

# Health Quality Ontario

*Let's make our health system healthier*

## Continuous Monitoring of Glucose for Type 1 Diabetes

### FINAL RECOMMENDATION

Health Quality Ontario, under the guidance of the Ontario Health Technology Advisory Committee, recommends publicly funding continuous glucose monitoring in patients with type 1 diabetes who are willing to use continuous glucose monitoring for the vast majority of the time and who meet one or more of the following criteria:

- Severe hypoglycemia without an obvious precipitant, despite optimized use of insulin therapy and conventional blood glucose monitoring
- Inability to recognize, or communicate about, symptoms of hypoglycemia

### RATIONALE FOR THE RECOMMENDATION

The Ontario Health Technology Advisory Committee has reviewed the findings of the health technology assessment<sup>1</sup> and determined that continuous glucose monitoring has demonstrated clinical effectiveness in certain patients with type 1 diabetes.

Ontario Health Technology Advisory Committee members noted that continuous glucose monitoring provides benefit for outcomes that are important to patients, including maintaining their blood glucose in an optimal range. However, continuous glucose monitoring is very expensive, and there is considerable uncertainty about whether the technology represents good value for money for many patients with type 1 diabetes.

Ontario Health Technology Advisory Committee members took into account the lived experience of patients with type 1 diabetes and parents of children with type 1 diabetes, who described the social, clinical, and safety benefits of continuous glucose monitoring. Based on these considerations, Health Quality Ontario decided to recommend public funding for continuous glucose monitoring for patients who meet certain criteria.

---

**Public Comment:** Held 11 October to 1 November, 2017.

## Decision Determinants for Continuous Monitoring of Glucose for Type 1 Diabetes

Decision Criteria	Subcriteria	Decision Determinants Considerations
<b>Overall clinical benefit</b> How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	<b>Effectiveness</b> How effective is the health technology/intervention likely to be (taking into account any variability)?  <b>Safety</b> How safe is the health technology/intervention likely to be?  <b>Burden of illness</b> What is the likely size of the burden of illness pertaining to this health technology/intervention?  <b>Need</b> How large is the need for this health technology/intervention?	There was moderate certainty that continuous glucose monitoring is more effective than usual care/self-monitoring of blood glucose for time spent in the target glucose range. There was less certainty that continuous glucose monitoring could contribute to a reduction in severe hypoglycemic events  No assessment of safety was done, although a variety of technologies are used to shield the sensor from immune attack  Between 70,000 and 150,000 people in Ontario have type 1 diabetes  Continuous glucose monitoring is not publicly funded at present. Patients often pay out of pocket for continuous glucose monitors
<b>Consistency with expected societal and ethical values<sup>a</sup></b> How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?	<b>Societal values</b> How likely is adoption of the health technology/intervention to be congruent with expected societal values?  <b>Ethical values</b> How likely is adoption of the health technology/intervention to be congruent with expected ethical values?	Patients felt that continuous glucose monitoring provided increased safety and effectiveness in managing their type 1 diabetes, consistent with societal values  Patients felt that continuous glucose monitoring provided increased safety and effectiveness in managing their type 1 diabetes, consistent with ethical values
<b>Value for money</b> How efficient is the health technology/intervention likely to be?	<b>Economic evaluation</b> How efficient is the health technology/intervention likely to be?	There were large uncertainties around the incremental cost-effectiveness ratios associated with continuous glucose monitoring. Compared with self-monitoring of blood glucose, continuous glucose monitoring was associated with small increases in health benefits and higher costs
<b>Feasibility of adoption into health system</b> How feasible is it to adopt the health technology/intervention into the Ontario health care system?	<b>Economic feasibility</b> How economically feasible is the health technology/intervention?  <b>Organizational feasibility</b> How organizationally feasible is it to implement the health technology/intervention?	Based on a 2% current use of continuous glucose monitors ( $n = 2,091$ ) and approximately 20% increase in uptake per year above the current usage, publicly funding continuous glucose monitoring for people with type 1 diabetes may result in extra spending, ranging from \$8.5 million to \$16.2 million per year over the next 5 years. Publicly funding continuous glucose monitoring in a larger population (e.g., all patients with type 1 diabetes who have hypoglycemia unawareness) would result in extra spending of approximately \$80 million per year over the next 5 years  Continuous glucose monitoring is currently funded for some patients with type 1 diabetes. It is unclear whether it can be funded for all patients with type 1 diabetes, given the support required

<sup>a</sup>The anticipated or assumed common ethical and societal values held in regard to the target condition, target population, or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

## **REFERENCE**

- (1) Health Quality Ontario. Continuous monitoring of glucose for type 1 diabetes: a health technology assessment. *Ont Health Technol Assess Ser* [Internet]. 2018 Feb;18(2):1-161. Available from: <http://www.hqontario.ca/evidence-to-improve-care/journal-ontario-health-technology-assessment-series>

### **Disclaimer**

### **About Health Quality Ontario**

### **About the Ontario Health Technology Advisory Committee**

### **How to Obtain Recommendation Reports From Health Quality Ontario**

Health Quality Ontario  
130 Bloor Street West, 10<sup>th</sup> Floor  
Toronto, Ontario  
M5S 1N5  
Tel: 416-323-6868  
Toll Free: 1-866-623-6868  
Fax: 416-323-9261  
Email: [EvidenceInfo@hqontario.ca](mailto:EvidenceInfo@hqontario.ca)  
[www.hqontario.ca](http://www.hqontario.ca)

© Queen's Printer for Ontario, 2018

### **Citation**

Health Quality Ontario. Continuous monitoring of glucose for type 1 diabetes [Internet]. Toronto (ON): Queen's Printer for Ontario; 2018 February. 3 p. Available from: <http://www.hqontario.ca/evidence-to-improve-care/recommendations-and-reports/OHTAC/continuous-glucose-monitoring>