



Pharmaceutical Assistance  
Contract for the Elderly



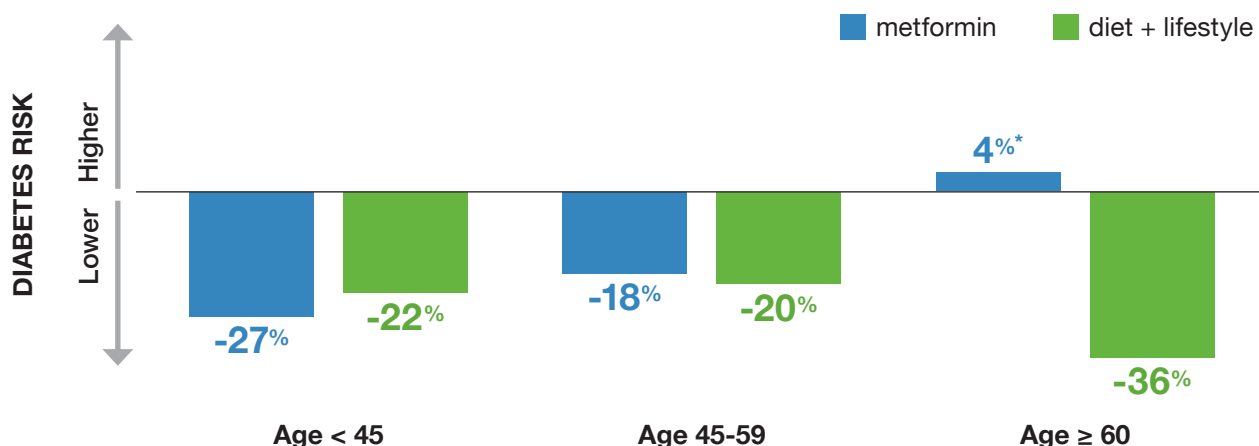
# Transforming treatment for patients with type 2 diabetes



# Lifestyle changes can slow progression from prediabetes to diabetes in older adults

Prediabetes (HbA1c 5.7-6.4%) affects about 98 million Americans.<sup>1</sup>

**FIGURE 1.** After 21 years of follow up, a randomized trial found diet and exercise can delay the progression from prediabetes to diabetes in all adults more than usual care alone. Metformin can play a role for prevention in younger adults.<sup>2</sup>

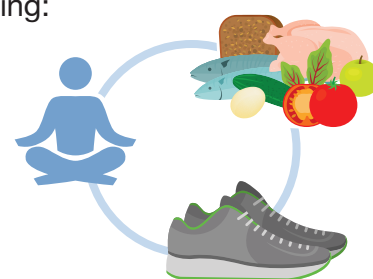


\*not statistically significant

## Diabetes prevention programs (DPPs)

Developed as a result of the randomized trial above, year-long DPPs encourage patients to develop and sustain behavioral change, including:

- eating a healthful diet without giving up favorite foods
- adding physical activity to daily routines
- dealing with stress
- coping with challenges to goals (e.g., eating out)
- getting back on track after deviations from the plan
- setting goals, maintaining motivation, and overcoming obstacles to continued success



**To learn more about referring patients and to find programs in your area, visit [AlosaHealth.org/Prediabetes](https://AlosaHealth.org/Prediabetes).** If a DPP is not readily accessible, clinicians can work with patients on the above program elements.



# Diabetes treatment goals

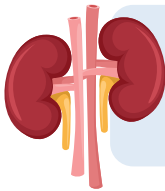
1

**Use medications that can reduce risk of complications and death from cardiovascular disease, kidney disease, or obesity.<sup>3</sup>**

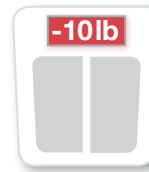
Prevent atherosclerotic cardiovascular disease (ASCVD), including myocardial infarction and stroke.



Reduce symptoms and progression of heart failure.



Slow progression of kidney disease and reduce the risk of requiring dialysis.



