Summary of Revisions for the 2013 Clinical Practice Recommendations

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Outline

- Overview of Diabetes
  - Definition
  - Classification
- Clinical Practice Recommendations Changes
  - Section II.C
  - Section IV

Outline

  - Section V
  - Section VI
  - Section IX
- American Diabetes Association Revised Position Statement
- Revision to the National Standards for Diabetes Self-Management Education and Support

Overview of Diabetes

- Diabetes mellitus
  - A chronic illness that requires continuing medical care and ongoing patient self-management education
    - To prevent acute complications
    - Reduce the risk of long-term complications

Overview of Diabetes

- Is complex and requires multifactorial risk reduction strategies beyond glycemic control
- Evidence exists that supports a range of interventions to improve diabetes outcomes

Overview of Diabetes

- Diabetes standards of care are intended to provide clinicians, patients, researchers, payers, and other interested individuals with:
  - The components of diabetes care
  - General treatment goals
  - Tools to evaluate the quality of care

Overview of Diabetes

- Type 1 diabetes
  - Results from β-cell destruction
  - Usually leading to absolute insulin deficiency

Overview of Diabetes

- Type 2 diabetes
  - Results from a progressive insulin secretory defect
  - On the background of insulin resistance

Overview of Diabetes

- Other specific types
  - Due to other causes
    - e.g., genetic defects in β-cell function, genetic defects in insulin action
  - Diseases of the exocrine pancreas
    - Such as cystic fibrosis

Overview of Diabetes

  - Drug-or chemical-induced
    - Such as in the treatment of HIV/AIDS or after organ transplantation
- Gestational diabetes mellitus (GDM)
  - Diabetes diagnosed during pregnancy that is not clearly overt diabetes

Clinical Practice Recommendation Changes

- Section II.C.:
  - Screening for Type 1 Diabetes
    - Consider referring relatives of those with type 1 diabetes for antibody testing for risk assessment in the setting of a clinical research study

Clinical Practice Recommendation Changes

- Generally, presentation of type 1 diabetes are acute symptoms
- Elevated glucose levels
- Some cases are diagnosed with life-threatening ketoacidosis

Clinical Practice Recommendation Changes

- Evidence from several studies suggest that measurement of islet auto antibodies in relatives of those with Type 1 Diabetes identifies individuals who are at risk for developing Type 1 Diabetes

Clinical Practice Recommendation Changes

- Testing coupled with education about diabetes symptoms and follow-up in an observational clinical study, may allow earlier identification of onset of Type 1 Diabetes and lessen presentation with ketoacidosis at time of diagnosis

Clinical Practice Recommendation Changes

- Some interventions have demonstrated modest efficacy in slowing β-cell loss early in Type 1 Diabetes
- Further research is needed to determine whether they may be effective in preventing Type 1 Diabetes

Clinical Practice Recommendation Changes

- Section IV.:
  - Prevention / Delay of Type 2 Diabetes
    - Has been revised to reflect the importance of screening for and treating other cardiovascular risk factors

Clinical Practice Recommendation Changes

- Patients with IGT(A), IFG (E), or an A1c of 5.7-6.4%(E) should be referred to an effective ongoing support program targeting weight loss of 7% of body weight and increasing physical activity to at least 150 min/week of moderate activity such as walking

Clinical Practice Recommendation Changes

- Follow-up counseling appears to be important for success
- Based on the cost-effectiveness of diabetes prevention, such programs should be covered by third-party payers (B)

Clinical Practice Recommendation Changes

- Metformin therapy for prevention of type 2 diabetes may be considered in those with IGT (A), IFG (E), or an A1C of 5.7-6.4% (E), especially for those with BMI >35 kg/m², aged <60 years, and women with prior GDM

Clinical Practice Recommendation Changes

- At least annual monitoring for the development of diabetes in those with prediabetes is suggested (E)
- Screening for and treatment for the development of diabetes in those with prediabetes is suggested (E)

Clinical Practice Recommendation Changes

- Screening for and treatment of modifiable risk factors for CVD is suggested (B)

Clinical Practice Recommendation Changes

- Section V.C.a.:
  - Glycemic Control-Glucose Monitoring
    - Has been revised to reflect to highlight the need for patients on intensive insulin regimens to do frequent self-monitoring of blood glucose

