



TYPE 1 TOGETHER

B.C. PHARMACARE'S PUBLIC INPUT QUESTIONNAIRE FOR DRUGS BEING REVIEWED UNDER THE B.C. DRUG REVIEW PROCESS

Drug Under Review: Flash glucose monitors and continuous glucose monitors (multiple devices)

Date Submitted: Friday, September 11, 2020

Confirmation of Eligibility:

1. I am a representative of a patient group that represents patients in British Columbia who have the medical condition or disease which the drug under review would be used for AND The patient group which I represent has registered with PharmaCare to give input.

Yes.

Contact Information:

2. **Name of Patient Group and First and Last name of Patient Group Representative:**

Diabetes Canada, JDRF Canada, Type 1 Together.

Sarah Reid, Regional Lead, Diabetes Canada (British Columbia and Yukon Region)

3. **Patient Group Street Address:**

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4. **City:**

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5. **Postal Code:**

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Conflict of Interest Declaration:

6. **Does your patient group have any Conflicts of Interest to declare?**

Yes.

7. Describe any Conflicts of Interest below.

Diabetes Canada receives unrestricted educational grants from, and among others, manufacturers/vendors of medications, supplies, and devices for diabetes and its complications. These funds help the organization support community programs and services for people living with diabetes and contribute to research and advocacy efforts across Canada. No sponsor was involved in soliciting input for or developing the content of this submission.

JDRF Canada is in part funded through unrestricted grants and sponsorships from pharmaceutical companies and diabetes device manufacturers. This funding may support community programs and outreach; operations; and advocacy activities on behalf of Canadians living with type 1 diabetes. JDRF does not endorse or recommend the use of specific products or treatment or attribute of any product sold by a corporate partner of the organization. JDRF Canada is participating in this review as part of our advocacy for Canadians touched by type 1 diabetes and does not stand to benefit directly as a result of BC Pharmacare's decision to cover continuous glucose monitors and flash glucose monitor devices. No sponsor was involved in developing the content of this submission.

Type 1 Together has no conflicts of interest to declare.

Questions on the Devices Under Review:

8. Have you read the PharmaCare information sheet for these devices?

Yes, I have read the information sheet. This submission contains patient input from an online survey conducted in August 2020 (July 31st-August 19th), created jointly by **Diabetes Canada, JDRF, and Type 1 Together**. The survey was open for two-and-a-half weeks to people across Canada and consisted of a self-administered questionnaire, made up of closed- and open-ended questions. The survey requested a response from people living with type 1 or type 2 diabetes and caregivers of people living with type 1 or type 2 diabetes. It asked about respondents' lived experience with diabetes and mechanisms of glucose monitoring, as well as expectations for new glucose sensors in Canada. Further, the survey posed several questions specifically about the devices under review: Abbott flash glucose monitors (Freestyle Libre), Dexcom continuous glucose monitors (G6 and previous models), and Medtronic continuous glucose monitors (Connect, Guardian, and Enlite). Awareness of the survey was generated through Diabetes Canada, JDRF, and Type 1 Together's social media channels (Facebook, Twitter, Instagram, and LinkedIn), as well as by email to Diabetes Canada volunteer advocates.

9. Do the patients you represent have any other medical conditions that may impact the management of their diabetes or ability to manage their blood glucose? (For example, arthritis, visual impairment, use of drugs that may impact glucose control, etc.)

Yes.

Please state the condition(s) and the impact(s):

If left untreated or improperly managed, diabetes can lead to a range of diabetes-related complications, comorbidities, and disabilities, which make diabetes even more difficult to manage.

Participants' Experiences with Hyperglycemic and Hypoglycemic Events:

People living with type 1 and type 2 diabetes frequently experience episodes of hyperglycemia (high blood sugar) and hypoglycemia (low blood sugar). Left untreated, hyperglycemia and hypoglycemia can increase the risk of developing a range of short- and long-term complications, including coma and death. Of the survey respondents from across Canada (n=873), 43.3% (n=377) reported experiencing more than one hyperglycemic event (high blood sugar) a week and a further 41.8% (n=364) reported experiencing more than one hyperglycemic event a day. Furthermore, 55.7% (n=476) reported experiencing more than one hypoglycemic (low blood sugar) event a week, 19.7% (n=168) reported experiencing more than one hypoglycemic event a day, and 18.7% (n=160) reported experiencing two to four hypoglycemic events a month.

Of the survey respondents from British Columbia (n=294), 48.1% (n=141) reported experiencing more than one hyperglycemic event a day and 37.5% (n=110) reported experiencing more than one hyperglycemic event a week. Furthermore, 51.7% (n=149) reported experiencing more than one hypoglycemic event a week, 23.3% (n=67) reported experiencing more than one hypoglycemic event a day, and 18.4% (n=53) reported experiencing two to four hypoglycemic events a month.

Participants' Experiences with Mental Health Conditions:

Mental health conditions related to the diagnosis and/or self-care demands of diabetes often have a negative effect on many aspects of diabetes management and glycemic control. People living with diabetes are at greater risk of developing mental illnesses compared to people without diabetes. Respondents from across Canada (n=873) reported experiencing a range of mental health problems including (in order of priority):

- Diabetes distress (73.8%)
- A general sense of worry and/or anxiety (73.1%)
- Worry about not being able to afford diabetes medications and supplies (71.1%)
- Fear of hypoglycemia (66.5%)
- Diabetes indifference and/or burnout (65.1%)
- Emotional exhaustion (61.9%)
- Loss of sleep due to worrying about diabetes (58.9%)
- Negative social interactions due to diabetes (52.9%)
- Alarm fatigue (46.8%)
- Depression (44.8%)
- Forgetting to check glucose levels (43.1%)
- Forgetting to take medication (35.6%)
- Diabetes defiance (28.1%)
- Post-traumatic stress disorder (PTSD) (16.0%)

Respondents from British Columbia (n=294) reported experiencing a range of mental health problems including (in order of priority):

- Diabetes distress (77.7%)
- Worry about not being able to afford diabetes medications and supplies (74.9%)
- A general sense of worry and/or anxiety (73.9%)
- Diabetes indifference and/or burnout (67.6%)

- Emotional exhaustion (65.9%)
- Fear of hypoglycemia (65.2%)
- Negative social interactions due to diabetes (56.54%)
- Loss of sleep due to worrying about diabetes (58.9%)
- Depression (50.9%)
- Alarm fatigue (48.1%)
- Forgetting to check glucose levels (45.3%)
- Forgetting to take medication (38.3%)
- Diabetes defiance (32.1%)
- Post-traumatic stress disorder (PTSD) (18.5%)

Participants' Experiences with Diabetes-Related Complications and Comorbidities:

Respondents from across Canada (n=873) reported experiencing a range of diabetes-related complications and comorbidities including (in order of priority):

- Other autoimmune disorders (39.4%)
- High blood pressure (27.4%)
- Eye problems (25.9%)
- High cholesterol (25.2%)
- Nerve damage (22.4%)
- Other drugs that impact my glucose control (18.9%)
- Foot problems (16.3%)
- Arthritis (16.3%)
- Kidney symptoms or disease (11.3%)
- Mental health conditions (9.2%)
- Heart problems (7.1%)
- Hormones¹ (4.7%)
- Damage to blood vessels or brain (3.5%)
- Digestive issues (2.8%)
- Brain injury/neurological conditions (2.8%)

Respondents from British Columbia (n=294) reported experiencing a range of physical diabetes-related complications and comorbidities including (in order of priority):

- Other autoimmune disorders (38.6%)
- High blood pressure (26.2%)
- High cholesterol (26.2%)
- Eye problems (25.5%)
- Nerve damage (22.8%)
- Other drugs that impact my glucose control (18.6%)
- Foot problems (15.9%)
- Arthritis (11.7%)
- Kidney symptoms or disease (11.0%)
- Mental health conditions (11.0%)
- Heart problems (8.3%)
- Brain injury/neurological conditions (6.2%)

¹ Includes puberty, growth, hormonal issues, menopause, as described by respondents.

- Damage to blood vessels or brain (5.5%)
- Hormones² (4.1%)
- Digestive issues (2.1%)

The people who were living with conditions in addition to diabetes included 232 Canadians (27%), and 77 residing in British Columbia (26%). These other medical conditions did in fact impact their ability to manage their diabetes and their blood glucose. Common themes reported were:

- Glucose levels fluctuate due to other conditions and their medications (e.g., stress, steroids for other conditions, food requirements for celiac disease, all cause increases to blood glucose).
- Episodes of severe hypoglycemia are masked by other symptoms/conditions, such as a seizure being due to an episode of extreme hypoglycaemia rather than epilepsy.
- Some conditions and their medications impact the body's ability to absorb glucose (carbs) and/or insulin.
- It's a vicious cycle: other conditions lead to increased stress, which raises glucose levels, leading to other conditions.
- Life is more complex: more doctors' and lab appointments cause disruptions to work and homelife.
- Exercise would help patients manage their diabetes, but their other health conditions limit their ability to exercise.
- Impaired manual dexterity (e.g., related to arthritis) impacts ability to complete finger prick testing.

Below are select quotes from British Columbians that demonstrate the challenges of living with both diabetes and other medical conditions:

"If having a seizure, it is imperative to know if it is hypoglycemic or epileptic." (Brain injury/neurological condition)

"Everything is a science experiment. I'm guessing about insulins/food/exercise, all day, every day."

"Haven't yet except to make me try harder and exercise more." (High blood pressure)

"Her blood sugar dropped rapidly one night, and she didn't feel it, she woke up completely paralyzed on one side from the seizure. She is now afraid to control her BG before bed in the fear this will happen again." (Mental health condition)

"Those conditions are what I'm trying to avoid by having better control of my diabetes."

"These conditions are improving with cgm use." (Foot problems; Nerve damage; Arthritis)

"I feel like it hasn't impacted me directly." (High blood pressure)

² Includes puberty, growth, hormonal issues, menopause, as described by respondents.

"Executive dysfunction makes checking the BG a bigger thing than it actually is and leads to not checking at all and leads to extreme highs." (Mental health condition; Brain injury/neurological condition)

"As I get older, the number of issues increase. I had a pulmonary embolism and the inflammation and treatment from it have had high impact on my blood sugars, as well as the concussion (hit by car), kidney issues since becoming T1D (cortisol/stress). All of these contribute to increasing brittleness, decreasing resilience in recovering from low blood sugars (cognitive function and fatigue for at least 24hrs) and inconsistent basal needs. Very frustrating and time consuming. I no longer have the flexibility and energy to deal with T1D and living my life to the fullest I had when I was younger, prior to embolism. If I didn't have a freestyle libre to frequently check my sugars, anticipate highs and lows and their patterns over time, I would be incapable of any kind of normal life." (Brain injury/neurological condition; Heart problems; Kidney symptoms or disease; Damage to blood vessels or brain; Other autoimmune disorders)

"I have found that I have problems seeing my glucose monitor and pump to make dosing decisions. The nephropathy makes sleeping and exercising almost impossible. Always being in pain eats at your mind." (Digestive issues; High blood pressure; Kidney symptoms or disease; Foot problems; Eye problems; Nerve damage; Arthritis)

"The cost associated with my medications, the cost associated with having to take time off of work to see multiple doctors makes me hesitant to make the best decisions and choices." (High blood pressure; High cholesterol; Heart problems; Foot problems; Eye problems; Nerve damage; Arthritis; Other drugs that impact my glucose control)

"I have had ups and downs and have to take time off work and multiple visits to doctors and endos."

