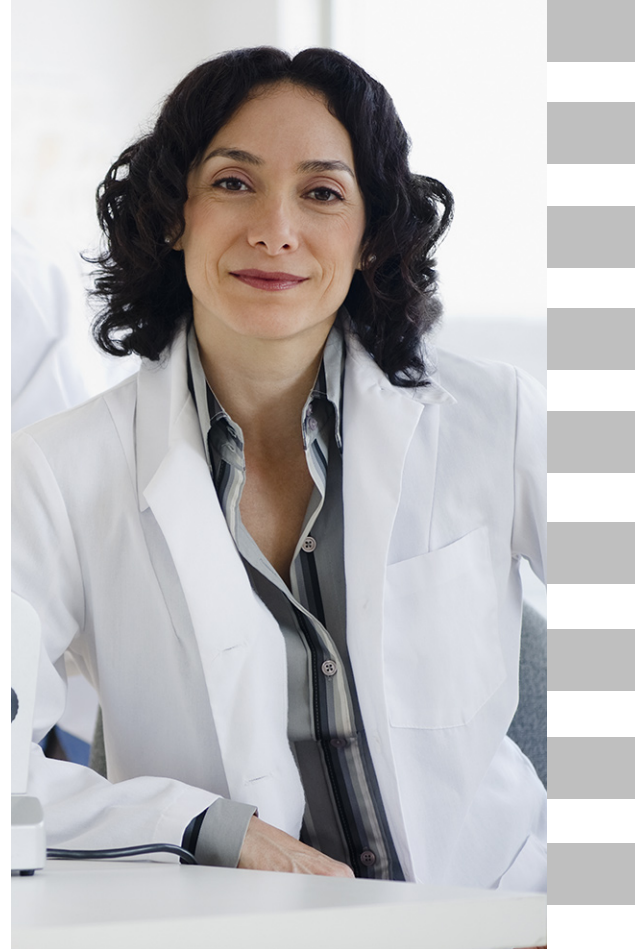


# American Diabetes Association Standards of Medical Care in Diabetes 2018: *Latest Updates*

Juan Pablo Frias, MD

President and CEO, National Research Institute, Los Angeles, CA  
Clinical Faculty, University of California, San Diego, CA

February 15<sup>th</sup>, 2018



# Diabetes Care.

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JANUARY 2018

 SUPPLEMENT  
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AMERICAN DIABETES ASSOCIATION

## STANDARDS OF MEDICAL CARE IN DIABETES—2018


 American  
Diabetes  
Association.  
ISSN 0160-5992

### Standards of Medical Care in Diabetes—2018 Abridged for Primary Care Providers

American Diabetes Association

The American Diabetes Association's (ADA's) *Standards of Medical Care in Diabetes* are published each year in a supplement to the January issue of *Diabetes Care*. The ADA's Professional Practice Committee develops the Standards and updates them annually, or more frequently online should it determine that new evidence or regulatory changes (e.g., drug approvals, label changes) merit immediate incorporation. The Standards include the most current evidence-based recommendations for diagnosing and treating adults and children with diabetes. ADA's grading system uses **A**, **B**, **C**, or **E** to show the evidence level that supports each recommendation.

- **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
- **E**—Expert consensus or clinical experience

This is an abridged version of the American Diabetes Association's *Standards of Medical Care in Diabetes—2018*. *Diabetes Care* 2018;41(Suppl. 1):S1–S194.

The complete 2018 Standards supplement, including all supporting references, is available at [professional.diabetes.org/standards](http://professional.diabetes.org/standards).

<https://doi.org/10.2337/s127-0119>

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document, including all supporting references, is available at [professional.diabetes.org/standards](http://professional.diabetes.org/standards).

#### IMPROVING CARE AND PROMOTING HEALTH IN POPULATIONS

Over the past 10 years, the proportion of patients with diabetes who achieve recommended A1C, blood pressure, and LDL cholesterol levels has increased. The mean A1C nationally among people with diabetes has declined from 7.6% (60 mmol/mol) in 1999–2002 to 7.2% (55 mmol/mol) in 2007–2010 based on the National Health and Nutrition Examination Survey; with younger adults less likely to meet treatment targets than older adults. This has been accompanied by improvements in cardiovascular outcomes and has led to substantial reductions in end-stage microvascular complications. Nevertheless, 33–49% of patients still do not meet targets for glycemic, blood pressure, or cholesterol control, and only 14% meet targets for all three measures while also avoiding smoking.

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.

