Standards of Medical Care in Diabetes—2015 Abridged for Primary Care Providers

American Diabetes Association

The American Diabetes Association's (ADA's) *Standards of Medical Care in Diabetes* is updated and published annually in a supplement to the January issue of *Diabetes Care* (1). Formerly called *Clinical Practice Recommendations*, the "Standards" includes the most current evidence-based recommendations for diagnosing and treating adults and children with all forms of diabetes. ADA's grading system uses **A**, **B**, **C**, or **E** to show the evidence level that supports each recommendation (**Table 1**).

This is an abridged version of the current Standards containing only the evidence-based recommendations most pertinent to primary care. The tables, figures, and references have been renumbered from the original document. The complete 2015 Standards supplement is available at professional.diabetes.org/standards.

STRATEGIES FOR IMPROVING CARE

Recommendations

- Patient-centered communication that incorporates patient preferences, assesses literacy and numeracy, and addresses cultural barriers to care should be used. **B**
- Care should be aligned with components of the Chronic Care Model (CCM) to ensure productive interactions between a prepared proactive practice team and an informed activated patient. **A**

Diabetes Care Concepts

1. Patient centeredness. Because patients with diabetes are also at greatly increased risk of cardiovascular disease (CVD), a patient-centered approach should include a comprehensive plan to reduce CVD risk.
2. Diabetes across the life span. As people with diabetes live well into older age and incidence of type 2 diabetes is on the rise in children and young adults, the demographics of diabetes are changing. There is therefore a need to improve coordination between clinical teams as patients pass through different stages of life, including pregnancy.
3. Advocacy for patients with diabetes. Given the tremendous toll that lifestyle factors such as obesity, physical inactivity, and smoking have on the health of patients with diabetes, ongoing and energetic efforts are needed to address and change the societal determinants at the root of these problems.

Care Delivery Systems

The mean A1C nationally has declined. This has been accompanied by improvements in lipids and blood pressure control. Nevertheless, 33–49% of patients do not meet targets for glycemic, blood pressure, or cholesterol control, and only 14% meet targets for all three measures and nonsmoking status (2).

Chronic Care Model

The CCM has been shown to be effective for improving the quality of

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The reference list is available online at http://clinical.diabetesjournals.org/content/33/2/97/suppl/DC1.

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TABLE 1. ADA Evidence Grading System for "Standards of Medical Care in Diabetes"

Level of evidence	Description
A	Clear evidence from well-conducted, generalizable randomized controlled trials that are adequately powered
B	Supportive evidence from well-conducted cohort studies
C	Supportive evidence from poorly controlled or uncontrolled studies Conflicting evidence with the weight of evidence supporting the recommendation
E	Expert consensus or clinical experience

For additional information, please refer to the complete 2015 Standards (1).

diabetes care (3). Collaborative, multidisciplinary teams are best suited to provide care for people with diabetes and to facilitate patients' self-management (4–7).

Key Objectives

1. Optimize provider and team behavior. The care team should prioritize intensification of lifestyle and/or pharmaceutical therapy for patients with inadequate levels of blood pressure, lipid, or glucose control (8).
2. Support patient behavior change. Successful diabetes care requires a systematic approach to supporting patients' behavior change efforts. High-quality diabetes self-management education (DSME) and support (DSMS) have been shown to improve patient self-management, satisfaction, and glucose control (9,10).
3. Change the care system. Optimal diabetes management requires an organized, systematic approach and the involvement of a coordinated team of dedicated health care professionals working in an environment where patient-centered high-quality care is a priority (11).

When Treatment Goals Are Not Met

When patients are not meeting treatment goals, reassessing the treatment regimen may require evaluation of barriers such as income, health literacy, diabetes-related distress, depression, poverty, and competing demands, including those related to family responsibilities and dynamics.

TABLE 2. Criteria for the Diagnosis of Prediabetes and Diabetes

	Prediabetes	Diabetes
A1C	5.7–6.4%	≥6.5%
FPG	100–125 mg/dL (5.6–6.9 mmol/L)	≥126 mg/dL (7.0 mmol/L)
OGTT	140–199 mg/dL (7.8–11.0 mmol/L)	≥200 mg/dL (11.1 mmol/L)*
RPG		≥200 mg/dL (11.1 mmol/L)†

**In the absence of unequivocal hyperglycemia, results should be confirmed by repeat testing.*
† Only diagnostic in a patient with classic symptoms of hyperglycemia or hyperglycemic crisis. RPG, random plasma glucose.

CLASSIFICATION AND DIAGNOSIS OF DIABETES

Diabetes can be classified into the following general categories:

1. Type 1 diabetes (due to β-cell destruction, usually leading to absolute insulin deficiency)
2. Type 2 diabetes (due to a progressive insulin secretory defect on the background of insulin resistance)
3. Gestational diabetes mellitus (GDM) (diabetes diagnosed in the second or third trimester of pregnancy that is not clearly overt diabetes)
4. Specific types of diabetes due to other causes, e.g., monogenic diabetes syndromes (such as neonatal diabetes and maturity-onset diabetes of the young [MODY]), diseases of the exocrine pancreas (such as cystic fibrosis), and drug- or chemical-induced diabetes (such as in the treatment of HIV/AIDS or after organ transplantation)

Diagnostic Tests for Diabetes

Diabetes may be diagnosed based on A1C criteria or plasma glucose criteria, either the fasting plasma glucose (FPG) or the 2-h plasma glucose value after a 75-g oral glucose tolerance test (OGTT) (12,13) (**Table 2**). The same tests are used to screen for and diagnose diabetes and to detect individuals with prediabetes (**Table 3**).

Type 2 Diabetes and Prediabetes

Recommendations

- Testing to detect type 2 diabetes in asymptomatic people should be considered in adults of any age who are overweight or obese (BMI ≥25 kg/m^2 or ≥23 kg/m^2 in Asian Americans) and who have one or more additional risk factors for diabetes. For all patients, particularly those who are overweight or obese, testing should begin at age 45 years. **B**

TABLE 3. Criteria for Testing for Diabetes or Prediabetes in Asymptomatic Adults

Testing should be considered in adults who are overweight (BMI ≥25 kg/m^2 or ≥23 kg/m^2 in Asian Americans) and have additional risk factors:

- Physical inactivity
- First-degree relative with diabetes
- High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
- Women who delivered a baby weighing >9 lb or were diagnosed with GDM
- Hypertension (≥140/90 mmHg or on therapy for hypertension)
- HDL cholesterol level <35 mg/dL (0.90 mmol/L) and/or a triglyceride level >250 mg/dL (2.82 mmol/L)
- Women with polycystic ovary syndrome
- A1C ≥5.7%, IGT, or IFG on previous testing
- Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
- History of CVD

TABLE 4. Testing for Type 2 Diabetes or Prediabetes in Asymptomatic Children (≤18 Years of Age)

Criteria

- Overweight (BMI >85th percentile for age and sex, weight for height >85th percentile, or weight >120% of ideal for height)

Plus any two of the following risk factors:

- Family history of type 2 diabetes in first- or second-degree relative
- Race/ethnicity (Native American, African American, Latino, Asian American, Pacific Islander)
- Signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, polycystic ovary syndrome, or small-for-gestational-age birth weight)
- Maternal history of diabetes or GDM during the child's gestation

Age of initiation: Age 10 years or at onset of puberty, if puberty occurs at a younger age

Frequency: Every 3 years

- If tests are normal, repeat testing carried out at a minimum of 3-year intervals is reasonable. **C**
- In patients with prediabetes or diabetes, identify and, if appropriate, treat other CVD risk factors. **B**
- Testing to detect prediabetes and type 2 diabetes should be considered in children and adolescents who are overweight or obese and who have two or more additional risk factors for diabetes. **E**

The modified recommendations of the ADA consensus report "Type 2 Diabetes in Children and Adolescents" (14) are summarized in **Table 4**.

