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Canadian Agency For Drugs And Technologies In Health (CADTH)
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Re: Diabetes Canada Feedback on the Flash Glucose Monitoring System FreeStyle Libre to Monitor Glycemia in Patients With Diabetes Technology Review

Thank you for the opportunity to provide feedback on the draft report *Flash Glucose Monitoring System FreeStyle Libre to Monitor Glycemia in Patients With Diabetes*. Diabetes Canada commends CADTH for conducting a technology review that synthesizes key findings from the two Canadian health technology assessment (HTA) reports on flash glucose monitoring systems (FGMS).

Diabetes Canada and its expert reviewers have provided comments on this draft document, for your consideration.

People living with diabetes should have timely and equitable access to the medications, devices, and supplies that best suits their clinical needs and personal context based on best evidence, including FGMS. Access to the right medications, devices, supplies, and services with appropriate education and support, helps people living with diabetes achieve optimal health outcomes.

FGMS have the potential to improve blood sugar control and quality of life for people living with diabetes, resulting in physical, social, and emotional benefits.[1] It can help people living with diabetes identify when their blood sugar is trending down, which allows for appropriate, timely action to be taken to avoid hypoglycemia.[1] It can also provide early indication of hyperglycemia over the course of the day and prompt adjustments to medications, activity, and food intake to help achieve blood sugar targets. This in turn can reduce the risk of long-term complications, including heart attack, stroke, kidney failure, blindness, and amputation.[1] Unfortunately, while FGMS are included in many private and employment health insurance plans, public coverage is inconsistent across Canada. The cost of FGMS is a barrier to access for many Canadians living with type 1 diabetes and Canadians living with type 2 diabetes requiring insulin. Canadians living in provinces and territories with no coverage, limited coverage, or not meeting eligibility criteria for their provincial/territorial plan must

pay up to ~$2,500 per annum in out-of-pocket costs for flash glucose monitoring.[2,3] Restricted access means a lost opportunity for some people living with diabetes to enhance their health outcomes, diabetes-specific quality of life, and disease management satisfaction.

We ask that you consider integrating the following feedback into the technology review on *Flash Glucose Monitoring System FreeStyle Libre to Monitor Glycemia in Patients With Diabetes*:

1. ***Objective of the report:*** The objective of this CADTH report is to "synthesize the key findings of the two recent Canadian provincial HTA reports on the FGMS, i.e. Ontario and Quebec, including clinical, economic, and budget impact results". There is no mention of the purposeful inclusion of patient perspectives. Patients with lived experiences must be a valued part of the knowledge synthesis and health policy development process. Patients and patient groups can provide a unique knowledge source and should have the opportunity to provide input that conveys their experiences and perspectives of how FGMS have impacted their ability to manage their disease, as well as the resulting benefits. Some known patient experiences on the benefits of using FGMS include: less pain, effective prevention of hyper- and hypoglycemia, increased feeling of safety for both people living with diabetes and their loved ones, the ability to share data with caregivers and loved ones, easier sharing with health-care providers, and less cumbersome testing. However, throughout the technology review, there is minimal emphasis placed on the patient experience. New, innovative methods that allow the incorporation of qualitative patient evidence about the lived experience is an essential step for CADTH to take in order to value all evidence including clinical, economic and patient evidence. Current HTAs do little more than superficially acknowledge that the patient experience ought to be collected.

2. ***Scope of included literature:*** The initial description of the scope indicated three HTA reports would be included. It is not transparent what happened, and why the third report was not evaluated.

   The scope of included literature should be flagged as a limitation of the technology review, as it synthesized the findings from two HTA reports and the evidence included is up to 2018. In 2018, flash glucose monitoring was still a relatively new technology; however, in the last two years (2018-2020), a series of new studies and recommendations has emerged. Therefore, it is recommended that the evidence that was produced in the last two years be assessed and incorporated into the technology review. Further, Chapter 9, Monitoring Glycemic Control, of the *Diabetes Canada 2018 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada* is currently under review; as such it may be valuable to wait to review the Canadian clinical consensus on the totality of evidence with respect to FGMS before finalizing the technology review and making recommendations. It is understood that this CADTH report was in response to the jurisdictions' request to summarize the existing reports. However, from the

perspective of patients and health-care providers, it would be more relevant to have a summary of the most up-to-date evidence rather than a summary of older reports.

