is established when any one of the following is met (and ideally confirmed by repeat testing on a separate day):

Test	Prediabetes Range	Diabetes Threshold
Fasting Plasma Glucose (FPG)	100–125 mg/dL (IFG)	≥ 126 mg/dL
2-Hour OGTT (75g glucose)	140–199 mg/dL (IGT)	≥ 200 mg/dL
Hemoglobin A1C	5.7–6.4%	≥ 6.5%
Random Plasma Glucose	n/a	≥ 200 mg/dL with symptoms

2026 ADA Updates to Screening

- Screen all adults for prediabetes and diabetes beginning at age 35 (down from the previous age 45 threshold)
- Screen earlier in patients with BMI ≥ 25 (≥ 23 for Asian Americans), family history, hypertension, dyslipidemia, prior gestational diabetes, PCOS, or racial/ethnic minority status
- In at-risk individuals, consider screening for presymptomatic Type 1 risk using islet autoantibodies (anti-GAD65, anti-IA-2, anti-ZnT8, anti-insulin)
- Rescreen every 1–3 years depending on individual risk profile

Hemoglobin A1C — The Central Management Metric

A1C reflects average blood glucose over the previous 2–3 months, expressed as a percentage. It is the single most important number in long-term diabetes management.

- Target for most non-elderly adults: < 7.0% (ADA)
- Tighter target for selected patients: < 6.5% (AACE; younger patients without significant comorbidity)
- Less aggressive target for frail elderly: 7.5–8.5% (ADA, to reduce hypoglycemia risk)
- Each 1% reduction in A1C is associated with approximately 35–40% reduction in microvascular complications

A1C has limitations: it can be falsely low in hemolytic anemia, falsely high in iron deficiency, and unreliable in certain hemoglobinopathies. Continuous glucose monitoring provides a more granular picture and is increasingly the preferred adjunct.

Continuous Glucose Monitoring (CGM)

CGMs are the most transformative diagnostic and management advance in diabetes care in decades. A small sensor worn on the upper arm or abdomen measures interstitial glucose every 1–5 minutes and transmits the data to a smartphone or receiver. The ADA now recommends CGM for all insulin-using patients and many patients with T2D on high-risk regimens.

Device	Wear Duration	Key Features
Dexcom G7	10 days	30-minute warmup; direct integration with AID systems; no calibration
FreeStyle Libre 3 Plus	15 days	Smallest CGM sensor; factory calibrated; available OTC for T2D
Eversense 365 (Senseonics)	365 days (implantable)	First 1-year implantable CGM; eliminates sensor changes
Medtronic Guardian 4	7 days	Integrated with 780G AID system; predictive alerts

Time in Range (TIR)

Time in Range is the emerging gold standard alongside A1C. It measures the percentage of the day glucose stays in the target range of 70–180 mg/dL. The ADA recommends greater than 70% TIR for most adults. In clinical trials, every 10% improvement in TIR corresponds to meaningful reductions in retinopathy progression and other microvascular complications.

> *Two patients can have an identical A1C of 7.0% with very different glycemic pictures — one stable around 154 mg/dL, the other oscillating wildly between 50 and 300 mg/dL. CGM data exposes the difference. Glycemic variability — not just average — drives both quality of life and complications.*

5. MEDICATIONS

5.1 GLP-1 Receptor Agonists — The Paradigm Shift

The GLP-1 (glucagon-like peptide-1) receptor agonist class has fundamentally changed both diabetes and obesity medicine since the mid-2010s. With the approval of semaglutide (Ozempic, Wegovy) and tirzepatide (Mounjaro, Zepbound), the field crossed a threshold: these drugs not only lower blood glucose but independently reduce cardiovascular events, reduce kidney disease progression, induce 15–25% weight loss, and — in the case of tirzepatide — treat obstructive sleep apnea.

