Section 9:

Pharmacologic Approaches to Glycemic Treatment

Ways to Address or Prevent Therapeutic Inertia for People With Type 1 or Type 2 Diabetes

EMPOWER PATIENTS

BE A BARRIER BUSTER

- Schedule diabetes-only visits.
- Set and track shared goals and time frames.
- Integrate screening for social/emotional barriers and identify support.
- Prescribed thoughtfully.
- Refer to diabetes self-management education and support (DSMES).

Do your patients know you are their champion?

OPTIMIZE CARE AND TREATMENT

ACT NOW

- Conduct practice-based screening for likely therapeutic inertia.
- Make personalized diabetes care plans.
- Implement a team-based approach to increase the frequency and quality of engagement.
- Utilize A1C and glucose data to drive rapid-cycle treatment intensification.
- Stratify follow-up based on A1C/glucose data and changes in therapy.

Have you done everything in your control to optimize therapy and support during, after, and in between visits?

LEVERAGE TOOLS AND TECHNOLOGY

IMPROVE DECISION-MAKING

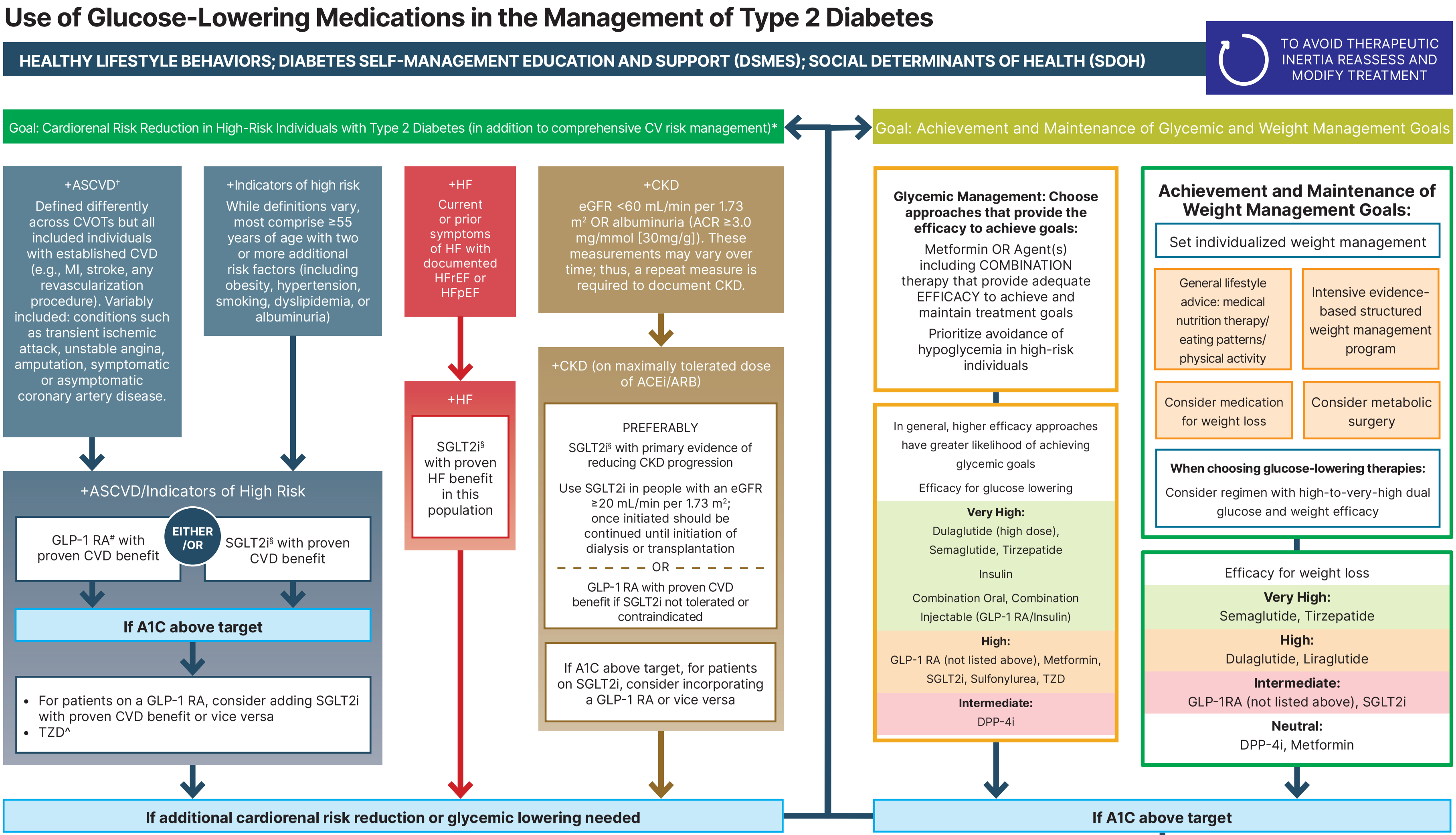
- Follow a diabetes treatment algorithm.
- Create and use a patient registry.
- Integrate decision support into the workflow.
- Utilize technology to enhance communication with people with diabetes.
- Disseminate unblinded quality metrics.

