



Health Quality Ontario Primary Care HbA1c

Overview

Updated on November 17, 2015

Issue

Diabetes is a complex disease that can be a challenge to manage. In 2012, 6.5% (1.9 million) of Canadians aged 12 or older reported that they had diabetes.¹ The prevalence of diabetes is typically lower in wealthier countries when compared to low- or middle-income countries.² However, among OECD (Organisation for Economic Co-operation and Development) member countries, Canada has one of the highest rates of diabetes at 9.2% (Figure 1).³

Many Canadians with diabetes will develop serious, potentially fatal diabetes-related complications including heart disease and stroke, visual impairment, kidney disease, foot ulcers, and amputations).² Diabetes is managed by keeping blood sugar under control and this is the key to avoiding complications and discomfort.

Call to Action

Optimal glycemic control is fundamental to managing diabetes. Measuring HbA1c (haemoglobin A1c) determines average blood sugar levels and higher levels can indicate a greater risk for developing diabetes-related complications.

It is a valuable indicator of treatment effectiveness and testing at 6-month intervals is recommended when glycemic targets are consistently achieved.⁴ A recent study on a large multicentre data set (400,497 tests in 79,409 patients, 2008-2011) showed that the optimal testing frequency was 4 times per year.⁵

Figure 1. Age-Adjusted Prevalence (% of the population)



Source: International Diabetes Federation, 2009

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[\[http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11835-eng.htm\]](http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11835-eng.htm)

2. Canadian Diabetes Association

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Available from: <https://www.diabetes.ca/CDA/media/documents/publications-and-newsletters/advocacy-reports/canada-at-the-tipping-point-english.pdf> [\[https://www.diabetes.ca/CDA/media/documents/publications-and-newsletters/advocacy-reports/canada-at-the-tipping-point-english.pdf\]](https://www.diabetes.ca/CDA/media/documents/publications-and-newsletters/advocacy-reports/canada-at-the-tipping-point-english.pdf)

3. International Diabetes Federation

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4. Canadian Diabetes Association Clinical Practice Guidelines Expert Committee

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Diabetes in Canada. Can J Diabetes 2013;37(suppl 1):S1-S212.

5. **Driskell OJ, Holland D, Waldron JL, Ford C, Scargill JJ, Heald A, Tran M, Hanna FW, Jones PW, Pemberton RJ, Fryer AA.**

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Best Practices

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“Insanity is doing things the way we’ve always done them and expecting different results”

Albert Einstein

Evidence-informed best practices are based on quality evidence and should be implemented into practice to optimize outcomes.⁷ Listed below you will find best practices graded according to the type of evidence. To view a description of the types of evidence, [click here](#).

To help you move from best evidence to best practice, **click on the + button next to each best practice** to find details on how to implement, as well as change ideas to test using a PDSA approach.

Change ideas are specific and practical changes by experience and research that focus on improving specific aspects of a system, process or behaviour. To learn more about change ideas see the [QI: Getting Started tab](#).

EVIDENCE-INFORMED BEST PRACTICES

Identify patients with diabetes

Make Change

Evidence-Informed Best Practice	How To Implement	Toolbox
<p>Identify patients with diabetes</p>	<p>Before tracking your patients with diabetes identify who they are in your practice:</p> <ul style="list-style-type: none"> Run a search of your EMR using diabetic billing codes and generate a list of your diabetic patients (ICD-9 codes 250 or 251, same as the PCPR) <p>Create a diabetes registry (paper or electronic) to organize and track information about your patients:</p> <ul style="list-style-type: none"> Use your EMR to develop an electronic registry Develop a paper-based diabetes registry using charts with patients meeting your criteria. Downloadable registry http://guidelines.diabetes.ca/organizingcare/the5rs/Registry [http://guidelines.diabetes.ca/organizingcare/the5rs/Registry] <p>Pick a day each month to update the registry in order to set improvement targets and monitor progress. Contact OntarioMD Peer Leaders – This is a complimentary support service to optimize using your EMR and manage patients with diabetes: https://www.ontariomd.ca/portal/server.pt/community/peer_leader_program/719 [https://www.ontariomd.ca/portal/server.pt/community/peer_leader_program/719]</p>	<ul style="list-style-type: none"> Organizing Care (Canadian Diabetes Association) [http://guidelines.diabetes.ca/organizingcare/] Developing a Registry [http://guidelines.diabetes.ca/organizingcare/the5rs/registry] Downloadable paper-based registry [http://guidelines.diabetes.ca/organizingcare/the5rs/Registry]

