



Body System: Endocrine		
Session Topic: Prediabetes Screening and Management		
Educational Format		Faculty Expertise Required
REQUIRED	Interactive Lecture	Expertise in the field of study. Experience teaching in the field of study is desired. Preferred experience with audience response systems (ARS). Utilizing polling questions and engaging the learners in Q&A during the final 15 minutes of the session are required.
OPTIONAL	Problem-Based Learning (PBL)	Expertise teaching highly interactive, small group learning environments. Case-based, with experience developing and teaching case scenarios for simulation labs preferred. Other workshop-oriented designs may be accommodated. A typical PBL room is set for 50-100 participants, with 7-8 each per round table. <u>Please describe your interest and plan for teaching a PBL on your proposal form.</u>
Professional Practice Gap	Learning Objective(s) that will close the gap and meet the need	Outcome Being Measured
<ul style="list-style-type: none"> Family physicians should be familiar with the risk factors for diabetes and identify patients in their practice who should be screened for diabetes. They should be aware of the rising incidence of type 2 diabetes in children and should be able to identify children at increased risk in their practice. Family physicians should know and utilize the American Diabetes Association (ADA)'s diagnostic criteria for diabetes, including screening recommendations for gestational diabetes in pregnant women. Family physicians should be aware of the many complications and comorbidities that may accompany diabetes. 	<ol style="list-style-type: none"> Recognize the pathogenesis, progression risks, and management strategies for patients with pre-diabetes. Establish evidence-based systematic protocols for screening patients for diabetes mellitus. Use evidence-based recommendations and guidelines to order appropriate diagnostic tests to diagnose and confirm the etiology of diabetes. Counsel patients on lifestyle modifications they can make to reduce their risk for developing diabetes and comorbidities, including diet, exercise, smoking cessation and alcohol consumption. 	Learners will submit written commitment to change statements on the session evaluation, indicating how they plan to implement presented practice recommendations.



<p>They may require advanced training in conducting appropriate screenings and creating diagnostic plans for comorbidities in patients who have diabetes, which should include the provision of clinical practice guidelines and performance measures (when appropriate).</p> <ul style="list-style-type: none"> • Family physicians should understand the cost-effective screening measures which will identify patients at high risk for developing type 2 diabetes. • 9 out of 10 people with prediabetes do not know they have it 		
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ACGME Core Competencies Addressed (select all that apply)

X	Medical Knowledge		Patient Care
X	Interpersonal and Communication Skills		Practice-Based Learning and Improvement
	Professionalism		Systems-Based Practice

Faculty Instructional Goals

<p>Faculty play a vital role in assisting the AAFP to achieve its mission by providing high-quality, innovative education for physicians, residents and medical students that will encompass the art, science, evidence and socio-economics of family medicine and to support the pursuit of lifelong learning. By achieving the instructional goals provided, faculty will facilitate the application of new knowledge and skills gained by learners to practice, so that they may optimize care provided to their patients.</p> <ul style="list-style-type: none"> • Provide up to 3 evidence-based recommended practice changes that can be immediately implemented, at the conclusion of the session; including SORT taxonomy & reference citations • Facilitate learner engagement during the session • Address related practice barriers to foster optimal patient management • Provide recommended journal resources and tools, during the session, from the American Family Physician (AFP), Family Practice Management (FPM), and Familydoctor.org patient resources; those listed in the <u>References</u> section below are a good place to start <ul style="list-style-type: none"> ○ Visit http://www.aafp.org/journals for additional resources ○ Visit http://familydoctor.org for patient education and resources



- Provide strategies for recognizing the pathogenesis, progression risks, and management strategies for patients with pre-diabetes.
- Provide recommendation for establishing evidence-based systematic protocols for screening patients for diabetes mellitus.
- Provide recommendations regarding evidence-based recommendations and guidelines to order appropriate diagnostic tests to diagnose and confirm the etiology of diabetes.
- Provide strategies and resources to counsel patients on lifestyle modifications they can make to reduce their risk for developing diabetes and comorbidities, including diet, exercise, smoking cessation and alcohol consumption.

