

Variation in the Frequency of Hemoglobin A1c (HbA1c) Testing: Population Studies Used to Assess Compliance with Clinical Practice Guidelines and Use of HbA1c to Screen for Diabetes

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Abstract

Background:

The volume of hemoglobin A1c (HbA1c) testing has increased dramatically over the past decade and few studies have attempted to determine how the test is used. The goals of this study were to evaluate the frequency of HbA1c testing in regional populations to assess the extent of screening for diabetes and to determine if the HbA1c testing intervals of known diabetic patients were consistent with clinical practice guidelines.

Methods:

Two years of HbA1c results were extracted from laboratory information systems in four regions of the province of Alberta that represent urban, mixed urban–rural, and rural populations. HbA1c testing frequencies and the proportions of nondiabetic patients undergoing HbA1c tests were derived.

Results:

Approximately 60% of HbA1c tests in each region were done on patients who had only a single test during the 2-year interval. Testing of nondiabetic patients accounted for 24% of HbA1c tests and varied by region. While the cumulative frequency distributions of HbA1c test intervals resembled each other, detailed analyses of the frequency distributions depicted broad multimodal peaks and regional variations that suggest a great deal of heterogeneity among practices. The most common HbA1c testing interval was 3 months \pm 3 weeks in each region and is consistent with the 3-month test interval target in a clinical practice guideline.

Conclusions:

HbA1c testing is being performed on a substantial proportion of nondiabetic patients. On average, patients with diabetes in Alberta receive 1.5 HbA1c tests per year. However, we observed regional differences in the frequency of testing and variation in compliance with clinical practice guidelines.

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Abbreviations: (ADA) American Diabetes Association, (CDA) Canadian Diabetes Association, (HbA1c) hemoglobin A1c

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