Gestational Diabetes Mellitus

Recommendations

- Test for undiagnosed type 2 diabetes at the first prenatal visit in those with risk factors, using standard diagnostic criteria. **B**
- Test for GDM at 24–28 weeks of gestation in pregnant women not previously known to have diabetes. **A**
- Screen women with GDM for persistent diabetes at 6–12 weeks postpartum, using the OGTT and clinically appropriate nonpregnancy diagnostic criteria. **E**
- Women with a history of GDM should have lifelong screening for the development of diabetes or prediabetes at least every 3 years. **B**
- Women with a history of GDM found to have prediabetes should receive lifestyle interventions or metformin to prevent diabetes. **A**

INITIAL EVALUATION AND DIABETES MANAGEMENT PLANNING

Medical Evaluation

A complete medical evaluation should be performed at the initial visit to:

1. Classify diabetes
2. Detect diabetes complications
3. Review previous treatment and risk factor control in patients with diabetes
4. Assist in formulating a management plan
5. Provide a basis for continuing care

Laboratory tests appropriate to the evaluation of each patient's medical condition should be completed. A focus on the components of comprehensive care (**Table 5**) will enable the health care team to optimally manage the patient with diabetes.

Management Plan

People with diabetes should receive medical care from a collaborative, integrated team with expertise in diabe-

TABLE 5. Components of the Comprehensive Diabetes Evaluation

Medical history

- Age and characteristics of onset of diabetes (e.g., diabetic ketoacidosis, asymptomatic laboratory finding)
- Eating patterns, physical activity habits, nutritional status, and weight history; growth and development in children and adolescents
- Presence of common comorbidities, psychosocial problems, and dental disease
- Diabetes education history
- Review of previous treatment regimens and response to therapy (A1C records)
- Current treatment of diabetes, including medications, medication adherence and barriers thereto, meal plan, physical activity patterns, and readiness for behavior change
- Results of glucose monitoring and patient's use of data
- Diabetic ketoacidosis frequency, severity, and cause
- Hypoglycemic episodes
  - Hypoglycemia awareness
  - Any severe hypoglycemia: frequency and cause
- History of diabetes-related complications
  - Microvascular: retinopathy, nephropathy, neuropathy (sensory, including history of foot lesions; autonomic, including sexual dysfunction and gastroparesis)
  - Macrovascular: coronary heart disease, cerebrovascular disease, and peripheral arterial disease

Physical examination

- Height, weight, BMI
- Blood pressure determination, including orthostatic measurements when indicated
- Fundoscopic examination
- Thyroid palpation
- Skin examination (for acanthosis nigricans and insulin injection sites)
- Comprehensive foot examination
  - Inspection
  - Palpation of dorsalis pedis and posterior tibial pulses
  - Presence/absence of patellar and Achilles reflexes
  - Determination of proprioception, vibration, and monofilament sensation

Laboratory evaluation

- A1C, if results not available within past 3 months
- If not performed/available within past year
  - Fasting lipid profile, including total, LDL, and HDL cholesterol and triglycerides, as needed
  - Liver function tests
  - Test for urine albumin excretion with spot urine albumin-to-creatinine ratio
  - Serum creatinine and calculated glomerular filtration rate
  - TSH in type 1 diabetes, dyslipidemia, or women over age 50 years

Referrals

- Eye care professional for annual dilated eye exam
- Family planning for women of reproductive age
- Registered dietitian for medical nutrition therapy
- DSME/DSMS
- Dentist for comprehensive periodontal examination
- Mental health professional, if needed

tes. The management plan should be written with input from the patient and family, the physician, and other members of the health care team.

Common Comorbid Conditions

Recommendations

- Consider screening those with type 1 diabetes for autoimmune diseases (e.g., thyroid dysfunction, celiac disease) as appropriate. **E**
- Consider assessing for and addressing common comorbid conditions (e.g., depression, obstructive sleep apnea) that may complicate diabetes management. **B**

Additional comorbid conditions to consider assessing include fatty liver disease, cancer, fractures, cognitive impairment, low testosterone in men, periodontal disease, and hearing impairment.

FOUNDATIONS OF CARE: EDUCATION, NUTRITION, PHYSICAL ACTIVITY, SMOKING CESSATION, PSYCHOSOCIAL CARE, AND IMMUNIZATION

Diabetes Self-Management Education and Support

Recommendations

- People with diabetes should receive DSME and DSMS according to the national standards for DSME and DSMS when their diabetes is diagnosed and as needed thereafter. **B**
- Effective self-management and quality of life are the key outcomes of DSME and DSMS and should be measured and monitored as part of care. **C**
- DSME and DSMS should address psychosocial issues, as emotional well-being is associated with positive diabetes outcomes. **C**
- DSME and DSMS programs are appropriate venues for people with prediabetes to receive education and support to develop and maintain behaviors that can prevent or delay the onset of diabetes. **C**
- Because DSME and DSMS can result in cost-savings and improved outcomes **B**, DSME and DSMS should be adequately reimbursed by third-party payers. **E**

Medical Nutrition Therapy

For many individuals with diabetes, the most challenging part of the treatment plan is determining what to eat. It is the position of the ADA that there is not a one-size-fits-all eating pattern for individuals with diabetes. Therefore, it is important that all members of the health care team be knowledgeable about diabetes nutrition therapy and support its implementation.

Goals of Nutrition Therapy for Adults With Diabetes

1. To promote and support healthful eating patterns, emphasizing a variety of nutrient-dense foods in appropriate portion sizes, in order to improve overall health and specifically to:
   - Attain individualized glycemic, blood pressure, and lipid goals
   - Achieve and maintain body weight goals
   - Delay or prevent complications of diabetes
2. To address individual nutrition needs based on personal and cultural preferences, health literacy and numeracy, access to healthful food choices, willingness and ability to make behavioral changes, and barriers to change
3. To maintain the pleasure of eating by providing positive messages about food choices while limiting food choices only when indicated by scientific evidence
4. To provide the individual with diabetes with practical tools for day-to-day meal planning rather than focusing on individual macronutrients, micronutrients, or single foods

Physical Activity

Recommendations

- Children with diabetes or prediabetes should be encouraged to engage in at least 60 min of physical activity each day. **B**
- Adults with diabetes should be advised to perform at least 150 min/week of moderate-intensity aerobic physical activity (50–70% of maximum heart rate), spread over at least 3 days/week with no more than 2 consecutive days without exercise. **A**
- Evidence supports that all individuals, including those with diabetes, should be encouraged to reduce sedentary time, particularly by breaking up extended amounts of time (>90 min) spent sitting. **B**
- In the absence of contraindications, adults with type 2 diabetes should be encouraged to perform resistance training at least twice per week. **A**