10. Describe how having diabetes affects the day-to-day life of the patients represented by your group.

Diabetes is a chronic and progressive disease with no known cure. Type 1 diabetes occurs when the pancreas is unable to produce insulin. Type 2 diabetes occurs when the pancreas does not produce enough insulin or when the body does not effectively use the insulin that is produced. Common symptoms of diabetes include extreme fatigue, unusual thirst, frequent urination, and weight change (gain or loss).

Diabetes requires considerable self-management, including eating well, engaging in regular physical activity, maintaining a healthy body weight, taking medications (oral and/or injectable) as prescribed, monitoring blood glucose, and managing stress. Poor glucose control is serious and problematic. Low blood glucose can precipitate an acute crisis, such as confusion, coma, and/or seizure that, in addition to each being potentially dangerous as an isolated event, may also contribute to a motor vehicle, workplace, or other type of accident causing harm. High blood glucose over time can irreversibly damage blood vessels and nerves, resulting in blindness, heart disease, kidney problems, and lower limb amputations, among other issues. The goal of diabetes management is to keep glucose levels within a target range to minimize symptoms and avoid or delay complications.

Hypoglycemia is a major challenge for people living with type 1 diabetes trying to achieve glycemic targets. Diabetes Canada's 2018 Clinical Practice Guidelines define hypoglycemia as: 1) the development of autonomic or neuroglycopenic symptoms; 2) a low plasma glucose level (<4.0 mmol/L); and 3) symptoms responding to the administration of carbohydrates. It can be severe and can result in confusion, coma, or seizure, and require the assistance of others to bring blood sugar levels back into their target range. If untreated, it can be fatal. Frequent or severe hypoglycemia can negatively impact one's quality of life and bring about fear of future hypoglycemia. This fear can result in some people, unconsciously or intentionally, running their blood sugars high to avoid going low. This puts them at increased risk of future complications due to elevated blood sugar levels. Many people with diabetes develop an inability to feel symptoms of hypoglycemia over time (known as hypoglycemia unawareness). This can prevent them from taking action to treat hypoglycemia, particularly when they are sleeping, which puts them at significant risk of severe hypoglycemia. For these people, CGMs—which have alarms that can wake the user to warn them of impending low blood sugars—can be live-saving.

Demographics of Respondents from Across Canada:

A total of 873 Canadians completed the August 2020 glucose monitoring devices survey, with the majority of participants from British Columbia (33.7%, n=294), Ontario (32.1%, n=280), Alberta (13.1%, n=114), and Saskatchewan (5.2%, n=45). Of the 873 respondents, 54.1% (n=472) identified as living with type 1 diabetes, 41.4% (n=361) identified as being a caregiver to someone living with type 1 diabetes, 4.1% (n=36) identified as living with type 2 diabetes, and 0.5% (n=4) identified as being a caregiver to someone living with type 2 diabetes. The majority of participants identified as female (64.2%, n=559) and were White Caucasian (e.g., European, British Heritage) (89.5%, n=768). Other participants identified as Biracial (2.8%, n=24), Indigenous North America (i.e., First Nations, Inuit, Metis) (2.5%, n=21), South Asian (e.g., Indian, Pakistani, Sir Lankan, Bangladeshi) (1.5%, n=13), Arab (0.5%, n=6), Chinese (0.6%, n=5), Filipino (0.6%, n=5), and Latin American/Hispanic (0.6%, n=5).

Furthermore, the respondents varied by age:

- 19.6% (n=171) were under 12 years of age;
- 16.8% (n=146) were between 12 to 18 years of age;
- 21.5% (n=187) were between 19 to 34 years of age;
- 23.4% (n=204) were between 35 to 49 years of age;
- 13.1% (n=114) were between 50 to 64 years of age; and
- 5.51% (n=48) were over 65 years of age.

The number of years respondents had lived with diabetes varied from under 1 year to more than 30 years:

- 7% (n=61) had lived with diabetes for under 1 year;
- 10% (n=89) had lived with diabetes for 1 to 2 years;
- 18% (n=158) had lived with diabetes for 3 to 5 years;
- 16% (n=139) had lived with diabetes for 6 to 10 years;
- 18% (n=154) had lived with diabetes for 11 to 20 years;
- 15% (n=127) had lived with diabetes for 21 to 30 years; and
- 16% (n=143) had lived with diabetes for more than 30 years.

Respondents reported using a variety of diabetes therapies and glucose monitoring mechanisms to manage their diabetes. Therapies used by respondents included: insulin delivered via pump (62.0%), diet (44.5%), exercise (43.9%), insulin injected with needles (41.8%), glucagon (injected or nasal) (27.8%), oral medication (7.8%), and non-insulin injectable (e.g., GLP-1) (1.4%). Respondents reported using or having used the following mechanisms to monitor their glucose: self-monitoring blood glucose (78.3%), Dexcom G6 CGM (52.7%), Abbott flash glucose monitor (41.3%), Dexcom G5 or G4 CGM (22.0%), Medtronic CGM (14.0%), and urine testing (10.6%).

Demographics of Respondents from British Columbia:

Of the 294 respondents who reported residence in British Columbia, 55.1% (n=162) identified as living with type 1 diabetes, 39.8% (n=117) identified as being a caregiver to someone living with type 1 diabetes, 4.1% (n=12) identified as living with type 2 diabetes, and 1.0% (n=3) identified as being a caregiver to someone living with type 2 diabetes.³ The majority of participants identified as female (61.4%, n=180) and were White Caucasian (e.g., European, British Heritage) (88.7%, n=258). Other participants identified as Biracial (4.5%, n=13), Indigenous North America (i.e., First Nations, Inuit, Metis) (2.1%, n=6), and South Asian (e.g., Indian, Pakistani, Sir Lankan, Bangladeshi) (1.7%, n=5).

Furthermore, the respondents varied by age:

- 18.7% (n=55) were under 12 years of age;
- 16.2% (n=48) were between 12 to 18 years of age;
- 23.1% (n=68) were between 19 to 34 years of age;
- 22.1% (n=65) were between 35 to 49 years of age;
- 12.9% (n=38) were between 50 to 64 years of age; and
- 6.8% (n=20) were over 65 years of age.

The number of years respondents had lived with diabetes varied from under 1 year to more than 30 years:

- 7.5% (n=22) had lived with diabetes for under 1 year;
- 9.5% (n=28) had lived with diabetes for 1 to 2 years;
- 16.7% (n=49) had lived with diabetes for 3 to 5 years;
- 16.7% (n=49) had lived with diabetes for 6 to 10 years;
- 20.1% (n=59) had lived with diabetes for 11 to 20 years;
- 15.6% (n=46) had lived with diabetes for 21 to 30 years; and
- 13.9% (n=41) had lived with diabetes for more than 30 years.

Respondents reported using a variety of diabetes therapies and glucose monitoring mechanisms to manage their diabetes. Therapies used by respondents included: insulin delivered via pump (64.0%), diet (47.1%), exercise (48.8%), insulin injected with needles (40.2%), glucagon (injected or nasal) (29.2%), oral medication (9.6%), and non-insulin injectable (e.g., GLP-1) (1.4%). Respondents reported using or having used the following mechanisms to monitor their glucose: self-monitoring blood glucose (80.8%), Dexcom G6 CGM (48.6%), Abbott flash glucose monitor (37.0%), Dexcom G5 or G4 CGM (21.6%), Medtronic CGM (16.4%), and urine testing (11.6%).

³ Due to the small number of respondents identifying as living with type 2 diabetes (n=12) or being a caregiver to someone living with type 2 diabetes (n=3) in BC, the results are not stratified by type of diabetes, instead they have been aggregated for reporting purposes.

Survey respondents highlighted how diabetes impacts every aspect of their day-to-day lives: financial, physical, emotional, social, and professional. It is a condition that requires constant monitoring, 24 hours a day, seven days a week, making it feel like they have another full-time job. Diabetes management is time consuming, taking an average of 14-20 hours per week to manage, and there is never a chance for a break from diabetes: changing sites, constantly giving needles, staying on top of everything that impacts glucose levels (food, exercise, stress, illness, etc.). The variable nature of diabetes means that management success changes day to day. Insulin delivery doesn't control diabetes, it's not a cure just a treatment, and there exists much room for human error.

Constantly being hooked up to something, having to lug so many supplies around is both inconvenient and cumbersome for survey respondents. The constant pokes from finger pricks and needles are painful. People with diabetes of all ages experience social stigma in public when they're required to test their blood glucose and administer insulin; this leads to discrimination, and inability to fully participate and a loss of spontaneity (e.g., kids can't be kids).

Diabetes is a disease that places many burdens on patients and their families. The mental health burden of diabetes causes stress and anxiety. The high cost of diabetes medicines, supplies, and devices is a financial burden, and respondents report inadequate coverage by private insurers and provinces. Caregivers, especially mothers of children with type 1 diabetes, have to change their lives to help with diabetes management: not sleeping at night, quitting jobs to be present at school when school staff refuse to test children or deliver insulin. In essence, the disease ends up taking over family life. People with diabetes experience stress due to nighttime episodes of hypoglycemia, and/or worrying about the ability to afford diabetes supplies. Diabetes also impacts family & life decisions: some women with type 1 diabetes choose not to have children—some for fear of passing on the genetic predisposition to diabetes and others worried about being able to care for a baby while managing their diabetes. Many respondents indicated that they had to choose to spend money on diabetes supplies over taking family vacations.

For adults living with diabetes, there is also a professional burden: some people are unable to take employment opportunities, they are often worried about experiencing episodes of hypoglycemia at work (and may subsequently decide to endure long-term periods of hyperglycemia while at work), or they may be forced to choose a job based on benefits plan and not the actual role. Diabetes imparts a physical burden on people of all ages. More planning is required for exercise and physical play, some place limits on their activity as a means to manage their diabetes. Also on the physical side, other health issues and complications due to diabetes increase health-care needs, wounds take longer to heal, and it takes longer to recover from illnesses (e.g., colds), impacts sleep (worry about lows, finances, etc.).

When asked what they liked and disliked about their current diabetes therapies, respondents reported the following device shortcomings: malfunctions, lack of integration between insulin pumps & glucose monitors, side effects (pain, bruising, scarring, bumps), alarm fatigue, pump not holding enough insulin, insulin dosing not

small enough for child, non-recyclable waste; small, incremental improvements only from device companies.

On the positive side, respondents indicated that use of insulin pump and glucose monitoring technology reduced the burden of disease. Glucose monitoring devices have made life more manageable and enjoyable, in which helped contribute to better glycemic control. With these technologies, users' glucose levels are -managed, insulin delivery can be fine-tuned, and users experience more time-in-range, better A1C results, decreased side effects and long-term complications. The technology increases their flexibility, and they experience less hassle with quick, discreet, convenient glucose checks. It is easier to manage diabetes with the appropriate technology and to live a normal life. This has resulted in reduced anxiety and mental burden, improved safety, and reduced fear of hypoglycemia (especially nighttime lows). Caregivers reported increased independence for children with type 1 diabetes, improved family life, and overall quality of life.

A small proportion of respondents indicated that they feel healthier now, that diabetes was a trigger to change their behaviour and make better choices. Some indicated that they prefer needles to an insulin pump because they want the control of insulin delivery and nothing attached to their bodies. This emphasizes that the impact of diabetes can be as wide-ranging as the individuals themselves.