Drug (Generic)	Brand	Manufacturer	Indication	Route
Semaglutide	Ozempic	Novo Nordisk	Type 2 Diabetes	Weekly injection
Semaglutide	Wegovy	Novo Nordisk	Obesity / CV risk reduction	Weekly injection
Semaglutide (oral)	Rybelsus	Novo Nordisk	Type 2 Diabetes	Daily oral tablet
Tirzepatide	Mounjaro	Eli Lilly	Type 2 Diabetes	Weekly injection
Tirzepatide	Zepbound	Eli Lilly	Obesity / Sleep Apnea	Weekly injection
Dulaglutide	Trulicity	Eli Lilly	Type 2 Diabetes	Weekly injection
Liraglutide	Victoza / Saxenda	Novo Nordisk	T2D / Obesity	Daily injection

In the SELECT trial, semaglutide 2.4mg (Wegovy) reduced major adverse cardiovascular events by 20% in patients with established CVD and obesity — without requiring a diabetes diagnosis. This was a landmark moment: the first proof that an obesity drug independently prevents cardiovascular death. In the SURMOUNT-5 head-to-head trial, tirzepatide produced approximately 6 kg greater weight loss than semaglutide and a larger reduction in cardiometabolic risk.

5.2 SGLT2 Inhibitors — The Cardio-Renal Workhorse

SGLT2 (sodium-glucose cotransporter-2) inhibitors work by causing the kidneys to excrete excess glucose in the urine. Beyond glucose control, they have demonstrated robust cardiovascular and renal protective effects independent of glycemic lowering. ADA 2026 guidelines recommend SGLT2 inhibitors for any patient with T2D plus established atherosclerotic CVD, heart failure, or CKD — regardless of A1C level.

Drug (Generic)	Brand	Key Outcome Data
Empagliflozin	Jardiance	EMPA-REG (CV), EMPEROR-Reduced & Preserved (HF), EMPA-KIDNEY (CKD)
Dapagliflozin	Farxiga	DAPA-HF, DELIVER (HF), DAPA-CKD (renal protection)
Canagliflozin	Invokana	CANVAS (CV), CREDENCE (renal)
Ertugliflozin	Steglatro	VERTIS-CV

Typical benefits: ~0.5–1.0% A1C reduction, 2–3 kg weight loss, ~3–5 mmHg blood pressure reduction, meaningful heart failure hospitalization reduction, and slowing of CKD progression. Key caution: SGLT2 inhibitors should be held during acute illness, dehydration, or before surgery because of euglycemic DKA risk.

5.3 Insulin Therapy

Insulin remains essential for all Type 1 patients and many with longstanding Type 2 disease. The insulin landscape in 2026 is wider than ever, with biosimilar competition and a major new development — once-weekly basal insulin — reshaping daily-injection burden.

Rapid-Acting Insulins (mealtime)

- Lyumjev (insulin lispro-aabc, Lilly) — ultra-rapid; can be injected just before or at the start of a meal
- Fiasp (insulin aspart, Novo Nordisk) — ultra-rapid; pump-compatible
- Humalog / Admelog (lispro), NovoLog / Fiasp (aspart), Apidra (glulisine) — standard rapid-acting analogs

Long-Acting Basal Insulins

- Tresiba (insulin degludec, Novo Nordisk) — ultra-long acting (42+ hours); less nocturnal hypoglycemia
- Toujeo (insulin glargine U-300, Sanofi) — 3x concentrated; flatter profile than Lantus
- Lantus / Basaglar / Semglee / Rezvoglar (insulin glargine and biosimilars) — once-daily basal

Landmark 2026 Approval — Once-Weekly Insulin

On March 26, 2026, the FDA approved Awiqli (insulin icodec-abae, Novo Nordisk) for adults with Type 2 diabetes — the first-ever once-weekly basal insulin. This single approval reduces basal insulin injections from 7 per week to 1 per week. For elderly patients and any patient who has resisted insulin initiation because of injection burden, this is a meaningful clinical advance and may pull millions of poorly-controlled T2D patients off oral-only regimens onto basal insulin earlier in their disease course.

5.4 Metformin — The First-Line Anchor

Metformin remains the world's most widely prescribed diabetes medication and the recommended first-line pharmacotherapy for Type 2 diabetes. It reduces hepatic glucose production and improves insulin sensitivity. Typical benefits: 1–2% A1C reduction, weight-neutral or modest weight loss, near-zero hypoglycemia risk as monotherapy, excellent long-term safety, and very low cost. It is contraindicated when eGFR falls below 30 mL/min and must be held before IV contrast studies.