Smoking Cessation

Recommendations

- Advise all patients not to smoke or use tobacco products. **A**
- Include smoking cessation counseling and other forms of treatment as a routine component of diabetes care. **B**

Psychosocial Assessment and Care

Recommendations

- Include assessment of the patient's psychological and social situation as an ongoing part of the medical management of diabetes. **B**
- Psychosocial screening and follow-up may include, but are not limited to, attitudes about the illness, expectations for medical management and outcomes, affect/mood, general and diabetes-related quality of life, resources (financial, social, and emotional), and psychiatric history. **E**
- Routinely screen for psychosocial problems such as depression, diabetes-related distress, anxiety, eating disorders, and cognitive impairment. **B**
- Older adults (aged ≥65 years) with diabetes should be considered a high-priority population

for depression screening and treatment. B
- Patients with comorbid diabetes and depression should receive a stepwise collaborative care approach for the management of depression. A

Immunization

Recommendations

- Provide routine vaccinations for children and adults with diabetes as for the general population. C
- Annually provide an influenza vaccine to all patients with diabetes ≥6 months of age. C
- Administer pneumococcal polysaccharide vaccine 23 (PPSV23) to all patients with diabetes ≥2 years of age. C
- Adults ≥65 years of age, if not previously vaccinated, should receive pneumococcal conjugate vaccine 13 (PCV13), followed by PPSV23 6–12 months after initial vaccination. C
- Adults ≥65 years of age, if previously vaccinated with PPSV23, should receive a follow-up ≥12 months with PCV13. C
- Administer hepatitis B vaccination to unvaccinated adults with diabetes who are aged 19–59 years. C
- Consider administering hepatitis B vaccination to unvaccinated adults with diabetes who are aged ≥60 years. C

PREVENTION OR DELAY OF TYPE 2 DIABETES

Recommendations

- Patients with impaired glucose tolerance (IGT) A, impaired fasting glucose (IFG) E, or an A1C 5.7–6.4% E should be referred to an intensive diet and physical activity behavioral counseling program targeting loss of 7% of body weight and increasing moderate-intensity physical activity (such as brisk walking) to at least 150 min/week.
- Metformin therapy for prevention of type 2 diabetes may be considered in those with IGT A, IFG E, or an A1C 5.7–6.4% E, especially for those with BMI >35 kg/m^2, aged <60 years, and women with prior GDM. A
- At least annual monitoring for the development of diabetes in those with prediabetes is suggested. E
- Screening for and treatment of modifiable risk factors for CVD is suggested. B

Intensive lifestyle modification programs have been shown to be very effective (~58% reduction after 3 years) (15–17), and pharmacological agents metformin, α-glucosidase inhibitors, orlistat, and thiazolidinediones (TZDs) have been shown to decrease incident diabetes to various degrees.

Individuals with an A1C of 5.7–6.4%, IGT, or IFG should be counseled on lifestyle changes with goals similar to those of the Diabetes Prevention Program (7% weight loss and moderate physical activity of at least 150 min/week). Metformin has demonstrated long-term safety as pharmacological therapy for diabetes prevention.

GLYCEMIC TARGETS

Assessment of Glycemic Control

Recommendation

- Patients on multiple-dose insulin or insulin pump therapy should perform self-monitoring of blood glucose (SMBG) prior to meals and snacks, occasionally postprandially, at bedtime, prior to exercise, when they suspect low blood glucose, after treating low blood glucose until they are normoglycemic, and prior to critical tasks such as driving. B

Two primary techniques are available for health providers and patients to assess the effectiveness of the management plan on glycemic control: patient SMBG or interstitial glucose and A1C. Continuous glucose monitoring (CGM) may be a useful adjunct to SMBG in selected patients.

SMBG frequency and timing should be dictated by the patient's specific needs and goals. SMBG is especially important for patients treated with insulin to monitor for and prevent asymptomatic hypoglycemia and hyperglycemia. For patients on nonintensive insulin regimens, such as those with type 2 diabetes on basal insulin, when to prescribe SMBG and the testing frequency are less established.

SMBG allows patients to evaluate their individual response to therapy and assess whether glycemic targets are being achieved. Results of SMBG can be useful in preventing hypoglycemia and adjusting medications (particularly prandial insulin doses), medical nutrition therapy, and physical activity. Evidence also supports a correlation between SMBG frequency and lower A1C (18).

SMBG accuracy is instrument and user dependent (19), so it is important to evaluate each patient's monitoring technique, both initially and at regular intervals thereafter. The ongoing need for and frequency of SMBG should be reevaluated at each routine visit.

A1C Testing

Recommendations

- Perform the A1C test at least two times a year in patients who are meeting treatment goals (and who have stable glycemic control). E
- Perform the A1C test quarterly in patients whose therapy has changed or who are not meeting glycemic goals. E
- Use of point-of-care testing for A1C provides the opportunity for more timely treatment changes. E

For patients in whom A1C/estimated average glucose and measured blood glucose appear discrepant, clinicians should consider the possibilities of hemoglobinopathy or altered red blood cell turnover and the options of more frequent and/or different timing of SMBG or use of CGM. Other measures of chronic

glycemia such as fructosamine are available, but their linkage to average glucose and their prognostic significance are not as clear as for A1C.

A1C Goals

See the sections CHILDREN AND ADOLESCENTS and MANAGEMENT OF DIABETES IN PREGNANCY for glycemic goals for children and pregnant women. The complete 2015 Standards include additional goals for children (20) and pregnant women (21).

Recommendations

- Lowering A1C to approximately 7% or less has been shown to reduce microvascular complications of diabetes, and, if implemented soon after the diagnosis of diabetes, it is associated with long-term reduction in macrovascular disease. Therefore, a reasonable A1C goal for many nonpregnant adults is <7%. **B**
- Providers might reasonably suggest more stringent A1C goals (such as <6.5%) for selected individual patients if this can be achieved without significant hypoglycemia or other adverse effects of treatment. Appropriate patients might include those with short duration of diabetes, type 2 diabetes treated with lifestyle or metformin only, long life expectancy, or no significant CVD. **C**
- Less stringent A1C goals (such as <8%) may be appropriate for patients with a history of severe hypoglycemia, limited life expectancy, advanced micro- or macrovascular complications, extensive comorbid conditions, or long-standing diabetes in whom the general goal is difficult to attain despite DSME, appropriate glucose monitoring, and effective doses of multiple glucose-lowering agents including insulin. **B**

See **Figure 1** for patient and disease factors used to determine optimal A1C targets. Recommended glycemic targets are provided in **Table 6**. The recommendations are based on those for A1C values, with blood glucose levels that appear to correlate with achievement of an A1C of <7%.