References

Identify patients with diabetes

Type of Evidence: IV (Expert Opinion)*

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Systematic reviews

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Supporting Resources:

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<http://www.biomedcentral.com/1472-6823/14/92>

Implement a reminder system

Make Change

Evidence-Informed Best Practice	How To Implement	Toolbox
Implement a reminder system	<p>A reminder system to recall patients for tests and appointments is a strategy to improve the quality of diabetes care.</p> <p>The reminder system can be set up in the following manner:</p> <ul style="list-style-type: none"> • Create a diabetes registry (paper or electronic) to organize and track information about your patients • Use your diabetes registry to generate reminders and recall patients for Hb1Ac tests • Designate staff to follow-up 	<ul style="list-style-type: none"> • Developing a recall (reminder) system http://guidelines.diabetes.ca/organizingcare/the5rs/recall

References

Implement a reminder system

Type of Evidence: IV (Expert Opinion)*

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Systematic Reviews

Guy R, Hocking J, Wand H, Stott S, Ali H, Kaldor J. How effective are short message service reminders at increasing clinic attendance? A meta-analysis and systematic review. *Health Serv Res*. 2012 Apr;47(2):614-32. Full-text available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3419880> [<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3419880>]

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Track patient care

Make Change

Evidence-Informed Best Practice	How To Implement	Toolbox
Track patient care	<p>Use a diabetes flow sheet:</p> <ul style="list-style-type: none"> List all relevant diabetes services or measures List medications to make them easier to review and track Develop a system to regularly review patient flow sheets Identify who will complete each section of the flow sheet on your team If using an EMR, check if flow sheets link with your diabetes registry and incoming labs <p>Map your practice's diabetes care process:</p> <ul style="list-style-type: none"> Create a process map that identifies the steps involved in your practice's diabetes care process Identify potential gaps Test improvements, such as checklists, communication with local optometry services, etc 	<ul style="list-style-type: none"> Sample flow sheet from the Canadian Diabetes Association [http://guidelines.diabetes.ca/OrganizingCare/PatientCareFlowSheet]

References

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Tricco AC, Ivers NM, Grimshaw JM, Moher D, Turner L, Galipeau J, Halperin I, Vachon B, Ramsay T, Manns B, Tonelli M, Shojania K. Effectiveness of quality improvement strategies on the management of diabetes: a systematic review and meta-analysis. *Lancet.* 2012;379(9833):2252-61. Abstract available at: <http://www.ncbi.nlm.nih.gov/pubmed/22683130>

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Provide patient supports

Make Change

Evidence-Informed Best Practice	How To Implement	Toolbox
Provide patient supports	<p>Develop a referral form for specialists:</p> <ul style="list-style-type: none"> To help patients improve diabetes management develop a process for integrating specialists into the diabetes care process <p>Support training and education for patients:</p> <ul style="list-style-type: none"> Ensure all patients are trained in glucometer use Refer patients to local Diabetes Education Programs. To find a list of programs in your area, go to http://www.health.gov.on.ca/en/pro/programs/diabetes/dep.aspx [http://www.health.gov.on.ca/en/pro/programs/diabetes/dep.aspx] <p>Promote self-management:</p> <ul style="list-style-type: none"> Integrate the use of self-management tools Test the My Diabetes Passport to support patient self-management: http://www.health.gov.on.ca/en/pro/programs/diabetes/dep.aspx [http://www.health.gov.on.ca/en/pro/programs/diabetes/dep.aspx] 	<ul style="list-style-type: none"> Self Management Education Tools [http://guidelines.diabetes.ca/selfmanagementeducation]. Canadian Diabetes Association My Diabetes Passport [https://www.ontario.ca/document/my-diabetes-passport]. a tool from the Ministry of Health and Long Term Care to use with patients Five Elements that Promote Self Management [http://guidelines.diabetes.ca/selfmanagementeducation/sme5infographic]

References

Provide patient supports

Type of Evidence: IV (Expert Opinion)*

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Measurement

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“Some is not a number, soon is not a time.”

