

CADTH COMMON DRUG REVIEW

Patient Input

APOMORPHINE HYDROCHLORIDE (Kynmobi)

(Sunovion Pharmaceuticals Canada Inc.)

Indication: Parkinson's disease

CADTH received patient input from:

The Michael J. Fox Foundation for Parkinson's Research

Parkinson Association of Alberta

Parkinson Canada

Parkinson Québec

Parkinson Society BC

July 20, 2020

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

CADTH 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.

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	Kynmobi (apomorphine hydrochloride) sublingual film is indicated for the acute, intermittent treatment of hypomobility, "OFF" episodes associated with Parkinson's disease including end-of-dose wearing "OFF" (including early morning "OFF"), partial/delayed/No-ON and unpredictable "OFF".
Name of the Patient Group	The Michael J. Fox Foundation for Parkinson's Research
Author of the Submission	[REDACTED]
Name of the Primary Contact for This Submission	[REDACTED]
Email	[REDACTED]
Telephone Number	[REDACTED]

1. About Your Patient Group

If you have not yet registered with CADTH, describe the purpose of your organization. Include a link to your website.

As the world's largest nonprofit funder of Parkinson's research, The Michael J. Fox Foundation (MJFF) is dedicated to accelerating a cure for Parkinson's disease and improved therapies for those living with the condition today. The Foundation pursues its goals through an aggressively funded, highly targeted research program coupled with active global engagement of scientists, Parkinson's patients, business leaders, clinical trial participants, donors and volunteers. In addition to funding more than \$800 million in research to date, the Foundation has fundamentally altered the trajectory of progress toward a cure. Operating at the hub of worldwide Parkinson's research, the Foundation forges groundbreaking collaborations with industry leaders, academic scientists and government research funders; increases the flow of participants into Parkinson's disease clinical trials with its online tool, Fox Trial Finder; promotes Parkinson's awareness through high-profile advocacy, events and outreach; and coordinates the grassroots involvement of thousands of Team Fox members around the world.

Related Links

www.michaelfox.org

2. Information Gathering

CADTH is interested in hearing from a wide range of patients and caregivers in this patient input submission. Describe how you gathered the perspectives: for example, by interviews, focus groups, or survey; personal experience; or a combination of these. Where possible, include when the data were gathered; if data were gathered in Canada or elsewhere; demographics of the respondents; and how many patients, caregivers, and individuals with experience with the drug in review contributed insights. We will use this background to better understand the context of the perspectives shared.

Every person diagnosed with Parkinson's disease (PD) embarks on a unique journey. There is no standard path, and for many, this proves to be among the most challenging aspects of the disease. MJFF is fortunate to have cultivated and sustained an engaged community of Parkinson's patients, families and supporters who provide the Foundation with knowledge and insight into the varied experiences of living with PD. Our understanding of Parkinson's community needs draws from unique perspectives ranging from in-depth guidance from our 30+ member Patient Council to social analytics of commentary from our 1M+ online community network.

The majority of the supporting information provided here comes from the Foundation's guide for those navigating PD, [Parkinson's 360°](#). Additional information, the source of which is cited in each instance, is drawn from content created by The Michael J. Fox Foundation and publicly available to the PD community on our website www.michaeljfox.org.

Parkinson's 360 is a resource for the PD community created by MJFF. The book and the accompanying multimedia materials arose from conversations that repeatedly identified a need to broaden understanding of PD, including options for living well for those newly diagnosed or navigating new symptoms as the disease progresses, as well as those caring for a loved one with the disease. While we strived to capture the diversity of living with Parkinson's, we know we cannot represent every experience of this complex and varied condition. This guide tries to lend structure to a highly variable disease by painting a broad picture around the most common experiences people tell us they encounter along the way.

Content development was led by Rachel Dolhun, MD, a movement disorder specialist, board-certified neurologist and vice president, medical communications at the Foundation. We are grateful to Claire Henchcliffe, MD, D.Phil., of Weill Cornell Medicine for her expert medical review of the book.

