



## Common Drug Review *Patient Group Input Submissions*

### **Jardiance (empagliflozin) for Type 2 diabetes with high cardiovascular risk**

**Patient group input submissions were received from the following patient groups. Those with permission to post are included in this document.**

Canadian Diabetes Association — permission granted to post.

#### **CADTH received patient group input for this review on or before May 18, 2016**

The views expressed in each submission are those of the submitting organization or individual; not necessarily the views of CADTH or of other organizations.

While CADTH formats the patient input submissions for posting, it does not edit the content of the submissions.

CADTH does use reasonable care to prevent disclosure of personal information in posted material; however, it is ultimately the submitter's responsibility to ensure no personal information is included in the submission. The name of the submitting patient group and all conflict of interest information are included in the posted patient group submission; however, the name of the author, including the name of an individual patient or caregiver submitting the patient input, are not posted.

## Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest	Jardiance (empagliflozin) Type 2 diabetes with high cardiovascular risk
Name of patient group	Canadian Diabetes Association
Name of primary contact for this submission:	██████████
Position or title with patient group	████████████████████
Email	████████████████████
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Patient group's contact information:	Canadian Diabetes Association
Email	<a href="mailto:advocacy@diabetes.ca">advocacy@diabetes.ca</a>
Telephone	613 688 5938
Address	45 Montreal Road Ottawa, ON, K1L 6E8
Website	<a href="http://www.diabetes.ca">www.diabetes.ca</a>

### 1.1 Submitting Organization

The Canadian Diabetes Association (the CDA) leads the fight against diabetes by helping people with diabetes live healthy lives while we work to find a cure. It has a heritage of excellence and leadership, and its co-founder, Dr. Charles Best, along with Dr. Frederick Banting, is credited with the co-discovery of insulin. The CDA is supported in its efforts by a community-based network of volunteers, employees, health care professionals, researchers, and partners. By providing education and services, advocating on behalf of people with diabetes, supporting research, and translating research into practical applications, the CDA is delivering on its mission.

### 1.2 Conflict of Interest Declarations

The Canadian Diabetes Association (the CDA) solicits and receives unrestricted educational grants from multiple manufacturers/vendors of pharmaceuticals, supplies and devices for diabetes and its complications. These funds help the CDA to support community programs and services for people with diabetes, fund research and advocacy, across Canada. Sponsors were not involved in developing this submission. The CDA did not have any conflicts of interest in the preparation of this submission.

## Section 2 — Condition and Current Therapy Information

### 2.1 Information Gathering

The Canadian Diabetes Association (the CDA) solicited patient input through surveys distributed through social media and email blasts. Content of this submission is derived from 2 surveys. The first survey, conducted during 2 weeks in August 2014, gathered information from 376 Canadians with type 2 diabetes and their caregivers about the impacts of diabetes, and aspects of diabetes they want medications to address. The second survey, conducted in April 2015 during 3 weeks, provides

information from Canadians with type 2 diabetes (n=349) and their caregivers (n=75) about current drug therapies and experience with Jardiance (empagliflozin), and the most important aspects of diabetes they would like medications to address.

## **2.2 Impact of Condition on Patients**

Type 2 diabetes is a chronic (progressive) condition that 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 fatigue, thirst and weight change. Diabetes requires considerable self-management, including healthy eating, regular physical activity, healthy body weight, taking diabetes medications (oral and/or injection) as prescribed, monitoring blood glucose and stress management. Poor glucose control can result in serious complications, such as heart disease, stroke, blindness, kidney problems, nerve damage and erectile dysfunction. The goal of diabetes management is to keep glucose levels within the target range to minimize symptoms and avoid or delay the complications.

Many respondents described fatigue and lack of energy. There was also a frequent emphasis on the psychological and emotional impact of diabetes on the lives of respondents (effect on stress, anxiety, adjusting to changes in diet and lifestyle, medication and treatment management as well as relationships with family). Below are selected quotes that demonstrate challenges due to diabetes:

“Having diabetes makes me useless. I have no energy or strength to enjoy life anymore. I can't do partial jobs around house. I can't enjoy sports anymore. Diabetes has instill (sic) a fear in me.”