TABLE 6. Summary of Glycemic Recommendations for Nonpregnant Adults With Diabetes

A1C	<7.0%*
Preprandial capillary plasma glucose	80–130 mg/dL* (4.4–7.2 mmol/L)
Peak postprandial capillary plasma glucose†	<180 mg/dL* (<10.0 mmol/L)

**More or less stringent glycemic goals may be appropriate for individual patients. Goals should be individualized based on duration of diabetes, age/life expectancy, comorbid conditions, known CVD or advanced microvascular complications, hypoglycemia unawareness, and individual patient considerations.*

†Postprandial glucose may be targeted if A1C goals are not met despite reaching preprandial glucose goals. Postprandial glucose measurements should be made 1–2 h after the beginning of the meal, generally peak levels in patients with diabetes.

Hypoglycemia

Recommendations

- Individuals at risk for hypoglycemia should be asked about symptomatic and asymptomatic hypoglycemia at each encounter. **C**
- Glucose (15–20 g) is the preferred treatment for the conscious individual with hypoglycemia, although any form of carbohydrate that contains glucose may be used. Fifteen minutes after treatment, if SMBG shows continued hypoglycemia, the treatment

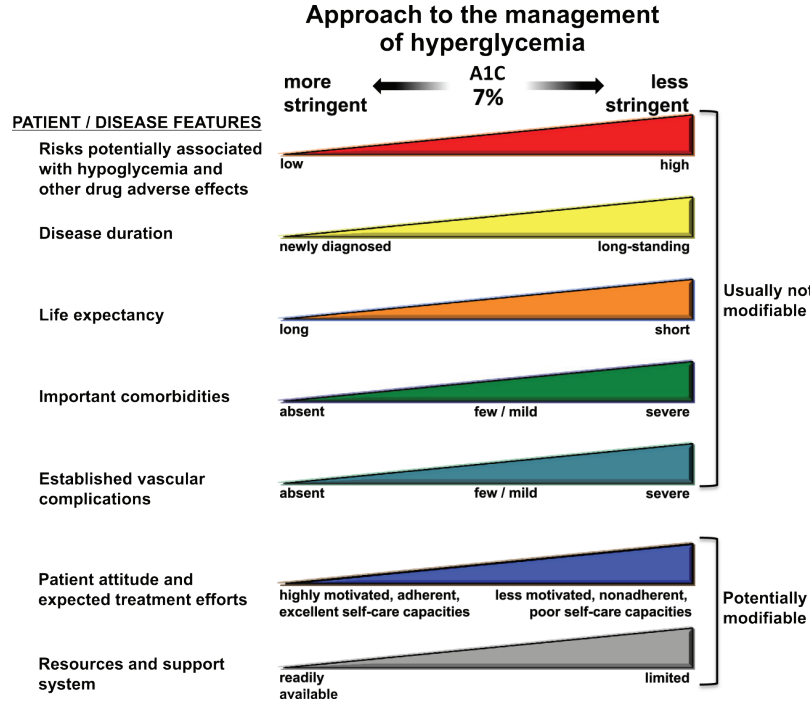

FIGURE 1. Depicted are patient and disease factors used to determine optimal A1C targets. Characteristics and predicaments toward the left justify more stringent efforts to lower A1C; those toward the right suggest less stringent efforts. Adapted with permission from Inzucchi et al. (22).

should be repeated. Once SMBG returns to normal, the individual should consume a meal or snack to prevent recurrence of hypoglycemia. E
- Glucagon should be prescribed for all individuals at an increased risk of severe hypoglycemia, and caregivers or family members of these individuals should be instructed on its administration. Glucagon administration is not limited to health care professionals. E
- Hypoglycemia unawareness or one or more episodes of severe hypoglycemia should trigger reevaluation of the treatment regimen. E
- Insulin-treated patients with hypoglycemia unawareness or an episode of severe hypoglycemia should be advised to raise their glycemic targets to strictly avoid further hypoglycemia for at least several weeks in order to partially reverse hypoglycemia unawareness and reduce risk of future episodes. A
- Ongoing assessment of cognitive function is suggested with increased vigilance for hypoglycemia by the clinician, patient, and caregivers if low cognition and/or declining cognition is found. B

Pure glucose is the preferred treatment, but any form of carbohydrate that contains glucose will raise blood glucose. Added fat may retard and then prolong the acute glycemic response. Ongoing insulin activity or insulin secretagogues may lead to recurrent hypoglycemia unless further food is ingested after recovery.

Family members, roommates, school personnel, child care providers, correctional institution staff, or coworkers should be instructed on use of glucagon kits. An individual does not need to be a health care professional to safely administer glucagon.

APPROACHES TO GLYCEMIC TREATMENT

Pharmacological Therapy for Type 1 Diabetes

Recommendations

- Most people with type 1 diabetes should be treated with multiple-dose insulin injections (three to four injections per day of basal and prandial insulin) or continuous subcutaneous insulin infusion therapy. A
- Most people with type 1 diabetes should be educated in how to match prandial insulin dose to carbohydrate intake, premeal blood glucose, and anticipated physical activity. E
- Most people with type 1 diabetes should use insulin analogs to reduce hypoglycemia risk. A

For patients with frequent nocturnal hypoglycemia and/or hypoglycemia unawareness, a sensor-augmented low glucose threshold suspend pump may be considered.

Pharmacological Therapy for Type 2 Diabetes

Recommendations

- Metformin, if not contraindicated and if tolerated, is the preferred initial pharmacological agent for type 2 diabetes. A
- In patients with newly diagnosed type 2 diabetes and markedly symptomatic and/or elevated blood glucose levels or A1C, consider initiating insulin therapy (with or without additional agents). E
- If noninsulin monotherapy at maximum tolerated dose does not achieve or maintain the A1C target over 3 months, add a second oral agent, a glucagon-like peptide 1 (GLP-1) receptor agonist, or basal insulin. A
- A patient-centered approach should be used to guide choice of pharmacological agents. Considerations include efficacy, cost, potential side effects, weight, comorbidities, hypoglycemia risk, and patient preferences. E
- Due to the progressive nature of type 2 diabetes, insulin therapy is eventually indicated for many patients with type 2 diabetes. B

Figure 2 emphasizes drugs commonly used in the U.S. and/or Europe.

A comprehensive list of the properties of available glucose-lowering agents in the U.S. and Europe that may guide individualized treatment choices in patients with type 2 diabetes is available in the complete 2015 Standards, reprinted from Inzucchi et al. (22).

Many patients with type 2 diabetes eventually require and benefit from insulin therapy. The progressive nature of type 2 diabetes and its therapies should be regularly and objectively explained to patients. Providers should avoid using insulin as a threat or describing it as a failure or punishment. Equipping patients with an algorithm for self-titration of insulin doses based on SMBG results improves glycemic control in patients with type 2 diabetes initiating insulin. Refer to the ADA–European Association for the Study of Diabetes (EASD) position statement (22) for more details on pharmacotherapy for hyperglycemia in type 2 diabetes.