Below are select quotes from British Columbians, describing how diabetes impacts their day-to-day lives:

"Diabetes utterly destroyed my life, my dreams, my ability to work, my already fragile mental health, my relationship with my body, my self esteem and has driven me to the edge of self-destruction (diabulimia, an eating disorder) and back. It is merciless, unremitting hell on a daily basis, it is a 24/7 nightmare that honestly makes me wish it had killed me outright in 1991 when I was diagnosed with T1. Even with the technology it is impossible to control and is killing me in inches, I can't wait for either it to kill me with complications or for there to be a cure."

"My blood sugar level is the background music of my life. It is always there. I don't remember what I used to think about before diagnosis."

"You can't turn it off, the last time I decided to ignore my diabetes I was in the hospital for 4 days with DKA."

"I worry every hockey game, every sleep over, every night that there will be a severe hypoglycemic event that will take my son's life. I worry about his vision, organs, and long-term health due to hyperglycemia. My uncle died due to diabetes complications. Not even a double leg amputation saved him. I worry about my son's education due to glucose related cognitive impairment at school. I worry about how this will affect his career, family life, and quality of life."

"It affects every aspect of my life from work, sleep, diet, exercise, social life, parenting etc. I constantly have to be on top of my blood sugars to keep them well managed."

"As the mother of 2 children with Type 1 Diabetes I always worry. Are they too high or low? Did they take their meter and juice or glucose tabs? Will their pump or meter or phone die? Do their friends know how to help if things go wrong suddenly? Will my boys grow up to live long, healthy lives or will they not wake up one morning from a sudden drastic low blood sugar in the night? Will they suffer any or all of the complications perfect strangers live to tell you about - Grandma lost her sight/legs/kidneys. For years I woke myself by alarm upwards of 4 times/night because they'd had lows all day or eaten pizza for dinner or played extra long and hard. Or because it was hot or cold. Or because they'd been sick or having a growth spurt. I have a teen who isolates himself because he's 'different' and doesn't want to answer the questions or be made fun of anymore. I question every decision we make regarding their care, 24 hours/day, 7 days/week, for almost 14 years now. We're all exhausted but have no choice but to keep on doing it."

"It is a constant battle to ensure blood glucose levels are maintained in a safe range. The cost of supplies cuts into discretionary income and affects ability to save for schooling and other extras people of my child's age take for granted."

"I have had ups and downs and have to take time off work and multiple visits to doctors and endos."

"We live a life of worry. My son who has never felt a low blood sugar would be in extreme life-threatening danger without a CGM. He goes low in the night as well and has never woken up. The alarms are the only way we know his blood sugars and prevents him from having a life-threatening low."

11. What mechanisms for monitoring their blood glucose have the patients represented by your group used, either now or in the past? (please select all that apply)

- Self-monitoring blood glucose, which means puncturing the skin using a lancet device and needle, applying a droplet of blood to a blood glucose test strip, and obtaining a blood glucose reading using a blood glucose meter**
- Abbott flash glucose monitors (such as, Freestyle Libre)**
- Dexcom continuous glucose monitors (such as, Dexcom G6, or previous models)**
- Medtronic continuous glucose monitors (such as, Medtronic Connect, Medtronic Guardian, or Medtronic Enlite)**
- Other glucose monitoring mechanisms**

Of the 294 respondents who reported residence in British Columbia, the following mechanisms are or were used monitor their glucose: self-monitoring blood glucose (78.3%), Abbott flash glucose monitor (41.3%), Dexcom G6 CGM (52.7%), Dexcom G5 or G4 CGM (22.0%), Medtronic CGM (14.0%), and urine testing (10.6%). Some respondents reported using Miao Miao, a third-party device/app that

converts a flash glucose monitor into a DIY continuous glucose monitor, with glucose levels being captured every five minutes and alarms to alert the patient to high and low glucose levels.

Self-Monitoring Blood Glucose:

12. Describe how the use of self-monitoring blood glucose affects or has affected the patients your group represents' day-to-day life and the effects they experienced using blood glucose test strips.

Respondents from across Canada:

Of the respondents from across Canada (n=873), 78.3% reported using or having used self-monitoring blood glucose.

Respondents from British Columbia:

Of the respondents from British Columbia (n=294), 80.8% reported using or having used self-monitoring blood glucose.

Testing with finger pricks only represents a snapshot in time and may miss high and low blood sugar episodes that can happen quickly. It is expensive, often requiring 10 or more test strips per day at an average cost of \$1.20 each, an amount which is often limited by insurance reimbursement criteria. Respondents with type 2 diabetes indicated that they felt that not enough strips are covered to make a positive impact on their diet and exercise. It is a time consuming and inconvenient process: disrupts life and work, delays meals, requires users to carry supplies, and interrupts sleep. The constant need to monitor can be overwhelming. Respondents experience stigma when required to test in public: it's awkward, obtrusive, messy, others sometimes react negatively when they see blood. There is also physical damage to patients' fingers: so much painful testing (10 to 12 times per day, every day) produces sore, scarred fingers that have lost feeling and experience a reduction in fine motor skills. During the COVID-19 pandemic, respondents have expressed concern about doing finger prick testing in public, worried they might contract the highly contagious virus if they're not able to clean their hands before and after testing. Some respondents utilize finger prick testing as a means of calibrating data with their glucose monitoring device, to verify the accuracy of the data, but they do acknowledge this method has little impact on their day-to-day life. A small proportion of respondents indicated that this form of testing allows for better and easier management of their diabetes.

Below are select quotes from British Columbians, describing how self-monitoring blood glucose has affected their day to day life and the effects they experienced using blood glucose test strips:

"She hated it. People would stare and ask questions, her fingers hurt, and it was a battle to get her to check on a regular basis."

"When I was self-monitoring, my fingertips ended up becoming black and blue and really calloused. It started to get painful and I'd almost want to avoid testing. I tested a lot (up to 12 times a day) to try to maintain good blood sugar control."

"As I use a computer at work, sometimes I would have sore fingertips from testing. Post meal testing was hit or miss on the 2 hrs mark."

"I would prefer to not have to carry around a meter and test strips. Can be socially awkward if someone doesn't know you are T1D."

13. Do the patients your group represents consider self-monitoring blood glucose to have improved the management of their diabetes? Please state why.

Yes and no. Firstly, it should be noted that this question is difficult to answer because some people with diabetes – notably most people with type 1 diabetes and gestational diabetes – may never have been able to manage their diabetes *without* self-monitoring blood glucose, so couldn't say whether it was an improvement or not. Either way, self-monitoring of blood glucose improves the management of diabetes but may not improve quality of life. For many, it is useful but insufficient; it helps but other methods are better. Some respondents felt unsure about how to answer this question, as they have never managed without self-monitoring using finger pricks.

On the positive, some respondents felt knowledge is power, thus testing equals better management, testing is better than not testing, and it is a big improvement over urine testing. In responding to the questions about self-monitoring blood glucose, some survey respondents indicated that their diabetes management had improved since incorporating a flash or continuous glucose monitor into the daily routine. It's possible that, because most people with diabetes tend to refer to "self-monitoring with blood glucose test strips" as either "fingertesting" or "fingerpokes," they may have thought that "self-monitoring" was a term used to capture flash glucose monitoring and continuous glucose monitoring. Clearly, they misinterpreted the questions, and, as a result, their responses are not captured in this summary. However, others reported better sleep, better A1C results, and better time-in-range, and we must ask, "compared to what?" It is possible that, though they didn't refer directly to glucose monitoring devices, they too misinterpreted these questions and were comparing diabetes management to current practice with a glucose monitoring device versus previous practice of self-monitoring blood glucose with finger prick testing.

Self-monitoring with finger prick testing is expensive and inconvenient. It takes longer and hurts more, so respondents indicated they do not do it as often as recommended by their diabetes care team. This results in higher blood glucose levels and increased incidents of hyperglycemia. They also reported experiencing stigma in social situations when required to test with finger pricks. They felt that it's a step back in relation to CGMs, and often only use it as verification of CGM data. Self-monitoring cannot provide trend data, so it doesn't help with understanding the influence of diet and exercise. It also results in worse sleep.

Below are select quotes from British Columbians, describing how self-monitoring blood glucose has improved the management of their diabetes:

"For sure it helped having grown up with urine testing as my only option."

"It improved the management only because there was no other option, and we needed to know what she was. But it did not improve her quality of life."

"Of course, the more information the more knowledge you can gain and better decisions in the management of T1D."

"Never managed diabetes without self- monitoring, so unsure how to answer."

"It's important to finger prick so you know how to adjust your insulin. It's necessary and you have to do it multiple times a day as a Type 1 Diabetic. If I didn't, I wouldn't be able to manage my diabetes. Flash glucose monitoring just made the process easier and gives you more data to fill in the dots between scans. It helps me understand how my sugars are trending, which was hard with finger pricks, and this allows me to be more proactive with my sugar management and prevent some highs and lows."

"My Dexcom is much better than finger pricking."

"We feel have gotten life back with Medtronic CGM. The auto shut off for lows at night is truly a life saver. We can all sleep at night again."

14. Do the patients your group represents consider self-monitoring blood glucose to have improved their quality of life relating to the management of their diabetes? Please state why.

Many respondents were clear in their message that self-monitoring does not improve quality of life, but it is necessary for managing their diabetes. Others simply indicated that they don't know if it's improved their quality of life, as they have never used anything else to monitor their glucose levels. In terms of improvements to quality of life, themes emerged around better sleep and ease of staying in range when dosing for meals or before exercise. Others indicated that because their diabetes management is improved, quality of life is also improved. On the other side, many respondents indicated that self-monitoring is exhausting but necessary to reduce the likelihood of a health crisis. But that it negatively affected the mental health of patient and their family, and that it did not improve quality of life.

Below are select quotes from British Columbians, describing how self-monitoring blood glucose has improved the quality of life relating to the management of their diabetes:

"It did not improve quality of life. It was relied on for managing the diabetes."

"Our son was checking a min of 11 times a day but still experiencing lots of unexpected highs and lows. It was very frustrating for him. He began to avoid checking because he felt that he was doing everything right, but the numbers wouldn't cooperate. For us as mom and dad, his exercise schedule from day to day varies a lot so we were checking him through the night and some nights he would be high and others, dangerously low. I remember many times when I stood outside his bedroom in the middle of the night, willing myself to open his door but being afraid of what I would find on the other side."

"not sure what the question means...i think managing of diabetes takes away from my quality of life and I'd like to do whatever I can to heal my pancreas."

"Self monitoring blood glucose by finger poke was the only options for me for the first 15 years of having diabetes. So yes, it did.... but it's not as ideal as the CGM."

Abbott flash glucose monitors (such as Freestyle Libre):

15. Describe how the use of the Abbott flash glucose monitor affects or has affected the patients your group represents' day-to-day life and the effects they experienced using the flash glucose monitor.

Respondents from across Canada:

Of the respondents from across Canada (n=873), 26.0% (n=227) reported that they were currently using Abbott flash glucose monitoring, 25.5% (n=223) reported that they had used it in the past, and 47.1% (n=411) reported that they have never used it.