#### Recommendations

- Ensure treatment decisions are timely, rely on evidence-based guidelines, and are made collaboratively with patients based on

CLINICAL DIABETES/JOURNALS.ORG



“Diabetes is a complex, chronic illness requiring continuous medical care with multifactorial risk-reduction strategies beyond glycemic control”

“Significant evidence exists that supports a range of interventions to improve diabetes outcomes”

Introduction: *Standards of Medical Care in Diabetes - 2018*

*Diabetes Care* 2018;41(Suppl. 1):S1-S2

# Some General Updates...

- Starting this year, the American Diabetes Association (ADA) will update the Standards of Care more frequently than once annually if necessary (based on new evidence, regulatory changes, etc.)
- “... the Standards of Care will now become the ADA’s sole source of clinical practice recommendations, superseding all prior position and scientific statements.”

*Diabetes Care* 2018;41(Suppl. 1):S4-S6

## Standards of Medical Care in Diabetes—2018

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	Cystic Fibrosis–Related Diabetes		Pharmacologic Therapy
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S38	<b>4. Lifestyle Management</b>		Transition From Pediatric to Adult Care
	Diabetes Self-Management Education and Support	S137	<b>13. Management of Diabetes in Pregnancy</b>
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	Physical Activity		Preconception Counseling
	Smoking Cessation: Tobacco and e-Cigarettes		Glycemic Targets in Pregnancy
	Psychosocial Issues		Management of Gestational Diabetes Mellitus
S51	<b>5. Prevention or Delay of Type 2 Diabetes</b>		Management of Preexisting Type 1 Diabetes and Type 2 Diabetes in Pregnancy
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S55	<b>6. Glycemic Targets</b>		Glycemic Targets in Hospitalized Patients
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	A1C Goals		Hypoglycemia
	Hypoglycemia		Medical Nutrition Therapy in the Hospital
	Intercurrent Illness		Self-management in the Hospital
S65	<b>7. Obesity Management for the Treatment of Type 2 Diabetes</b>		Standards for Special Situations
	Assessment		Transition From the Acute Care Setting
	Diet, Physical Activity, and Behavioral Therapy		Preventing Admissions and Readmissions
	Pharmacotherapy	S152	<b>15. Diabetes Advocacy</b>
	Metabolic Surgery		Advocacy Position Statements
S73	<b>8. Pharmacologic Approaches to Glycemic Treatment</b>	S154	<b>Professional Practice Committee, American College of Cardiology—Designated Representatives, and American Diabetes Association Staff Disclosures</b>
	Pharmacologic Therapy for Type 1 Diabetes		
	Surgical Treatment for Type 1 Diabetes	S156	<b>Index</b>
	Pharmacologic Therapy for Type 2 Diabetes		



# Polling Question

What is the preferred method for diagnosing diabetes?

- A. Fasting plasma glucose
- B. 24-hour urine glucose
- C. Hemoglobin A1C
- D. 2-hr glucose after a 75-gram glucose challenge (OGTT)
- E. A, B or D can be used

# Criteria for the Diagnosis of Diabetes

## Criteria for the Diagnosis of Diabetes

FPG  $\geq 126$  mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 h.\*

OR

2-h PG  $\geq 200$  mg/dL (11.1 mmol/L) during OGTT. The test should be performed as described by the WHO, using a glucose load containing the equivalent of 75-g anhydrous glucose dissolved in water.\*

OR

A1C  $\geq 6.5\%$  (48 mmol/mol). The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.\*

OR

In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose  $\geq 200$  mg/dL (11.1 mmol/L).

*\*In the absence of unequivocal hyperglycemia, result should be confirmed by repeat testing.*

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27



# Advantages and Limitations of A1C

- Greater convenience than FPG and OGTT (no fasting required)
- Less day-to-day variability/perturbations
- Lower sensitivity
- Greater cost
- Limited availability in some areas
- Poor correlation between mean glucose and A1C in some individuals

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27



# Caution when Interpreting A1C Results

- When interpreting A1C results, must consider factors independent of glycemia that may influence glycation of hemoglobin. These include:

- Age
- Race/Ethnicity
- Hemoglobinopathies
- Red blood cell turnover

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27

# Criteria for Testing for Type 2 Diabetes or Prediabetes in Asymptomatic Adults


## Criteria for Testing for Diabetes or Prediabetes in Asymptomatic Adults

1. Testing should be considered in overweight or obese (BMI  $\geq 25$  kg/m<sup>2</sup> or  $\geq 23$  kg/m<sup>2</sup> in Asian Americans) adults who have one or more of the following risk factors:
  - First-degree relative with diabetes
  - High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
  - History of CVD
  - Hypertension ( $\geq 140/90$  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
  - Physical inactivity
  - Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
2. Patients with prediabetes (A1C  $\geq 5.7\%$  [39 mmol/mol], IGT, or IFG) should be tested yearly.
3. Women who were diagnosed with GDM should have lifelong testing at least every 3 years.
4. For all other patients, testing should begin at age 45 years.
5. If results are normal, testing should be repeated at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status.