Clinical Practice Recommendation Changes

- Patients on multiple-dose insulin (MDI) or insulin pump therapy should do SMBG at least prior to meal and snacks, occasional 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)

Clinical Practice Recommendation Changes

- When prescribed as part of a broader educational context, SMBG results may be helpful to guide treatment decisions and / or patient self-management for patients using less frequent insulin injections or noninsulin therapies (E)

Clinical Practice Recommendation Changes

- When prescribing SMBG, ensure that patients receive ongoing instruction and regular evaluation of SMBG technique and SMBG results, as well as their ability to use SMBG data to adjust therapy

Clinical Practice Recommendation Changes

- Continuous Glucose Monitoring (CGM) in conjunction with intensive insulin regimens can be a useful tool to lower A1C in selected adults (aged ≥ 25 years) with Type 1 Diabetes (A)

Clinical Practice Recommendation Changes

- Although the evidence for A1C lowering is less strong in children, teens, and younger adults, CGM may be helpful in these groups
  - Success correlates with adherence to ongoing use of the device (C)

Clinical Practice Recommendation Changes

- CGM may be a supplemental tool to SMBG in those with hypoglycemia unawareness and / or frequent hypoglycemia episodes (E)

Clinical Practice Recommendation Changes

- Section V.D.:
  - Pharmacological and overall approaches to treatment-Insulin therapy for Type 1 Diabetes

Clinical Practice Recommendation Changes

- Most people with Type 1 Diabetes should be treated with MDI injections (three to four injections per day of basal and prandial insulin) or continuous subcutaneous insulin infusion (CSII) (A)

Clinical Practice Recommendation Changes

- Most people with Type 1 Diabetes should be educated in how to match prandial insulin dose to carbohydrate intake, pre-meal blood glucose, and anticipated activity (E)

Clinical Practice Recommendation Changes

- Most people with Type 1 Diabetes should use insulin analogs to reduce hypoglycemia risk (A)
  - Consider screening those with Type 1 Diabetes for other autoimmune diseases (thyroid, vitamin B12 deficiency, celiac) as appropriate (B)

Clinical Practice Recommendation Changes

- Section V.F.:
  - Diabetes Self-Management Education (DSME) and Support

Clinical Practice Recommendation Changes

- People with diabetes should receive DSME and diabetes self-management support (DSMS) according to National Standards for Diabetes Self-Management Education and Support when their diabetes is diagnosed and as needed thereafter (B)

Clinical Practice Recommendation Changes

- 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

Clinical Practice Recommendation Changes

- DSME and DSMS should address psychosocial issues, since emotional well-being is associated with positive diabetes outcomes (C)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- Section V.K.:
  - Hypoglycemia has been revised to emphasize the need to assess hypoglycemia and cognitive function when indicated

Clinical Practice Recommendation Changes

- Individuals at risk for hypoglycemia should be asked about symptomatic and asymptomatic hypoglycemia at each encounter

Clinical Practice Recommendation Changes

- 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

Clinical Practice Recommendation Changes

- If SMBG 15 min after treatment shows continued hypoglycemia, the treatment should be repeated
  - Once SMBG glucose returns to normal, the individual should consume a meal or snack to prevent recurrence of hypoglycemia (E)

Clinical Practice Recommendation Changes

- Glucagon should be prescribed for all individuals at significant 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 professional (E)

Clinical Practice Recommendation Changes

- Hypoglycemia unawareness or one or more episodes of severe hypoglycemia should trigger reevaluation of the treatment regimen (E)

Clinical Practice Recommendation Changes

- 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, to partially reverse hypoglycemia unawareness, and to reduce risk of future episodes (A)

Clinical Practice Recommendation Changes

- Ongoing assessment of cognitive function is suggested with increase vigilance for hypoglycemia by the clinician, patient , and caregivers if low cognition and / or declining cognition is found (B)

Clinical Practice Recommendation Changes

- Section V.M.:
  - Immunization has been updated to include the new Centers for Disease Control and Prevention (CDC) recommendations for hepatitis B vaccination for people with diabetes

Clinical Practice Recommendation Changes

- Annually provide an influenza vaccine to all diabetic patients ≥ 6 months of age (C)
- Administer pneumococcal polysaccharide vaccine to all diabetic patients ≥ 2 years of age