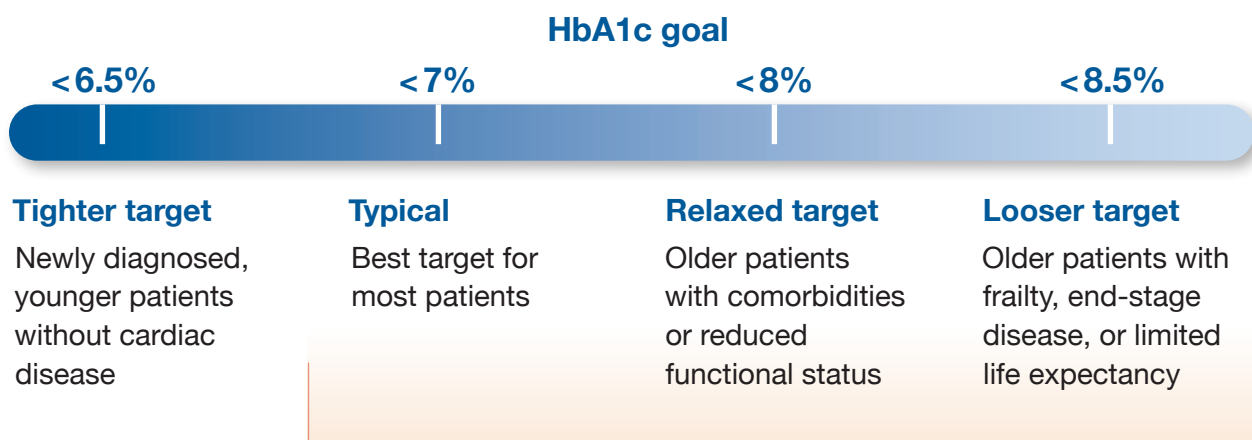
Reduce weight to lower complications of overweight & obesity.

2

**Control blood glucose to reduce the microvascular complications of diabetes including retinopathy and neuropathy.**



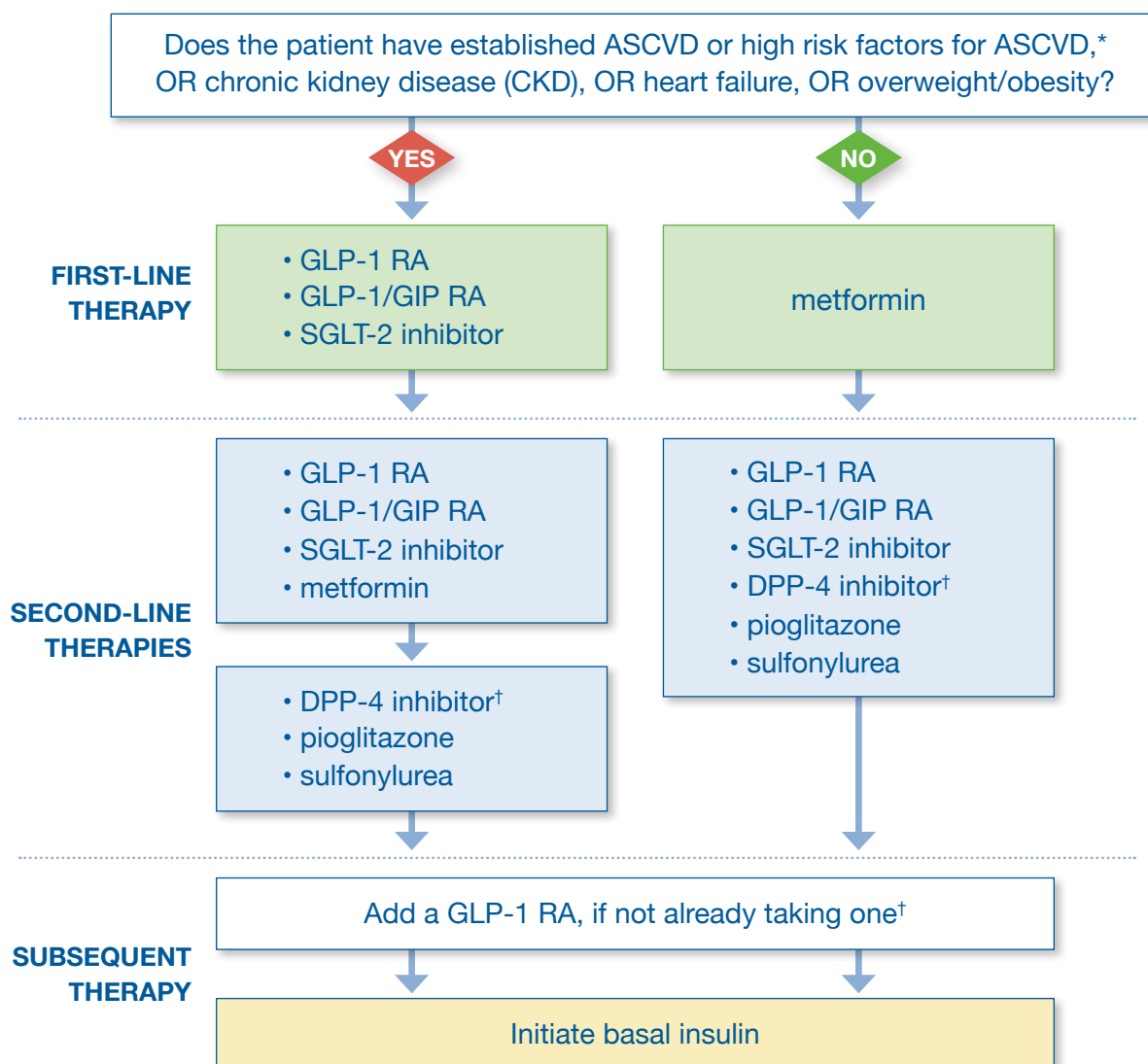
Select an HbA1c goal based on the patient's clinical characteristics.<sup>3</sup>