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27

# ADA Risk Test:

Diabetes.org/socrisktest



## ARE YOU AT RISK FOR TYPE 2 DIABETES?

### Diabetes Risk Test

- 1** How old are you? (0 points)

Less than 40 years (0 points)  
 40—49 years (1 point)  
 50—59 years (2 points)  
 60 years or older (3 points)

Write your score in the box.
- 2** Are you a man or a woman?

Man (1 point)    Woman (0 points)
- 3** If you are a woman, have you ever been diagnosed with gestational diabetes?

Yes (1 point)    No (0 points)
- 4** Do you have a mother, father, sister, or brother with diabetes?

Yes (1 point)    No (0 points)
- 5** Have you ever been diagnosed with high blood pressure?

Yes (1 point)    No (0 points)
- 6** Are you physically active?

Yes (0 points)    No (1 point)
- 7** What is your weight status? (see chart at right)

**If you scored 5 or higher:**  
 You are at increased risk for having type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes (a condition that precedes type 2 diabetes in which blood glucose levels are higher than normal). Talk to your doctor to see if additional testing is needed.

Add up your score.

Height	Weight (lbs.)		
4' 10"	119-142	143-190	191+
4' 11"	124-147	148-197	198+
5' 0"	128-152	153-203	204+
5' 1"	132-157	158-210	211+
5' 2"	136-163	164-217	218+
5' 3"	141-168	169-224	225+
5' 4"	145-173	174-231	232+
5' 5"	150-179	180-239	240+
5' 6"	155-185	186-246	247+
5' 7"	159-190	191-254	255+
5' 8"	164-196	197-261	262+
5' 9"	169-202	203-269	270+
5' 10"	174-208	209-277	278+
5' 11"	179-214	215-285	286+
6' 0"	184-220	221-293	294+
6' 1"	189-226	227-301	302+
6' 2"	194-232	233-310	311+
6' 3"	200-239	240-318	319+
6' 4"	205-245	246-327	328+

(1 Point)	(2 Points)	(3 Points)
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You weigh less than the amount in the left column (0 points)

Adapted from Bang et al., Ann Intern Med 151:775-783, 2009. Original algorithm was validated without gestational diabetes as part of the model.

### Lower Your Risk

The good news is that you can manage your risk for type 2 diabetes. Small steps make a big difference and can help you live a longer, healthier life.


If you are at high risk, your first step is to see your doctor to see if additional testing is needed.

Visit [diabetes.org](http://diabetes.org) or call 1-800-DIABETES (1-800-342-2383) for information, tips on getting started, and ideas for simple, small steps you can take to help lower your risk.

Type 2 diabetes is more common in African Americans, Hispanics/Latinos, American Indians, and Asian Americans and Pacific Islanders.

Higher body weights increase diabetes risk for everyone. Asian Americans are at increased diabetes risk at lower body weights than the rest of the general public (about 15 pounds lower).

For more information, visit us at [diabetes.org](http://diabetes.org) or call 1-800-DIABETES (1-800-342-2383)

 Visit us on Facebook  
[Facebook.com/AmericanDiabetesAssociation](https://www.facebook.com/AmericanDiabetesAssociation)

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27



## New Recommendations Regarding Children and Adolescents and Community Screening

- Testing for prediabetes/type 2 diabetes should be considered for children and adolescents who are overweight or obese\* and who have additional risk factors for diabetes.
- Community screening may be considered if there is an adequate referral system in place for dealing with positive tests.

\* BMI >85<sup>th</sup> percentile for age and sex, weight for height >85<sup>th</sup> percentile, or weight >120% of ideal for height

American Diabetes Association. 2. Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S13-S27

# Polling Question

True or False: Approximately one-quarter of Asian and Hispanic Americans with diabetes are undiagnosed.

- A. True
- B. False



“Clinicians should ensure that individuals with diabetes are appropriately screened for complications and comorbidities. Discussing and implementing an approach to glycemic control with the patient is a part, not the sole goal, of care.”