Clinical Practice Recommendation Changes

- A one-time revaccination is recommended for individuals > 64 years of age previously immunized when they were <65 years of age, if the vaccine was administered > 5 years ago

Clinical Practice Recommendation Changes

- Other indications for repeat vaccination include nephrotic syndrome, chronic renal disease, and other immunocompromised states, such as after transplantation (C)

Clinical Practice Recommendation Changes

- Administer hepatitis B vaccination to unvaccinated adults with diabetes who are aged 19 through 59 years (C)
- Consider administering hepatitis B vaccination to unvaccinated adults with diabetes who are age ≥ 60 years old (C)

Clinical Practice Recommendation Changes

- Section V.M. Immunization

Clinical Practice Recommendation Changes

- Section VI.A.1. Treatment and Management of Diabetes Complications

Clinical Practice Recommendation Changes

- Hypertension / Blood Pressure Control has been revised to suggest that the systolic blood pressure goal for many people with diabetes and hypertension should be <140 mmHg, but that lower systolic targets (such as <130 mmHg) may be appropriate for certain individuals, such as younger patients, if it can be achieved without undue treatment burden

Clinical Practice Recommendation Changes

- Blood pressure should be measured at every routine visit
  - Patients found to have elevated blood pressure should have blood pressure confirmed on a separate day (B)

Clinical Practice Recommendation Changes

- Goal:
  - People with diabetes and hypertension should be treated to a systolic blood pressure goal of <140 mmHg (B)

Clinical Practice Recommendation Changes

- Lower systolic targets, such as <130 mmHg, may be appropriate for certain individuals, such as younger patients, if it can be achieved without undue treatment burden (C)

Clinical Practice Recommendation Changes

- Patients with diabetes should be treated to a diastolic blood pressure <80 mmHg (B)
- Treatment:
  - Patients with a blood pressure >120/80 mmHg should be advised on lifestyle changes to reduce blood pressure (B)

Clinical Practice Recommendation Changes

- Patients with confirmed blood pressure ≥ 140/80 mmHg should, in addition to lifestyle therapy, have prompt initiation and timely subsequent titration of pharmacological therapy to achieve blood pressure goals (B)

Clinical Practice Recommendation Changes

- Lifestyle therapy for elevated blood pressure consists of weight loss, if overweight; Dietary Approaches to Stop Hypertension (DASH)-style dietary pattern including reducing sodium and increasing potassium intake; moderation of alcohol intake; and increased physical activity

Clinical Practice Recommendation Changes

- Pharmacological therapy for patients with diabetes and hypertension should be with a regimen that includes either an ACE inhibitor or an angiotensin receptor blocker (ARB)
  - If one class in not tolerate, the other should be substituted (C)

Clinical Practice Recommendation Changes

- Multiple-drug therapy (two or more agents at maximal doses) is generally required to achieve blood pressure targets (B)
- Administer one or more antihypertensive medications at bedtime (A)

Clinical Practice Recommendation Changes

- If ACE inhibitors, ARBs, or diuretics are used, serum creatinine/estimated glomerular filtration rat (eGFR) and serum potassium levels should be monitored (E)

Clinical Practice Recommendation Changes

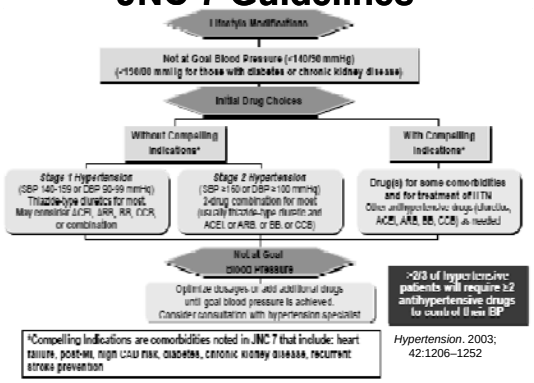
- In pregnant patients with diabetes and chronic hypertension, blood pressure target goals of 110-129/65-79 mmHg are suggested in the interest of long-term maternal health and minimizing impair fetal growth. ACE inhibitors and ARBs are contraindicated during pregnancy (E)

Effect of Lifestyle Modifications on Systolic Blood Pressure (SBP)

