

CADTH Health Technology Review Recommendation

Hybrid Closed-Loop Insulin Delivery Systems for People With Type 1 Diabetes

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What is the Health Technology Expert Review Panel's recommendation for hybrid closed-loop insulin delivery systems for people with type 1 diabetes?

1. The CADTH Health Technology Expert Review Panel (HTERP) suggests that hybrid closed-loop insulin delivery (HCL) systems hold promise for the care of people with type 1 diabetes. HTERP considers that, at present, there are insufficient long-term data on clinically relevant and patient-important outcomes to recommend how extensive the role of HCL systems should be in care.
2. HTERP recommends the collection of robust and comparative data for consideration of future reassessments that compare HCL systems to existing insulin delivery and glucose monitoring methods in terms of glycated hemoglobin (hemoglobin A1C); time-in-range; time above and below range; glycemic variability; quality of life; patient, parent or caregiver, and health care provider satisfaction; diabetes-related complications; discontinuation rates; and health system impact. Robust data are collected in well-designed comparative studies that are, among other considerations, of sufficient duration to ensure a clinically meaningful outcome assessment.

Why did the Health Technology Expert Review Panel make this recommendation?

HTERP determined that at the time of deliberation it was not possible to make stronger conclusions on the comparative effectiveness of HCL systems due to insufficient long-term data on clinically relevant and patient-important outcomes compared with standard therapy. Eight randomized controlled trials (RCTs) and 1 matched cohort study have demonstrated short-term clinical benefits of HCL systems compared with standard therapy using intermediate clinical outcome measures assessed from 2 days and up to 6 months. Qualitative data indicate that people's expectations for HCL systems to relieve some of the demands of diabetes management are largely met, and that HCL systems can offer a range of non-clinical benefits for some people living with type 1 diabetes. Overall, HTERP considered that the comparative data on clinically relevant and patient-important outcomes synthesized in the CADTH Health Technology Assessment (HTA) were not collected from studies of sufficient length to ensure a clinically meaningful outcome assessment. Further, and based on a published systematic review and a CADTH supplemental assessment, HTERP determined that the clinical validity of using glucose time-in-range metrics as surrogate outcome measures for long-term diabetes outcomes has not yet been established. There are ongoing comparative studies assessing the effectiveness and safety of HCL systems compared with existing insulin delivery and glucose monitoring methods. New relevant evidence is expected to be available in the next 1 to 2 years that could be considered in reassessments.

What is type 1 diabetes?

Without the ability to produce insulin, people living with type 1 diabetes develop symptoms such as excessive thirst or urination, blurred vision, headache, fatigue, or diabetic ketoacidosis as blood glucose levels rise. Over time, high blood glucose levels caused by diabetes can damage organs, blood vessels, and nerves, leading to conditions such as kidney failure or blindness. High blood glucose levels also increase the risk of cardiovascular disease, including high blood pressure, heart disease, and stroke. All people living with type 1 diabetes require insulin therapy to lower blood glucose levels and reduce the risk of short- and long-

term complications. Insulin therapy can be provided by multiple daily insulin injections (MDIIs) or insulin pumps. People with type 1 diabetes must also regularly monitor their blood glucose levels to achieve and maintain glucose levels that are within target range. They can do this through self-monitoring of blood glucose using a blood glucose meter and test strips, flash glucose monitoring, or continuous glucose monitoring. In 2019, an estimated 2.49 million people in Canada aged 12 years and older (7.8% of the population) were living with diabetes, approximately 9% of whom had type 1 diabetes. In the same year, 11,800 children in Canada were estimated to be living with type 1 diabetes.

What are hybrid closed-loop insulin delivery systems?

One goal of type 1 diabetes research is to develop a system that can mimic the body's ability to regulate blood glucose levels without the need for intervention by the person with type 1 diabetes. HCL systems are an emerging option for the management of type 1 diabetes on a path toward an artificial pancreas. These systems consist of an insulin pump, a continuous glucose monitor (CGM), and a computer program (algorithm) that allows the 2 devices to communicate with each other and calculate insulin needs. HCL systems are designed to automatically keep blood glucose levels within a predefined range by using the information from the CGM to tell the insulin pump how much insulin to deliver. These systems are also designed to suspend delivery of insulin if blood glucose levels have reached, or are predicted to reach, a predefined low glucose threshold. These are called *hybrid systems* because the user must still manually account for their insulin needs before eating and manually confirm the amount of any insulin bolus to be delivered.

How much do hybrid closed-loop systems cost?