Have you enabled everyone in your practice to make high-quality treatment decisions quickly and consistently?

When to Use Injectable Therapy in Type 2 Diabetes

Which therapy should I start first?	When should I start insulin first?	Can I use combination insulin and non insulin injectable therapy?	When would I use combination insulin and noninsulin injectable therapy?	When should I modify a patient's injectable therapy?
✓ Treatment with a glucagon-like peptide 1 (GLP-1) receptor agonist or a dual glucose-dependent insulinotropic polypeptide (GIP)/GLP-1 receptor agonist is preferred before insulin therapy because of its ability to achieve both glycemic and weight management goals. ✓ Some GLP-1 receptor agonists also provide cardiovascular benefit.	✓ If there is evidence of catabolism (e.g., unexpected weight loss) ✓ When A1C or blood glucose levels are very high (A1C >10% [>86 mmol/mol] or blood glucose ≥300 mg/dL [≥16.7 mmol/L])	✓ Yes; combination therapy with insulin and a noninsulin injectable is recommended for greater glycemic effectiveness and beneficial effects on weight and hypoglycemia risk. ✓ If insulin is already being used, insulin dosing should be reassessed upon addition or dose escalation of a GLP-1 or dual GIP and GLP-1 receptor agonist.	✓ Consider combination insulin and GLP-1 or dual GIP/GLP-1 receptor agonist therapy when individualized goals are not met using either one separately.	✓ Intensify or deintensify therapy when an individual is not meeting treatment goals, including management of hyperglycemia and weight and avoidance of hypoglycemia.

Suggested citation: American Diabetes Association Primary Care Advisory Group. 9. Pharmacologic approaches to glycemic treatment: *Standards of Care in Diabetes—2024* abridged for primary care professionals. Clin Diabetes 2024;42:206–208 (doi: 10.2337/cd24-a009).



Use of Glucose-Lowering Medications in the Management of Type 2 Diabetes
HEALTHY LIFESTYLE BEHAVIORS; DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (DSMES); SOCIAL DETERMINANTS OF HEALTH (SDOH)
TO AVOID THERAPEUTIC INERTIA REASSESS AND MODIFY TREATMENT
Goal: Cardiorenal Risk Reduction in High-Risk Individuals with Type 2 Diabetes (in addition to comprehensive CV risk management)*
+ASCVD†
Defined differently across CVOTs but all included individuals with established CVD (e.g., MI, stroke, any revascularization procedure). Variably included: conditions such as transient ischemic attack, unstable angina, amputation, symptomatic or asymptomatic coronary artery disease.
+Indicators of high risk
While definitions vary, most comprise ≥55 years of age with two or more additional risk factors (including obesity, hypertension, smoking, dyslipidemia, or albuminuria)
+ASCVD/Indicators of High Risk
GLP-1 RA# with proven CVD benefit
EITHER /OR
SGLT2i§ with proven CVD benefit
If A1C above target
For patients on a GLP-1 RA, consider adding SGLT2i with proven CVD benefit or vice versa
TZD^
+HF
Current or prior symptoms of HF with documented HFrEF or HFpEF
+HF
SGLT2i§ with proven HF benefit in this population
+CKD
eGFR <60 mL/min per 1.73 m² OR albuminuria (ACR ≥3.0 mg/mmol [30mg/g]). These measurements may vary over time; thus, a repeat measure is required to document CKD.
+CKD (on maximally tolerated dose of ACEi/ARB)
PREFERABLY
SGLT2i§ with primary evidence of reducing CKD progression
Use SGLT2i in people with an eGFR ≥20 mL/min per 1.73 m²; once initiated should be continued until initiation of dialysis or transplantation
OR
GLP-1 RA with proven CVD benefit if SGLT2i not tolerated or contraindicated
If A1C above target, for patients on SGLT2i, consider incorporating a GLP-1 RA or vice versa
If additional cardiorenal risk reduction or glycemic lowering needed
Goal: Achievement and Maintenance of Glycemic and Weight Management Goals
Glycemic Management: Choose approaches that provide the efficacy to achieve goals:
Metformin OR Agent(s) including COMBINATION therapy that provide adequate EFFICACY to achieve and maintain treatment goals
Prioritize avoidance of hypoglycemia in high-risk individuals
In general, higher efficacy approaches have greater likelihood of achieving glycemic goals
Efficacy for glucose lowering
Very High:
Dulaglutide (high dose), Semaglutide, Tirzepatide
Insulin
Combination Oral, Combination Injectable (GLP-1 RA/Insulin)
High:
GLP-1 RA (not listed above), Metformin, SGLT2i, Sulfonylurea, TZD
Intermediate:
DPP-4i
Achievement and Maintenance of Weight Management Goals:
Set individualized weight management
General lifestyle advice: medical nutrition therapy/ eating patterns/ physical activity
Intensive evidence-based structured weight management program
Consider medication for weight loss
Consider metabolic surgery
When choosing glucose-lowering therapies:
Consider regimen with high-to-very-high dual glucose and weight efficacy
Efficacy for weight loss
Very High:
Semaglutide, Tirzepatide
High:
Dulaglutide, Liraglutide
Intermediate:
GLP-1RA (not listed above), SGLT2i
Neutral:
DPP-4i, Metformin
If A1C above target
Identify barriers to goals:
Consider DSMES referral to support self-efficacy in achievement of goals
Consider technology (e.g., diagnostic CGM) to identify therapeutic gaps and tailor therapy