Respondents accessed Abbott flash glucose monitoring through the following avenues (in order of priority):

- Covered under private insurance (54.4%)
- Paid out-of-pocket (35.6%)
- From manufacturer's samples (3.6%)
- Provincial health-care plan (3.1%)
- Through a clinical trial (1.3%)

Respondents reported doing the following to access Abbott flash glucose monitoring (in order of priority):

- Cut back on other expenses (47.8%)
- Stayed in a job to retain medical benefits (32.5%)
- Choose between basic necessities and diabetes devices (25.8%)
- Increased debt level (25.6%)
- Borrowed money from friends and/or family (18.6%)
- Asked employer to modify medical plan (18.3%)
- Changed jobs to access medical benefits (8.9%)
- Held a fundraiser (1.1%)

Respondents from British Columbia:

Of the respondents from British Columbia (n=294), 22.4% (n=66) reported that they were currently using Abbott flash glucose monitoring, 22.4% (n=66) reported that they had used it in the past, and 53.7% (n=158) reported that they have never used it.

Respondents accessed Abbott flash glucose monitoring through the following avenues (in order of priority):

- Paid out-of-pocket (47.7%)
- Covered under private insurance (45.5%)
- From manufacturer's samples (3.8%)

- Through a clinical trial (1.5%)

Respondents reported doing the following to access Abbott flash glucose monitoring (in order of priority):

- Cut back on other expenses (57.3%)
- Stayed in a job to retain medical benefits (37.3%)
- Choose between necessities and diabetes devices (31.0%)
- Increased debt level (30.9%)
- Borrowed money from friends and/or family (29.1%)
- Asked employer to modify medical plan (14.5%)
- Changed jobs to access medical benefits (6.4%)

Respondents who use or have used the Abbott flash glucose monitor reported better quality of life, and more independence and confidence. The device allows them to focus on life, to focus time on the things that are important to them. It improved their ability to focus on work/schoolwork, improved their mental and physical health, and helps with sick day management. Food and meal management has become easier because they can see how different foods affect their glucose levels. Using a flash glucose monitor has allowed them to be more physically active, and they are then able to better manage diabetes with exercise.

Respondents also described improved glucose control, better A1C results, better health outcomes, fewer episodes of hypoglycemia, elimination of nighttime hypoglycemic seizures, and fewer dosing errors. As a result, people with diabetes and their caregivers experienced better sleep, a sense of relief and peace of mind, as well as less stress and worry. Using the flash glucose monitor made it easier to track trends by allowing them to increase the frequency of readings (they can check their glucose levels more often). Fingers healed, and fewer finger pricks translated into less pain and anxiety, as well as an ability to check their glucose levels quicker and more discreetly in public. They were able to share data more easily with their family and their diabetes team. Caregivers of children with type 1 diabetes reported that the flash makes it easier to check their child's glucose levels while sleeping, at school, or playing sports. It is less disruptive process that results in better sleep and less anxiety and stress. The caregivers can see patterns (trends) and can then finetune insulin dosing, which results in fewer emergencies (extreme episodes of hypoglycemia). This method improves the child's independence and freedom by putting glucose management in the background instead of the foreground.

Respondents who chose to use the flash glucose monitor preferred it to a continuous glucose monitor because of the longer lasting sensor and no alarm fatigue.

Some respondents indicated they had stopped using the Abbott Freestyle Libre due to cost (unable to afford), no alarms (causes stress), no current trending data (only past), pain, allergic reaction to adhesive/skin irritation, lack of constant glucose monitoring, inability to communicate with pump, sometimes inaccurate, scanner is ineffective at end of life, water & intense exercise can cause sensors to fall off. Some of these respondents reported that they preferred the CGM system.

Very few side effects were reported, most indicated they were only minor and respondents stated the benefits outweighed the side effects of skin irritation, pain, bleeding, bruising, skin redness, difficulty removing sensor adhesive, sensors that fall off easily, infection, and itchiness.

The following were listed as dislikes of the Abbott flash glucose monitor.

1. Sensor: Sensor obtrusive on arm (bright, visible, not able to place elsewhere), Falls off (never stays on), pain at site.
2. Alarms: No alarms/safety features
3. Technological issues: Having to scan it, doesn't communicate with pumps, not calibrated with finger pricks/BG readings, not accurate compared to CGM/lag time between scan & when number is accurate, no transmitter, not Bluetooth/no communications with phone -> 3rd party app to convert to CGM adds cost & bulkiness, NOT CONTINUOUS
4. Organizational: Cost, not covered by Pharmacare, company won't replace sensors that malfunction before 14 days, unfriendly customer service

Below are select quotes from British Columbians, describing how using the Abbott flash glucose monitor has affected their day-to-day life and the effects they experienced using the flash glucose monitor:

"It allowed me to get faster treatment for T1D - since I was misdiagnosed as type 2 - it literally saved me from ending up in hospital in DKA."

"My son is like every other kid now. He can play sports and have fun, and we know we can easily monitor his glucose levels with a quick scan of a device. No need to stop a baseball game mid inning to check. I get updates on my phone when he scans, so even if I'm at work, I can keep an eye on his glucose levels and not worry. I stress less and can focus more on work knowing I can keep an eye on him when he's not with me."

"I'm better aware of my levels and it's easier to do."

"From multiple painful fingers daily, dropping sticks therefore wasting them, lugging paraphernalia everywhere, to simply holding the reader or phone over the monitor. Revolutionary."

16. Do the patients your group represents consider the Abbott flash glucose monitor to have improved the management of their diabetes? Please state why.

Respondents from across Canada:

Respondents from across Canada reported a multitude of positive experiences related to the use of Abbott flash glucose monitoring (in order of priority):

- Improved diabetes management (79.0%)
- Better quality of life (68.7%)
- Reduced stress (59.5%)
- Reduced hyperglycemic events (54.5%)
- Peace of mind (52.5%)
- Reduced hypoglycemic events (51.6%)
- Reduced anxiety (50.0%)
- Improved quality of care (48.0%)

- Sense of security (47.2%)
- Increased sense of independence (45.1%)
- Able to participate fully in society (42.2%)
- Better sleep (38.3%)
- Improved mental health (36.9%)
- Better physical health (33.0%)
- Reduced distress (31.3%)
- Improved performance at work/school (29.2%)
- Relief of existing symptoms (25.1%)
- Improved virtual visits (16.1%)
- Better communication with health-care provider or diabetes educator (15.9%)

Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive experiences related to the use of Abbott flash glucose monitoring (in order of priority):

- Improved diabetes management (76.8%)
- Better quality of life (68.8%)
- Reduced stress (64.8%)
- Reduced hyperglycemic events (58.4%)
- Reduced hypoglycemic events (53.6%)
- Reduced anxiety (52.0%)
- Peace of mind (51.2%)
- Sense of security (48.0%)
- Increased sense of independence (47.2%)
- Improved quality of care (47.2%)
- Able to participate fully in society (41.6%)
- Better sleep (39.2%)
- Better physical health (38.4%)
- Improved mental health (37.6%)
- Reduced distress (35.2%)
- Relief of existing symptoms (28.8%)
- Improved performance at work/school (27.2%)
- Better communication with health-care provider or diabetes educator (17.6%)
- Improved virtual visits (16.8%)

Respondents who use or have used the Abbott flash glucose monitor reported improved glucose control, better A1C results, better health outcomes, fewer episodes of hypoglycemia, elimination of nighttime hypoglycemic seizures, and fewer dosing errors. As a result, people with diabetes and their caregivers experienced better sleep, a sense of relief and peace of mind, as well as less stress and worry. Using the flash glucose monitor made it easier to track trends, by allowing them to increase the frequency of readings (they can check their glucose levels more often). Fingers healed, and fewer finger pricks translated into less pain and anxiety, as well as an ability to check their glucose levels quicker and more discreetly in public. They were able to share data more easily with their family and their diabetes team. It also helped them with sick day management. Food and meal management has become easier because they can see how different foods affect their glucose levels. Using a flash

glucose monitor has allowed them to be more physically active, and they are then able to better manage diabetes with exercise.

Caregivers of children with type 1 diabetes reported that the flash makes it easier to check their child's glucose levels while sleeping, at school, or playing sports. It is less disruptive process that results in better sleep and less anxiety and stress. The caregivers can see patterns (trends) and can then finetune insulin dosing, which results in fewer emergencies (extreme episodes of hypoglycemia). This method improves the child's independence and freedom, by putting glucose levels in the background instead of the foreground.

Respondents using the flash glucose monitor preferred it to a continuous glucose monitor because it lasts longer and does not result in alarm fatigue.

Below are select quotes from British Columbians, describing how using the Abbott flash glucose monitor has improved the management of their diabetes:

"Lower a1c levels for both boys, increased independence and confidence for both, more and better information for family and diabetes care team to base changes to management on."

"My mom can scan me at anytime and make sure I am okay. She does not have to wake me or make me poke my finger."

"Much better numbers. It is a game changer."

"Testing is so easy that I test more often than ever before. I always have my phone with me so I have no excuse not to test. I can test more discreetly as well. All of which gives me more information that I can use to more effectively manage my T1D and hopefully live long enough to see my daughter grow up."

17. Do the patients your group represents consider the Abbott flash glucose monitor to have improved their quality of life relating to the management of their diabetes? Please state why.

Respondents from across Canada:

Of the respondents from across Canada, 68.7% of respondents reported an improved quality of life due to the use of Abbott flash glucose monitor. Furthermore, 76.9% (n=346) were very/somewhat satisfied with Abbott flash glucose monitoring, 4.0% (n=18) were neither satisfied nor dissatisfied, and 18.7% (n=84) were very/somewhat dissatisfied.

Respondents from British Columbia:

Of the respondents from British Columbia, 68.8% of respondents reported an improved quality of life due to the use of Abbott flash glucose monitor. Furthermore, 80.3% (n=106) were very/somewhat satisfied with Abbott flash glucose monitoring, 3.8% (n=5) were neither satisfied nor dissatisfied, and 15.9% (n=21) were very/somewhat dissatisfied.

Respondents who use or have used the Abbott flash glucose monitor reported better quality of life, more independence & confidence. The device allows them to focus on life, taking less time away from what matters. It improved their ability to focus on work/schoolwork, improved their mental and physical health, and helped with sick day management. People with diabetes and their caregivers experienced better sleep, a sense of relief and peace of mind, as well as less stress and worry. Caregivers of children with type 1 diabetes reported that the flash makes it easier to check their child's glucose levels while sleeping, at school, or playing sports. It is a less disruptive process that results in better sleep and less anxiety and stress. This method improves the child's independence and freedom, by putting glucose levels in the background instead of the foreground.

Below are select quotes from British Columbians, describing how using the Abbott flash glucose monitor has improved their quality of life relating to the management of their diabetes:

"It provided such a sense of relief."

"I think quality of life is better."

"As a Type 1 Diabetic, it gives me the opportunity to spend more time on the other aspects of my life (work, school, time with friends/family). It reduced the stress I have thinking about my sugars and gives me greater control. It is VERY convenient, and this is important for a disease you can't escape from. The software that comes with the monitor is exceptional and both my endo and I use this to make adjustments to my insulin dosages. With diabetes, the more info you have, the more control you have and I feel more proactive. In the past, I felt like I was more passively reacting to my blood sugars and now I'm able to anticipate what's going to happen."

Dexcom continuous glucose monitors (such as Dexcom G6 or previous models):

18. Describe how the use of the Dexcom continuous glucose monitors affects or has affected the patients your group represents' day-to-day life and the effects they experienced using the continuous glucose monitors.

Respondents from across Canada:

Of the respondents from across Canada (n=873), 49.1% (n=429) reported that they were currently using Dexcom G6 CGM, 2.3% (n=20) reported that they had used Dexcom G6 CGM in the past, 5.4% (n=47) reported that they were currently using Dexcom G5 or G4 CGM, 6.0% (n=52) reported that they had used Dexcom G5 or G4 CGM in the past, and 36.1% (n=315) reported that they have never used a Dexcom CGM.