Public coverage of technologies to manage type 1 diabetes varies across Canada in terms of whether technologies are publicly reimbursed and, if so, what technologies are publicly reimbursed and for whom. CADTH's budget impact analysis, from a pan-Canadian, publicly funded health care system perspective, estimated the financial impact of reimbursing HCL systems for the care of people living with type 1 diabetes compared with currently reimbursed technologies over a 3-year time horizon. The budget impact is expected to be \$823 million from a pan-Canadian public payer perspective. A key source of uncertainty in the analysis is the uptake of HCL systems among those currently using MDIIs. If current users do not switch to HCL systems, the budget impact of introducing HCL systems is expected to be much lower (\$97 million). Because a publicly funded health care system perspective was taken, out-of-pocket expenses incurred by people with type 1 diabetes were not captured in the analysis.

Recommendation

These recommendations were developed by CADTH HTERP to assess the role of commercially available HCL systems in the care of people living with type 1 diabetes.

The recommendations were developed following HTERP deliberations over multidisciplinary evidence reviewed in a CADTH HTA report. The HTA included a review of the comparative clinical effectiveness and safety of commercially available HCL systems compared with other insulin delivery methods, the budget impact of reimbursing HCL systems compared with currently reimbursed technologies, patients' and caregivers' expectations and experiences of engaging with HCL systems, and the ethical issues raised by the use of HCL systems for managing type 1 diabetes.

The target population for these recommendations is people living with type 1 diabetes. The target users of these recommendations are Canadian health care decision-makers, including those in provincial and territorial ministries responsible for making decisions about public funding for diabetes technologies and people actively researching appropriate management and care for people with type 1 diabetes.

1. The CADTH Health Technology Expert Review Panel (HTERP) suggests that hybrid closed-loop insulin delivery (HCL) systems hold promise for the care of people with type 1 diabetes. HTERP considers that, at present, there are insufficient long-term data on clinically relevant and patient-important outcomes to recommend how extensive the role of HCL systems should be in care.
2. HTERP recommends the collection of robust and comparative data for consideration of future reassessments that compare HCL systems to existing insulin delivery and glucose monitoring methods in terms of glycated hemoglobin (hemoglobin A1C); time-in-range; time above and below range; glycemic variability; quality of life; patient, parent or caregiver, and health care provider satisfaction; diabetes-related complications; discontinuation rates; and health system impact. Robust data are collected in well-designed comparative studies that are, among other considerations, of sufficient duration to ensure a clinically meaningful outcome assessment.

Technology

HCL systems are an emerging option for the management of type 1 diabetes. These systems consist of an insulin pump, a CGM, and a computer program (algorithm) that allows the 2 devices to communicate with each other and calculate insulin needs.¹ HCL systems are designed to automatically keep blood glucose levels within a predefined range by using the information from the CGM to tell the insulin pump how much insulin to deliver.^{1,2} These systems are also designed to suspend delivery of insulin if blood glucose levels have reached, or are predicted to reach, a predefined low glucose threshold.¹⁻⁵ These are called *hybrid systems* because the user must still manually account for their insulin needs before eating and manually confirm the amount of any insulin bolus to be delivered.¹

Methods

CADTH conducted an HTA on the comparative clinical effectiveness and safety, budget impact, perspectives and experiences, and ethical issues related to the use of commercially available HCL systems by people living with type 1 diabetes.⁶ HTERP developed recommendations on the place in care of HCL systems compared with existing technologies based on the evidence presented in the HTA report. HTERP members reviewed the evidence, discussed all elements of the HTERP deliberative framework,⁷ considered stakeholder feedback, and developed recommendations through discussion, deliberation, and consensus. Additional information on the HTERP process can be found on the HTERP page of the [CADTH website](#).

Detailed Recommendation

The objective of these recommendations is to provide advice for Canadian health care decision-makers and researchers about the use and study of commercially available HCL systems for people with type 1 diabetes.

- The CADTH Health Technology Expert Review Panel (HTERP) suggests that hybrid closed-loop insulin delivery (HCL) systems hold promise for the care of people with type 1 diabetes. HTERP considers that, at present, there are insufficient long-term data on clinically relevant and patient-important outcomes to recommend how extensive the role of HCL systems should be in care.
- HTERP recommends the collection of robust and comparative data for consideration of future reassessments that compare HCL systems to existing insulin delivery and glucose monitoring methods in terms of glycated hemoglobin (hemoglobin A1C); time-in-range; time above and below range; glycemic variability; quality of life; patient, parent or caregiver, and health care provider satisfaction; diabetes-related complications; discontinuation rates; and health system impact. Robust data are collected in well-designed comparative studies that are, among other considerations, of sufficient duration to ensure a clinically meaningful outcome assessment.