Needs Assessment

Diabetes mellitus is one of the most common diagnoses made by family physicians. It is estimated that in the United States, about 86 million US adults—more than a third—have prediabetes, and 90% of them don't know it.¹ Early screening and diagnosis can lead to interventions that have the potential to decrease the degree of associated complications and increase patient quality of life.² Among those associated complications, cardiovascular disease is the leading cause of death in persons with diabetes mellitus.³

The CDC's National Ambulatory Medical Care Survey (NAMCS) reported that from 1996 to 2006, the percentage of visits by adults 18 and over with chronic diabetes increased 40% and served as one of the most frequent medical diagnoses for physician office visits.⁴ In fact, family physicians treat patients with diabetes in more than 11.9 million office visits per year, the condition most frequently seen following hypertension.⁵ Although, some studies indicate that this number may be low, because providers' diagnosis codes and medication lists fail to identify approximately one quarter of outpatient visits by patients with diabetes.⁶ Additionally, some studies suggest that many primary care physicians report a diagnosis of metabolic syndrome, rather than one of prediabetes.⁷

Practice Gaps

Treating patients with diabetes mellitus can be complicated in part due to ongoing research, novel therapies, and changing guidelines; and data from the 2012 American Academy of Family Physicians (AAFP) CME Needs Assessment Survey indicate that family physicians have a statistically significant and meaningful gap in knowledge and skills necessary to manage patients with diabetes.⁸ Although, this same data also indicates that physicians do not self-identify diabetes screening and diagnosis as a gap. This suggests that physicians be overconfident in their ability to identify patients with impaired glucose tolerance, and manage them effectively. More specifically, CME outcomes data from 2014 AAFP Assembly (now called FMX) *Diabetes Mellitus Screening and Diagnosis* sessions, suggest that physicians have knowledge and practice gaps regarding prediabetes screening; counseling patients to make lifestyle changes; and following evidence-based treatments recommendations.⁹

Fortunately, morbidity and mortality rates for patient with type 1 and type 2 diabetes have improved significantly over the past 10 years, due, in part to the ambitious treatment patients receive from their primary care providers.^{10,11} In fact, patients with type 1 diabetes who are able to maintain an A1C of < 8 % have similar lifespans compared with euglycemic controls. Patients



with type 2 diabetes are experiencing fewer cardiac events, strokes, amputations, and all-cause mortality compared to events recorded from 1990-2000. Primary care clinicians manage 90 % of all patients with diabetes in the US.¹²

Early intervention of patients with diabetes can have a vast socioeconomic impact. A study by Zhang et al. suggested that the cost of screening one patient for prediabetes or undiagnosed diabetes is < \$200. Patients who screen positive for impaired glucose tolerant can be introduced to cost-effective interventions such as lifestyle modification, weight loss programs and metformin. These noninvasive therapies will result in a per quality-adjust life-year gained savings for screened individuals of over \$8000. The Diabetes Prevention Program (DPP) provides evidence that the benefits of early screening and lifestyle interventions outweigh the risks in certain patients.¹³⁻¹⁵

The American Diabetes Association (ADA) has established criteria for diabetes testing in asymptomatic adults and children and criteria for the diagnosis of diabetes. Criteria include the following:¹⁶

- AIC \geq 6.5% or
- Fasting plasma glucose \geq 126 mg/dl (7.0 mmol/l) or
- Two-hour plasma glucose \geq 200 mg/dl (11.1 mmol/l) during an oral glucose tolerance test or
- In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose \geq 200 mg/dl (11.1 mmol/l)

The ADA also has established screening and diagnostic strategies for gestational diabetes. Maternal capillary glucose concentrations are targeted at \leq 95 mg/dl and either 1-h postmeal \leq 140 mg/dl or 2-h postmeal \leq 120 mg/dl.

A complete evaluation and laboratory tests should be performed to classify the diabetes, identify diabetes-related complications and review previous treatment and glycemic control in patients with established diabetes.¹⁶ The ADA also recommends regularly assessing patients for alcohol use, depression or other mood disorders, as well as reviewing and adjusting medications to control glucose, lipids and blood pressure.

Data from the CDC suggests that 9 out of 10 people with prediabetes do not know they have it.¹⁷ Patients who have diabetes who are not adequately screened, who go undiagnosed or who are diagnosed but do not adequately control their disease can experience a host of complications. Providing family physicians with appropriate education and training on how to screen and diagnose patients with diabetes can help to decrease the number of patients who go undiagnosed; strategic patient education may also help to prevent the onset the diabetes.

Family physicians should receive continuing medical education on the screening and diagnosis of diabetes mellitus that is evidence-based and tailored to address the specific needs of the family physician and their scope of practice. Family physicians should consider the following evidence-based recommendations in the screening and diagnosis of diabetes mellitus:^{2,18-21}

- All adults should be tested for diabetes beginning at 45 years of age.