Respondents accessed Dexcom CGM devices through the following avenues (in order of priority):

- Covered under private insurance (58.1%)
- Paid out-of-pocket (35.2%)
- Provincial health-care plan (2.2%)
- Through a clinical trial (1.8%)
- From manufacturer's samples (0.7%)
- Donation (0.7%)

Respondents reported doing the following to access Dexcom CGM devices (in order of priority):

- Cut back on other expenses (53.6%)
- Stayed in a job to retain medical benefits (43.9%)
- Increased debt level (36.9%)
- Asked employer to modify medical plan (25.2%)
- Borrowed money from friends and/or family (24.5%)
- Choose between basic necessities and diabetes device (24.5%)
- Changed jobs to access medical benefits (11.1%)
- Held a fundraiser (3.3%)

Respondents from British Columbia:

Of the respondents from British Columbia (n=294), 44.2% (n=130) reported that they were currently using Dexcom G6 CGM, 2.0% (n=6) reported that they had used Dexcom G6 CGM in the past, 6.5% (n=19) reported that they were currently using Dexcom G5 or G4 CGM, 7.5% (n=22) reported that they had used Dexcom G5 or G4 CGM in the past, and 38.8% (n=114) reported that they have never a Dexcom CGM.

Respondents accessed Dexcom CGM devices through the following avenues (in order of priority):

- Covered under private insurance (47.2%)
- Paid out-of-pocket (43.8%)
- Through a clinical trial (3.4%)
- From manufacturer's samples (1.1%)
- Provincial health-care plan (1.1%)

Respondents reported doing the following to access Dexcom CGM devices (in order of priority):

- Cut back on other expenses (61.1%)
- Stayed in a job to retain medical benefits (40.7%)
- Increased debt level (38.3%)
- Borrowed money from friends and/or family (32.7%)
- Choose between basic necessities and diabetes devices (26.0%)
- Asked employer to modify medical plan (24.7%)
- Changed jobs to access medical benefits (11.1%)
- Held a fundraiser (4.3%)

Respondents who used or are using a Dexcom continuous glucose monitor reported better quality of life for themselves and their family, as well as peace of mind, more independence, freedom and confidence. Using the device allows them to focus on life, taking less time away from what matters. Children with type 1 diabetes can focus more on school, playdates, and sleep, and less on their diabetes management. Better sleep for patients and their caregivers instilled a sense of relief in both groups.

The Dexcom GCMs improved glucose control, resulting in better A1C results, better health outcomes, fewer episodes of hypoglycemia, and fewer hospital visits for hypoglycemia emergencies, as well as longer time-in-range by preventing episodes of extreme hyperglycemia. The device makes it easier to track trends, it is a quicker and painless way to check, meaning they can be more discreet in public.

They like the slim profile of the sensor and the easy, painless insertion. Fewer finger pricks means fewer cuts to heal (important, as people with diabetes typically heal more slowly from cuts than those without it), furthering lessening the disease burden. Respondents reported being able to share data more easily with family members and their diabetes team. They found the alarms help a lot, and the integration with their insulin pump is beneficial. And the longer lasting device is helpful. Respondents appreciated receiving continuous data every 5 minutes, preferring it to flash glucose monitoring.

Caregivers of Dexcom users found these devices to be easier to use than self-monitoring by finger prick testing and other glucose devices. Caregivers reported that Dexcom CGMs were a game changer and life saver, having saved their child's life on multiple occasions by preventing extreme episodes of nighttime hypoglycemia in children who are hypoglycemic unaware. It resulted in better sleep, peace of mind, less anxiety and stress. The device makes it easier to check levels when the child is sleeping, at school, or playing sports. They can see patterns and more information to make better decisions, resulting in fewer emergencies. This further enhance their child's independence and freedom, resulting in both a happier child and better family dynamics. Caregivers, who are usually mothers, are now able to return to work outside the home because they no longer need to be near the child at all times in case of emergency. The device makes it easier to train other caregivers, and reduces the burden on school staff, as well as minimizing interruptions during class time for finger prick testing. Caregivers were positive about the Follow App (which allows up to five people to remotely monitor glucose levels of the person with diabetes, and alarm in case of either hypoglycemia or hyperglycemia), as well as another app that provides glucose levels while driving. They also appreciated the detailed reports that improved virtual visits with the diabetes care team, alarms for hyperglycemia and hypoglycemia events, as well as the predictive alerts.

On the downside, the alarms associated with the device can cause some sleep disturbances, and some people worry about the financial cost of the device. Some respondents reported there were too many alarms—it appears they are not aware that they have the ability to turn all but the urgent low alarm off or that they can set the alarms to go off at a wider range. They also noted inconsistency with glucose readings compared to finger prick testing—i.e., it is not always accurate. Others indicated that using a Dexcom continuous glucose monitor has not affected their life in a positive way.

Most respondents said they experienced no side effects from using the Dexcom CGM. Of those that did list side effects, most indicated they were both minor and infrequent and did not outweigh the benefits. Side effects included skin irritation (most common), pain, itchiness, bleeding. Even less common: bruising, skin redness, skin peeling, scarring, sensors come off.

The following were listed as dislikes of the Dexcom continuous glucose monitor.

1. Sensor: bulky; adhesive - falls off prematurely, causes skin irritation, does not adhere in water; compression lows
2. Alarms: too many/not enough; too noisy/too quiet; alarm fatigue
3. Technological issues: sensor fails/lost signals (e.g., drops if too far from transmitter or phone); not compatible with insulin pumps (Omnipod, Medtronic) or phones (Android), app not updated often enough for iOS updates; does not always calibrate/need to do finger pricks to calibrate; long warm-up period after sensor insertion
4. Organizational (i.e., device company): cost, waste (no recycling), device not rechargeable (hard shut off at three months)

Below are select quotes from British Columbians, describing how using the Dexcom continuous glucose monitor has affected their day-to-day life and the effects they experienced using the Dexcom continuous glucose monitor:

"When she was still in preschool, they would only admit her because she had this device, otherwise they wouldn't have agreed to keep her."

"The Dexcom CGM has SIGNIFICANTLY impacted my life. My son was 9 when he was diagnosed and there were no CGMs at the time. I had to stop working for a period of time to help manage and monitor my son's blood sugar levels 24/7, along with everything else that came with having a child with Type 1 - for example, being available at all his school field trips and sports activities, being closely connected with the school day-to-day, spending time carefully shopping, planning and preparing diabetic-friendly meals and school lunches every day, etc. I did not sleep through a full night for 4 years. We were committed to tight blood sugar management on my son's behalf. As a result, my own health was significantly impacted, I was able to work less (and at first, not at all), and we were financially hit hard because I'm our family's primary income earner as well as being my son's primary diabetes caregiver (and now back-up support). Once my son started using a CGM, everything changed. My son was able to take on more and more of his own management (to the point of full independence today at age 17), he's able to go on trips on his own, I'm back to full-time work, I've made the road to recovery on my own health (though I have some remaining health issues due to the chronic stress and sleep loss in the earlier years), our family relationships are strong, and my son was able to use the CGM to move to Looping last year, which has taken his health management to an even better next level."⁴

"It has made having diabetes so much easier to manage."

19. Do the patients your group represents consider the Dexcom continuous glucose monitors to have improved the management of their diabetes? Please state why.

Respondents from across Canada:

Respondents from across Canada reported a multitude of positive experiences related to the use of Dexcom CGM devices (in order of priority):

- Improved diabetes management (91.3%)
- Better quality of life (88.2%)
- Reduced hypoglycemic events (85.2%)
- Better sleep (82.3%)
- Reduced stress (82.0%)
- Peace of mind (80.4%)
- Reduced hyperglycemic events (79.7%)
- Sense of security (79.2%)

⁴ Looping combines an insulin pump with a continuous glucose monitor (CGM) and a computer program. Together, these use information from the CGM to automatically determine insulin needs throughout the day and keep the user within a pre-determined blood glucose range.

- Reduced anxiety (76.8%)
- Improved quality of care (69.9%)
- Increased sense of independence (67.7%)
- Improved mental health (63.8%)
- Able to participate fully in society (60.7%)
- Better physical health (58.9%)
- Reduced distress (53.5%)
- Improved performance at work/school (51.5%)
- Relief of existing symptoms (46.9%)
- Improved virtual visits (41.5%)
- Better communication with health-care provider or diabetes educator (33.6%)

Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive experiences related to the use of Dexcom CGM devices (in order of priority):

- Improved diabetes management (89.6%)
- Better quality of life (86.1%)
- Better sleep (85.0%)
- Reduced stress (84.4%)
- Reduced hypoglycemic events (81.5%)
- Peace of mind (81.5%)
- Reduced anxiety (79.8%)
- Reduced hyperglycemic events (78.6%)
- Sense of security (78.0%)
- Improved quality of care (68.9%)
- Increased sense of independence (67.6%)
- Improved mental health (64.7%)
- Better physical health (63.1%)
- Reduced distress (57.8%)
- Able to participate fully in society (53.8%)
- Relief of existing symptoms (50.9%)
- Improved performance at work/school (49.7%)
- Improved virtual visits (41.6%)
- Better communication with health-care provider or diabetes educator (34.7%)

The Dexcom GCMs improved glucose control, resulting in better A1C results, better health outcomes, fewer episodes of hypoglycemia, and fewer hospital visits for hypoglycemia emergencies, as well as longer time-in-range by preventing episodes of extreme hyperglycemia. The device makes it easier to track trends, it is a quicker and painless way to check, meaning they can be more discreet in public. They like the slim profile of the sensor and the easy, painless insertion. Fewer finger pricks mean that cuts heal faster, furthering lessening the disease burden. Respondents reported being able to share data more easily with family members and their diabetes team. They found the alarms help a lot, and the integration with their insulin pump is beneficial. And the longer lasting device is helpful. Respondents appreciated receiving continuous data every 5 minutes, preferring it to flash glucose monitoring.

Caregivers of Dexcom users found these devices to be easier to use than self-monitoring by finger prick testing and other glucose devices. Caregivers reported that Dexcom CGMs were a game changer and life saver, having saved their child's life on multiple occasions. It resulted in better sleep, peace of mind, less anxiety and stress. The device makes it easier to check levels when the child is sleeping, at school, or playing sports. They can see patterns and more information to make better decisions, resulting in fewer emergencies. This further enhance their child's independence and freedom, resulting in both a happier child and better family dynamics. Caregivers, who are usually mothers, are now able to return to work outside the home. The device makes it easier to train other caregivers, and reduces the burden on school staff, as well as minimizing interruptions during class time for finger prick testing. Caregivers were positive about the Follow App for others, remote monitoring, and a third-party app that provides glucose levels while driving. They also appreciated the excellent reports for virtual visits, alarms for hyperglycemia and hypoglycemia events, as well as the predictive alerts.

Below are select quotes from British Columbians, describing how using the Dexcom continuous glucose monitor improved the management of their diabetes:

"Reduced fear of low blood sugars and it has meant no need for extreme treatment using Glucagon or hospital requirement which was several times per month previously."

"It's been a game changer. It has allowed for us to see trends, allows us to make better informed decisions on changing carb ratios, sensitive factors, basal rates etc. The alerts and alarms have given us more piece of mind. The follow app has allowed us to maintain employment while allowing others to take part in our T1Ds care. More freedom and peace of mind. More opportunities to participate in events, gatherings, activities, sports."