Rationale

- Eight RCTs and 1 matched cohort study have demonstrated short-term clinical benefits of HCL systems compared with standard therapy using intermediate clinical outcome measures assessed from 2 days and up to 6 months.
- HTERP determined that at the time of deliberation it was not possible to make stronger conclusions on the comparative effectiveness of HCL systems due to insufficient long-term data on clinically relevant and patient-important outcomes compared with standard therapy.
 - Based on a published systematic review and a CADTH supplemental assessment, the clinical validity of using glucose time-in-range metrics as surrogate outcome measures for long-term diabetes outcomes has not yet been established.
 - The comparative data on clinically relevant and patient-important outcomes synthesized in the CADTH HTA were not collected from studies of sufficient length to ensure a clinically meaningful outcome assessment.

- The demonstrated short-term benefits of HCL systems on clinical outcomes compared with standard therapy do not appear to occur at the cost of safety considerations, including hypoglycemic events, hyperglycemic events, diabetic ketoacidosis events, ketosis events, or other adverse events.
- The rich qualitative data synthesized in the CADTH HTA illustrate that people's expectations of HCL systems are that these systems will relieve some of the demands of diabetes management. They would be able to focus more on other life activities and less on their diabetes management, which involves a substantial investment of time and energy to reduce the risk of life-threatening situations. These qualitative data also indicate that these expectations are largely met, and that HCL systems can offer a range of non-clinical benefits for some people living with type 1 diabetes.
- HCL systems have the potential to promote individual autonomy and agency by relieving some of the demands of diabetes management if people are able to develop trust in the system. Developing trust appears to be related to the time needed to adapt to new routines of self-management as well as experiences with technical glitches, technological accuracy, and the requirement for technology maintenance.
- There are ongoing comparative studies assessing the effectiveness and safety of HCL systems compared with existing insulin delivery and glucose monitoring methods. New relevant evidence is expected to be available in the next 1 to 2 years that could be considered in reassessments.

Considerations

- Additional information is needed to inform a recommendation about the place in care for HCL systems for people with type 1 diabetes. Specifically, there is a need for robust and comparative data on the effectiveness of HCL systems compared with existing insulin delivery and glucose monitoring methods in terms of quality of life; patient, parent or caregiver, and health care provider satisfaction; diabetes-related complications; discontinuation rates; and health system impact. Additional evidence can inform an understanding of the balance of observed improvements in glycemic management and any concerns about technical glitches, technological accuracy, and the requirement for technology maintenance. Further, there is a need for additional clinical and non-clinical evidence that reflects the diversity of people living with type 1 diabetes, for example, based on clinical characteristics, access to social determinants of health, geography, experienced stigma, and gender roles.
- Real-world evidence – defined as clinical evidence regarding the benefits and use of a health technology derived from routinely collected health care data – has the potential to reduce the uncertainty in the long-term comparative clinical effectiveness, safety, utilization, and health system impact of HCL systems compared with other insulin delivery methods. HTERP considers that real-world evidence must, like controlled trials, be robust, comparative, controlled, and of sufficient duration to be considered in future assessments.
- HTERP suggests that a cost-effectiveness analysis is required to make a recommendation about the place in care of HCL systems for people with type 1 diabetes. A cost-effectiveness analysis was not possible due to insufficient long-term clinical outcome data for HCL systems compared with currently reimbursed technologies and insufficient understanding of the relationship between glucose time-in-range metrics and the risk of developing diabetes-related complications.
- CADTH's budget impact analysis estimated, from a pan-Canadian, publicly funded health care system perspective, the financial impact of reimbursing HCL systems for the

care of people with type 1 diabetes compared with currently reimbursed technologies over a 3-year time horizon. The budget impact is expected to be \$823 million from a pan-Canadian perspective. A key source of uncertainty in the analysis is the uptake of HCL systems among those currently using MDIs. If current users do not switch to HCL systems, the budget impact of introducing HCL systems is expected to be much lower (\$97 million). Given additional uncertainty in long-term clinically relevant and patient-important outcomes with HCL systems, HTERP discussed the uncertainties associated with the opportunity cost of recommending a stronger role for HCL systems in the care for people with type 1 diabetes in relation to other health care needs of Canadians.