Modification	Approximate SBP Reduction, Range, mmHg
Weight reduction	5 – 20 per 10kg of weight loss
DASH eating plan	8 – 14
Dietary sodium reduction	2 – 8
Physical activity	4 – 9
Moderation of alcohol consumption	2 – 4

DASH indicates Dietary Approaches to Stop Hypertension

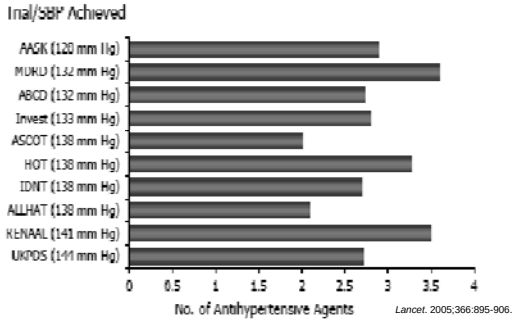
JNC 7 Guidelines



Hypertension. 2003; 42:1206–1252

Combination Therapy

Most patients require ≥2 antihypertensives to reach BP goal



Lancet. 2005;366:895-906.

Hypertension in the U.S.

- 1 in 3 adults over the age of 20 with hypertension, approximately 76 million
- Hypertension prevalence dwarfs frequency of other chronic diseases and public health problems
  - 46 million smoke cigarettes

Hypertension in the U.S.

- 16.5 million with coronary disease
- 8 million living women with history of breast cancer

- Direct and indirect cost of HBP (2008) - $50.6 billion

Hypertension in the U.S.

- Racial disparities
  - Prevalence African American (AA) adults 35.8% vs. 28.1% for white adults
  - Compared with whites, AAs develop HBP earlier in life
  - Average BPs among are much higher compared to whites

Hypertension in the U.S.

- AAs incur greater cardiovascular disease risks
  - 1 times greater rate of nonfatal stroke and 2 times greater rate for fatal stroke
  - 2 times greater rate of death attributable to heart disease
  - 4 times greater rate of end-stage kidney disease

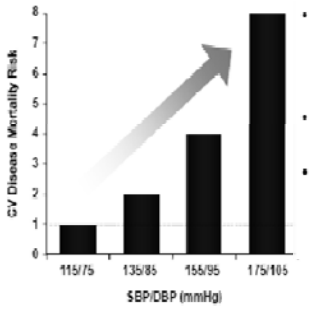
JNC 7 Caveats

- Direct renin inhibitors (DRIs) are new agents and were not included in JNC 7
- Recent cohort data (ACCORD) demonstrates higher rate of serious adverse effects without improved outcomes with lower SBP target (120mmg Hg vs. 140 mm Hg) among diabetics

JNC 7 Caveats

- SBP is a more important CVD risk factor than DBP in individuals >50 years
- Goal BP is generally <140/90 mmHg, or <130/80 mmHg for patients

HTN and Cardiovascular Disease Risk



- Hypertension is 1 of the major risk factors for the development of CVD, the leading cause of death in the US
- Even mild, untreated hypertension is a health risk
- The risk of CVD mortality doubles with each 20-mmHg rise in SBP and 10-mmHg rise in DBP over 115/75 mmHg

Lancet. 2002; 60:1903-1913. *Hypertension*. 2003; 42:1206–1252.

HTN and Cardiovascular Disease Risk

5mm Hg decrease in BP

14% reduction in mortality due to heart disease

9% reduction in mortality due to stroke

Non-Pharmacologic Treatment of Hypertension

- Weight loss, if overweight
- Reduction of sodium intake to <100 mmol/d
  - 2.4 g of sodium or ≈6 g of sodium chloride

Non-Pharmacologic Treatment of Hypertension

- Limiting alcohol intake to <1 oz/d of ethanol
  - 24 oz of beer, or 10 oz of wine, or 2 oz of whiskey
    - Approximately half of these amounts for women and thin people

Non-Pharmacologic Treatment of Hypertension

- Cessation of smoking and reduction of dietary saturated fat and cholesterol for overall cardiovascular health
- Reduced fat intake also helps reduce calorie intake
  - Important for control of weight and Type 2 Diabetes