PATIENT INVOLVEMENT: In addition to the medical professionals who created and reviewed the content, multiple patients provided guidance and their personal stories: Karen Jaffe, MD, and Soania Mathur, MD, members of the Foundation's Patient Council, evaluated the book with the perspective of people living with Parkinson's. Special thanks are also due to the four members of the Parkinson's community who lent their challenges, hopes, images and journeys with PD to this project: Lisette Ackerberg, Jimmy Choi, Michael S. Fitts and Richie Rothenberg.

3. Disease Experience

CADTH involves clinical experts in every review to explain disease progression and treatment goals. Here we are interested in understanding the illness from a patient's perspective. Describe how the disease impacts patients' and caregivers' day-to-day life and quality of life. Are there any aspects of the illness that are more important to control than others?

PD is a highly heterogeneous disease, both across the population and within individuals. Life challenges of a person with Parkinson's can vary day to day, or even hour to hour. Constipation, smell loss and certain sleep disorders are common, but other potential non-motor symptoms include fatigue, memory or thinking problems, and mood disturbances, including depression

It may be that stiffness and slowness are making morning routines more challenging, or tremor becoming too pronounced to hide, leading to feelings of self-consciousness. Or, walking and balance problems may develop or intensify. Non-motor symptoms, such as constipation or mood changes, may appear or become more pronounced, even aggravating motor symptoms or impacting the effectiveness of treatments for them. Parkinson's symptoms may or may not interfere with a patient's occupation at this stage, but the potential for this is a common concern, especially among those with young-onset PD. Questions of if, when and how to tell an employer and coworkers about a diagnosis invariably arise. Although there is no obligation to bring Parkinson's into the workplace, the stress of hiding it can exacerbate symptoms,

Sleep disturbances frequently are experienced by people with Parkinson's. Motor and non-motor symptoms, side effects of some Parkinson's medications and conditions associated with PD — restless legs syndrome and REM sleep behavior disorder — can cause difficulty falling asleep, staying asleep or both. Restless legs syndrome (RLS) is an uncomfortable sensation in the legs, occurring mainly at night, which resolves only with moving the legs or walking. It may be caused by Parkinson's, the medications used to treat it or a separate medical condition (low iron levels, for example). REM sleep behavior disorder (RBD), which often precedes the onset of motor symptoms and diagnosis of PD, causes a person to act out dreams because the normal suppression of muscle activity is impaired. Those with RBD may kick, punch, yell or get out of bed unknowingly during sleep. If RBD poses a safety risk or interrupts a person's or their partner's sleep, Klonopin (clonazepam) or melatonin (an over-the-counter hormonal supplement) is typically recommended. For other sleep disturbances, treatment is targeted at the underlying issue. If nighttime motor symptoms or restless legs are a problem, Parkinson's medications may be adjusted. If depression interferes with sleep, an antidepressant may be prescribed. To maximize sleep in general, it's recommended that you exercise regularly (but not too close to bedtime) and keep a regular schedule where you go to bed and wake up at the same time every day.

Mood disturbances are likely due to both brain chemical changes caused by PD and reactions to physical and mental symptoms of Parkinson's. Depression may cause decreased mood and energy, as well as less interest in previously enjoyable activities. Treatment options include counseling and/or antidepressant medications; regular exercise often is beneficial as well. Most antidepressants can be used in conjunction with any of the available Parkinson's medications, but dosages may need adjustment if MAO-B inhibitors are taken concurrently.

Anxiety can occur on its own or accompany depression. It might cause uncontrollable worry or feelings of restlessness or being "on edge." A relatively stable level of anxiety often can be managed with antidepressants and/or talk therapy, but for sudden spells of anxiety or panic attacks, anti-anxiety medications, such as benzodiazepines, are sometimes prescribed to use as needed. Fatigue and excessive daytime sleepiness may be a product of sleep and/or mood disturbances, but can be distinct non-motor symptoms of Parkinson's or medication side effects. Treatments may include limiting medications that can cause daytime drowsiness, such as dopamine agonists. In some situations, sedating medications may be added to induce sleep at night or stimulant-type medications prescribed to increase alertness during the day. A strict schedule with a regular bedtime, daytime activities and avoidance of napping (or restriction to short scheduled naps in the early afternoon) is helpful but can be difficult to stick to.