Don Berwick, former President and CEO of IHI, December 2004, at launch of the 100,000 Lives Campaign

How will we know if a change is an improvement? Measurement is one of the critical steps in a quality improvement (QI) initiative that assesses the impact of your tests of change. **Quality indicators** are used to measure how well something is performing. There are three types of quality indicators used to measure your QI efforts: **outcome** (indicators that capture clinical outcomes and or system performance), **process** (indicators that track the processes that measure whether the system is working as planned), and **balancing** indicators (indicators that ensure that changing one part of the system does not cause new problems in other parts of the system).

Type of Indicator	Indicator of Quality Improvement	How to Calculate: numerator <hr/> denominator	Targets/ Benchmarks	How is This Indicator Used?
Outcome	Percentage of patients with diabetes, aged 40 or over, with two or more glyated hemoglobin (HbA1c) tests within the past 12 months	<p>Number of patients with diabetes, aged 40 or over, with two or more glyated hemoglobin tests (HbA1c) within the past 12 months</p> <hr/> <p>Number of patients with diabetes aged 40 or over.</p> <p>Equivalent measures are available for CHCs, nurse practitioner-led clinics and AHACs, extracted from electronic medical records (EMRs)</p>	<p><u>Targets:</u> As high as possible (set by individual practices)</p> <p><u>Provincial benchmarks:</u> not available</p>	<p>Quality improvement</p> <p>QIP indicator</p>

Run Charts

Collected measures can be presented graphically by plugging the monthly results into [run chart](#).

Tools & Resources

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Tools

- [Individualizing your Patient's A1c Target \(Interactive\)](http://guidelines.diabetes.ca/bloodglucoselowering/a1ctarget) [<http://guidelines.diabetes.ca/bloodglucoselowering/a1ctarget>]
Canadian Diabetes Association
- [Self-Monitoring Frequency & Pattern Tool \(Interactive\)](http://guidelines.diabetes.ca/bloodglucoselowering/smbgtool) [<http://guidelines.diabetes.ca/bloodglucoselowering/smbgtool>]
Canadian Diabetes Association
- [Pharmacotherapy for Type 2 Diabetes \(Interactive\)](http://guidelines.diabetes.ca/bloodglucoselowering/pharmacologyt2) [<http://guidelines.diabetes.ca/bloodglucoselowering/pharmacologyt2>]
Canadian Diabetes Association
- [Insulin Prescription Tool](http://guidelines.diabetes.ca/bloodglucoselowering/insulinprescriptiontool) [<http://guidelines.diabetes.ca/bloodglucoselowering/insulinprescriptiontool>]
Canadian Diabetes Association. Canadian Diabetes Association

QI Tools

For a more comprehensive list of tools and resources, visit the following links on our HQO website:

- [HQO Tools and Resources](http://www.hqontario.ca/quality-improvement/tools-and-resources/) [<http://www.hqontario.ca/quality-improvement/tools-and-resources/>]

Resources

- [Factors That Can Affect A1C](http://guidelines.diabetes.ca/Browse/Chapter9#tbl1) [<http://guidelines.diabetes.ca/Browse/Chapter9#tbl1>]
Canadian Diabetes Association
- [Approximate Cost Reference List for Antihyperglycemic Agents \(2015\)](http://guidelines.diabetes.ca/browse/appendices/appendix5_2015) [http://guidelines.diabetes.ca/browse/appendices/appendix5_2015]
Canadian Diabetes Association
- [Health Quality Ontario. Point-of-care hemoglobin A1c testing: an evidence-based analysis](http://www.hqontario.ca/evidence/publications-and-ohac-recommendations/ontario-health-technology-assessment-series/eba-point-of-care-a1c) [<http://www.hqontario.ca/evidence/publications-and-ohac-recommendations/ontario-health-technology-assessment-series/eba-point-of-care-a1c>]
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