- Immunizations
- Autoimmune disease
- Cancer
- Cognitive impairment
- Low testosterone in men
- Fatty liver disease

- Obstructive sleep apnea
- Psychosocial disorders
- Periodontal Disease
- Fractures
- Hearing impairment
- HIV

# Components of Comprehensive Medical Evaluation:

		INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT
PAST MEDICAL AND FAMILY HISTORY	<b>Diabetes history</b> <ul style="list-style-type: none"> <li>• Characteristics at onset (e.g., age, symptoms)</li> <li>• Review of previous treatment regimens and response</li> <li>• Assess frequency/cause/severity of past hospitalizations</li> </ul>	✓ ✓ ✓		
	<b>Family history</b> <ul style="list-style-type: none"> <li>• Family history of diabetes in a first-degree relative</li> <li>• Family history of autoimmune disorder</li> </ul>	✓ ✓		
	<b>Personal history of complications and common comorbidities</b> <ul style="list-style-type: none"> <li>• Macrovascular and microvascular</li> <li>• Common comorbidities</li> <li>• Presence of hemoglobinopathies or anemias</li> <li>• High blood pressure or abnormal lipids</li> <li>• Last dental visit</li> <li>• Last dilated eye exam</li> <li>• Visits to specialists</li> </ul>	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓	✓ ✓
	<b>Interval history</b> <ul style="list-style-type: none"> <li>• Changes in medical/family history since last visit</li> </ul>		✓	✓
	<b>Assess lifestyle and behavior patterns</b> <ul style="list-style-type: none"> <li>• Eating patterns and weight history</li> <li>• Sleep behaviors and physical activity</li> <li>• Familiarity with carbohydrate counting in type 1 diabetes</li> <li>• Tobacco, alcohol, and substance use</li> <li>• Identify existing social supports</li> </ul>	✓ ✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
	<b>Interval history</b> <ul style="list-style-type: none"> <li>• Changes in social history since last visit</li> </ul>		✓	✓
MEDICATIONS AND VACCINATIONS	<ul style="list-style-type: none"> <li>• Medication-taking behavior</li> <li>• Medication intolerance or side effects</li> <li>• Complementary and alternative medicine use</li> <li>• Vaccination history and needs</li> </ul>	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓
TECHNOLOGY USE	<ul style="list-style-type: none"> <li>• Assess use of health apps, online education, patient portals, etc.</li> <li>• Glucose monitoring (meter/CGM): results and data use</li> <li>• Review insulin pump settings</li> </ul>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
SCREENING	<b>Psychosocial conditions</b> <ul style="list-style-type: none"> <li>• Screen for depression, anxiety, and disordered eating, refer for further assessment or intervention if warranted</li> <li>• Consider assessment for cognitive impairment*</li> </ul>	✓ ✓		✓ ✓
	<b>Diabetes self-management education and support</b> <ul style="list-style-type: none"> <li>• History of dietitian/diabetes educator visits</li> <li>• Screen for barriers to diabetes self-management</li> <li>• Refer or offer local resources and support as needed</li> </ul>	✓ ✓ ✓	✓ ✓	✓ ✓ ✓
	<b>Hypoglycemia</b> <ul style="list-style-type: none"> <li>• Timing of episodes, awareness, frequency and causes</li> </ul>	✓		✓
	<b>Pregnancy planning</b> <ul style="list-style-type: none"> <li>• For women with childbearing capacity, review contraceptive needs and preconception planning</li> </ul>	✓	✓	✓

American Diabetes Association. 3. Comprehensive medical evaluation and assessment of comorbidities: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S28-S37

# Components of Comprehensive Medical Evaluation:

	INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT	
<b>PHYSICAL EXAMINATION</b>	<ul style="list-style-type: none"> <li>Height, weight, and BMI; growth/pubertal development in children and adolescents</li> <li>Blood pressure determination</li> <li>Orthostatic blood pressure measures (when indicated)</li> <li>Fundoscopic examination (refer to eye specialist)</li> <li>Thyroid palpation</li> <li>Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)</li> <li>Comprehensive foot examination               <ul style="list-style-type: none"> <li>Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)</li> <li>Screen for PAD (pedal pulses; refer for ABI if diminished)</li> <li>Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	
<b>LABORATORY EVALUATION</b>	<ul style="list-style-type: none"> <li>A1C, if the results are not available within the past 3 months</li> <li>If not performed/available within the past year               <ul style="list-style-type: none"> <li>Lipid profile, including total, LDL, and HDL cholesterol and triglycerides<sup>#</sup></li> <li>Liver function tests<sup>#</sup></li> <li>Spot urinary albumin-to-creatinine ratio</li> <li>Serum creatinine and estimated glomerular filtration rate<sup>†</sup></li> <li>Thyroid-stimulating hormone in patients with type 1 diabetes<sup>#</sup></li> <li>Vitamin B12 if on metformin (when indicated)</li> <li>Serum potassium levels in patients on ACE inhibitors, ARBs, or diuretics<sup>†</sup></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓<sup>^</sup></li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	
<b>ASSESSMENT AND PLAN</b>	<b>Goal setting</b>	<ul style="list-style-type: none"> <li>Set A1C/blood glucose target and monitoring frequency</li> <li>If hypertension diagnosed, establish blood pressure goal</li> <li>Incorporate new members to the care team as needed</li> <li>Diabetes education and self-management support needs</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>
	<b>Cardiovascular risk assessment and staging of CKD</b>	<ul style="list-style-type: none"> <li>History of ASCVD</li> <li>Presence of ASCVD risk factors (see Table 9.2)</li> <li>Staging of CKD (see Table 10.3)<sup>†</sup></li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>
	<b>Therapeutic treatment plan</b>	<ul style="list-style-type: none"> <li>Lifestyle management</li> <li>Pharmacologic therapy</li> <li>Referrals to specialists (including dietitian and diabetes educator) as needed</li> <li>Use of glucose monitoring and insulin delivery devices</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>