Constipation is part of the underlying disease process. It can predate a diagnosis and worsen as disease progresses. Not only is it uncomfortable, it also can impact medication absorption and

effectiveness. Constipation can be decreased with exercise and dietary modifications, such as adding fiber and probiotic-containing foods, increasing water intake and drinking warm liquid in the mornings to stimulate bowel movements. In some cases, stool softeners, laxatives and/or prescription medications are necessary. Certain medications — anticholinergics and opioid pain medications, for example — can cause constipation, so it is worthwhile to review your list of prescribed medications and make changes where possible. Low blood pressure when changing positions, or orthostatic hypotension, can be due to Parkinson’s and/or the medications used to treat it. It causes light-headedness, dizziness or fainting. Regular exercise (without excessive sweating) and certain dietary adjustments — increasing fluid (namely water) consumption to six to eight 8-ounce glasses per day and salting food (if heart and kidneys are healthy); avoiding hot or alcoholic beverages; and eating multiple small meals throughout the day (rather than three large ones) — may help. When dietary and lifestyle adjustments aren’t enough, drugs may be prescribed to treat orthostatic hypotension. Some medications — such as diuretics (fluid pills), bladder medications and certain antidepressants — can contribute to low blood pressure and should be decreased or discontinued if possible.

Speech disturbances may include changes in the rhythm, rate, tone and/or volume of speech. Words could become slurred or mumbled. Speech therapy programs can teach exercises and tactics to help you speak louder and clearer and certain devices can improve or amplify communication. Some provide a stimulus to alert you when vocal volume decreases; others feature microphones or tablets for writing or pointing to letters, numbers and symbols.

Drooling may occur in some people in the later stages because saliva is swallowed less frequently. It can be embarrassing and prevent social engagement. Management options may include postural adjustments (keeping the chin up and mouth closed), sugar-free hard candy (to stimulate swallowing), or botulinum toxin injections (Myobloc or Botox) into the salivary glands or prescription medications to decrease the production of saliva.

Cognitive impairment, a disturbance of memory, thinking and/or language abilities, varies widely in Parkinson’s, but generally manifests differently from the memory loss and confusion associated with Alzheimer’s disease. It primarily impacts what are known as “executive skills” (organizing, planning, problem solving, etc.), but also can affect attention and concentration, visuospatial function (interpreting where objects are in space), and, to a lesser extent, short-term memory. It can lead to slower thought processing, trouble finding words or difficulty multitasking. Cognitive problems can range from subtle changes detectable only on formal clinical testing to mild problems that are more than expected with aging but that don’t interfere with daily activities (mild cognitive impairment) all the way to significant problems that affect everyday routines, job performance and/or social activities (dementia). Mild cognitive problems don’t always worsen, but if they do, it is more likely to happen in the later stages of Parkinson’s. No medications are currently available to treat mild cognitive symptoms, but there is some evidence to support the idea of “exercising your brain” to maintain cognitive fitness. Regular exercise and a healthy diet also are recommended for brain health.

Hallucinations and delusions can be associated with Parkinson’s. If they do occur, it is more likely to happen in advancing stages. Visual hallucinations (seeing things that aren’t there) and delusions (firmly held, false, often paranoid, beliefs) are the typical manifestations of what is known as Parkinson’s disease psychosis. Psychosis may be due to Parkinson’s disease itself and/or the medications used to treat it. Decreasing or discontinuing certain Parkinson’s medications may help, but this is often at the expense of worsening motor symptoms. If medication adjustments are inadequate or symptoms of psychosis are especially severe, antipsychotics may be prescribed.