5.5 Other Classes

- DPP-4 inhibitors (sitagliptin/Januvia, linagliptin/Tradjenta) — modest A1C reduction, weight-neutral, well-tolerated in elderly
- Sulfonylureas (glipizide, glimepiride, glyburide) — inexpensive but carry substantial hypoglycemia risk; generally avoided in elderly
- Thiazolidinediones (pioglitazone) — insulin sensitizer; caution for fluid retention and fracture risk
- Alpha-glucosidase inhibitors (acarbose) — GI side effects limit routine use

6. DEVICES AND EMERGING TECHNOLOGIES

Automated Insulin Delivery — The Closed Loop

Automated insulin delivery (AID) systems — sometimes called 'closed-loop' or 'artificial pancreas' systems — combine a continuous glucose monitor, an insulin pump, and a control algorithm that automatically adjusts insulin delivery based on real-time glucose data. AID approaches true physiologic insulin management more closely than any therapy that has come before.

System	CGM Used	Notable Features
Tandem Control-IQ+	Dexcom G7	Predictive low-glucose suspend; auto-correction boluses; refreshed algorithm 2025
Omnipod 5	Dexcom G6/G7	Tubeless pod; SmartAdjust algorithm; no infusion sets
Medtronic MiniMed 780G	Guardian 4	Auto-correction boluses every 5 minutes; highest TIR in real-world comparisons
Beta Bionics iLet	Dexcom G6	Autonomous dosing; only system requiring no carbohydrate counting

Real-world data from AID users consistently shows time-in-range improvements of 10–20 percentage points compared to multiple daily injections, with substantial reductions in hypoglycemia. For Type 1 patients, AID is now considered standard of care wherever insurance coverage allows.

Smart Insulin Pens

For patients who prefer multiple daily injections to a pump, smart pens (InPen by Medtronic, NovoPen 6, Lilly Tempo Pen) automatically log dose, timing, and amount and sync to a smartphone app. They offer structured dose tracking without pump complexity — a useful middle ground for older patients new to insulin or for any patient who wants the data without the equipment.

Islet Cell Transplantation — Lantidra (2023)

In June 2023, the FDA granted approval to Lantidra (donislecel, CellTrans) — the first allogeneic pancreatic islet product for Type 1 diabetes. Lantidra is infused into the portal vein; the islets engraft in the liver and produce insulin. In clinical trials, approximately 30% of patients achieved insulin independence for at least 1 year, and 11% for at least 5 years. The trade-off is lifelong immunosuppression and dependence on cadaveric donor islets, which are in very limited supply.

Lantidra is therefore reserved for T1D patients with severe hypoglycemia unawareness who fail optimal therapy.

Smart (Glucose-Responsive) Insulin

Several research programs are developing 'smart insulins' that would only activate when blood glucose is elevated — effectively eliminating hypoglycemia risk. These are still in early development and not yet in Phase 3 trials, but they represent the long-horizon goal: an insulin that behaves more like a healthy pancreas and less like a blunt instrument.

7. CLINICAL TRIALS AND PIPELINE 2026

Few therapeutic areas have a more active pipeline than diabetes and metabolic disease in 2026. Below are the trials and programs most likely to change practice over the next 3–5 years.

Major Outcomes Trials — Where the Field Stands

Trial	Drug	Population	Outcome
SELECT	Semaglutide 2.4mg	Overweight + CVD (no T2D)	20% MACE reduction — landmark for obesity-only indication
SURMOUNT-5	Tirzepatide vs. semaglutide	Obesity head-to-head	Tirzepatide superior by ~6 kg weight loss
SURPASS-CVOT	Tirzepatide	T2D with high CV risk	MACE data expected 2025–2026
EMPEROR-Preserved	Empagliflozin	HFpEF (with and without T2D)	Significant reduction in CV death / HF hospitalization
DELIVER	Dapagliflozin	HFpEF	Confirmed SGLT2i benefit across the HF spectrum
EMPA-KIDNEY	Empagliflozin	CKD (with and without T2D)	Confirmed renal protection across CKD population

The GLP-1 Pipeline 2026–2028

The GLP-1 pipeline is one of the most active in pharmaceutical history. Several drugs in late-stage trials are expected to produce weight loss and metabolic effects beyond what current agents achieve.