3. ***Conclusion and recommendations:*** While considering financial constraints and policy development, patients need to remain at the center of health policy decision-making. This entails acknowledging the patient perspective as a unique knowledge source, and meaningfully engaging patients early and frequently in the policy development process. The conclusion and recommendations provided in the technology review are largely focused on clinical trial outcomes and cost-effectiveness, while placing a lesser emphasis on patient-centered outcomes. Therefore, while developing health policy recommendations, it is important to be inclusive of, and move beyond only clinical trial outcomes and cost-effectiveness, and to adopt a patient-centered approach that considers significant patient experiences that include a range of structural and psychosocial aspects that affect patients' lives, treatment, care, and environment. These include, but are not limited to, caregiver support, overall well-being (including mental health and distress), employment, socioeconomic status, education, etc. It is time for HTAs and methodologies to evolve beyond the current model of assessment to acknowledge the value of patient experiences.

   In the technology review, it is noted that "while the Flash sensor does not require finger prick calibration with SMBG, Ontario and Quebec similarly recommended finger prick calibration (i.e., SMBG) with FGMS using test strips to calibrate the device and ensure accuracy of readings." The current suggestion to do occasional blood glucose tests while using FGMS is not to calibrate the device or ensure accuracy. It is meant as a safety measure when the FGMS reading does not match the person's symptoms or with extreme readings. There is a documented five to 10 minute delay in interstitial fluid glucose response to changes in blood glucose, which means that asking for random calibrations with blood glucose against a sensor creates unnecessary cost and is not clinically meaningful.[1] Also, without full knowledge of trend arrows, rates of change, and lag time, patients may experience undue confusion and frustration. We strongly suggest that SMBG should be used as a safety measure only rather than as a method for accuracy comparisons.

4. ***Monitoring and evaluation:*** This technology review stated that the evidence included was of moderate quality with new studies pending publication. Given the anticipation of new information, CADTH should consider a mechanism to develop "living" guidelines or recommendations to monitor, assess, and advise based on emerging evidence. Further, provinces that implement coverage for FGMS should adopt a patient-centered monitoring and evaluation framework to assess patients' on-going experiences using FGMS. This would ensure that patients have the opportunity to contribute their unique knowledge while remaining at the center of health policy decision-making. Also, additional monitoring and evaluation

requirements could be placed on the manufacturer to conduct quality analyses of real-world effectiveness, including adherence and persistence. This would help to ensure that patients are achieving the outcomes that are expected with the public funding of these programs.

5. ***Clinical outcomes:*** There is evidence supporting the use of flash glucose monitoring for the prevention of hypoglycemic events. The technology review reported no improvement in A1c was observed in the FGMS groups, compared to the SMBG groups. The change in the A1c did not reach the 0.5% medically significant cut-off; however, the definitions of "medically significant change" have yet to be established for time-in-range (TIR) and time-below-range (TBR) which are clinically important, patient-centered outcomes.

   The baseline A1c in the Bolinder (IMPACT) (2016) trial was very low therefore, a non-significant reduction in A1c was expected. The baseline A1c in the Haak (REPLACE) (2017) trial was 8.7%, and they also did not report a significant reduction in A1c. This can be explained by the fact that the act of monitoring alone will not change A1c but rather the actions taken in response to the monitoring that can affect A1c. In the absence of a program to educate on how to lower glucose levels, the lack of change in A1c is not surprising. But the reduction in hypoglycemia (a clinically important outcome) can actually raise A1c so the fact that A1c did not go up means that despite the lack of a formal education program, people still made some changes to reduce the high blood sugars.

   It is unclear if FGMS truly do not have an impact on A1c as the technology review only synthesized literature up until 2018, when the technology was just in its infancy. A review of the literature published in the last two years (2018-2020) should be done to see if this evaluation still holds true.

   The target population in both reviews include intensive insulin therapy. However, the definition of intensive therapy varied across the reviews and should be described and clarified.

6. ***Education and training:*** In the technology review, it was noted that "education and training were considered necessary for the optimal use of FGMS in the two HTA reports." It can be argued that the time it takes to train person with diabetes to use FGMS is not different from the time required to train a person for SMBG. Both groups require education on the interpretation of the data from glucose monitoring to effect real change. Self-management is a key component of diabetes management overall and education is required for all aspects of disease management.

7. ***Economic evidence*:** Diabetes Canada acknowledges that provincial/territorial governments have finite resources, but new technology is expensive, and the utility gained from it is significant even though it takes years to be fully realized, especially when describing chronic disease

management. Given the current landscape with COVID-19 and the shift to virtual care, FGMS allow more complete information to be collected and easily shared virtually with all parties involved. Also, even if SMBG results are shared virtually, the interpretation of those results is based on few data points, versus 1,440 data points in 24 hours.