“Managing diabetes is very stressful because you take lots of medication and in spite of your best efforts, maintaining target range is difficult.”

“The most distressing side effect of all of the diabetes drugs is they make you gain weight or prevent weight loss. It is annoying to be told to lose weight then handed a drug that prevents weight loss.”

“...problems are mostly trying to lose weight.....Took 5 Metformin pills (1 a day for 5 days ) and put on 2 pounds a day. Took over a month to loose[sic] that 10 pounds.”

“Basically it's an awful experience, experience highs and lows. Exercising can make my sugars low so I have to always have a snack with me. Eating anywhere besides home is a challenge as you don't know how things are made. I'm constantly checking my blood and I take 13 pills a day.”

Surveyed patients were asked which aspects of diabetes were the most important. The majority of patients indicated that daily fluctuations in blood sugar and weight gain were the most important aspects of diabetes to control. The blood sugar fluctuations impact the ability to work, interactions with friends and family, causes stress and worry as well as ability to participate in normal activities of daily living. Weight gain and the stigma associated with the disease can result in reduced quality of life. Maintaining control of diabetes has potential to reduce anxiety and avoid or delay complications as well as improve overall quality of life.

## **2.3 Patients' Experiences With Current Therapy**

A large proportion of people with type 2 diabetes fail to achieve optimal glycemic control, which places patients at risk for both acute and chronic diabetes complications. Initial therapy is most often with metformin, but over time, most patients will require the addition of a second or third agent to reach glycemic targets. Many of the currently available therapies cause significant weight gain while their

ability to achieve optimal glycemic control may be limited by hypoglycemia. Weight gain adds to the sense of failure and anxiety in this patient population who frequently blame themselves for their health status.

A total of 397 Canadians with diabetes and caregivers indicated experience taking diabetes medications. The majority of respondents—63% (218 people)—stated they were satisfied or very satisfied with their **current therapies** whereas 18% indicated dissatisfaction. They indicated they were better or much better at keeping blood glucose and A1C levels at target. However, a significant number of respondents have *not* found it easier to avoid low blood sugar (“the same,” “worse” or “much worse” for 38%), weight gain (“the same,” “worse” or “much worse” for 52%), GI effects (“the same,” “worse” or “much worse” for 57%); 59% and 55% indicating “same,” “worse” or “much worse” for dehydration and urinary tract/yeast infection, respectively.

Overall, respondents were more satisfied than dissatisfied with their medications in terms of the ability to manage their blood sugar levels. However, there were considerable issues with side effects.

Surveyed patients were also asked to rate the importance of following benefits/side effects when choosing diabetes medications, using a five-point scale from “not at all important” to “very important.” Over 90% of respondents indicated “quite important” or “very important” regarding the following benefits of therapy:

- blood sugars kept at satisfactory levels in the morning/after fasting (96%),
- blood sugars kept at satisfactory levels during the day/after meals (95%),
- avoiding low blood sugar during the day/overnight (90%).

The following aspects are also considered important by the vast majority:

- avoiding weight gain (89%),
- avoiding GI effects (84%),
- reducing high blood pressure (83%),
- avoiding fluid retention (82%),
- avoiding urinary tract infection (81%).

Other aspects deemed important when choosing medications include “avoiding kidney strain and heart problems” and “depression.” Some respondents simply wanted drugs to “allow them to lead as normal a life as possible” and provide a “life without concerns about complications because of diabetes.”

## **Section 3 — Information about the Drug Being Reviewed**

### **3.1 Information Gathering**

The Canadian Diabetes Association (the CDA) solicited patient input on the drug being reviewed, through a survey distributed through social media and email blasts. Conducted in April 2015 during 3 weeks, the survey provides information from Canadians with type 2 diabetes (n=349) and their caregivers (n=75) about current drug therapies and experience with empagliflozin specifically, and the most important aspects of diabetes they would like new medications to address.