American Diabetes Association. 3. Comprehensive medical evaluation and assessment of comorbidities: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S28-S37





# Immunization Recommendations

- All routine vaccinations for children and adults with diabetes, including annual **flu vaccine** (for all  $\geq 6$  months of age)
- **Pneumococcal vaccine:** 13-valent pneumococcal conjugate vaccine (PCV13) for children before age 2 years. For ages 2-64 years also administer 23-valent pneumococcal vaccine (PPSV23). At age  $\geq 65$  years, additional PPSV23 vaccination.
- 3-dose series of **hep B vaccine** to unvaccinated adults with diabetes at 19-59 years (also consider in adults with diabetes  $>60$  years old).

American Diabetes Association. 3. Comprehensive medical evaluation and assessment of comorbidities: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S28-S37

# Diabetes Prevention: Use of Metformin in Prediabetes

- Metformin for prevention of type 2 diabetes should be considered for patients with prediabetes, especially those with BMI  $\geq 35$  kg/m<sup>2</sup>, those under 60 years old, and women with history of gestational diabetes.
- Potential for vitamin B12 deficiency with long-term metformin use... consider periodic assessment of vitamin B12 levels in metformin-treated patients (especially those with anemia or peripheral neuropathy).

American Diabetes Association. 5. Prevention or delay of type 2 diabetes: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S51-S54



# Updates on Continuous Glucose Monitoring

- Expanded to be recommended in all adults with type 1 DM (over 18 years old) not achieving glycemic targets (previous recommendation was >25 years old)
- New intermittent or “flash” CGM device acknowledged
- Some CGM devices, including the “flash” device do not require confirmatory self-monitored blood glucose



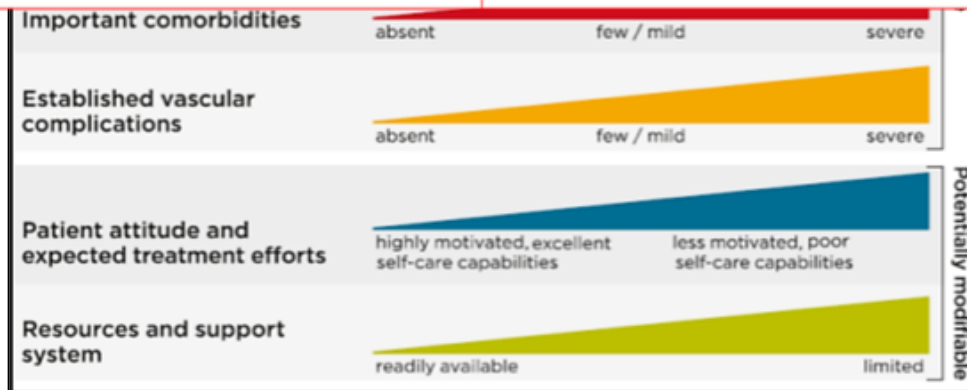
American Diabetes Association. 6. Glycemic targets: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S55-S64

# Glycemic Goals and Approach to Management of Hyperglycemia Remain Unchanged

Patient / Disease Features    More stringent ← A1C 7% → Less stringent  
 Risks potentially associated

## Summary of glycemic recommendations for many nonpregnant adults with diabetes

A1C	<7.0% (53 mmol/mol)
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)



# Minor Update in Nomenclature of Classification of Hypoglycemia

Classification of hypoglycemia		
Level	Glycemic criteria	Description
Hypoglycemia alert value (level 1)	$\leq 70$ mg/dL (3.9 mmol/L)	Sufficiently low for treatment with fast-acting carbohydrate and dose adjustment of glucose-lowering therapy
Clinically significant hypoglycemia (level 2)	$< 54$ mg/dL (3.0 mmol/L)	Sufficiently low to indicate serious, clinically important hypoglycemia
Severe hypoglycemia (level 3)	No specific glucose threshold	Hypoglycemia associated with severe cognitive impairment requiring external assistance for recovery

- Previously termed a “glucose alert value”, level 1 hypoglycemia ( $\leq 70$ mg/dL) (3.9 mmol/L) now termed “hypoglycemia alert value” for clarification.
- The glycemic criteria and descriptions of level 1 through level 3 hypoglycemia remain the same.