Non-Pharmacologic Treatment of Hypertension

- Adequate dietary potassium, calcium, and magnesium intake
- Relaxation techniques, biofeedback
- Vegetarian diets, fish oil

Practical Advice on Sodium Reduction

Read Food Labels

Practical Advice on Sodium Reduction

- Foods with high sodium content (avoid)
  - Pretzels, salted crackers, potato chips
  - Biscuits and pancakes
  - Fast foods
  - Olives, pickles, and sauerkraut

Practical Advice on Sodium Reduction

- Catsup and soy sauce
- Many kinds of cheese
- Commercially prepared soups or stews
- Pastries or cakes made from self-rising flour mixes
- Bouillon

Practical Advice on Sodium Reduction

- Ham, sausage, or frankfurters
- Smoked meats or fish
- Tomato juice (canned)
- Frozen or canned lima beans, peas, spinach, or carrots

Physical Activity for Weight Loss

Household activities	Calories burned per 30 minutes
Gardening	110
Mowing lawn (power mower)	120
Sitting / conversing	40
Vacuuming	130

Physical Activity for Weight Loss

Moderate exercise	Calories burned per 30 minutes
Bicycling (5-8 mph)	100-150
Bowling	130
Playing golf	100
Swimming (1-4mph)	150
Walking (1-3mph)	60-130

Physical Activity for Weight Loss

Vigorous exercise	Calories burned per 30 minutes
Bicycling (10-15 mph)	200-350
Hill climbing (100 ft/h)	225
Ice skating (10 mph)	200
Jogging (5 mph)	250
Playing tennis	200
Running (8 mph)	360
Skiing (10 mph)	300
Walking (4 mph)	200

Clinical Practice Recommendation Changes

- Section VI.A.2. Dyslipidemia / lipid management:
  - Dyslipedemia/Lipid Management and Table 10 have been revised to emphasize the importance of statin therapy over particular LDL cholesterol goals in high-risk patients

Clinical Practice Recommendation Changes

- Screening:
  - In most adult patients with diabetes, measure fasting lipid profile at least annually (B)

Clinical Practice Recommendation Changes

- In adults with low-risk lipid values (LDL cholesterol <100 mg/dl., HDL cholesterol > 50 mg/dl, and triglycerides <150mg/dl), lipid assessments may be repeated every 2 years

Clinical Practice Recommendation Changes

– Treatment

- Lifestyle modification focusing on reduction of saturated fat, trans fat, and cholesterol intake; increase n-3 fatty acids, viscous fiber, and plant stanols/sterols; weight loss (if indicated); and increased physical activity recommended to improve lipid profile (A)

Clinical Practice Recommendation Changes

- Statin therapy should be added to lifestyle therapy, regardless of baseline lipid levels, for diabetic patients:

Clinical Practice Recommendation Changes

–With overt CVD (A), without CVD who are over the age of 40 years and have one or more other CVD risk factors (family history of CVD, hypertension, smoking, dyslipidemia, or albuminuria) (A)

Clinical Practice Recommendation Changes

– For lower-risk patients than the above (e.g., without overt CVD and under the age of 40 years), statin therapy should be considered in addition to lifestyle therapy if LDL cholesterol remains above 100 mg/dl or in those with multiple CVD risk factors (C)

Clinical Practice Recommendation Changes

–In individuals without overt CVD, the goal is LDL cholesterol <100 mg/dl (2.6 mmol/L)

Clinical Practice Recommendation Changes

- In individuals with overt CVD, a lower LDL cholesterol goal of <70 mg/dl (1.8 mmol/L), using a high dose of a statin, is an option (B)

Clinical Practice Recommendation Changes

- If drug-treated patients do not reach the above targets on maximal tolerated statin therapy, a reduction in LDL cholesterol ~30-40% from baseline is an alternative therapeutic goal (B)

Clinical Practice Recommendation Changes

- Triglycerides levels <150 mg/dL (1.7 mmol/L) and HDL cholesterol >40 mg/dL (1.0 mmol/L) in men and >50 mg/dL (1.3 mmol/L) in women are desirable (C). However, LDL cholesterol-targeted statin therapy remains the preferred strategy (A)

Clinical Practice Recommendation Changes

- Combination therapy has been shown not to provide additional cardiovascular benefit above statin therapy alone and is not generally recommended (A)
- Statin therapy is contraindicated in pregnancy (B)