Drug	Company	Mechanism	Status / Notable Data
Retatrutide	Eli Lilly	Triple GIP/GLP-1/glucagon	Phase 3; ~24% weight loss Phase 2
CagriSema	Novo Nordisk	Semaglutide + cagrilintide (amylin)	Phase 3; > 25% weight loss early data
Orforglipron	Eli Lilly	Oral GLP-1 small molecule	Phase 3; first oral non-peptide GLP-1

Drug	Company	Mechanism	Status / Notable Data
Survodutide	Boehringer Ingelheim	GLP-1/glucagon dual	Phase 3 obesity and MASH
Mazdutide	Innovent / Lilly (China)	GLP-1/glucagon dual	Phase 3

Tirzepatide — The Expanding Footprint

Tirzepatide is rapidly expanding beyond its original T2D and obesity indications:

- Obstructive sleep apnea — Zepbound was approved for moderate-to-severe OSA in adults with obesity (December 2024), becoming the first non-PAP pharmacological treatment for sleep apnea
- Heart failure with preserved ejection fraction (HFpEF) — the SUMMIT trial showed improved 6-minute walk distance and quality of life in obese HFpEF patients; FDA application pending
- Chronic kidney disease in T2D — SURMOUNT-CKD and SURPASS-RENALPROTECT trials ongoing
- Metabolic dysfunction-associated steatohepatitis (MASH/NASH) — Phase 3 SYNERGY-NASH trial ongoing

Beta-Cell Replacement — The Functional Cure Pipeline

The most exciting frontier in Type 1 diabetes is the emergence of stem-cell-derived beta cell therapies. At the ADA 85th Scientific Sessions in June 2025, Vertex Pharmaceuticals presented data on zimislecel (formerly VX-880) showing that all 12 patients with at least 1 year of follow-up who received a full dose achieved an A1C below 7%; all achieved greater than 70% time-in-range; and 10 of 12 patients (83%) were insulin-free at 1+ year of follow-up. This is the most compelling human evidence to date that a functional cure for Type 1 diabetes is achievable. Phase 3 trials are underway; a Biologics License Application is anticipated 2026–2027.

A second Vertex program, VX-264, uses an encapsulation device so that recipients would not require immunosuppression — the holy grail. Sernova Corporation has a competing scaffold-based approach (the Cell Pouch) with FDA Fast Track designation. Sana Biotechnology is developing hypoimmune universal islet cells. Multiple academic and industry programs are pursuing CRISPR-edited beta cells.

> *If zimislecel or its descendants reach commercialization, the trajectory of Type 1 diabetes — and eventually parts of advanced Type 2 — will fundamentally change. For families with T1D, this is the first time in a century that a functional cure is on the table as a realistic medical reality, not a research aspiration.*

Weekly Insulin Beyond Awiqli

With Awiqli (insulin icodec) approved in March 2026 as the first once-weekly basal insulin, several other companies are advancing weekly insulin programs. Lilly's basal insulin Fc (BIF) is in Phase 3 development. The implications for adherence and patient acceptance — particularly in older adults with T2D — are substantial.

8. CAREGIVER BURDEN AND PALLIATIVE CARE

Diabetes is different from most dependency-driving conditions because the caregiver burden shows up long before the patient loses independence. Insulin dosing, blood sugar checks, meal timing, foot inspections, medication reconciliation, endocrinology and ophthalmology appointments — these begin the moment a family member is diagnosed and only intensify over time. When complications arrive, that constant background workload becomes a full-time role.

The Numbers

- An estimated 4–5 million Americans provide unpaid care for a family member with diabetes
- Average time commitment is 20+ hours per week when complications are present, rising toward full-time in advanced disease with amputation, dialysis, or dementia
- Caregivers of insulin-dependent patients report the highest anxiety scores of any diabetes caregiver subgroup
- Dialysis transportation alone can consume 12+ hours per week for a caregiver
- Depression rates among long-term diabetes caregivers exceed 40%

Self-Management Complexity

Diabetes is often described as the most demanding chronic disease for self-management. A typical patient on insulin and multiple oral agents must:

- Test blood glucose or wear a CGM continuously and interpret trend data
- Count carbohydrates, dose insulin, and adjust for exercise, illness, and stress
- Take 4–8 medications on precise schedules
- Inspect feet daily and manage skin integrity
- Attend endocrinology, ophthalmology, podiatry, cardiology, and nephrology appointments
- Manage the interaction between diabetes and every other chronic condition they have

When cognitive impairment enters the picture — and it does, in a substantial minority of long-duration patients — this self-management responsibility shifts wholesale to the caregiver. This is often the transition point where a family realizes the patient can no longer live alone safely.