- Public coverage of technologies to manage type 1 diabetes varies across Canada in terms of whether technologies are publicly reimbursed, what technologies are publicly reimbursed, and for whom they are reimbursed, which is undesirable from an equity perspective. If data on clinically relevant and patient-important outcomes emerge to demonstrate the long-term clinical effectiveness of HCL systems for caring for people with type 1 diabetes, there would be an ethical argument to ensure equity in access and coverage.
- HTERP considered that a stronger role for HCL systems would require an investment in the training of and support for the health care providers who would collaborate with people living with type 1 diabetes to adopt the technology and develop the trust needed to enable HCL systems to have their intended effect. Additionally, HTERP considered that collaborations between health care providers and people with type 1 diabetes would require an additional upfront investment in health care provider time, compared with current standard of care, to support transition to or uptake of HCL systems. There is, however, insufficient evidence at present to demonstrate the specific requirements or health system impact.
- CADTH acknowledges that the type 1 diabetes community has built and used do-it-yourself (DIY) systems for several years. However, DIY systems were excluded from the analyses of clinical effectiveness, safety, and budget impact. The focus of these analyses was on commercially available systems, given the overall perspective of the public payer. Published studies describing peoples' expectations of and experiences with DIY systems, and ethical analyses and considerations related to using DIY systems, were eligible for analyses; however, insufficient published literature was identified to appropriately comment on these aspects within the HTA.

Evidence

The complete assessments describing the clinical effectiveness and safety, budget impact, perspectives and experiences, and ethical issues used for developing this guidance are available in the CADTH Hybrid Closed-Loop Insulin Delivery Systems for People With Type 1 Diabetes Health Technology Review.⁶

Clinical Effectiveness and Safety

The review of clinical effectiveness and safety comprised a systematic review of primary studies on the comparative clinical effectiveness and safety of commercialized HCL systems versus other insulin delivery methods in people with type 1 diabetes. The research questions addressed were:

1. What is the comparative clinical effectiveness of commercially available HCL systems versus other insulin delivery methods in people, of any age, with type 1 diabetes?
2. What is the comparative safety of commercially available HCL systems versus other insulin delivery methods in people, of any age, with type 1 diabetes?

Nine unique studies (8 RCTs and 1 matched cohort study) in 10 publications met the inclusion criteria and were included in the review of clinical effectiveness and safety. A narrative synthesis and a summary of the methodological assessment were conducted for each included study.

Of the 9 studies identified for inclusion in this review, 5 studies compared HCL systems versus open-loop sensor-augmented pump (SAP) systems without predictive low-glucose suspend (PLGS), 2 compared HCL systems versus open-loop SAP systems with PLGS, 1 study compared HCL therapy versus a control group that received open-loop SAP therapy with or without PLGS (a mixed population), and 1 study compared HCL therapy versus a control group that received insulin delivery via MDII or insulin pump therapy (a mixed population), both of which were informed by self-monitoring of blood glucose (i.e., using a blood glucose meter without access to CGM data). The RCTs were judged to be at low-to-moderate risk of bias, and the cohort study was judged to be at a high risk of bias during the critical appraisal process.

HCL therapy generally increased the proportion of time spent within euglycemic ranges and decreased time spent within hypo- and hyperglycemic ranges compared with open-loop SAP therapy (regardless of whether a PLGS was available) and MDII or insulin pump therapy informed by self-monitoring of blood glucose. HCL therapy demonstrated a general trend in improving hemoglobin A1C, mean glucose concentrations, and glycemic variability compared with open-loop SAP therapy (with or without PLGS) or MDII or insulin pump therapy informed by self-monitoring of blood glucose across most studies. People using HCL therapy reported small improvements, or there were no statistically significant differences, in the effectiveness of HCL systems with respect to quality of life and patient satisfaction. Additional studies with longer follow-up periods and larger sample sizes would reduce the uncertainty surrounding the long-term effectiveness of HCL systems.

The incidences of adverse events experienced by study participants, such as hypoglycemic events and ketosis-related events, were generally not statistically significantly different between those who were treated with HCL therapy and those who received control interventions. Although this finding is favourable, additional studies with longer follow-up periods and larger sample sizes would reduce the uncertainty surrounding the safety of HCL systems.

Budget Impact

The economic evidence comprised a budget impact analysis to evaluate the affordability of reimbursing HCL systems compared with currently reimbursed technologies for individuals with type 1 diabetes from a public payer perspective over a 3-year time horizon. The question addressed was:

- What is the budget impact to Canadian publicly funded health care systems of reimbursing HCL systems for the management of type 1 diabetes compared with currently reimbursed technologies?