**In older adults, focus on avoiding hypoglycemia and relaxing treatment targets,** while continuing medications to prevent clinically important complications.

# A framework for medication therapy

FIGURE 2. A simplified approach to diabetes treatment and step-up pathways<sup>3</sup>



\* Risk factors: age  $\geq 55$  with two or more of the following additional risk factors: obesity, hypertension, smoking, dyslipidemia, or albuminuria. † Avoid co-prescribing a DPP-4 inhibitor and any GLP-1 RA because they act through overlapping mechanisms.

## Tips for therapy escalation

- Continuously reinforce patient efforts to optimize diet and be physically active.
- Assess for barriers to obtaining or adhering to medications.
- Adjust treatment recommendations based on cost and/or insurance coverage.
- Optimize doses of other medications before adding insulin.

# Select medications based on patient factors

**TABLE 1.** Medication effects and considerations for selection

| Class / medication                                                                                                     | CV outcome        |                      | Diabetic kidney disease progression | Weight change     | Hypoglycemia | Precautions                                                                      |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------|-------------------------------------|-------------------|--------------|----------------------------------------------------------------------------------|
|                                                                                                                        | ASCVD             | HF risk              |                                     |                   |              |                                                                                  |
| <b>SGLT-2 inhibitors</b><br>canagliflozin (Invokana)<br>empagliflozin (Jardiance)                                      | benefit           | benefit              | benefit                             | loss              | no           | UTI,<br>ketoacidosis,<br>genital infections,<br>hypotension,<br>fractures (cana) |
| bexagliflozin (Brenzavvy)<br>dapagliflozin (Farxiga)<br>ertugliflozin (Steglatro)                                      | neutral           |                      |                                     |                   |              |                                                                                  |
| <b>GIP/GLP-1 RA</b><br>tirzepatide (Mounjaro)                                                                          | benefit           | benefit              | *                                   | loss              | no           | GI side effects common,<br>pancreatitis                                          |
| <b>GLP-1 RA</b><br>dulaglutide (Trulicity)<br>liraglutide (Victoza)<br>semaglutide (Ozempic)<br>semaglutide (Rybelsus) | benefit           | neutral <sup>†</sup> | potential benefit                   | loss              | no           | GI side effects common,<br>pancreatitis                                          |
| exenatide (Bydureon)<br>lixisenatide (Adlyxin)                                                                         | neutral           | neutral              | *                                   |                   |              |                                                                                  |
| <b>biguanide</b><br>metformin (Glucophage)                                                                             | potential benefit | *                    | *                                   | potential benefit | no           | GI intolerance (start low, or use extended release)                              |