"Way better control and more time in range."

20. Do the patients your group represents consider the Dexcom continuous glucose monitors to have improved their quality of life relating to the management of their diabetes? Please state why.

Respondents from across Canada:

Of the respondents from across Canada, 88.2% of respondents reported an improved quality of life due to the use of Dexcom CGM devices. Furthermore, 95.8% (n=525) were very/somewhat satisfied with Dexcom CGM devices, 0.4% (n=2) were neither satisfied nor dissatisfied, and 3.1% (n=17) were very/somewhat dissatisfied.

Respondents from British Columbia:

Of the respondents from British Columbia, 86.1% of respondents reported an improved quality of life due to the use of Dexcom CGM devices. Furthermore, 95.5% (n=169) were very/somewhat satisfied with Dexcom CGM devices, 2.8% (n=5) were neither satisfied nor dissatisfied, and 1.1% (n=2) were very/somewhat dissatisfied.

Respondents who used or are using a Dexcom continuous glucose monitor reported better quality of life for themselves and their family, as well as peace of mind, more independence, freedom and confidence. Using the device allows them to focus on life, taking less time away from what matters. Children with type 1 diabetes can focus more on school, playdates, and sleep, and less on their diabetes management. Better sleep for patients and their caregivers instilled a sense of relief in both groups.

Caregivers reported that Dexcom CGMs were a game changer and life saver, avoiding health emergencies on multiple occasions. It resulted in better sleep, peace of mind, less anxiety and stress. The device makes it easier to check levels when the child is sleeping, at school, or playing sports. They can see patterns and more information to make better decisions, resulting in fewer emergencies. This further enhance their child's independence and freedom, resulting in both a happier child and better family dynamics.

Below are select quotes from British Columbians, describing how using the Dexcom continuous glucose monitor improved their quality of life relating to the management of their diabetes:

"It's huge. Before her Dexcom, if we woke up before her in the morning, we'd worry her BG had dropped overnight. No parent should have to walk in to their child's room, holding their breath out of fear their child is no longer breathing. Then the worst happened, her BG dropped quickly, and she had a seizure overnight. I held her stiff little body in my arms, watching her eyes roll while her face drooped. Now, I know her Dexcom will alert me if she's low, and we can all sleep better. Not only that, but she can swim with friends, or go for sleepovers, and I can watch her BG while she's there, alerting other parents of a low before it happens. To say her Dexcom is life saving is not an understatement."

"the low sugar alarms have saved my husband dozens of times and allowed me some freedom to be away from him without worry, or simply to sleep knowing the alarm will alert us before he has a seizure. Cannot describe the change it has made to our lives and how much I wish we could have had this technology years ago."

"Before I purchased a cgm I never slept. My daughter had too many scary low blood glucose episodes to be able to sleep."

"Using a Dexcom CGM has significantly changed my own and my whole family's quality of life compared to the days before there were CGMs available. It has enabled me to manage my blood sugar much more effectively and to take on almost all my own blood sugar mgmt at an earlier age. I experience much less anxiety (and my parents too) because We can always see what my blood sugar level is and take more proactive action more often. It's far less work to manage my blood sugar now too, which has made a big difference for me as a busy teen-ager/young adult."

Medtronic continuous glucose monitors (such as Medtronic Connect, Medtronic Guardian, or Medtronic Enlite):

21. Describe how the use of the Medtronic continuous glucose monitors affects or has affected the patients your group represents' day-to-day life and the effects they experienced using the continuous glucose monitors.

If possible, please state which model or models of the Medtronic continuous glucose monitors they have tried.

Respondents from across Canada:

Of the respondents from across Canada (n=873):

- 1.5% (n=13) reported that they were currently using Medtronic Guardian Connect CGM,
- 2.6% (n=23) reported that they had used Medtronic Guardian Connect CGM in the past,
- 2.6% (n=23) reported that they were currently using Medtronic Guardian Sensor 3 + Guardian Link 3 Transmitter CGM,
- 1.1% (n=10) reported that they had used Medtronic Guardian Sensor 3 + Guardian Link 3 Transmitter CGM in the past,
- 1.1% (n=10) reported that they were currently using Medtronic Guardian Enlite Sensor + Enlite MiniLink Transmitter CGM,
- 8.0% (n=70) reported that they had used Enlite Sensor + Enlite MiniLink Transmitter CGM in the past, and
- 75.9% (n=663) reported that they have never used Medtronic Guardian or Enlite CGM devices in the past.

Respondents accessed Medtronic CGM devices through the following avenues (in order of priority):

- Paid out-of-pocket (44.1%)
- Covered under private insurance (39.3%)
- From manufacturer's samples (9.0%)
- Through a clinical trial (5.5%)
- Provincial health-care plan (1.4%)

Respondents reported doing the following to access Medtronic CGM devices (in order of priority):

- Cut back on other expenses (41.1%)
- Increased debt level (38.4%)
- Stayed in a job to retain medical benefits (30.4%)
- Choose between basic necessities and diabetes devices (20.5%)
- Borrowed money from friends and/or family (19.6%)
- Asked employer to modify medical plan (17.0%)
- Changed jobs to access medical benefits (4.5%)
- Held a fundraiser (1.8%)

Respondents from British Columbia:

Of the respondents from British Columbia (n=294):

- 0.7% (n=2) reported that they were currently using Medtronic Guardian Connect CGM,

- 1.4% (n=4) reported that they had used Medtronic Guardian Connect CGM in the past,
- 1.7% (n=5) reported that they were currently using Medtronic Guardian Sensor 3 + Guardian Link 3 Transmitter CGM,
- 1.4% (n=4) reported that they had used Medtronic Guardian Sensor 3 + Guardian Link 3 Transmitter CGM in the past,
- 2.0% (n=6) reported that they were currently using Medtronic Guardian Enlite Sensor + Enlite MiniLink Transmitter CGM,
- 11.2% (n=33) reported that they had used Enlite Sensor + Enlite MiniLink Transmitter CGM in the past, and
- 73.8% (n=217) reported that they have never used Medtronic Guardian or Enlite CGM devices in the past.

Respondents accessed Medtronic CGM devices through the following avenues (in order of priority):

- Covered under private insurance (43.4%)
- Paid out-of-pocket (41.5%)
- From manufacturer's samples (11.3%)
- Through a clinical trial (3.8%)

Respondents reported doing the following to access Medtronic CGM devices (in order of priority):

- Cut back on other expenses (51.1%)
- Stayed in a job to retain medical benefits (33.3%)
- Increased debt level (26.7%)
- Asked employer to modify medical plan (24.4%)
- Choose between basic necessities and diabetes devices (22.2%)
- Borrowed money from friends and/or family (20.0%)
- Changed jobs to access medical benefits (4.4%)
- Held a fundraiser (2.2%)

Respondents who used or are using a Medtronic continuous glucose monitor reported being able to check their glucose anywhere, with a small and discreet device, which means being more flexible and spontaneous in life. The continuous data allows for better management during exercise and at night, and they also reported that they found the alarms helpful. The special features of the Medtronic CGMs, such as its connection to their insulin pump that allows them to see glucose trends on the same screen as their insulin bolus and the auto mode (including insulin auto shutoff during episodes of extreme hypoglycemia), were especially beneficial to users. They also appreciated that the devices are waterproof and rechargeable. These features, which improve diabetes glucose management, also allow users the freedom to live life more fully.

Using a Medtronic CGM resulted in better diabetes management. People living with diabetes can see how their blood glucose responds to various activities and are better able to function at work and at home. As a result, they enjoy a better quality of life, they feel more confident with both their diabetes care and their overall health. The device is easy to use, seeing trending data allows for tighter glucose control, fewer episodes of hypoglycemia and hyperglycemia. They experience less stress, anxiety and worry while enjoying a sense of security and peace of mind. Survey respondents reported better sleep and fewer nighttime episodes of hypoglycemia. Caregivers indicated that they could manage the patient's diabetes better, which has increased the child's independence. More information means better decisions, and it is easier to check the child's glucose levels when they are sleeping. This has

resulted in better sleep, and less anxiety and stress. The depth of the improvement of quality of life cannot be overstated. The real-world improvement may be even more pronounced than trial data, as the supports available during a trial are not present and patients depend more on these devices for management support.

Most respondents reported no side effects. Of those that did report side effects, skin irritation was the most common, followed by allergy to adhesive, and sensors that often fell off before expiring. Other cited side effects included pain, bleeding, scarring, bruising and rash.

The following were listed as dislikes of the Medtronic continuous glucose monitor.

1. Sensor: Skin irritation, rash, bleeding, scarring, Sensor bulky/transmitter heavy, falls off (never stays on)/failed cannulas, Onerous insertion process, set changes can be painful & traumatic
2. Alarms: Loss of sleep from alarms, stress of missing alarms at night, too many alarms in the day, not enough alarms at night
3. Technological issues: Calibrations required with finger prick testing, no app for caregivers to follow, inaccurate, lag time for glucose to match blood glucose, long time to warm up, sometimes disconnects from pump
4. Organizational: Cost

Below are select quotes from British Columbians, describing how using the Medtronic continuous glucose monitor has affected their day-to-day life and the effects they experienced using the Medtronic continuous glucose monitor:

"I hope the Medtronic 670 system with cgm will be fully covered by pharmacare. We spend \$5-6000 minimum per year out of pocket to keep my son alive & give him the best care we can. It's draining on our family finances & is stressful."

"This is only device I trust for my child. The automode basal settings, auto shut off when low, direct link between pump & sensor. I can't imagine choosing another device. Nothing offers the all in one that this system does. My son never hears alarms at night so the fact the pump shuts insulin off on its own is #1 in mind. Dexcom & Abbott do not offer this. I won't switch."

"There is more information available to make better decisions with."

22. Do the patients your group represents consider the Medtronic continuous glucose monitors to have improved the management of their diabetes? Please state why.

Respondents from across Canada:

Respondents from across Canada reported a multitude of positive experiences related to the use of Medtronic CGM devices (in order of priority):

- Improved diabetes management (72.2%)
- Better quality of life (60.2%)
- Reduced hyperglycemic events (59.3%)
- Reduced hypoglycemic events (58.3%)
- Peace of mind (51.9%)

- Sense of security (51.0%)
- Reduced stress (51.0%)
- Reduced anxiety (49.1%)
- Better sleep (47.2%)
- Able to participate fully in society (44.4%)
- Improved quality of care (43.5%)
- Increased sense of independence (41.7%)
- Reduced distress (38.9%)
- Improved mental health (37.0%)
- Relief of existing symptoms (35.2%)
- Better physical health (34.3%)
- Improved performance at work/school (29.6%)
- Improved virtual visits (20.4%)
- Better communication with health-care provider or diabetes educator (15.7%)

Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive experiences related to the use of Medtronic CGM devices (in order of importance):

- Improved diabetes management (65.8%)
- Better quality of life (60.5%)
- Reduced stress (60.5%)
- Reduced anxiety (57.9%)
- Reduced hypoglycemic events (55.3%)
- Reduced hyperglycemic events (55.3%)
- Sense of security (52.6%)
- Increased sense of independence (50.0%)
- Able to participate fully in society (47.4%)
- Better sleep (47.4%)
- Reduced distress (47.4%)
- Peace of mind (47.4%)
- Improved quality of care (44.7%)
- Improved mental health (39.5%)
- Better physical health (36.8%)
- Relief of existing symptoms (34.2%)
- Improved performance at work/school (29.0%)
- Improved virtual visits (23.7%)
- Better communication with health-care provider or diabetes educator (13.2%)

Using a Medtronic CGM resulted in better diabetes management. Respondents who used or are using a Medtronic continuous glucose monitor reported that the continuous data allows for better management during exercise and at night. They can see how their blood glucose responds to various activities, they are better able to function at work and in life. As a result, they feel more confident with both their diabetes care and their overall health. Survey respondents reported fewer nighttime episodes of hypoglycemia. Caregivers indicated that they could manage the patient's diabetes better, which has increased the child's independence. More information means better decisions, and it is easier to check the child's glucose levels when they are sleeping.