Hypoglycemia Vigilance

Caregivers of insulin-dependent patients frequently describe a low-grade, chronic anxiety centered on hypoglycemia — a fear of finding a loved one unresponsive because of a missed meal, an accidental double dose, or an unrecognized nocturnal event. This fear is neither irrational nor small. It is one of the largest sources of caregiver sleep disruption and depression in the long-duration diabetes population.

Foot and Wound Care

Once neuropathy is established, daily foot inspection becomes a caregiver task. Once an ulcer develops, wound care can consume hours a day: dressing changes, offloading, monitoring for infection, and repeated trips to wound care centers or infusion services for intravenous antibiotics. Caregivers of amputees carry the additional physical burden of transfers, prosthetic care, and — often — grief.

The Role of Palliative Care

Palliative care is often confused with hospice, but they are not the same. Palliative care is specialty medical care focused on symptom relief and quality of life for people with any serious illness — it can begin at diagnosis and continues alongside disease-modifying treatment. For advanced diabetes with multiple complications, palliative care can help manage neuropathic pain, gastroparesis symptoms, dialysis-related fatigue, and the emotional weight that accumulates over years of disease management.

Hospice is a specific form of palliative care for patients with an expected prognosis of six months or less who choose comfort-focused rather than disease-modifying treatment. Diabetes patients enrolled in hospice — usually because of end-stage kidney disease, advanced heart failure, or dementia — receive Medicare-covered care at home, in a facility, or in a dedicated hospice setting.

> *For diabetes families, palliative care consultation should be considered when a patient develops end-stage kidney disease, has recurrent hospitalizations, experiences significant functional decline, or begins asking questions about how they want the last chapter to go. It is not giving up; it is adding a specialist team focused on comfort, symptom control, and honest conversation.*

9. KEY RESOURCES AND WHERE TO GET HELP

The list below assembles the most useful national organizations for patients, families, and caregivers navigating diabetes and its complications. Every family managing this disease should know at least a handful of these by name.

Organization	What They Offer	Contact / Website
American Diabetes Association (ADA)	Standards of Care, education, advocacy, patient resources	diabetes.org | 1-800-DIABETES
JDRF (now Breakthrough T1D)	Type 1 diabetes research, family support, TrialNet screening	breakthrought1d.org
Diabetes Research Institute Foundation	Cure-focused research funding, patient education	diabetesresearch.org
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)	Federal research, patient-facing guides, clinical trial information	niddk.nih.gov
CDC Division of Diabetes Translation	Prevention programs (DPP), state and national statistics	cdc.gov/diabetes
National Diabetes Prevention Program (National DPP)	CDC-recognized lifestyle intervention for prediabetes	cdc.gov/diabetes/prevention
American Association of Diabetes Educators / ADCES	Find a certified diabetes care and education specialist	diabeteseducator.org
National Kidney Foundation	CKD education, dialysis navigation, kidney transplant support	kidney.org | 1-855-NKF-CARES
American Kidney Fund	Financial assistance for dialysis patients, patient education	kidneyfund.org
Prevent Blindness	Vision screening, diabetic eye disease education	preventblindness.org
Amputee Coalition	Peer support, prosthetic navigation, National Peer Network	amputee-coalition.org
Alzheimer's Association	24/7 helpline, care navigation, memory-care planning for dementia complications	alz.org | 1-800-272-3900

Organization	What They Offer	Contact / Website
Family Caregiver Alliance	Caregiver education, support groups, respite navigation	caregiver.org
Eldercare Locator (federal)	Free, nationwide connection to local aging services and Medicaid navigation	eldercare.acl.gov | 1-800-677-1116
Area Agencies on Aging (AAAs)	Local case management, in-home services, meal programs, transportation	usaging.org / eldercare.acl.gov
National Academy of Elder Law Attorneys (NAELA)	Find an elder-law attorney for advance directives, guardianship, and health care proxies	naela.org
Medicare.gov	Coverage explanations for diabetes supplies, CGMs, insulin, dialysis	medicare.gov | 1-800-MEDICARE

10. NEXT STEPS FOR PATIENTS, FAMILIES, AND CAREGIVERS

The steps below are the practical, sequenced actions that make the biggest difference for patients and families living with diabetes. They are ordered so that each one builds on the one before it.