| <b>thiazolidinediones (TZD)</b><br>pioglitazone (Actos)                                                                | potential benefit | increased risk       | *                                   | gain              | no           | fractures,<br>bladder cancer                                                     |
| <b>DPP-4 inhibitors</b><br>linagliptin (Tradjenta)<br>sitagliptin (Januvia)                                            | neutral           | neutral              | *                                   | *                 | no           | joint pain,<br>pancreatitis                                                      |
| alogliptin (Nesina)<br>saxagliptin (Onglyza)                                                                           |                   | potential risk       | *                                   | *                 |              |                                                                                  |
| <b>sulfonylureas</b><br>glyburide (DiaBeta, Glynase)<br>glimepiride (Amaryl)                                           | neutral           | *                    | *                                   | gain              | yes          |                                                                                  |
| glipizide (Glucotrol)                                                                                                  | *                 | *                    | *                                   |                   |              |                                                                                  |
| <b>insulin</b><br>lispro, aspart, glulisine, regular, NPH                                                              | *                 | *                    | *                                   | gain              | yes          |                                                                                  |
| glargine, degludec, detemir                                                                                            | neutral           | *                    | *                                   |                   |              |                                                                                  |

\*No data available. <sup>†</sup>Semaglutide (Ozempic) improves quality of life metrics.

GIP = glucose-dependent insulinotropic polypeptide; GLP-1 RA = glucagon-like peptide-1 receptor agonist;  
HF = heart failure; UTI = urinary tract infection

# Using GLP-1 RAs and SGLT-2 inhibitors

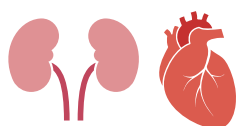
Select the agent with benefits for other health conditions.

**TABLE 2.** Factors to consider when starting therapy for a patient with an HbA1c < 10%

|                   | ASCVD | HF with reduced EF | HF with preserved EF | CKD | MASLD | Overweight /obesity |
|-------------------|-------|--------------------|----------------------|-----|-------|---------------------|
| SGLT-2 inhibitors | ✓     | ✓                  | ✓                    | ✓   |       |                     |
| GLP-1 RA          | ✓     |                    | ✓                    | ✓   | ✓     | ✓                   |
| GIP/GLP-1 RA      | ✓     |                    | ✓                    |     | ✓     | ✓                   |

✓ = emerging benefit; EF = ejection fraction; HF = heart failure; MASLD = metabolic dysfunction-associated steatotic liver disease

## Older adults benefit from GLP-1 RAs.



**Cardiac and renal benefits were seen with GLP-1 RAs regardless of age.<sup>4</sup>**

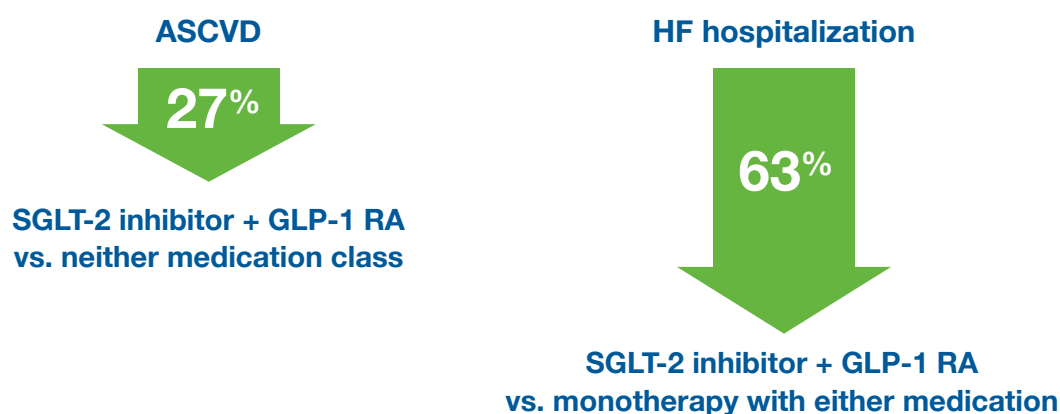


**no fall increase**

Despite concern about potential muscle loss from weight loss, emerging data suggest that **GLP-1 RAs do not increase the risk of falls** or lead to other poor clinical outcomes that one might expect in patients if there were clinically relevant muscle strength losses.<sup>5</sup>