Bariatric Surgery

Recommendations

- Bariatric surgery may be considered for adults with BMI >35 kg/m^2 and type 2 diabetes, especially if diabetes or associated comorbidities are difficult to control with lifestyle and pharmacological therapy. B
- Patients with type 2 diabetes who have undergone bariatric surgery need lifelong lifestyle support and medical monitoring. B
- Although small trials have shown glycemic benefit of bariatric surgery in patients with type 2 diabetes and BMI 30–35 kg/m^2, there is currently insufficient evidence to generally recommend

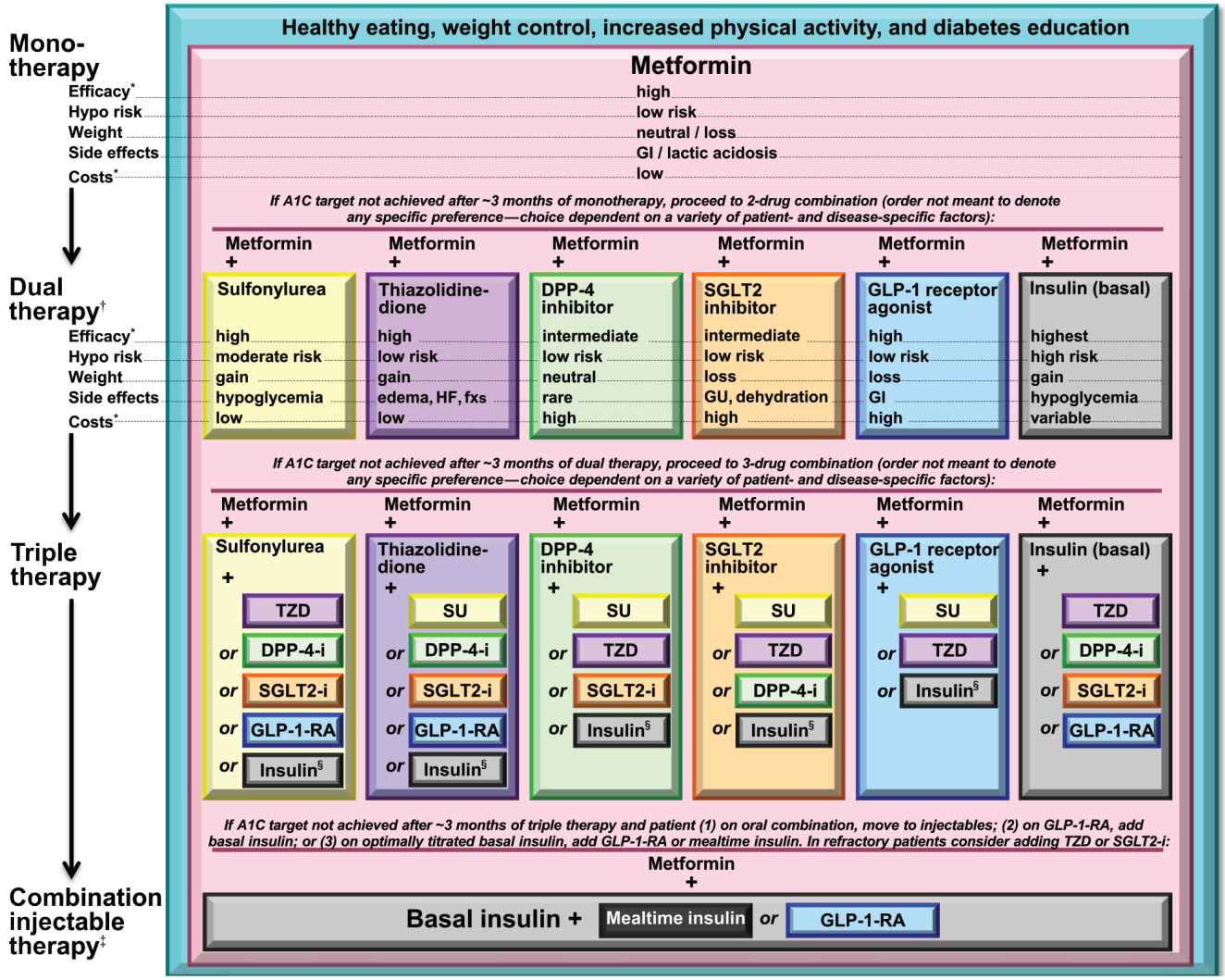

FIGURE 2. Antihyperglycemic therapy in type 2 diabetes: general recommendations (22). The order in the chart was determined by historical availability and the route of administration, with injectables to the right; it is not meant to denote any specific preference. Potential sequences of antihyperglycemic therapy for patients with type 2 diabetes are displayed, with the usual transition moving vertically from top to bottom (although horizontal movement within therapy stages is also possible, depending on the circumstances). DPP-4-i, DPP-4 inhibitor; fxs, fractures; GI, gastrointestinal; GLP-1-RA, GLP-1 receptor agonist; GU, genitourinary; HF, heart failure; Hypo, hypoglycemia; SGLT2-i, sodium-glucose cotransporter 2 inhibitor; SU, sulfonylurea. *See ref. 22 for description of efficacy categorization. †Consider starting at this stage when A1C is ≥9%. ‡Consider starting at this stage when blood glucose is ≥300–350 mg/dL (16.7–19.4 mmol/L) and/or A1C is ≥10–12%, especially if symptomatic or catabolic features are present, in which case insulin + mealtime is the preferred initial regimen. §Usually a basal insulin (NPH, glargine, detemir, degludec). Adapted with permission from Inzucchi et al. (22).

surgery in patients with BMI <35 kg/m^2. **E**

CARDIOVASCULAR DISEASE AND RISK MANAGEMENT

CVD is the major cause of morbidity and mortality for individuals with diabetes and the largest contributor to the direct and indirect costs of diabetes. Efficacy of controlling individual cardiovascular risk factors in preventing or slowing CVD in people with diabetes is proven. Large benefits are seen when multiple risk factors are addressed globally (23,24).

At least annually, assess CVD risk factors (dyslipidemia, hypertension, smoking, family history of premature coronary disease, and the presence of albuminuria) in all patients with diabetes.

Hypertension

Recommendations

- People with diabetes and hypertension should be treated to a systolic blood pressure (SBP) goal of <140 mmHg. **A**
- Lower systolic targets, such as <130 mmHg, may be appropriate for certain individuals, such as younger patients, if they can be

achieved without undue treatment burden. C
- Individuals with diabetes should be treated to a diastolic blood pressure (DBP) <90 mmHg. A
- Lower diastolic targets, such as <80 mmHg, may be appropriate for certain individuals, such as younger patients, if they can be achieved without undue treatment burden. B
- Patients with blood pressure >120/80 mmHg should be advised on lifestyle changes to reduce blood pressure. B
- Patients with confirmed office-based blood pressure >140/90 mmHg should, in addition to lifestyle therapy, have prompt initiation and timely subsequent titration of pharmacological therapy to achieve blood pressure goals. A
- Lifestyle therapy for elevated blood pressure consists of weight loss, if overweight or obese; a Dietary Approaches to Stop Hypertension (DASH)-style dietary pattern including reducing sodium and increasing potassium intake; moderation of alcohol intake; and increased physical activity. B
- Pharmacological therapy for patients with diabetes and hypertension should comprise a regimen that includes either an ACE inhibitor or an angiotensin receptor blocker (ARB). B If one class is not tolerated, the other should be substituted. C
- Multiple-drug therapy (including a thiazide diuretic and ACE inhibitor/ARB, at maximal doses) is generally required to achieve blood pressure targets. B

Dyslipidemia/Lipid Management

Lifestyle intervention may allow some patients to reduce CVD risk factors. Glycemic control can also benefit lipid levels, particularly in patients with high triglycerides and poor glycemic control.

