

## Clinician Summary

### CTFPHC Recommendation for Screening for Type 2 diabetes in adults

<b>Population</b>	Recommendations are presented for screening asymptomatic adults for type 2 diabetes. They do not apply to people with symptoms of diabetes or those at risk of type 1 diabetes.		
<b>Burden of illness</b>	In 2008/09, an estimated 2.4 million Canadians (6.8%) had either type 1 or type 2 diabetes and an additional 480 000 (1.4%) were unaware that they were affected. In this period, the prevalence of diagnosed diabetes increased by 70%. The greatest relative increase in prevalence was seen in the age groups 35–39 years and 40–44 years, in which the proportion doubled. Almost 50% of new cases of diabetes were diagnosed in people 45–64 years old. Long-term consequences of type 2 diabetes include microvascular (retinopathy, nephropathy, neuropathy) and macrovascular (stroke, myocardial infarction) complications.		
<b>Intervention</b>	Blood testing with A1C measurement <sup>iii</sup>		
<b>Recommendation</b>	For adults <b>at low to moderate risk<sup>ii</sup></b> , we recommend <u>not routinely screening</u> for type 2 diabetes. (Weak recommendation, low-quality evidence)	For adults <b>at high risk</b> , we recommend <u>routinely screening every 3–5 years</u> with A1C. <sup>iii</sup> (Weak recommendation, low-quality evidence)	For adults who are <b>at very high risk<sup>i,ii</sup></b> , we recommend <u>routine screening annually</u> with A1C. <sup>iii</sup> (Weak recommendation, low-quality evidence)
<b>Basis of recommendation</b>	No evidence for improved clinical outcomes from screening was found in adults at low to moderate risk of diabetes.  A single cluster randomized controlled trial found no benefit of screening on mortality in adults 40–69 years of age who were at low to moderate risk for diabetes.	Evidence from modelling studies suggests that screening adults at low to moderate risk of diabetes who are 40 years of age or older and adults of any age who are at high risk every 3–5 years:  - leads to lower rates of myocardial infarction, microvascular complication, and death  - preserves nearly all of the benefit of annual screening but reduces adverse effects, inconvenience and cost.	Evidence from a modelling study suggests that annual screening of adults of any age who are at very high risk of diabetes leads to a reduction of diabetes complications and death.
<b>Basis of selection of risk calculator</b>	For FINDRISC, there was evidence of internal and external validation, prospective research, similar test accuracy to CANRISK, and evidence of improved patient-important outcomes (i.e., reduced incidence of diabetes when combined with an educational intervention).		
<b>Basis of selection of screening test</b>	Evidence suggests that A1C and glucose measurements perform similarly in predicting type 2 diabetes and related microvascular complications such as retinopathy. More value was placed on the convenience for patients and utility of A1C in addressing variability in glucose levels, and less value was placed on the small risk of interference of severe illness and hemoglobinopathies with A1C measurement in some assays.		

<b>Harms of testing</b>	Small cost, discomfort and anxiety are associated with blood testing. Screening may also lead to over-diagnosis, inappropriate investigation and treatment, avoidable adverse effects and unnecessary psychosocial costs. However, no studies were found that specifically examined these issues in diabetes.
<b>Details of recommended service</b>	<p><b><u>Risk calculator</u></b></p> <p><sup>i</sup> Risk calculation: 10-year risk for diabetes: low risk = 1/100-1/25 (1%–4%); moderate risk = 1/6 (17%); high risk = 1/3 (33%), very high risk = 1/2 (50%). For adults <math>\geq</math> 18 years of age, we suggest risk calculation at least every 3–5 years when risk factors exist (for example, obesity and hypertension).</p> <p><sup>ii</sup> FINDRISC has been selected as the preferred validated risk calculator, but another validated tool (e.g., CANRISK) may be used to assess the risk of type 2 diabetes in asymptomatic adults. Factors considered in both FINDRISC and CANRISK include age, obesity, history of elevated glucose levels, history of hypertension, family history of diabetes, limited activity levels, and diet with limited fruit and vegetables.</p> <p><b><u>Blood test</u></b></p> <p><sup>iii</sup> A1C has been selected as the preferred blood test, but fasting glucose measurement and the oral glucose tolerance test are acceptable alternatives. An A1C value <math>\geq</math> 6.5% is recommended as the threshold for diagnosing diabetes, but values <math>&lt;</math> 6.5% do not exclude diabetes diagnosed using glucose tests. Measurement of A1C should be performed measured using a standardized, validated assay.</p> <p><b><u>Values and preferences</u></b></p> <p>Studies suggest that patients who attend screening programs want physicians to identify diabetes and its risk factors; to provide clear information about managing risk factors; and to advise on how to prevent complications of diabetes. Risk calculators may provide an avenue to inform patients about risk factors and the importance of early lifestyle interventions for those at high and very high risk.</p> <p><b><u>Resource implications</u></b></p> <p>Blood testing is warranted for people at high and very high risk of diabetes.</p>
<b>Considerations for implementation</b>	Consider integrating diabetes risk calculation with your electronic health record system to estimate risk of developing diabetes. A screening reminder for patients at high risk every 3–5 years may also be helpful. Certain ethnic groups (Aboriginal, South Asian, Latin American, and African people) are at increased risk for diabetes and potentially at increased risk for poor health outcomes related to diabetes.