Below are select quotes from British Columbians, describing how using the Medtronic continuous glucose monitor has improved the management of their diabetes:

"BS numbers much better and A1C has improved. Takes the mental strain off for a bit to just know I don't have to monitor all the time as it is doing it."

"It links to my pump so I am able to get the report and discuss with my care team."

"I last used Medtronic CGM when pregnant with my daughter. The constant monitoring gave me great peace of mind during a very stressful time. I was also able to review my results with the team of professionals who helped me grow and deliver a perfectly healthy child."

"I am less likely to have high blood sugar, am overall more aware of how my blood sugar trends, and I feel less stressed out when I'm using it."

"Please consider conceding the Medtronic cgms. It is not a choice we make it's a requirement of life. It's more important to have the auto low shut off then have the numbers sent to my phone as the Dexcom does. What is use if nobody hears it! Too many times I've gone into my sons room to hear alarms blaring on his pump & he's fast asleep but the automode pump has already stopped his basal & prevented the low. The other cgms pale in comparison."

23. Do the patients your group represents consider the Medtronic continuous glucose monitors to have improved their quality of life relating to the management of their diabetes? Please state why.

Respondents from across Canada:

Of the respondents from across Canada, 60.2% of respondents reported an improved quality of life due to the use of Medtronic CGM devices. Furthermore, 47.6% (n=69) were very/somewhat satisfied with Medtronic CGM devices, 6.9% (n=10) were neither satisfied nor dissatisfied, and 40.7% (n=59) were very/somewhat dissatisfied.

Respondents from British Columbia:

Of the respondents from British Columbia, 60.5% of respondents reported an improved quality of life due to the use of Medtronic CGM devices. Furthermore, 48.1% (n=25) were very/somewhat satisfied with Medtronic CGM devices, 5.8% (n=3) were neither satisfied nor dissatisfied, and 42.3% (n=22) were very/somewhat dissatisfied.

Respondents reported that they enjoy a better quality of life, they feel more confident with both their diabetes care and their overall health. Being able to check their glucose anywhere, with a small and discreet device, means they can be more flexible and spontaneous in life. They experience less stress, anxiety and worry while enjoying a sense of security and peace of mind. Survey respondents reported better sleep and fewer nighttime episodes of hypoglycemia. Caregivers indicated that they could manage the patient's diabetes better, which has increased the child's independence. More

information means better decisions, and it is easier to check the child's glucose levels when they are sleeping. This has resulted in better sleep, and less anxiety and stress.

Below are select quotes from British Columbians, describing how using the Medtronic continuous glucose monitor has improved their quality of life relating to the management of their diabetes:

"I am less stressed and have better control with fewer lows and I can be more flexible and spontaneous in my life and can manage glucose levels better with various activities and I sleep better with the cgm and have fewer lows at night especially with auto mode."

"We can sleep at night not worrying our 14 year old won't wake up. The stress levels before the 670 with automode Medtronic system were very high. Now we feel can have more normal life & his blood sugar a1c is down by 1.0!"

"Peace of mind. Less hypo fear. Better sleep. Less stress and fear. Spending less time worrying. Less time thinking about what blood sugars are doing. The stress of not being able to continue to use the CGM when my benefits are gone is very stressful!"

Other Glucose Monitoring Mechanisms:

24. Please describe what other glucose monitoring mechanisms the patients your group represents have used.

A very small percentage of respondents reported using Miao Miao, a device that attaches to the Freestyle Libre and converts flash glucose readings into continuous glucose readings with alarms through a third-party app.

No other glucose monitoring mechanisms were reported by survey respondents.

25. Describe how the use of other glucose monitoring mechanisms affects or has affected the patients your group represents' day-to-day life and the effects they experienced using other glucose monitoring mechanisms.

Respondents using the Miao Miao indicated that they would have preferred to use a continuous glucose monitor, but that the cost was too prohibitive. So, they instead opted for the lower-cost flash glucose monitor with off-shelf add-ons. It is important to note that people involved in off-label use of flash and CGM technology believe the risks involved are outweighed by the risk of not having access to this technology (for themselves or their child). While those modifying devices and software are careful not to put anyone at risk, as a matter of policy it would be better if everyone were able to access technology approved by Health Canada.

26. Do the patients your group represents consider other glucose monitoring mechanisms to have improved the management of their diabetes? Please state why.

N/A - see above.

27. Do the patients your group represents consider other glucose monitoring mechanisms to have improved their quality of life relating to the management of their diabetes? Please state why.

N/A - see above.

28. How does the group you represent think patients with diabetes could benefit from using a flash glucose monitor? If applicable, please specify which device or devices you are commenting on. (For example: relief of existing symptoms; improvement in quality of life; or improvements to their diabetes or long-term health and wellbeing. Please provide details.)

Respondents from across Canada:

Respondents from across Canada reported a multitude of positive benefits experienced due to the use of Abbott flash glucose monitoring (in order of priority):

- Improved diabetes management (79.0%)
- Better quality of life (68.7%)
- Reduced stress (59.5%)
- Reduced hyperglycemic events (54.5%)
- Peace of mind (52.5%)
- Reduced hypoglycemic events (51.6%)
- Reduced anxiety (50.0%)
- Improved quality of care (48.0%)
- Sense of security (47.2%)
- Increased sense of independence (45.1%)
- Able to participate fully in society (42.2%)
- Better sleep (38.3%)
- Improved mental health (36.9%)
- Better physical health (33.0%)
- Reduced distress (31.3%)
- Improved performance at work/school (29.2%)
- Relief of existing symptoms (25.1%)
- Improved virtual visits (16.1%)
- Better communication with health-care provider or diabetes educator (15.9%)

Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive benefits experienced due to the use of Abbott flash glucose monitoring (in order of priority):

- Improved diabetes management (76.8%)
- Better quality of life (68.8%)

- Reduced stress (64.8%)
- Reduced hyperglycemic events (58.4%)
- Reduced hypoglycemic events (53.6%)
- Reduced anxiety (52.0%)
- Peace of mind (51.2%)
- Sense of security (48.0%)
- Improved quality of care (47.2%)
- Increased sense of independence (47.2%)
- Able to participate fully in society (41.6%)
- Better sleep (39.2%)
- Better physical health (38.4%)
- Improved mental health (37.6%)
- Reduced distress (35.2%)
- Relief of existing symptoms (28.8%)
- Improved performance at work/school (27.2%)
- Better communication with health-care provider or diabetes educator (17.6%)
- Improved virtual visits (16.8%)

Respondents who use or have used the Abbott flash glucose monitor reported better quality of life, and more independence and confidence. The device allows them to focus on life, taking less time away from what matters. It improved their ability to focus on work/schoolwork, improved their mental and physical health, and helps with sick day management. Food and meal management has become easier because they can see how different foods affect their glucose levels. Using a flash glucose monitor has allowed them to be more physically active, and they are then able to better manage diabetes with exercise.

They also reported improved glucose control, better A1C results, better health outcomes, fewer episodes of hypoglycemia, elimination of nighttime hypoglycemic seizures, and fewer dosing errors. As a result, people with diabetes and their caregivers experienced better sleep, a sense of relief and peace of mind, as well as less stress and worry. Using the flash glucose monitor made it easier to track trends, by allowing them to increase the frequency of readings (they can check their glucose levels more often). Fingers healed, and fewer finger pricks translated into less pain and anxiety, as well as an ability to check their glucose levels quicker and more discreetly in public. They were able to share data more easily with their family and their diabetes team. Caregivers of children with type 1 diabetes reported that the flash makes it easier to check their child's glucose levels while sleeping, at school, or playing sports. It is less disruptive process that results in better sleep and less anxiety and stress. The caregivers can see patterns (trends) and can then fine-tune insulin dosing, which results in fewer emergencies (extreme episodes of hypoglycemia). This method improves the child's independence and freedom, by putting glucose levels in the background instead of the foreground.

Respondents using the flash glucose monitor preferred it to a continuous glucose monitor because it lasts longer and does not result in alarm fatigue.

Below are select quotes from British Columbians, describing how using an Abbott flash glucose monitor benefit them:

"It's small, discrete and easily checked by phone"

"Lower A1C by far."

"It's night and day difference, as a finger prick gives you a snapshot in time whereas the monitor tells you the trend and history of your glucose. Which immensely helps with insulin regime decision making, allowing for precise corrections, and better health outcomes."

"Helped improve quality of health through more blood sugar info"

29. How does the group you represent think patients with diabetes could benefit from using a continuous glucose monitor? If applicable, please specify which device or devices you are commenting on. (For example: relief of existing symptoms; improvement in quality of life; or improvements to their diabetes or long-term health and wellbeing. Please provide details.)

Responses from current and past users of Dexcom devices are reported first, followed by responses from current and past users of Medtronic devices.

Dexcom Respondents from across Canada:

Respondents from across Canada reported a multitude of positive benefits experienced due to the use of Dexcom CGM devices (in order of priority):

- Improved diabetes management (91.3%)
- Better quality of life (88.2%)
- Reduced hypoglycemic events (85.2%)
- Better sleep (82.3%)
- Reduced stress (82.0%)
- Peace of mind (80.4%)
- Reduced hyperglycemic events (79.7%)
- Sense of security (79.2%)
- Reduced anxiety (76.8%)
- Improved quality of care (69.9%)
- Increased sense of independence (67.7%)
- Improved mental health (63.8%)
- Able to participate fully in society (60.7%)
- Better physical health (58.9%)
- Reduced distress (53.5%)
- Improved performance at work/school (51.5%)
- Relief of existing symptoms (46.9%)
- Improved virtual visits (41.5%)
- Better communication with health-care provider or diabetes educator (33.6%)

Dexcom Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive benefits experienced due to the use of Dexcom CGM devices (in order of priority):

- Improved diabetes management (89.6%)

- Better quality of life (86.1%)
- Better sleep (85.0%)
- Reduced stress (84.4%)
- Peace of mind (81.5%)
- Reduced hypoglycemic events (81.5%)
- Reduced anxiety (79.8%)
- Reduced hyperglycemic events (78.6%)
- Sense of security (78.0%)
- Improved quality of care (68.9%)
- Increased sense of independence (67.6%)
- Improved mental health (64.7%)
- Better physical health (63.1%)
- Reduced distress (57.8%)
- Able to participate fully in society (53.8%)
- Relief of existing symptoms (50.9%)
- Improved performance at work/school (49.7%)
- Improved virtual visits (41.6%)
- Better communication with health-care provider or diabetes educator (34.7%)

Below are select quotes from British Columbians, describing how using a Dexcom continuous glucose monitor benefit them:

"The G6 has been much more beneficial as it is more accurate and therefore gives some peace of mind."