Cost-minimization and budget impact analyses are the only costing methods described in the technology review, which has limitations. Cost-savings borne from favourable outcomes should have also been assessed in the technology new. For instance, the cost savings associated with the number of hypoglycemic events prevented, and glycemic variability (GV) and increased time-in-range (TIR) have been used as predictors of hypoglycemia. The cost associated with hypoglycemia, including physical, psychological, and loss of productivity, is high and has been well documented. Further, of interest from the provincial public health-care payer perspective, the cost of hospital visits and emergency visits due to hypoglycemia is substantial and could potentially be lessened through the use of FGMS.

The CADTH review summarizes the evidence presented by the previous reports, but it would be helpful to highlight the limitations of these analyses in order to place the recommendations into context.

8. ***Costing perspective:*** The two HTA reports used a provincial public health-care payer perspective in their economic evaluation. A provincial public payer perspective accounts for provincial government-borne health and social care expenditures; but fails to consider other expenditures borne to patients, including personal health and social care expenditures, expenditures covered by private insurers, and personal wages and circumstances. These additional parameters and expenditures would have been considered if a societal perspective had been adopted by the two HTA reports and the cost-effectiveness and budget impact analysis results would have been notably different. For patients, this perspective is very important and is a limitation to the current findings.

9. ***Patient-centered outcomes:*** The two HTA reports found that the key benefits for FGMS were patient-centered outcomes including increased comfort (avoidance of finger pricking), convenience of use, ability to easily perform multiple tests per day and conducting trend analysis of test results to improve disease management, as well as increased treatment satisfaction. From the patient perspective, patient-centered outcomes are very important and should not be viewed as secondary outcomes. Patient-centered outcomes ensure that the outcomes collected are in alignment with patients preferences, needs, and values, while ensuring that patient values guide all clinical decisions.[4] Further, patient-centered outcomes are associated with improved clinical outcomes.[5]

10. ***Benefits for health-care providers:*** The technology review describes but does not value the benefits of FGMS for health-care providers and optimal health-care delivery. Clinicians who are familiar with FGMS report the benefits of the system in terms of:
    - Providing feedback to patients based on data that improves adherence to insulin and other medications;
    - Allowing the evaluation of glycemic control versus an evaluation based on one SMBG (time-in-range (TIR) data, glucose management indicator (GMI) data);
    - Providing feedback to patients based on data that improves adherence to diet and lifestyle interventions;
    - Allowing clinicians to create targeted approaches to improving glycemic control, as this technology can facilitate "targeting" the periods of glycemic variability;
    - Monitoring and sharing of data, which can be done virtually through phone applications or direct clinician sharing (patients share specific reports) or indirectly by allowing permission for health-care providers to monitor via Libreview platform;
    - Improved interpretation of A1c;
    - Prevention of emergency room visits for both hypo- and hyperglycemia; and
    - Safer interventions that are tailored to patients complex needs.

    Many clinicians have expressed that they have experienced this intervention to be very impactful for both themselves and their patients.

11. ***Other patient populations:*** Studies are currently being conducted to assess the effectiveness of FGMS in other patient populations including children, young people, and pregnant women. How will CADTH incorporate emerging high-quality evidence on the effectiveness of using FGMS to monitor glycemia in other patient populations?

We appreciate the opportunity to provide input. It would be helpful to understand how the final report will be used given the draft report has already informed the recent deliberations of the ad-hoc Implementation Advice Panel. The Panel ought to benefit from stakeholder feedback provided on the draft. Diabetes Canada also recommends that the Panel makes recommendations for FGMS within the context of optimal glucose monitoring for patients, rather than each device in isolation.

Diabetes Canada is an organization that produces world-renowned, evidence-based clinical practice guidelines and represents health-care providers who practice evidence-based medicine. Our comments are grounded in the perspectives and experiences of people living with diabetes, and the experts who provide health care. All adults aged 18 years and older with insulin-treated type 1 and type 2 diabetes should have access to FGMS, where there are demonstrated improved health outcomes. Furthermore, people living with diabetes across Canada should also have access to the education and support they require that allows them to effectively self-manage their disease with

FGMS. We hope to continue to work with you to ensure that the information and resulting polices offer patients access to optimal health outcomes.

Sincerely,

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