Initiating and intensifying statin therapy based on age and risk factors is recommended (**Table 7**).

In all patients ≥40 years of age with diabetes, moderate-intensity statin treatment should be considered in addition to lifestyle therapy. High-dose statin therapy should be considered if increased CVD risk is present (e.g., LDL cholesterol ≥100 mg/dL, high blood pressure, smoking, and overweight/obesity).

In patients under 40 years of age and in those with type 1 diabetes, treatment with a moderate dose of statin should be considered if the patient has increased CVD risk and with a high dose of statin if the patient has overt CVD.

Obtain a lipid panel at the time of the first diagnosis, at the first medical evaluation, and/or at age 40 years and periodically (e.g., every 1–2 years) thereafter. Once a patient is on a statin, testing for LDL cholesterol can monitor for efficacy and adherence. Extremely low, less than daily, statin doses may lower LDL cholesterol significantly (25).

Statin–fibrate combination therapy is associated with an increased risk for abnormal transaminase levels, myositis, or rhabdomyolysis (26) and does not lower the risk of cardiovascular events more than simvastatin alone (27). Statin–niacin combination therapy is not recommended given the lack of efficacy and possible increase in risk of ischemic stroke and side effects (28).

There is an increased risk of incident diabetes with statin use (29,30), but this increase is far outweighed by the reduction in cardiovascular events (31).

Antiplatelet Agents

Aspirin is effective in reducing cardiovascular morbidity and mortality in high-risk patients with previous myocardial infarction or stroke, but

TABLE 7. Recommendations for Statin Treatment in People With Diabetes

Age	Risk factors	Recommended statin dose*	Monitoring with lipid panel
<40 years	None	None	Annually or as needed to monitor for adherence
	CVD risk factor(s)**	Moderate or high	
	Overt CVD***	High	
40–75 years	None	Moderate	As needed to monitor adherence
	CVD risk factors	High	
	Overt CVD	High	
>75 years	None	Moderate	As needed to monitor adherence
	CVD risk factors	Moderate or high	
	Overt CVD	High	

In addition to lifestyle therapy.
***CVD risk factors include LDL cholesterol ≥100 mg/dL (2.6 mmol/L), high blood pressure, smoking, and overweight and obesity.*
****Overt CVD includes those with previous cardiovascular events or acute coronary syndromes.*

TABLE 8. Management of CKD in Diabetes*

GFR (mL/min/1.73 m²)	Recommended management
All patients	Yearly measurement of creatinine, urinary albumin excretion, potassium
45–60	Referral to a nephrologist if possibility for nondiabetic kidney disease exists (duration of type 1 diabetes <10 years, heavy proteinuria, abnormal findings on renal ultrasound, resistant hypertension, rapid fall in GFR, or active urinary sediment on urinalysis)
	Consider need for dose adjustment of medications
	Monitor eGFR every 6 months
	Monitor electrolytes, bicarbonate, hemoglobin, calcium, phosphorus, parathyroid hormone at least yearly
	Assure vitamin D sufficiency
	Consider bone density testing
	Referral for dietary counseling
30–44	Monitor eGFR every 3 months
	Monitor electrolytes, bicarbonate, calcium, phosphorus, parathyroid hormone, hemoglobin, albumin, weight every 3–6 months
	Consider need for dose adjustment of medications
<30	Referral to a nephrologist

**National Kidney Foundation. KDOQI clinical practice guideline for diabetes and CKD: 2012 update. Am J Kidney Dis 2012;60:850–886*

the benefit in primary prevention is more controversial both for patients with and without diabetes (32,33). Low-dose aspirin (75–162 mg/day) for primary prevention is reasonable for most men over age 50 years and most women over age 60 years with one or more major risk factors (smoking, hypertension, dyslipidemia, family history of premature CVD, and albuminuria).

MICROVASCULAR COMPLICATIONS AND FOOT CARE

Nephropathy

Recommendations

- Optimize glucose control and blood pressure to reduce the risk or slow the progression of diabetic kidney disease (DKD). **A**
- At least once a year, quantitatively assess urinary albumin (e.g., urine albumin-to-creatinine ratio [UACR]) and estimated glomerular filtration rate (eGFR) in patients with type 1 diabetes duration of ≥5 years and in all patients with type 2 diabetes. **B**

Complications of CKD correlate with levels of kidney function (**Table 8**).

Intensive diabetes management with the goal of achieving near-normoglycemia has been shown in large prospective randomized studies to delay the onset and progression of increased urinary albumin excretion and reduced eGFR in patients with type 1 diabetes (1) and type 2 diabetes (34). Screening for increased urinary albumin excretion can be performed by UACR in a random spot urine collection; 24-h or timed collections are more burdensome and add little to prediction or accuracy (35,36). Two of three specimens collected within a 3- to 6-month period should be abnormal before considering a patient to have developed albuminuria.

ACE inhibitors and ARBs provide selective benefit in slowing decline in GFR in patients with higher levels of albumin (37–40). ACE inhibitors reduce major CVD outcomes in patients with diabetes, supporting their use in patients with elevated albuminuria (a CVD risk factor) (41). ARBs reduce progression of albuminuria and end-stage renal disease in patients with type 2 diabetes (42–44), but they do not reduce risk of CVD events or albuminuria in normotensive patients with type 1 or type 2 diabetes (41).

Additional blood pressure lowering can be accomplished with diuretics, calcium channel blockers, and β-blockers.

Combining an ACE inhibitor and an ARB provides no additional benefit for CVD or DKD and has a higher adverse event risk (45). Thus, combined use should be avoided.

Retinopathy

Recommendations

- Optimize glycemic and blood pressure control to reduce the risk or slow the progression of retinopathy. **A**
- Adults with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist

within 5 years after the onset of diabetes. **B**
- Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after the diagnosis of diabetes. **B**

Intensive diabetes management with the goal of achieving near-normoglycemia has been shown in large prospective randomized studies to prevent and/or delay the onset and progression of diabetic retinopathy (34,46).

Because retinopathy is estimated to take at least 5 years to develop after the onset of hyperglycemia, patients with type 1 diabetes should have an initial dilated and comprehensive eye examination within 5 years after the diabetes diagnosis (47). These exams should be repeated annually. Photos are not a substitute for a comprehensive eye exam.

Neuropathy

Recommendations

- All patients should be screened for diabetic peripheral neuropathy (DPN) starting at diagnosis of type 2 diabetes and 5 years after the diagnosis of type 1 diabetes and at least annually thereafter, using simple clinical tests, such as a 10-g monofilament. **B**
- Screening for signs and symptoms (e.g., orthostasis, resting tachycardia) of cardiovascular autonomic neuropathy (CAN) should be considered with more advanced disease. **E**
- Tight glycemic control is the only strategy convincingly shown to prevent or delay the development of DPN and CAN in patients with type 1 diabetes **A** and to slow the progression of neuropathy in some patients with type 2 diabetes. **B**

Clinical tests for DPN include pinprick sensation, vibration threshold using 128-Hz tuning fork, and 10-g monofilament and ankle reflexes.