Dyslipedemia / Lipid Management: Table 10

ALC	< 7%
Blood pressure	< 140/80 mmHg
Lipids	
LDL cholesterol	<100 mg/dL (<2.6 mmol/L)
	Statin therapy for those with history of MI or age over 40 plus other risk factors

Clinical Practice Recommendation Changes

- Section VI.B. Nephropathy screening and treatment:
  - Nephropathy screening and treatment and Table 11 have been revised to highlight increased urinary albumin excretion over the terms micro- and macroalbuminuria, other than when discussion of past studies requires the distinction:

Clinical Practice Recommendation Changes

- To reduce the risk or slow the progression of nephropathy, optimize glucose control (A)
- To reduce the risk or slow the progression of nephropathy, optimize blood pressure control (A)

Clinical Practice Recommendation Changes

- Screening:
  - Perform an annual test to assess urine albumin excretion in type 1 diabetic patients with diabetes duration of ≥ 5 years and in all type 2 diabetic patients starting at diagnosis (B)

Clinical Practice Recommendation Changes

- Measure serum creatinine at least annually in all adults with diabetes regardless of the degree of urine albumin excretion

Clinical Practice Recommendation Changes

- The serum creatinine should be used to estimate GFR and stage the level of chronic kidney disease (CKD), if present (E)

Clinical Practice Recommendation Changes

- Treatment:
  - In the treatment of the non-pregnant patient with modestly elevated (30-299 mg/day) (C) or higher levels (≥300 mg/day) of urinary albumin excretion (A), either ACE inhibitors or ARBs are recommended

Clinical Practice Recommendation Changes

- Reduction of protein intake to 0.8-1.0 g/kg body wt per day in individuals with diabetes and the earlier stages of CKD and to 0.8 g/kg body wt per day in the later stages of CKD may improve measures of renal function (urine albumin excretion rate, GFR) and is recommended (C)

Clinical Practice Recommendation Changes

- When ACE inhibitors, ARBs, or diuretics are used, monitor serum creatinine and potassium levels for the development of increased creatinine or changes in potassium (E)

Clinical Practice Recommendation Changes

- Continued monitoring of urine albumin excretion to assess both response to therapy and progression of disease is reasonable (E)
- When eGFR <60 mL/min/1.73 m², evaluate and manage potential complications of CKD (E)

Clinical Practice Recommendation Changes

- Consider referral to a physician experience in the care of kidney disease for uncertainty about the etiology of kidney disease, difficult management issues, or advanced kidney disease (B)

Nephropathy Screening and Treatment: Table 11

Category	Spot Collection (pg/mg creatinine)
Normal	<30
Increased urinary albumin excretion *	≥30

* Historically, ratios between 30 and 299 have been called microalbuminuria and those 300 or greater have been called macroalbuminuria (or clinical albuminuria)

Clinical Practice Recommendation Changes

- Section VI.C. Retinopathy screening and treatment:
  - Retinopathy screening and treatment has been revised to include anti-vascular endothelial growth factor therapy for diabetic macular edema

Clinical Practice Recommendation Changes

- To reduce the risk or slow the progression of retinopathy, optimize glycemic control (A)
- To reduce the risk or slow the progression of retinopathy, optimize blood pressure control (A)

Clinical Practice Recommendation Changes

- Screening
  - Adults and children aged ≥ 10 years 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)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- Subsequent examinations for type 1 and type 2 diabetic patients should be repeated annually by an ophthalmologist or optometrist
  - Less frequent exams (every 2-3 years) may be considered following one or more normal eye exams

Clinical Practice Recommendation Changes

  - Examination will be required more frequently if retinopathy is progressing (B)
- High-quality fundus photographs can detect most clinically significant diabetic retinopathy

Clinical Practice Recommendation Changes

  - Interpretation of the images should be performed by a trained eye care provider

Clinical Practice Recommendation Changes

  - While retinal photography may serve as a screening tool for retinopathy, it is not a substitute for a comprehensive eye exam, which should be performed at least initially and at intervals thereafter as recommended by an eye care professional (E)

Clinical Practice Recommendation Changes

- Women with pre-existing diabetes who are planning pregnancy or who have become pregnant should have a comprehensive eye examination and be counseled on the risk of development and /or progression of diabetic retinopathy