- Overweight or obese patients with one or more risk factors for diabetes should be screened at any age.
- Screening for GDM should occur after 24 weeks of gestation in all women without known diabetes mellitus.
- Treatment of impaired fasting glucose and impaired glucose tolerance with pharmacologic interventions, lifestyle interventions, or both decreases progression to diabetes mellitus.
- The AAFP *recommends* screening for abnormal blood glucose as part of cardiovascular risk assessment in adults aged 40 to 70 years who are overweight or obese. Clinicians should offer or refer patients with abnormal blood glucose to intensive behavioral counseling interventions to promote a healthful diet and physical activity. (2015).
- If initial screening results for type 2 diabetes are normal, screening may be repeated every three years.
- Diagnosis of type 2 diabetes can be made using fasting plasma glucose, A1C testing, random plasma glucose testing, or an oral glucose tolerance test.
- Patients with prediabetes or new-onset diabetes should undertake extensive lifestyle changes to slow the progression of type 2 diabetes.
- Patients with existing cardiovascular disease, two or more cardiovascular disease risk factors, or duration of diabetes of 10 years or more should have higher A1C goals because of a lack of benefit and the potential for increased risk of mortality compared with lower A1C goals.
- The AAFP *recommends* screening for gestational diabetes mellitus (GDM) in asymptomatic pregnant women after 24 weeks of gestation. (2014)
- The AAFP *concludes that the current evidence is insufficient* to assess the balance of benefits and harms of screening for GDM in asymptomatic pregnant women before 24 weeks of gestation. (2014)
- AAFP Clinical Consideration Summary
 - The AAFP agrees with the United States Preventive Services Task Force's rationale for screening for abnormal glucose in overweight or obese adults. Elevated body mass index and abnormal blood glucose are modifiable risk factors for cardiovascular disease. Although the AAFP concludes there is currently inadequate evidence whether early detection of abnormal blood glucose or diabetes leads to improvements in mortality or cardiovascular morbidity, screening blood glucose measurement is consistent with AAFPs' recommendations for behavioral interventions in adults who are obese or are overweight with additional cardiovascular risk factors.
 - Glucose abnormalities can be detected by measuring HgbA1c, fasting plasma glucose, or oral glucose tolerance test. Abnormal results should be confirmed. Adults with confirmed impaired glucose tolerance should receive counseling on healthful diet and physical activity by trained providers who work directly with program participants for at least 3 months in order to delay development of diabetes(www.thecommunityguide.org).
 - There is limited evidence on the best rescreening intervals for adults with normal results, but screening every 3 years is a reasonable option.



These recommendations are provided only as assistance for physicians making clinical decisions regarding the care of their patients. As such, they cannot substitute for the individual judgment brought to each clinical situation by the patient's family physician. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but they should be used with the clear understanding that continued research may result in new knowledge and recommendations. These recommendations are only one element in the complex process of improving the health of America. To be effective, the recommendations must be implemented. As such, physicians require continuing medical education to assist them with making decisions about specific clinical considerations.

ICD-10 changes for 2016-2017, including new codes for prediabetes, will affect family medicine.²² Physicians need to receive training in order to be prepared for these changes.

The review of the literature also reveals some considerations regarding social determinants of health issues with regards to screening and diagnosis of diabetes, summarized as follow:

- People in distressed and at-risk counties (e.g. Appalachia region), are likely developing diabetes at younger ages; however, are likely to spend more time with undiagnosed, and therefore, untreated diabetes.²³
- People living along U.S.-Mexico border towns indicate high diabetes prevalence, 30.7% among adults in the LRGV compared with 12.3% nationwide; however, they face challenges of high rates of type 2 diabetes, lack of knowledge about prevention, and inadequate access to medical care.²⁴

Resources: Evidence-Based Practice Recommendations/Guidelines/Performance Measures

- Diabetes Mellitus: Screening and Diagnosis²
- Screening, Diagnosis, and Management of Gestational Diabetes Mellitus²⁰
- Preventing CVD in Adults with Type 2 Diabetes Mellitus: An Update from the AHA and ADA³
- ADA Updates Standards of Medical Care for Patients with Diabetes Mellitus¹⁹
- Management of Blood Glucose with Noninsulin Therapies in Type 2 Diabetes¹⁸
- ICD-10 changes for 2016-2017²²
- Health Coaching: Teaching Patients to Fish²⁵
- Adding health education specialists to your practice²⁶
- Envisioning new roles for medical assistants: strategies from patient-centered medical homes²⁷
- Encouraging patients to change unhealthy behaviors with motivational interviewing²⁸
- Patient-physician partnering to improve chronic disease care²⁹
- FamilyDoctor.org. Prediabetes | Overview (patient education)³⁰
- FamilyDoctor.org. Diabetes Overview (patient education)³¹

References



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