* In people with HF, CKD, established CVD, or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be independent of background use of metformin;† A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high CV risk. Moreover, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details; ^ Low-dose TZD may be better tolerated and similarly effective; § For SGLT2i, CV/renal outcomes trials demonstrate their efficacy in reducing the risk of composite MACE, CV death, all-cause mortality, MI, HHF, and renal outcomes in individuals with T2D with established/high risk of CVD; # For GLP-1 RA, CVOTs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke, and renal endpoints in individuals with T2D with established/high risk of CVD.

ACEi, angiotensin-converting enzyme inhibitor; ACR, albumin-to-creatinine ratio; ARB, angiotensin receptor blocker; ASCVD, atherosclerotic cardiovascular disease; CGM, continuous glucose monitoring; CKD, chronic kidney disease; CV, cardiovascular; CVD, cardiovascular disease; CVOT, cardiovascular outcomes trial; DPP-4i, dipeptidyl peptidase 4 inhibitor; eGFR, estimated glomerular filtration rate; GLP-1 RA, glucagon-like peptide 1 receptor agonist; dual GIP/GLP-1 RA, dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide 1 receptor agonist; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HHF, hospitalization for heart failure; MACE, major adverse cardiovascular events; MI, myocardial infarction; SDOH, social determinants of health; SGLT2i, sodium-glucose cotransporter 2 inhibitor; T2D, type 2 diabetes; TZD, thiazolidinedione. Adapted from Davies MJ, D'Alessio DA, Fradkin J, et al. Management of hyperglycemia in type 2 diabetes, 2018: a consensus report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetes Care 2018;41:2669–2701.

To-Do List for Clinicians Treating People With Insulin Therapy

- ☑ Provide or refer patients for education about injection technique and timing and problem-solving for issues related to insulin therapy (e.g., hypoglycemia, missed or incorrect doses, and dose adjustments).
- ☑ Ensure that individuals have all supplies necessary for injections (e.g., pen needles for insulin pens or appropriate syringes for insulin dose size or concentration) and glucose monitoring.
- ☑ Evaluate individuals with type 2 diabetes to determine whether they are candidates for GLP-1 or dual GIP/GLP-1 receptor agonist therapy.
- ☑ Evaluate all people on insulin therapy to determine whether they could benefit from continuous glucose monitoring.
- ☑ Ensure that people on insulin therapy have the education and supplies needed to prevent and treat hypoglycemia, including glucagon, glucose monitoring supplies, and appropriate sources of carbohydrates to treat low glucose levels.
- ☑ Schedule timely and routine follow-up visits to reassess patients and adjust care plans to avoid therapeutic inertia.