

Hemoglobin A1C Testing Frequency: A Review

Context

Diabetes is one of the world's fastest growing chronic diseases. In 2011, there were approximately 366 million people with diabetes worldwide, and this number is projected to reach 500 million by 2030 — a projected increase of 50% in only 19 years. Wide fluctuations in blood glucose levels from untreated or poorly treated diabetes result in complications such as kidney failure, cardiovascular disease, blindness, and nerve damage. One test used to track blood glucose control is the glycated hemoglobin (hemoglobin A1C) test.

Technology

The hemoglobin A1C test monitors a patient's average blood glucose levels over a period of time. Patients with diabetes find this test more convenient compared with other methods for measuring blood glucose over the long term because it is quick, does not require fasting, uses only a drop of blood, and can be done at any time of day or night. And, if refrigerated, the blood samples can remain stable for over a week.

Issue

As the prevalence of diabetes increases, so does the amount of hemoglobin A1C testing. A review of the evidence on the effect of different hemoglobin A1C testing frequencies and of guidelines on the timing of testing will help inform treatment decisions for patients with diabetes.

Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages

- For patients with well-controlled diabetes, hemoglobin A1C testing at three-month intervals appears to be as effective for maintaining blood glucose levels as testing at six-month intervals.
- Guidelines recommend hemoglobin A1C testing every six months for patients with well-controlled diabetes and every three months for those with poorly controlled diabetes.

Results

The literature search identified 255 citations, with 5 additional articles identified from other sources. Of the identified studies, 24 were deemed potentially relevant. After screening the abstracts, 5 reports met the criteria for inclusion in this review — 1 rapid systematic review of the clinical practice guidelines, 1 randomized controlled trial, and 3 non-randomized studies.

DISCLAIMER: The information in this Report in Brief is intended to help health care decision-makers, patients, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. The information in this Report in Brief should not be used as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process nor is it intended to replace professional medical advice. While CADTH has taken care in the preparation of the Report in Brief to ensure that its contents are accurate, complete, and up-to-date, CADTH does not make any guarantee to that effect. CADTH is not responsible for any errors or omissions or injury, loss, or damage arising from or as a result of the use (or misuse) of any information contained in or implied by the information in this Report in Brief.

CADTH takes sole responsibility for the final form and content of this Report in Brief. The statements, conclusions, and views expressed herein do not necessarily represent the view of Health Canada or any provincial or territorial government. Production of this Report in Brief is made possible through a financial contribution from Health Canada.