## Combine an SGLT-2 inhibitor and GLP-1 RA, especially in patients with heart failure.

**FIGURE 3.** Using an SGLT-2 inhibitor and GLP-1 RA improved outcomes vs. baseline therapy.<sup>6</sup>



# Facilitate lifestyle changes to manage diabetes

Continuously encourage healthy lifestyle habits.



**DIET:** Select a **diet rich in whole grains, nuts, fruits, and vegetables** instead of processed foods. Support weight loss with a reduced calorie diet.



**Low sodium  
(DASH diet)**



**11 point decrease**  
in glucose levels<sup>7</sup>



**5% increase** in time in range  
(i.e., fewer peaks and/or lows  
of glucose levels)<sup>7</sup>



**ACTIVITY:** Set a goal of **150 minutes of moderate intensity** physical activity per week.

Engage in short (e.g., 10 minutes)  
periods of activity throughout  
the day, especially after meals.



Combining aerobic and  
resistance exercise is best.<sup>8</sup>



## Continuous glucose monitors (CGMs) may help patients link food choice with blood sugar changes.

- CGMs can allow tailoring of treatment based on readings.
- For older adults they may reduce episodes of hypoglycemia.<sup>9</sup>
- Compared with fingerstick glucose tests, CGMs lowered HbA1c by 0.33% over 12 weeks regardless of insulin use.<sup>10</sup>
- Improved macrovascular and microvascular outcomes have yet to be linked to CGM use.



**Medicare covers CGM for patients prescribed insulin or patients with a history of problematic hypoglycemia, when prescribed according to FDA-approved indications and within 6 months of a clinic visit.<sup>11</sup>**

# Focusing on maintaining health

## Screenings to prevent further complications

|                                                                                    |                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>Look for worsening renal function</b><br>Annual screening of urinary albumin to creatinine ratio and estimated glomerular filtration rate (eGFR)                                                                                                                                            |
|   | <b>Encourage regular eye exams</b><br>Annual screening with a dilated eye exam or retinal photography                                                                                                                                                                                          |
|   | <b>Evaluate for metabolic dysfunction-associated steatotic liver disease (MASLD)<sup>11</sup></b><br>Use the FIB-4 score based on common lab values (AST, ALT, platelet count) with a cutoff of $\geq 2.0$ for older adults to refer for ultrasound elastography                               |
|   | <b>Check for peripheral neuropathy</b> <ul style="list-style-type: none"><li>• Comprehensive foot exam annually, which may include monofilament testing</li><li>• Encourage patients to perform home foot exams</li></ul>                                                                      |
|  | <b>General health</b> <ul style="list-style-type: none"><li>• Recommend at least yearly dental visits</li><li>• Assess bone health</li><li>• Check for mental health conditions like depression</li><li>• Evaluate for sleep-related disturbances; refer for a sleep study if needed</li></ul> |

## Recommendations to prevent complications

|                                                                                     |                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Control blood pressure:</b> <ul style="list-style-type: none"><li>• Aim for a goal of 130/80 mm Hg for all patients with diabetes</li></ul>                                                                                                                             |
|  | <b>Lower cholesterol</b> <ul style="list-style-type: none"><li>• Prescribe a statin or other lipid-lowering therapy based on risk</li><li>• Patients <math>\geq 75</math> and over can start a moderate-intensity statin or continue their high-intensity statin</li></ul> |
|  | <b>Counsel on smoking cessation</b> <ul style="list-style-type: none"><li>• Tobacco quit line 1-800-QUIT-NOW or visit <a href="https://pa.quitlogix.org">pa.quitlogix.org</a></li><li>• Nicotine replacement therapy (NRT) and varenicline or bupropion may help</li></ul> |
|  | <b>Recommend vaccinations</b> <ul style="list-style-type: none"><li>• Flu, COVID, pneumococcal, and respiratory syncytial virus (RSV)</li></ul>                                                                                                                            |



# Adjusting insulin to avoid hypoglycemia

**In older adults, hypoglycemia is associated with falls and cognitive impairment.**

Avoid hypoglycemia by regularly assessing insulin regimens.