American Diabetes Association. 6. Glycemic targets: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S55-S64

# Polling Question

True or False: The new ADA Standards of Care recommend considering cardiovascular risk when prioritizing which agents to use in patients with type 2 diabetes.

- A. True
- B. False

# Antihyperglycemic Therapy in Adults with Type 2 Diabetes

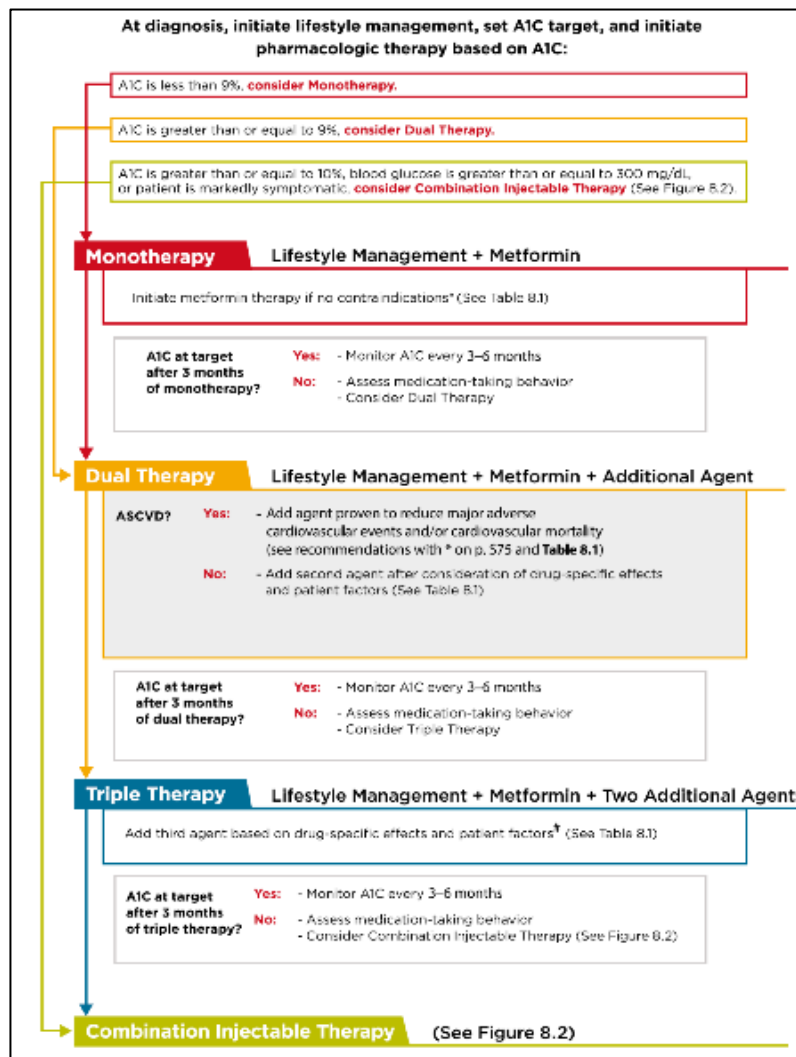
- Metformin should be initiated at diagnosis if there are no contraindications
- Combination therapy (if target A1C not reached in ~3 months):

- If no atherosclerotic cardiovascular disease (ASCVD), consider combination of metformin with any one of six treatment options (SFU, TZD, DPP-4 inh, SGLT-2 inh, GLP-1 RA, basal insulin).
- If patient has ASCVD, second agent with evidence of CV risk reduction should be added (after consideration of drug-specific and patient factors).

American Diabetes Association. 8. Pharmacologic approach to glycemic treatment: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S73-S85