An epidemiological approach was used to determine the size of the eligible patient population, using prevalence estimates from the literature validated by clinical experts. The base case considered HCL therapy coverage for those who are eligible for insulin pumps within their jurisdictions. New individuals were added into the analysis each year through an incidence rate and a jurisdiction-specific population growth rate.

The analysis compared 2 scenarios: a reference scenario, which included only diabetes therapies that are currently reimbursed publicly, and a new device scenario, which considered a hypothetical world where HCL systems are covered by public payers. The reference scenario was based on jurisdiction-specific public coverage of insulin delivery devices (insulin pumps, insulin pump supplies, multiple daily injection supplies) and glucose monitoring devices (CGMs, flash glucose monitors, and self-monitoring of blood glucose test strips), where available. Reference scenario market shares (the distribution of individuals with type 1 diabetes across treatment strategies in a world where s publicly reimbursed) were jurisdiction-specific and estimated based on input received during stakeholder consultations.

In the new device scenario, CADTH assumed that all technologies necessary to introduce HCL systems would be covered by the public payer. Uptake of HCL systems under the new device scenario was informed by stakeholder consultations which further indicated that the uptake of HCL systems would be different depending on an individual's current approach to delivering insulin (i.e., whether they used an insulin pump or MDII).

In line with the perspective of the analysis, only costs covered by the public health care payer were captured. Jurisdiction-specific prices, coverage rates, and co-pays were used to estimate the cost of each treatment approach, when possible. Cost of HCL systems were assumed to include the cost of an insulin pump, annual insulin pump supply costs, and annual CGM supply costs. It was assumed that the third aspect to HCL systems, the computer program, would incur no additional cost once users had acquired the other component parts (i.e., insulin pump and CGM). Although insulin pumps are, to an extent, covered by all Canadian jurisdictions, CGMs remain largely uncovered across public jurisdictions. Therefore, in these jurisdictions, it was assumed that CGMs would be publicly reimbursed only for use as a part of an HCL system.

The budget impact analysis required several key assumptions that are important to consider when interpreting the results. It was assumed that the public payer would be the first payer for devices. It was also assumed that all those meeting the age criteria within their jurisdiction for insulin pumps would be eligible for HCL systems (i.e., no clinical eligibility criteria were applied to the analysis). Additionally, it was assumed that introduction of HCL systems would have no impact on broader health system costs over the 3-year time horizon of the analysis, based on findings from the clinical review. Finally, the reference scenario was assumed not to change over the 3-year time horizon, which may be an oversimplification given rapid changes to jurisdictional reimbursement policies. Key base-case assumptions were tested through scenario analyses.

CADTH estimated that the budget impact of covering HCL systems for individuals with type 1 diabetes who are eligible for insulin pumps to be \$131 million in year 1, \$271 million in year 2, and \$420 million in year 3, for a total budget impact over 3 years of \$823 million from a pan-Canadian public payer perspective. The results were sensitive to the price of CGM. This means that a lower price for CGM devices will improve the affordability of HCL systems to public payers. An additional key source of uncertainty in the analysis was the uptake of HCL systems among those currently using MDII to deliver insulin. If current MDII users do not

switch to HCL systems, the estimated budget impact of introducing HCL systems is expected to be much lower (\$97 million).

Perspectives and Experiences

The Perspectives and Experiences review was conducted using an adapted thematic synthesis of primary qualitative research exploring the expectations and experiences of HCL systems by people living (or caring for someone) with type 1 diabetes. The research question addressed was:

- How do people living with type 1 diabetes, or those involved in their care, describe their expectations of HCL systems and how have their experiences engaging with HCL systems reflected their expectations?

This question was further supported through an exploration of the following topics:

- How do people living with type 1 diabetes, or those involved in their care, envision HCL systems as contributing to type 1 diabetes management?
- How might expectations of and experiences with HCL systems differ across various groups of people (e.g., young children, parents, elderly) engaging with these systems?

A total of 10 studies, reported in 17 publications, met the inclusion criteria and were included in the review of expectations and experiences of HCL systems by people living (or caring for someone) with type 1 diabetes. A descriptive analysis and a summary of the critical appraisal were reported for each included study.