**When adding a GLP-1 RA, adjust insulin to reduce hypoglycemia risk.**

**TABLE 3.** Insulin dose adjustment guidance for primary care clinicians based on RCTs

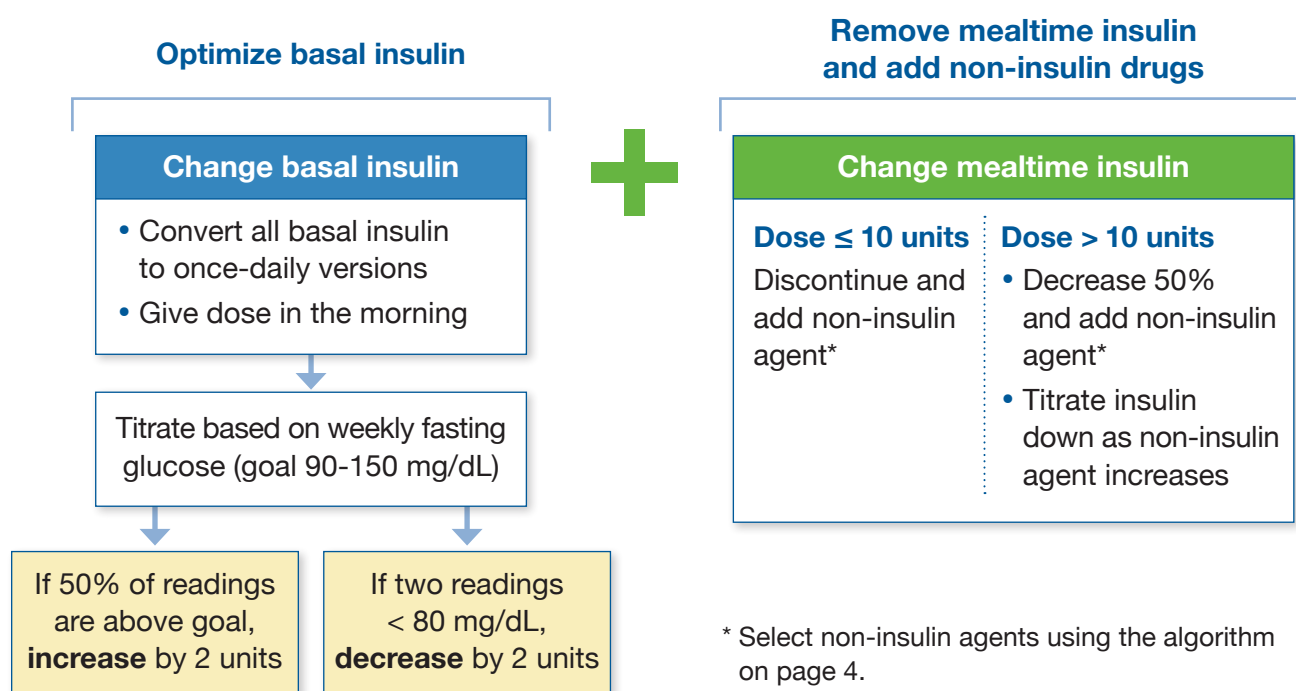
| HbA1c level and patient factors | % basal dose reduction | % bolus dose reduction |
|---------------------------------|------------------------|------------------------|
| < 7%                            | 20%                    | 50%                    |
| 7.1-8%                          | 10-20%                 | 25%                    |
| > 8% with factors*              | 10%                    | 25%                    |
| > 8% without factors*           | No adjustment          | 10-20%                 |