Clinical Practice Recommendation Changes

- Eye examination should occur in the first trimester with close follow-up throughout pregnancy and for 1 year postpartum (B)

Clinical Practice Recommendation Changes

- Treatment:
  - Promptly refer patients with any macular edema, severe NPDR, or any PDR to an ophthalmologist who is knowledgeable and experienced in the management and treatment of diabetic retinopathy (A)

Clinical Practice Recommendation Changes

- Laser photocoagulation therapy is indicated to reduce the risk of vision loss in patients with high-risk PDR, clinically significant macular edema, and in some cases of severe NPDR (A)

Clinical Practice Recommendation Changes

- Anti-vascular endothelial growth factor (VEGF) therapy is indicated for diabetic macular edema (A)

Clinical Practice Recommendation Changes

- The presence of retinopathy is not a contraindication to aspirin therapy for cardioprotection, as this therapy does not increase the risk of retinal hemorrhage (A)

Clinical Practice Recommendation Changes

- Section IX.A. Diabetes Care in the hospital:
  - Diabetes care in the hospital has been revised to include a recommendation to consider obtaining an A1C in patients with risk factors for undiagnosed diabetes who exhibit hyperglycemia in the hospital

Clinical Practice Recommendation Changes

- All patients with diabetes admitted to the hospital should have their diabetes clearly identified in the medical record (E)

Clinical Practice Recommendation Changes

- All patients with diabetes should have an order for blood glucose monitoring, with results available to all members of the health care team (E)

Clinical Practice Recommendation Changes

- Goals for blood glucose levels:
  - 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)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- 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)

Clinical Practice Recommendation Changes

- Non–critically ill patients: There is no clear evidence for specific blood glucose goals

Clinical Practice Recommendation Changes

- –If treated with insulin, the premeal blood glucose targets generally <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

Clinical Practice Recommendation Changes

- –More stringent targets may be appropriate in stable patients with previous tight glycemic control. Less stringent targets may be appropriate in those with severe co-morbidities (E)

Clinical Practice Recommendation Changes

- Scheduled subcutaneous insulin with basal, nutritional, and correction components is the preferred method for achieving and maintaining glucose control in non–critically ill patients (C)

Clinical Practice Recommendation Changes

- Glucose monitoring should be initiated in any patient not known to be diabetic who receives therapy associated with high risk for hyperglycemia, including high-dose glucocorticoid therapy, initiation of enteral or parenteral nutrition, or other medications such as octreotide or immunosuppressive medications (B)

Clinical Practice Recommendation Changes

- If hyperglycemia is documented and persistent, consider treating such patients to the same glycemic goals as patients with known diabetes (E)

Clinical Practice Recommendation Changes

- 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

Clinical Practice Recommendation Changes

- Episodes of hypoglycemia in the hospital should be documented in the medial record and tracked (E)
- Consider obtaining an A1C on patients with diabetes admitted to the hospital if the result of testing in the previous 2–3 months is not available (E)

Clinical Practice Recommendation Changes

- Consider obtaining an A1C in patients with risk factors for undiagnosed diabetes who exhibit hyperglycemia in the hospital (E)

Clinical Practice Recommendation Changes

- Patients with hyperglycemia in the hospital who do not have a prior diagnosis of diabetes should have appropriate plans for follow-up testing and care documented at discharge (E)

Revised Position Statements

- The position statement "Diagnosis and Classification of Diabetes Mellitus" has been revised slightly to add newer information about monogenic forms of diabetes
- Diabetes diagnosed in the first 6 months of life has been shown not to be typical autoimmune type 1 diabetes

Revised Position Statements

- This so-called neonatal diabetes can either be transient or permanent
- The most common genetic defect causing transient disease is a defect on ZAC/HYAMI imprinting

Revised Position Statements

- Whereas permanent neonatal diabetes is most commonly a defect in the gene encoding the Kir6.2 subunit of the β-cell KATP channel
- Diagnosing the latter has implications, since such children can be well managed with sulfonylureas

Revised Position Statements

- Revisions to the National Standards for Diabetes Self-Management Education and Support
- The task force report "National Standards for Diabetes Self-Management Education and Support" represents a major revision completed in 2012