### 3.2 What Are the Expectations for the New Drug or What Experiences Have Patients Had With the New Drug?

Empagliflozin belongs to a new class of drugs that lower blood glucose through inhibition of subtype 2 sodium-glucose transport protein (SGLT2), which is responsible for at least 90% of the glucose reabsorption in the kidney. The SGLT2 inhibition stabilizes blood glucose, reduces blood pressure and promotes weight loss. Recently published results of the first cardiovascular outcome trial of this drug class demonstrate lower rates of cardiovascular-related hospitalization and mortality in patients who used empagliflozin. The availability of empagliflozin offers an alternative treatment option for people with type 2 diabetes, as well as those at higher risk for cardiovascular events.

Only 14 respondents indicated they had taken empagliflozin in as part of a clinical trial; 136 had taken other drugs in the same class i.e. Invokana (canagliflozin) or Forxiga (dapagliflozin). Patients who have taken empagliflozin noted its effectiveness in keeping blood sugar levels at target and decreasing side effects (diarrhea, stomach ache, losing weight), and provide “better quality of life” from their perspective. A patient who has used empagliflozin in a past trial and now on another class of drugs expressed his wish that he could access it because “it worked...[other drugs] cause weight gain and do not work as well as empagliflozin.”

**For people who have *not* had experience with** empagliflozin, they reported challenges with some of the current medications such as GI effects associated with metformin use, and indicated the following as important aspects to address with new drugs:

- Maintain blood glucose levels & reduce instances of hypoglycemia (“managing levels becomes less stressful”)
- Better A1C
- Weight loss/no weight gain
- Minimal side effects (“without increasing risk of renal damage”)
- Slow the progression of disease/complications (“reduce vascular risks”, “reduce number of patients on dialysis, losing limbs, heart problems, organ failures”)
- Better blood pressure
- Reduction of other diabetes meds
- Avoid or delay insulin
- Lower cost/fully covered under public drug plans (“for retired persons with limited budgets”)
- Cure the disease
- Combat depression (“If these meds can help you feel better it will help with the depression of Diabetes. It may reduce the fear of future serious complications.”)

In general, all patients hope to have blood glucose levels under control, avoid hypoglycemia, avoid long term complications. A large number of respondents also hope to reduce the number of drugs taken, as well as insulin injections. One respondent stated: “if medications can help reduce the amounts or frequency of injections without the risk of serious side effects I would welcome that.” Another respondent puts it in perspective: “I hope one day to be able to take only one or two medications to control my diabetes rather than the 3 injectables and 2 tablet medications I take now.” Other respondents would like the new drug to help “reduce the number [and] types of pills that a type 2 diabetic takes,” “keep away from the needle,” “reduce/eliminate/replace the need for insulin.” Ultimately, people with type 2 diabetes hope for the least number of medications possible at an affordable cost: “I hope that it would be a one tablet or injection instead of multiple medications to treat type 2 diabetes and that everyone can afford to use it.” A great number of patients also expressed their hope for a cure.

### **How important is the access to empagliflozin?**

Over 66% of respondents who have taken empagliflozin indicated that its availability is important to people living with type 2 diabetes. Among respondents who are on diabetes medications, 57% (n=179 out of 316) indicated it is important for empagliflozin to be available. While many of these respondents have not had direct experience with empagliflozin, they indicated the importance to provide alternatives and options to patients:

“Everyone should be given the opportunity to test new medications to determine whether it is the best treatment for them.”

“[drugs that have] the potential to lower weight/reduce weight gain and blood pressure while keeping BG at target in some people with diabetes...should be made available and affordable.”

Some patients reinforced their hope for a new drug to eliminate the need to take multiple drugs (“If I can take one medication rather than 3 and still be well controlled, there should be less cost and side effects”) and the wish to learn more about side effects such as potential renal damage.

In summary, diabetes requires intensive self-management. To achieve optimal blood glucose levels, individualization of therapy is essential, including selecting the drug or combination of drugs, route of administration (oral, injection, pen or pump), how frequently the patient monitors blood glucose and adjusts dosage, the benefits and risks that the patient experiences and/or tolerates, and the lifestyle changes the patient is willing or able to make.