\*glycemic variability, hypoglycemia unawareness, or severe hypoglycemic events

**Reduce glucose lows by simplifying the insulin regimen.**

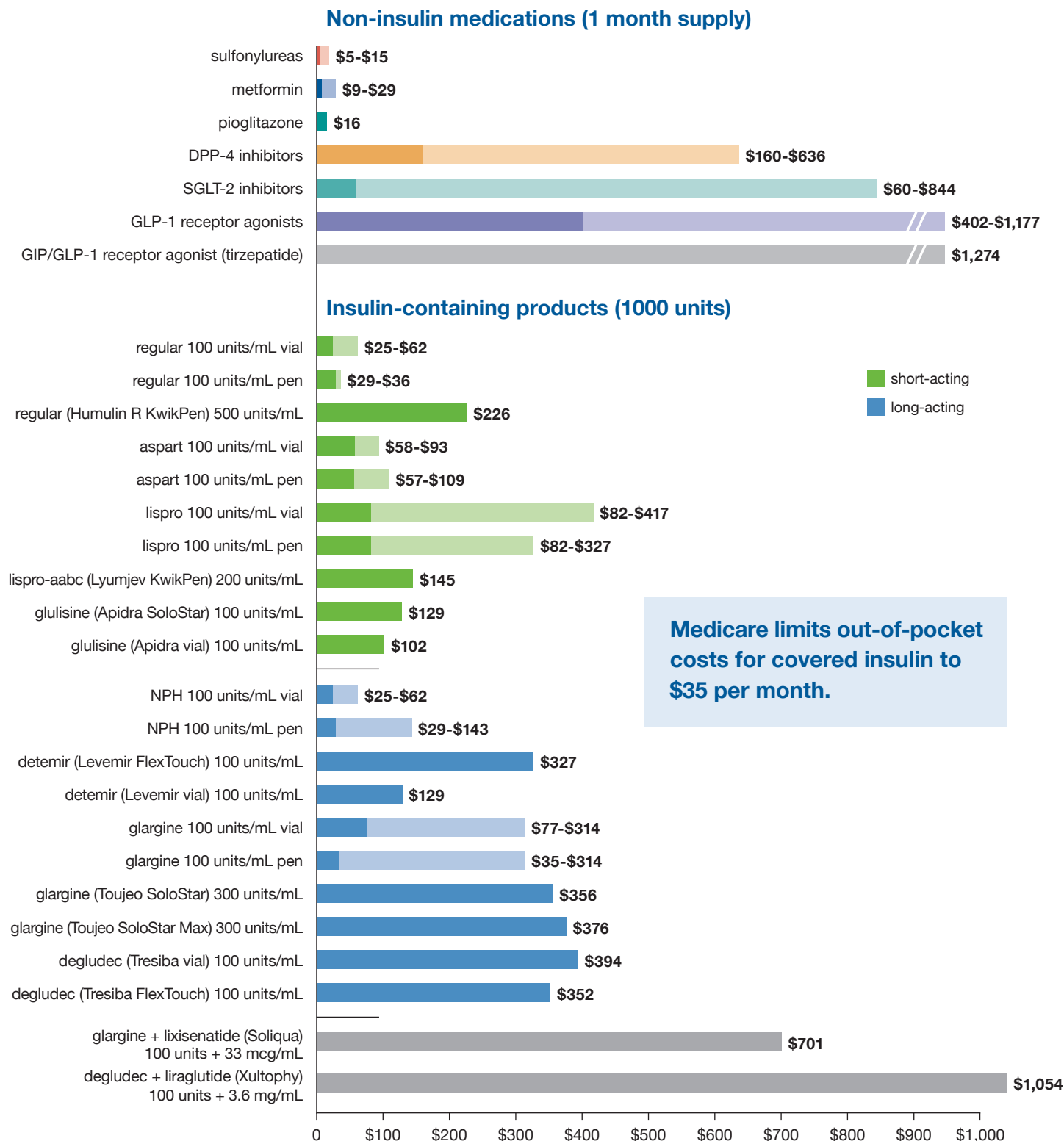
Simplifying an insulin regimen can lead to reduced treatment burden (fewer injections) and a 3-fold reduction in hypoglycemia without compromising HbA1c control.<sup>13</sup>

**FIGURE 4.** Algorithm to simplify an insulin regimen<sup>3,13</sup>



# Cost of medications

FIGURE 5. Costs of medications for diabetes



Prices from goodrx.com, October 2025. Listed doses are based on Defined Daily Doses by the World Health Organization, when available, or package inserts; they should not be used for dosing in all patients. All doses shown are generics when available, unless otherwise noted. These prices are a guide; patient costs will be subject to copays, rebates, and other incentives.