DPN can be debilitating (48) but may be treated with pregabalin, duloxetine, and tapentadol. For persistent painful DPN, venlafaxine, amitriptyline, gabapentin, valproate, and opioids may be considered. A tailored and stepwise strategy is recommended (49).

Autonomic neuropathy, particularly CAN, is an independent risk factor for cardiovascular mortality (50,51). Major clinical manifestations of autonomic neuropathy include resting tachycardia, exercise intolerance, orthostatic hypotension, gastroparesis, constipation, erectile dysfunction, impaired neurovascular function, and autonomic failure in response to hypoglycemia. In men, diabetic autonomic neuropathy may cause erectile dysfunction or retrograde ejaculation.

Gastrointestinal neuropathies may involve any section of the gastrointestinal tract. Gastroparesis should be suspected in individuals with erratic glucose control and upper gastrointestinal symptoms. Constipation is the most common lower gastrointestinal symptom but can alternate with diarrhea.

Gastroparesis may improve with dietary changes and prokinetic agents such as erythromycin. Due to side effects, metoclopramide is reserved for the most severe and unresponsive case.

Recurrent urinary tract infections, pyelonephritis, incontinence, or palpable bladder should evoke evaluation of bladder dysfunction.

Control of lipids, blood pressure, smoking, and other lifestyle factors can reduce the progression and development of CAN (52).

Foot Care

Recommendation

- For all patients with diabetes, perform an annual comprehensive foot examination to identify risk factors predictive of ulcers and amputations. The foot examination should include inspection and assessment of foot pulses. **B**

Previous amputation, prior foot ulcer, peripheral neuropathy, foot deformity, peripheral vascular disease, visual impairment, peripheral neuropathy (especially if on dialysis), poor glycemic control, and smoking all represent high risk.

Components of the screening exam include inspection of skin integrity and musculoskeletal deformity and assessment of pedal pulses. The exam should seek to identify loss of peripheral sensation (LOPS). Five simple tests (10-g monofilament, 128-Hz tuning fork, pinprick sensation, ankle reflexes, and testing vibration perception threshold with biothesiometer) can identify LOPS in the diabetic foot. Two of these tests should be performed annually. One or more abnormal tests would suggest LOPS and two or more normal tests would rule out LOPS.

Screening for peripheral arterial disease (PAD) (ankle-brachial index evaluation) should include a history of claudication and assessment of pedal pulses. Screening for PAD should start at age 50 years and be considered at <50 years of age in those with PAD risk factors.

Patients with high-risk foot conditions should be educated about their risk and appropriate management. This may be managed with well-fitted walking shoes that cushion the feet and redistribute pressure. Those with boney deformities may need extra wide or deep shoes. Some with more advanced disease may need custom fitted shoes.

OLDER ADULTS

Recommendations

- Older adults who are functional and cognitively intact and have significant life expectancy should receive diabetes care with goals similar to those developed for younger adults. **E**
- Glycemic goals for some older adults might reasonably be

relaxed, using individual criteria, but hyperglycemia leading to symptoms or risk of acute hyperglycemic complications should be avoided in all patients. **E**

- Other cardiovascular risk factors should be treated in older adults with consideration of the time frame of benefit and the individual patient. Treatment of hypertension is indicated in virtually all older adults, and lipid-lowering and aspirin therapy may benefit those with life expectancy at least equal to the time frame of primary or secondary prevention trials. **E**
- Screening for diabetes complications should be individualized in older adults, but particular attention should be paid to complications that would lead to functional impairment. **E**
- Older adults (≥65 years of age) with diabetes should be considered a high-priority population for depression screening and treatment. **B**

The care of older adults with diabetes is complicated by their clinical and functional heterogeneity. Providers caring for older adults with diabetes must take this heterogeneity into consideration when setting and prioritizing treatment goals (**Table 9**).

Treatment Goals

There are few long-term studies in older adults demonstrating the benefits of intensive glycemic, blood pressure, and lipid control. Patients who are expected to live long enough to reap the benefits of long-term intensive diabetes management, who have good cognitive and physical function, and who choose to do so via shared decision-making may be treated using therapeutic interventions and goals similar to those for

TABLE 9. Framework for Considering Treatment Goals for Glycemia, Blood Pressure, and Dyslipidemia in Older Adults With Diabetes

Patient characteristics/ health status	Rationale	Reasonable A1C goal‡	Fasting or preprandial glucose (mg/dL)	Bedtime glucose (mg/dL)	Blood pressure (mmHg)	Lipids
Healthy (few coexisting chronic illnesses, intact cognitive and functional status)	Longer remaining life expectancy	<7.5%	90–130	90–150	<140/90	Statin unless contraindicated or not tolerated
Complex/intermediate (multiple coexisting chronic illnesses* or 2+ instrumental ADL impairments or mild-to-moderate cognitive impairment)	Intermediate remaining life expectancy, high treatment burden, hypoglycemia vulnerability, fall risk	<8.0%	90–150	100–180	<140/90	Statin unless contraindicated or not tolerated
Very complex/poor health (long-term care or end-stage chronic illnesses** or moderate-to-severe cognitive impairment or 2+ ADL dependencies)	Limited remaining life expectancy makes benefit uncertain	<8.5%†	100–180	110–200	<150/90	Consider likelihood of benefit with statin (secondary prevention more so than primary)

This represents a consensus framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes. The patient characteristic categories are general concepts. Not every patient will clearly fall into a particular category. Consideration of patient and caregiver preferences is an important aspect of treatment individualization. Additionally, a patient's health status and preferences may change over time. ADL, activities of daily living. ‡A lower A1C goal may be set for an individual if achievable without recurrent or severe hypoglycemia or undue treatment burden.

**Coexisting chronic illnesses are conditions serious enough to require medications or lifestyle management and may include arthritis, cancer, congestive heart failure, depression, emphysema, falls, hypertension, incontinence, stage 3 or worse chronic kidney disease, myocardial infarction, and stroke. By "multiple," we mean at least three, but many patients may have five or more (Laiteerapong N, Iveniuk J, John PM, Laumann EO, Huang ES. Classification of older adults who have diabetes by comorbid conditions, United States, 2005–2006. Prev Chronic Dis 2012;9:E100).*

***The presence of a single end-stage chronic illness, such as stage 3–4 congestive heart failure or oxygen-dependent lung disease, chronic kidney disease requiring dialysis, or uncontrolled metastatic cancer, may cause significant symptoms or impairment of functional status and significantly reduce life expectancy.*

†A1C of 8.5% equates to an estimated average glucose of ~200 mg/dL. Looser glycemic targets than this may expose patients to acute risks from glycosuria, dehydration, hyperglycemic hyperosmolar syndrome, and poor wound healing.

younger adults with diabetes. Less intensive management goals may be appropriate for those with life-limiting complications, comorbid conditions, or substantial cognitive or functional impairment. However, glycemic goals at a minimum should avoid acute complications of diabetes, including dehydration, poor wound healing, hyperglycemic hyperosmolar coma, and hypoglycemia. DSME and ongoing DSMS are vital components of diabetes care.