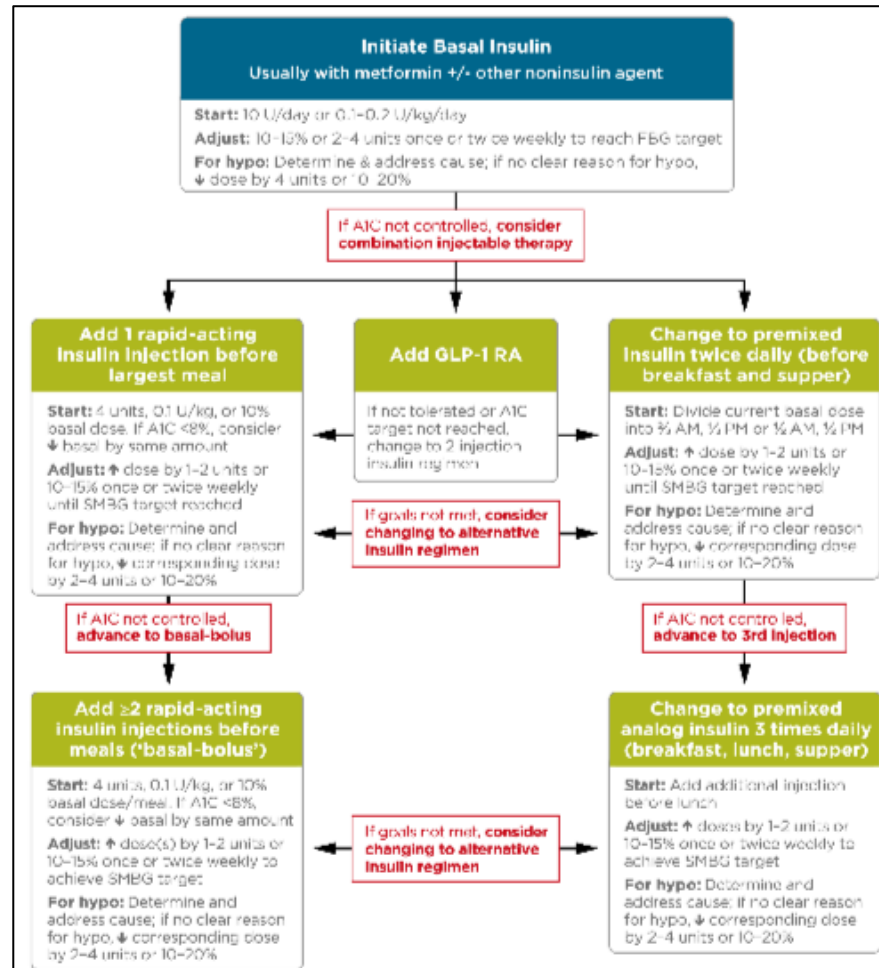
# Antihyperglycemic Therapy in Adults with Type 2 Diabetes

American Diabetes Association. 8. Pharmacologic approach to glycemic treatment: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S73-S85





# Antihyperglycemic Therapy in Adults with Type 2 Diabetes: *After Basal Insulin*



American Diabetes Association. 8. Pharmacologic approach to glycemic treatment: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S73-S85

# Polling Question

True or False: The blood pressure goal for most people with diabetes is <140/90 mmHg.