# Key points

- Prevent progression from prediabetes to diabetes with **diet and physical activity**.
- **Prescribe medications** that lower the risk of cardiovascular disease, heart failure, kidney complications, and MASLD.
- **Discuss medication-taking behaviors and affordability** to optimize treatment plans.
- **Encourage preventive care** through blood pressure control, vaccinations, eye exams, and foot exams.
- **Focus on avoiding hypoglycemia** in older adults by reducing insulin treatment burden and using continuous glucose monitors to promote normoglycemia.

**For links to these and other resources, visit [AlosaHealth.org/Diabetes](https://AlosaHealth.org/Diabetes)**

## References:

- (1) Centers for Disease Control and Prevention. National Diabetes Statistics Report. May 15, 2024; <https://www.cdc.gov/diabetes/php/data-research/index.html>. Accessed Oct 6, 2025. (2) Knowler WC, et al. Long-term effects and effect heterogeneity of lifestyle and metformin interventions on type 2 diabetes incidence over 21 years in the US Diabetes Prevention Program randomised clinical trial. *Lancet Diabetes Endocrinol*. 2025;13(6):469-481. (3) American Diabetes Association Professional Practice Committee. Standards of Care in Diabetes-2025. *Diabetes Care*. 2025;48(1 Suppl 1):S1-S343. (4) Waqas SA, et al. Efficacy of GLP-1 receptor agonists among older adults: a meta-analysis of cardio-kidney outcome trials. *Arch Gerontol Geriatr*. 2025;138:105981. (5) Pandey A, et al. Frailty and Effects of Semaglutide in Obesity-Related HFpEF: Findings From the STEP-HFpEF Program. *JACC Heart Fail*. 2025;102610. (6) Mousavi A, et al. Safety, efficacy, and cardiovascular benefits of combination therapy with SGLT-2 inhibitors and GLP-1 receptor agonists in patients with diabetes mellitus: a systematic review and meta-analysis of randomized controlled trials. *Diabetol Metab Syndr*. 2025;17(1):68. (7) Fang M, et al. DASH4D diet for glycemic control and glucose variability in type 2 diabetes: a randomized crossover trial. *Nat Med*. 2025;31(10):3309-3316. (8) Church TS, et al. Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: a randomized controlled trial. *JAMA*. 2010;304(20):2253-2262. (9) Munshi MN. Continuous Glucose Monitoring Use in Older Adults for Optimal Diabetes Management. *Diabetes Technol Ther*. 2023 Jun;25(S3):S56-S64. (10) Uhl S, et al. Effectiveness of Continuous Glucose Monitoring on Metrics of Glycemic Control in Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *J Clin Endocrinol Metab*. 2023;109(4):1119-1131. (11) Medicare Learning Network. Medicare Coverage of Diabetes Supplies. *MLN Fact Sheet* February 2025; <https://www.cms.gov/files/document/mln7674574-medicare-coverage-diabetes-supplies.pdf>. Accessed Oct 13, 2025. (12) Cusi K, et al. Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in People With Diabetes: The Need for Screening and Early Intervention. A Consensus Report of the American Diabetes Association. *Diabetes Care*. 2025;48(7):1057-1082. (13) Munshi MN, et al. Simplification of Insulin Regimen in Older Adults and Risk of Hypoglycemia. *JAMA Intern Med*. 2016;176(7):1023-1025.

## About this publication

These are general recommendations only; specific clinical decisions should be made by the treating clinician based on an individual patient's clinical condition. More detailed information on this topic is provided in a longer evidence document at [AlosaHealth.org](https://AlosaHealth.org).



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