Benefit for older adults with diabetes is likely to result from control of other cardiovascular risk factors, particularly with respect to hypertension (53,54). There is less evidence for lipid-lowering and aspirin therapy, although the benefits of these interventions are likely to apply to older adults whose life expectancies equal or exceed the time frames seen in clinical trials.

Hypoglycemia

Older adults are at a higher risk of hypoglycemia for many reasons, including:

- Insulin deficiency
- Progressive renal insufficiency
- Unidentified cognitive deficits, causing difficulty in complex self-care activities (e.g., glucose monitoring, adjusting insulin doses)

Pharmacological Therapy

Special care is required in prescribing and monitoring pharmacological therapy in older adults (55).

CHILDREN AND ADOLESCENTS

The Centers for Disease Control and Prevention estimates that type 2 diabetes in those under 20 years of age will quadruple in 40 years (56,57). Three-quarters of all cases of type 1 diabetes are diagnosed in individuals <18 years of age. Given the current obesity epidemic, distinguishing between type 1 and type 2 diabetes in children can be difficult.

The following recommendations were developed for children and adolescents with type 1 diabetes. However, the guidelines are the same for children and adolescents with type 2 diabetes with the addition of blood pressure measurement, a fasting lipid panel, assessment for albumin excretion, and dilated eye examination at type 2 diabetes diagnosis.

Glycemic Control and Hypertension

Recommendations

- An A1C goal of <7.5% is recommended across all pediatric age-groups. **E**
- Blood pressure should be measured at each routine visit. Children found to have high-normal blood pressure (SBP or DBP ≥90th percentile for age, sex, and height) or hypertension (SBP or DBP ≥95th percentile for age, sex, and height) should have blood pressure confirmed on three separate days. **B**

The benefit of A1C control should be balanced against the risk of hypoglycemia and the developmental burden of intensive regimens for children and youth (58).

Blood pressure measurements should be determined using the appropriate size cuff and with the child seated and relaxed. ACE inhibitors or ARBs should be considered first line, following appropriate reproductive counseling due to teratogenic effects.

Dyslipidemia

Recommendations

- Obtain a fasting lipid profile on children ≥2 years of age soon after the diagnosis (after glucose control has been established). **E**
- If lipids are abnormal, annual monitoring is reasonable. If LDL cholesterol values are within the accepted risk levels (<100 mg/dL [2.6 mmol/L]), a lipid profile repeated every 5 years is reasonable. **E**

Lipids should be obtained at diagnosis of type 2 diabetes due to the presence of increased comorbid conditions (59). Annual monitoring is recommended if LDL is <100 mg/dL.

For specific recommendations and additional guidance, refer to "Type 2 Diabetes in Children and Adolescents" (14).

MANAGEMENT OF DIABETES IN PREGNANCY

Recommendations

- GDM should be managed first with diet and exercise, and medications should be added if needed. **A**
- Due to alterations in red blood cell turnover that lower the normal A1C level in pregnancy, the A1C target in pregnancy is <6% if this can be achieved without significant hypoglycemia. **B**
- Medications widely used in pregnancy include insulin, metformin, and glyburide; most oral agents cross the placenta or lack long-term safety data. **B**

Optimal glycemic goals for women with GDM and for women with preexisting type 1 or type 2 diabetes who become pregnant are available in the complete 2015 Standards (21).

Insulin is the preferred agent for management due to the lack of long-term safety data for noninsulin agents. In type 2 diabetes, care with weight gain and management of comorbid conditions remains paramount (60,61).

For women with GDM, screening for persistent diabetes at 6–12 weeks postpartum and every 1–3 years thereafter is recommended (62).

DIABETES CARE IN THE HOSPITAL, NURSING HOME, AND SKILLED NURSING FACILITY

Recommendations

- Diabetes discharge planning should start at hospital admission, and clear diabetes management instructions should be provided at discharge. **E**

- The sole use of sliding-scale insulin in the inpatient hospital setting is strongly discouraged. **A**
- All patients with diabetes admitted to the hospital should have their diabetes type clearly identified in the medical record. **E**

Critically Ill Patients

- Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold of no greater than 180 mg/dL (10 mmol/L). Once insulin therapy is started, a glucose range of 140–180 mg/dL (7.8–10 mmol/L) is recommended for the majority of critically ill patients. **A**
- More stringent goals, such as 110–140 mg/dL (6.1–7.8 mmol/L), may be appropriate for selected patients, as long as this can be achieved without significant hypoglycemia. **C**
- Critically ill patients require an intravenous insulin protocol that has demonstrated efficacy and safety in achieving the desired glucose range without increasing risk for severe hypoglycemia. **E**

Noncritically Ill Patients

- If treated with insulin, generally premeal blood glucose targets of <140 mg/dL (7.8 mmol/L) with random blood glucose <180 mg/dL (10.0 mmol/L) are reasonable, provided these targets can be safely achieved. More stringent targets may be appropriate in stable patients with previous tight glycemic control. Less stringent targets may be appropriate in those with severe comorbidities. **C**
- A basal plus correction insulin regimen is the preferred treatment for patients with poor oral intake or who are taking nothing by mouth. An insulin regimen with basal, nutritional, and correction components is the preferred treatment for patients with good nutritional intake. **A**
- A hypoglycemia management protocol should be adopted and implemented by each hospital or hospital system. A plan for preventing and treating hypoglycemia should be established for each patient. Episodes of hypoglycemia in the hospital should be documented in the medical record and tracked. **E**
- Consider obtaining an A1C in patients with diabetes admitted to the hospital if the result of testing in the previous 3 months is not available. **E**
- Consider obtaining an A1C in patients with risk factors for undiagnosed diabetes who exhibit hyperglycemia in the hospital. **E**
- Patients with hyperglycemia in the hospital who do not have a prior diagnosis of diabetes should have appropriate follow-up testing and care documented at discharge. **E**

Medical Nutrition Therapy in the Hospital

No specific meal plan is endorsed by the ADA, and the term "ADA diet" should no longer be used. Consistent carbohydrate meal plans are preferred with respect to prandial insulin dosing (63). A registered dietitian, knowledgeable and skilled in medical nutrition therapy, should serve as an inpatient team member (64).

Bedside Blood Glucose Monitoring

Bedside point-of-care blood glucose monitoring is used to guide insulin dosing. In the patient receiving nutrition, the timing of glucose monitoring should match carbohydrate exposure. In the patient not receiving nutrition, glucose monitoring is performed every 4–6 h (65,66). More frequent blood glucose testing ranging from every 30 min to every 2 h is required for patients on intravenous insulin infusions.

Discharge Planning

Diabetes discharge planning, including DSME, is an important part of an overall discharge plan. An outpatient follow-up visit with the primary care provider, endocrinologist, or diabetes educator within 1 month of discharge is advised for all patients having hyperglycemia in the hospital, with clear communication of the diabetes care plan to include medication and diabetes supply (e.g., strips, lancets) reconciliation.

DIABETES ADVOCACY

Advocacy Position Statements

For a list of ADA advocacy position statements, including "Diabetes and Driving" (67) and "Diabetes and Employment" (68), refer to the Diabetes Advocacy section of the complete 2015 Standards (69).

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