"Much easier to use and provides more data than a glucose meter. Especially in situations, such as a work presentation, where using a meter may be difficult."

"It gives me piece of mind that my son has better control of his Type 1 diabetes. That it makes this awful autoimmune disease a little easier to manage. It also it a giant relief to know that it has an alarm that can inform me if he is having a low blood sugar, I can be there to help him if he can't help himself."

"Dexcom G6 is an amazing improvement in my quality of life. Having alarms is life changing and allows me to sleep better knowing alarms will wake me or my loved one up if I go low. Not having to calibrate is a big deal and the amount saved on fingerstick checks is significant. The CGM shows trends and I have a much better idea of where my blood sugars is at and trending compared to fingerstick checks. There is much more data available, thousands of readings vs 8-10 sticks per day. Also, my A1C level has gone down 1% which is huge for people with Type 1."

Medtronic Respondents from across Canada:

Respondents from across Canada reported a multitude of positive benefits experienced due to the use of Medtronic CGM devices (in order of priority):

- Improved diabetes management (72.2%)
- Better quality of life (60.2%)
- Reduced hyperglycemic events (59.3%)

- Reduced hypoglycemic events (58.3%)
- Peace of mind (51.9%)
- Sense of security (51.0%)
- Reduced stress (51.0%)
- Reduced anxiety (49.1%)
- Better sleep (47.2%)
- Able to participate fully in society (44.4%)
- Improved quality of care (43.5%)
- Increased sense of independence (41.7%)
- Reduced distress (38.9%)
- Improved mental health (37.0%)
- Relief of existing symptoms (35.2%)
- Better physical health (34.3%)
- Improved performance at work/school (29.6%)
- Improved virtual visits (20.4%)
- Better communication with health-care provider or diabetes educator (15.7%)

Medtronic Respondents from British Columbia:

Respondents from British Columbia reported a multitude of positive benefits experienced due to the use of Medtronic CGM devices (in order of priority):

- Improved diabetes management (65.8%)
- Better quality of life (60.5%)
- Reduced stress (60.5%)
- Reduced anxiety (57.9%)
- Reduced hypoglycemic events (55.3%)
- Reduced hyperglycemic events (55.3%)
- Sense of security (52.6%)
- Increased sense of independence (50.0%)
- Able to participate fully in society (47.4%)
- Better sleep (47.4%)
- Reduced distress (47.4%)
- Peace of mind (47.4%)
- Improved quality of care (44.7%)
- Improved mental health (39.5%)
- Better physical health (36.8%)
- Relief of existing symptoms (34.2%)
- Improved performance at work/school (29.0%)
- Improved virtual visits (23.7%)
- Better communication with health-care provider or diabetes educator (13.2%)

Respondents who used or are using a Medtronic continuous glucose monitor reported that they find it better than self-monitoring blood glucose because it involves fewer finger pokes and fewer injections. Being able to check their glucose anywhere, with a small and discreet device, means they can be more flexible and spontaneous in life. The continuous data allows for better management during exercise and at night, and they also reported that they found the alarms helpful. The special features of the Medtronic CGMs, such as its connection to their insulin pump that allows them to see

glucose trends on the same screen as their insulin bolus and the auto mode (including insulin auto shutoff during episodes of extreme hypoglycemia), were especially beneficial to users. They also appreciated that the devices are waterproof and rechargeable.

Using a Medtronic CGM resulted in better diabetes management. They can see how their blood glucose responds to various activities, they are better able to function at work and in life. As a result, they enjoy a better quality of life, they feel more confident with both their diabetes care and their overall health. The device is easy to use, seeing trending data allows for tighter glucose control, fewer episodes of hypoglycemia and hyperglycemia. They experience less stress, anxiety and worry while enjoying a sense of security and peace of mind. Survey respondents reported better sleep and fewer nighttime episodes of hypoglycemia. Caregivers indicated that they could manage the patient's diabetes better, which has increased the child's independence. More information means better decisions, and it is easier to check the child's glucose levels when they are sleeping. This has resulted in better sleep, and less anxiety and stress.

Below are select quotes from British Columbians, describing how using a Medtronic continuous glucose monitor benefit them:

"I am less stressed and have better control with fewer lows and I can be more flexible and spontaneous in my life and can manage glucose levels better with various activities and I sleep better with the cgm and have fewer lows at night especially with auto mode."

"It allows constant monitoring so even if I forget to scan, it can warn me about highs and lows. It's especially helpful through the night or during exercise when I may not be aware of how rapidly my glucose levels are changing."

"Less anxiety, distress, stress. Better glucose management, less lows and highs, better sleep so able to function better at work and life in general. Allows me to be more flexible with exercise and what/when I eat. Healthier, happier overall."

"It has improved my quality of life. It is better to know instantly what my sugars are up to so that I can react accordingly."

30. Are there any additional factors the group you represent would like PharmaCare to consider during its review of flash glucose monitors and continuous glucose monitors? (For example: does the device meet any special patient needs that have not been met by other devices; is the device easier to use than other devices; does the device reduce visits to the hospital; does the device reduce days off work or school; or are any undesirable features of the device acceptable or intolerable?)

Respondents from across Canada:

Respondents from across Canada (n=873) reported having the following expectation for glucose sensors (in order of priority):

- Improves A1C (92.9%)
- Reduces risk of episodes of hypoglycemia (91.7%)

- Improves quality of life (89.2%)
- Reduces risk of episodes of hyperglycemia (88.4%)
- Ease of use (87.2%)
- Provides confidence in glucose readings (85.4%)
- Increases the amount of time glucose levels remain in target range (83.3%)
- Reduces disruption to lifestyle (80.0%)
- Maintains target glucose levels (78.5%)
- Improves health outcomes (77.7%)
- Allows them to share glucose readings with diabetes health-care team and/or diabetes specialist team (73.0%)
- Correlates well with blood glucose tests (62.8%)
- Allows them to share glucose readings with their caregiver (59.3%)
- Allows them to go days without blood glucose testing (56.2%)
- Integrates with their insulin pump (52.5%)
- Reduces number of visits to the hospital (45.7%)

Respondents from British Columbia:

Respondents from British Columbia (n=294) reported having the following expectation for glucose sensors (in order of priority):

- Improves A1C (92.6%)
- Reduces risk of episodes of hypoglycemia (90.5%)
- Improves quality of life (90.5%)
- Reduces risk of episodes of hyperglycemia (89.4%)
- Ease of use (87.6%)
- Provides confidence in glucose readings (82.3%)
- Increases the amount of time glucose levels remain in target range (82.0%)
- Reduces disruption to lifestyle (81.3%)
- Improves health outcomes (80.6%)
- Maintains target glucose levels (79.5%)
- Allows them to share glucose readings with diabetes health-care team and/or diabetes specialist team (71.0%)
- Allows them to share glucose readings with their caregiver (58.0%)
- Correlates well with blood glucose tests (57.6%)
- Allows them to go days without blood glucose testing (53.0%)
- Integrates with their insulin pump (52.3%)
- Reduces number of visits to the hospital (48.4%)

Regardless of type of device that respondents have used or are currently using, commonalities emerged in the themes reported:

- A device for monitoring glucose is better than self-monitoring blood glucose with finger prick testing
- They have better control of their diabetes: improved blood glucose control, better health outcomes, improved A1C
- Their quality of life relating to diabetes management has also improved: more freedom and flexibility, less stress and worry, more peace of mind and relief.

People with diabetes and their caregivers have an A+ list of what is important to them in choosing a glucose sensor:

- Accuracy
- Alarms (most yes, a small number no)
- Affordability
- All-in-one, i.e., closed-looping with insulin pump
- Attachment - stays on longer, comfortable, waterproof, no adhesive side effects
- Appearance - small, discreet, anywhere on body
- Automatic readouts/shutoff
- Access to data (share with others)
- Apps
- Arrows - to show if trending high or low

And it comes through in their expectations of new devices, as they become available in Canada:

- Enhance management of diabetes: keep BG in range, reduce A1C, reduce potential for long-term complications, prevent need for medical intervention
- Improve quality of life, reduce worry/stress, improve mental health
- Accuracy of readings, reliable data
- Technology integration: closed looping with insulin pump, all-in-one device, or better integration with other tech (phones, watches, apps)
- Access for all (through provincial and/or private plans) or at least affordable by cost reductions from manufacturers
- Device: smaller device, lasts longer, rechargeable, waterproof
- Finger prick testing becomes obsolete
- Patient choice on right product/device for them, faster approval in Canada (new devices or updates), more options available in the market

With regards to the specific devices under review, respondents' input is broken down by device company below.

Abbott Freestyle Libre Flash Glucose Monitor

- Easier to use than SMBG
- Easier/Harder than CGM; less/more accurate
- Trends, graphs, arrows
- Stays on better
- Not as complete as sensors connected to pump
- No alarm fatigue
- Cheaper than CGM
- Mobility & freedom
- Less noticeable under clothing

Dexcom Continuous Glucose Monitor

- Follow App for others, remote monitoring (Bluetooth technology), 3rd party app that provides glucose levels while driving, excellent reports for virtual visits
- Alarms for highs and lows, predictive alerts

- Data every 5 minutes (continuous) - preferable to flash monitoring
- Easier to use than SMBG, other devices
- Can connect to insulin pump and shut off when low (i.e., Tandem Loop)
- Slim, low profile
- Easy, painless insertion

Medtronic Continuous Glucose Monitor

- Connection to insulin pump
- Auto mode, insulin auto shut off when low
- Waterproof (can swim with it)
- Rechargeable
- Constant monitoring

Below are select quotes from British Columbians, describing how glucose monitoring technology has impacted them:

"CGM saves my life"

"Insulin pump and CGM have been life changing for controlling my blood sugars."

"Dexcom G6 CGM - could not live without it as a caregiver to a hypo unaware child."

"The Abbott Libre is incredible. So helpful. Very expensive."

"I use Medtronic pump for its smaller basal increments and water resistance."

"It is easy to follow and allows me to be an active student with as little burden as possible."

"Pump gives me flexibility when I want to eat and better control. CGM gives me so much freedom and knowledge. My numbers are in my Apple Watch. I can look at my wrist and I know what I am, and where I am going. I can plan ahead if it looks like I'm going to go low and avoid it altogether. I can sleep again at night knowing my alarms will wake me up. I have avoided many dangerous lows and I can see where I am trending."

"I use an insulin pump and CGM. This system allows me to manage my diabetes more closely with less finger pokes. It has decreased my A1C as well."

The Final Word

When asked to provide final thoughts in the survey, respondents discussed the importance of removing the financial burden of diabetes by covering the costs of glucose monitoring devices. In their opinion, total diabetes care in the form of glucose monitoring devices that create a closed loop with an insulin pump (covered by provincial plans) is the

best option—short of a cure for diabetes—to decrease the disease burden on people with diabetes and their caregivers.

Patients and their caregivers told us that glucose monitors are both lifesaving and life-changing, improving physical and mental health, reducing the financial and societal burden of this disease. In fact, many respondents felt that it is more important to cover glucose monitoring devices than insulin pumps. At a societal level, they ask for a balance of short-term pain—cost of funding devices—with long-term gain—cost savings of reduced impact on hospitalization, the health care system, limb loss, and kidney and renal failure. Finally, they indicated that the cost of flash and continuous glucose monitoring devices is comparable to test strips—all tools to better manage the disease. They all have value and different people prefer different options, so they want to be given the choice of glucose monitoring system, informed by discussion with their health-care provider.