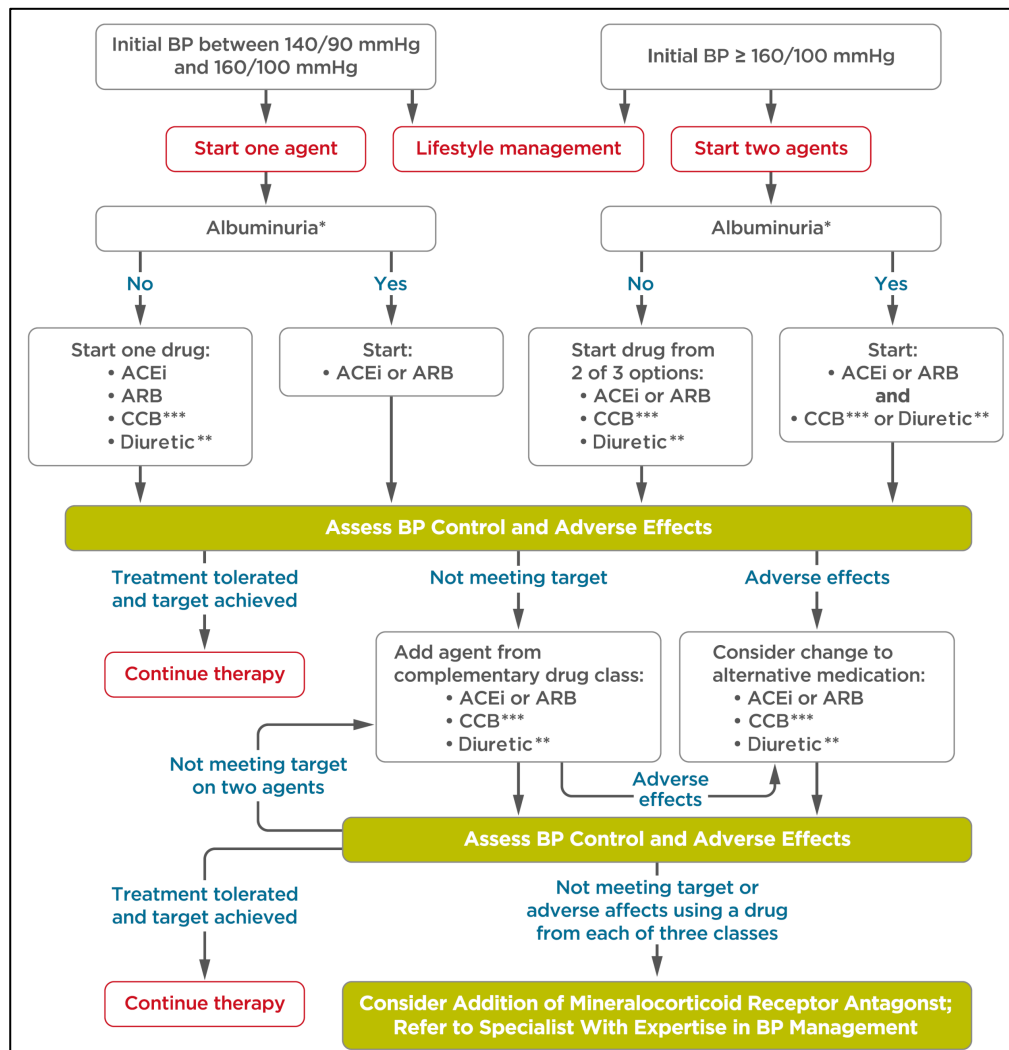
A. True

B. False

# Treatment of HTN in Diabetes

*“All hypertensive patients with diabetes should monitor their blood pressure at home”*

American Diabetes Association. 9. Cardiovascular disease and risk management: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S86-S104





# Recommendations for Statin and Combination Treatment in Adults with Diabetes

Age	ASCVD	Recommended statin intensity <sup>^</sup> and combination treatment <sup>*</sup>
<40 years	No	None <sup>†</sup>
	Yes	High <ul style="list-style-type: none"> <li>• If LDL cholesterol <math>\geq 70</math> mg/dL despite maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor)<sup>#</sup></li> </ul>
$\geq 40$ years	No	Moderate <sup>‡</sup>
	Yes	High <ul style="list-style-type: none"> <li>• If LDL cholesterol <math>\geq 70</math> mg/dL despite maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor)</li> </ul>

American Diabetes Association. 9. Cardiovascular disease and risk management: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S86-S104

# Recommendations for Older Adults with Diabetes



*“Although hyperglycemia control may be important in older individuals with diabetes, greater reductions in morbidity and mortality are likely to result from control of other cardiovascular risk factors rather than from tight glycemic control alone.”*

American Diabetes Association. 11. Older adults: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S119-S125

# Glycemia, BP and Lipid-Lowering Therapy in Older Adults with Diabetes

Patient characteristics/health status	Rationale	Reasonable A1C goal‡	Fasting or preprandial glucose	Bedtime glucose	Blood pressure	Lipids
Healthy (few coexisting chronic illnesses, intact cognitive and functional status)	Longer remaining life expectancy	<7.5% (58 mmol/mol)	90–130 mg/dL (5.0–7.2 mmol/L)	90–150 mg/dL (5.0–8.3 mmol/L)	<140/90 mmHg	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% (64 mmol/mol)	90–150 mg/dL (5.0–8.3 mmol/L)	100–180 mg/dL (5.6–10.0 mmol/L)	<140/90 mmHg	Statin unless contraindicated or not tolerated
Very complex/poor health (LTC or end-stage chronic illnesses** or moderate-to-severe cognitive impairment or 2+ ADL dependencies)	Limited remaining life expectancy makes benefit uncertain	<8.5%+ (69 mmol/mol)	100–180 mg/dL (5.6–10.0 mmol/L)	110–200 mg/dL (6.1–11.1 mmol/L)	<150/90 mmHg	Consider likelihood of benefit with statin (secondary prevention more so than primary)

American Diabetes Association. 11. Older adults: Standards of Medical Care in Diabetes - 2018. *Diabetes Care* 2018;41(Suppl. 1):S119-S125



## Summary

- ADA Standards of Care provide comprehensive, evidence-based recommendations for the management of diabetes.
- Standards continue to focus on individualization of therapy for both glycemic control and comorbidities of diabetes.
- With the ever-changing landscape of pharmacotherapy and devices, and trials frequently providing new data, Standards will be updated as needed more frequently than annually.
- For further details and all of the 2018 updates, download the Standards (and the new abridged version for PCPs) at [care.diabetesjournals.org](https://care.diabetesjournals.org).

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