Step 1 · Know Your Numbers

Every patient with diabetes should know four numbers cold: their most recent A1C, their Time in Range if they wear a CGM, their eGFR (kidney function), and their urine albumin-to-creatinine ratio. If a patient or family caregiver cannot recite these, that is the first thing to fix. Ask the endocrinologist or primary care physician to print them out at each visit.

Step 2 · Get on Guideline-Directed Therapy

The 2026 ADA Standards of Care are explicit: any patient with Type 2 diabetes plus established cardiovascular disease, heart failure, or chronic kidney disease should be on an SGLT2 inhibitor and/or GLP-1 receptor agonist — regardless of A1C. Any patient with poor glucose control should be considered for GLP-1 or insulin. Many patients are still on older regimens that predate this evidence. Ask directly: 'Am I on the therapies my organs need, not just the ones that lower my sugar?'

Step 3 · Establish Annual Complication Screening

The complications that drive dependency are silent until they aren't. Every patient should have, at minimum: a dilated eye exam every year (or every 2 years if stable and no retinopathy), a foot exam at every primary-care visit and a comprehensive foot exam yearly, kidney function (eGFR) and urine albumin at least yearly, and a lipid panel and blood pressure check at each visit. These screenings catch the complications early enough that treatment still matters.

Step 4 · Consider CGM and Automated Insulin Delivery

If a patient uses insulin, a continuous glucose monitor is now standard of care and covered by Medicare and most private insurance. For Type 1 patients, an automated insulin delivery (closed-loop) system produces meaningfully better time in range than injections. For older adults new to insulin, a smart pen may be a better first step than a pump. Ask about all three options.

Step 5 · Ask About the 2024–2026 Approvals

Several recent approvals may be relevant: once-weekly insulin (Awiqli, March 2026) reduces injection burden dramatically; tirzepatide (Zepbound) is now approved for obesity-related sleep apnea; islet cell transplantation (Lantidra) is available for select T1D patients with hypoglycemia unawareness; and the stem-cell beta cell pipeline is producing insulin independence in the majority of trial recipients. Not every patient is a candidate for every therapy, but every patient is a candidate for the conversation.

Step 6 · Engage Palliative Care Early When Complications Advance

Palliative care is not hospice, and it is not giving up. It is a specialty team focused on symptom relief and quality of life alongside disease treatment. For advanced diabetes — end-stage kidney disease, recurrent hospitalizations, chronic neuropathic pain, gastroparesis, or dementia — a palliative care consultation can dramatically improve daily life and help the family plan for whatever comes next.

Step 7 · Put Legal Documents in Place

Advance directives and powers of attorney are conversations, not just documents. Every adult with diabetes should have, before cognitive impairment or a crisis makes them impossible to complete: a Durable Power of Attorney (financial), a Health Care Proxy or Durable Power of Attorney (healthcare), a Living Will / Advance Directive, and a Will or trust. NAELA (naela.org) is the national directory of elder-law attorneys. Note that advance directives are conversations — write them, then talk about them.

Step 8 · Build a Medical Advocacy Team

Diabetes involves more specialists than almost any other chronic condition: primary care, endocrinology, ophthalmology, podiatry, cardiology, nephrology, and often a certified diabetes care and education specialist (CDCES). One family member — the medical advocate — should hold the master medication list, keep a running record of A1C and eGFR trends, and attend the important appointments. Fragmented care produces fragmented outcomes. A single, informed, present advocate is one of the highest-leverage things a family can organize.

Step 9 · Plug Into Community and Caregiver Support

Diabetes is a family disease. The caregiver's health is not optional collateral — it is essential to the patient's outcome. The Family Caregiver Alliance (caregiver.org), the local Area Agency on Aging (via eldercare.acl.gov or 1-800-677-1116), and ADA-affiliated community programs offer respite, education, and peer support. A diabetes support group — in person or online — is one of the most useful things a newly diagnosed patient can do.

> *The single biggest predictor of outcomes for a patient with diabetes is not any one medication or device. It is the quality of the medical team, the presence of an engaged family advocate, and the willingness of the patient to know their numbers and act on them. Everything else in this white paper is a tool for those three.*

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> *DISCLAIMER: This white paper is provided for educational purposes only. It does not constitute medical advice or legal advice. Information about clinical trials and medications is current as of July*

> *2026 and may change. Consult qualified medical and legal professionals for guidance specific to your situation.*