People living (or caring for someone) with type 1 diabetes hoped that HCL systems could take over enough of the work associated with type 1 diabetes self-management that they could focus on being more immersed in, and part of, the flow of life around them. Although many described having some degree of success in achieving this, it was not without its challenges. As an example, for HCL systems to work most effectively, people need to trust the control algorithm to adjust things such as basal insulin rates and resist the trained impulse to do this themselves. This is a shift away from previous ideals of “good” self-management that require constant attention and ongoing device adjustments. This could be difficult at first for people trained in other forms of self-management; however, people who struggle to meet previous ideals might appreciate and benefit from this shift.

Given the difficulty of navigating these shifting notions of good self-management and the trust issues associated with HCL systems, it could be helpful to talk about and engage with HCL systems as collaborators in, rather than providers of, care. This distinction may seem inconsequential to those without type 1 diabetes, but for people living (or caring for someone) with type 1 diabetes, the flexibility of “collaboration” helped them deal with the numerous frustrations of technical glitches and the ongoing material needs of their particular system.

The introduction of HCL systems also contributes to a shift in how professional care is imagined. With increased access to their patients’ data, clinicians believed they could see a more complete picture of their patients’ out-of-office experiences and, as a result, reduce their own workload. However, there is concern that this could lead to mistaking the numbers associated with diabetes for the person living with diabetes, which could result in missed opportunities to provide extra support or care to their patients.

Ethical Issues

Bioethical analysis requires a 2-step approach to identify potential issues. The first is a review of the ethics, clinical, and public health literature to identify existing ethical analyses of the technology. The second is a novel ethical analysis based on gaps identified in the ethics literature and the results of concurrent reviews. Accordingly, ethical analysis reflects on the specific details of the perspectives and experiences of those engaging with the technology, the clinical utility, and economic considerations. As such, the ethical review involved an iterative process whereby the analysis was responsive to results emerging from these domains.

The research questions guiding this inquiry were:

1. What are the major ethical issues raised by the use of HCL systems?
2. How might these issues be addressed?

There is evidence that HCL systems provide at least short-term clinical and non-clinical benefits to users; therefore, providing coverage for these systems may fulfill governmental obligations to allocate resources to maximize benefits. It is not possible to conclude whether HCL systems will ultimately improve population health over the longer term because data on the impact of using HCL systems compared with other prominent modes of diabetes management) are not available.

HCL systems may promote individual autonomy and agency by relieving the burdens of diabetes management and enabling users to have greater control over their diabetes – provided users are able to develop trust for the system.

Accessible, accurate, and comprehensive education and support for new and ongoing users of HCL systems are important to enable users to adapt to the device and remain comfortable to continue to use the device over time and benefit from their use.

At the clinical level, health care providers who play a gatekeeping role for access to HCL systems should be aware of the fallibility of their assumptions about which patients are likely to benefit from HCL systems. Use of non-clinical factors in this assessment should be limited; probationary periods to demonstrate one's capacity to safely and effectively use the device should be considered.

There is disagreement about eligibility for public coverage for HCL systems (if a decision was made to publicly fund HCL systems). Some argue that people who are managing their diabetes well should be candidates, whereas others think the device should be available to those who need to improve their management.

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Appendix 1: The Health Technology Expert Review Panel

HTERP consists of up to 7 core members appointed to serve for all topics under consideration during their term of office, and up to 5 expert members appointed to provide their expertise for a specific topic. For this project, 1 expert member with expertise in diabetes management and care was appointed. The core members include health care practitioners and other individuals with expertise and experience in evidence-based medicine, critical appraisal, health technology assessment, bioethics, and health economics. One public member is also appointed to the core panel to represent the broad public interest. HTERP is an advisory body to CADTH convened to develop guidance or recommendations on non-drug health technologies to inform a range of stakeholders within the Canadian health care system. Further information regarding HTERP is available at is available on the HTERP page of the [CADTH website](#).

HTERP Core Members

Dr. Hilary Jaeger (Chair)

Dr. Sandor Demeter

Dr. Lawrence Mbuagbaw

Dr. Jeremy Petch

Dr. Lynette Reid

Ms. Tonya Somerton

Dr. Jean-Eric Tarride

Expert Member

Dr. Robyn Houlden

Conflict of Interest

HTERP core members' declarations are posted on the [CADTH website](#).

In the past 3 years, Dr. Robyn Houlden has received funding for speaking engagements with Abbott, Astra Zeneca, Boehringer, Dexcom, Eli Lilly, and Novo Nordisk, and has also received research funding or grants from Astra Zeneca, Boehringer, Eli Lilly, and Novo Nordisk.