There are clear expectations that any new drugs should offer good blood glucose control to prevent hyperglycemic and hypoglycemic episodes, as well as longer term control, with minimal side effects and long term damage to organs, and at affordable costs. Given the challenge that many patients have with weight loss and the enormous sense of failure experienced with weight gain, diabetes drugs that promote weight loss can be an important part of care.

The patients who had experience with empagliflozin described good results in terms of glucose control and less side effects such as weight gain/GI effects.

Responses to this survey reinforce the understanding that different people living with diabetes require different options in terms of medications to help effectively manage their disease. Their clinical profile, preference and tolerance of therapy can direct physicians to the most appropriate drug therapy. As noted by a respondent: “... access to this new class of diabetes therapy [would allow] physicians and patients [to] have the flexibility to find the most effective and safe "mix" of drugs to maintain control of diabetes. Diabetes changes over time, and everyone needs different medications at different times of their life with diabetes.” The availability of empagliflozin (Jardiance) provides an important option for patients.

## Appendix: Organizations and foundations that made donations to the Canadian Diabetes Association in 2015.

Source: CDA 2015 Annual Report, available at <http://www.diabetes.ca/getmedia/0204ddb9-8942-4033-9dca-21547d2d8007/2015-cda-annual-report.pdf.aspx>

### Corporate Supporters \$5,000 – \$24,999

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ADI Development Group  
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Gerrie Electric Wholesale Ltd.  
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Giffen-Mack Funeral Home  
HCI Holdings  
Holy Spirit Charitable Society  
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Kinsmen Club of Saskatoon  
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Leon's Furniture Ltd.  
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Manitoba Association of  
Health Care Professionals  
Manitoba Health  
Manitoba Housing and  
Community Development  
Marshes Golf Club  
Matec Consultants Limited  
Medtronic of Canada Ltd.  
Mihealth Global Systems Inc.  
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Northland Properties  
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Ontario Automotive  
Recyclers Association  
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Services Inc.  
PricewaterhouseCoopers LLP  
RBC Dominion Securities  
Regina Capital  
Cosmopolitan Club  
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Rosmer Drywall Ltd.  
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Shaw Communications Inc.  
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### Corporate Supporters \$25,000 – \$49,999

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Lions Clubs of BC  
Lions Clubs of Saskatchewan  
MEDEC (Diabetes Committee)  
Rogers Communications  
Rogers Radio Vancouver  
Rubicon Pharmacies  
Canada Inc.  
Taste of Kingston  
Ventas Inc.

### Corporate Supporters \$50,000 – \$99,999

Abbott Nutrition  
Canola  
First Nations Health Authority  
J&J Consumer  
Lions Clubs of Canada

### Corporate Supporters \$100,000 – \$174,999

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The North West Company LP

### Diabetes Champion \$175,000 – \$249,999

Bayer Inc.  
Merck Canada Inc.

### Diabetes Catalyst \$250,000 – \$349,999

LifeScan Canada Ltd.  
Shaw Media  
Sun Life Financial

### Diabetes Visionary \$400,000+

AstraZeneca  
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### Foundations

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Alpha Gamma Delta  
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Aqueduct Foundation  
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Crabtree Foundation  
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Charitable Giving  
Foundation  
Flaman Foundation  
Fleming Foundation  
Fredericton Community  
Foundation Inc.  
G Grant & Dorothy F  
Armstrong Foundation  
Gift Funds Canada

Gill Family Charitable Trust  
Glenn's Helping Hand  
Foundation Inc.  
Greygates Foundation  
Halifax Protestant Infants'  
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Halifax Youth Foundation  
Hamber Foundation  
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Mister Blake Foundation  
Napawee District Community  
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Newfound Foundation  
NL Retired Teachers  
Foundation  
Northern Ontario Heritage  
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Foundation  
Oakville Community  
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Orville & Alvera Woolcott  
Foundation  
PepsiCo Foundation  
Prince Albert & Area  
Community Foundation  
Private Giving Foundation  
Raymond James Canada  
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Salesforce Foundation  
Saskatchewan Community  
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Charitable Foundation  
South Saskatchewan  
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The Chatham-Kent  
Community Foundation  
The Dr. Charles & Margaret  
Brown Foundation  
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The Guelph Community  
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