Some people may experience different degrees of balance or walking problems. Imbalance causes unsteadiness, which makes walking a straight line tricky. Walking changes can include shuffling,

difficulty getting started (hesitation), a sudden inability to move (freezing) or short, accelerating steps that are hard to stop (festination). Difficulties with walking and balance can increase the risk of falls, which in turn could cause injuries, hospitalization or, eventually, the loss of independence (in other words, the need for living arrangements other than one's own home). Unfortunately, these symptoms are tough to treat — for most, they don't significantly improve with the current medications and surgical therapies. Yet, they can be managed by optimizing Parkinson's drug regimens, exercising regularly, learning fall-prevention strategies and using assistive devices (such as a cane or walker) if necessary. Participating in physical or occupational therapy, specifically with a therapist who has expertise in neurological disease, can make a substantial difference as well. (Find a detailed discussion of gait and balance issues at michaeljfox.org/PD360.)

Occasionally, changes in balance or walking are due to conditions other than Parkinson's, which require a different treatment course. Don't automatically assume everything you experience is part of your PD — discuss all symptoms and any worsening with your movement disorder specialist, who can determine what's part of Parkinson's and what might be something else. For some people, issues related to swallowing also could arise. Swallowing difficulties may manifest in several ways — coughing or choking while eating or drinking, throat clearing or a sensation of food getting “stuck” while going down. If these occur, a speech-language pathologist can check how well you tolerate solids and liquids of different consistencies and your doctor can order imaging tests, such as a videofluoroscopy, or a modified barium swallow study, to determine where problems are happening (such as in the mouth while chewing or in the throat while swallowing) and if liquids and/or foods are going into the lungs instead of the stomach (if you are “aspirating”). Based on these results, dietary modifications and adaptive strategies can be recommended to lessen the risk of aspiration, which could otherwise potentially lead to pneumonia. If you experience frequent episodes of aspiration pneumonia or have severe weight loss, a feeding tube may be suggested. But just because you have a problem swallowing does not mean you will need a feeding tube. Since swallowing disturbances could pose choking risks and the Heimlich maneuver can be life-saving, care partners may want to learn this technique.

Non-motor symptoms also may be noticed. One particular symptom that some, but not all, people encounter after living with Parkinson's for many years is Parkinson's disease dementia (PDD). If mild cognitive impairment worsens over time, it can (but doesn't always) morph into PDD, which causes memory, thinking and/or language problems significant enough to interfere with daily life at home, work or in social circles. Like milder cognitive impairment in Parkinson's, PDD can impact executive skills (such as organizing, multitasking and problem solving), visuospatial function (interpreting where objects are in space), attention and short-term memory, but to a more considerable extent. It also may cause behavioral, mood and motivational changes. If PDD occurs, it's typically after a person has had Parkinson's for many years. When dementia arises at the same time as or within a year of the onset of motor symptoms, it could instead be due to Lewy body dementia (LBD), a form of atypical parkinsonism. (Learn more about atypical parkinsonism at michaeljfox.org/PD360.) In addition to Parkinson's motor symptoms and dementia, LBD can be characterized by fluctuating levels of alertness and visual hallucinations (seeing things that aren't there). Visual hallucinations might be associated with LBD and PDD, but they can occur in the absence of dementia — either as a side effect of Parkinson's (or other prescription or over-the-counter) medications or as a distinct symptom of the disease, known as Parkinson's disease psychosis.

Psychosis, if it does occur, is more common in advancing disease and in conjunction with significant cognitive changes. In addition to hallucinations, this aspect of Parkinson's can include illusions (misinterpreting things that are there), a false sense of presence (feeling as though someone or something is nearby) or delusions (strongly held false beliefs, usually expressed as paranoia or suspicion about financial issues or spousal infidelity). It's important to stress this is a symptom of Parkinson's disease and does not mean a person is “going crazy.” Symptoms are

treatable. Doctors will first adjust medications, reducing or withdrawing those that are most likely to contribute to psychosis, such as dopamine agonists and anticholinergics. If motor (and other) symptoms worsen significantly as a result of these modifications, adding antipsychotic drugs may be necessary. Nuplazid (pimavanserin), the first drug approved specifically to treat hallucinations and delusions due to Parkinson’s disease psychosis, hit the U.S. market in 2016. Other antipsychotics, including Seroquel (quetiapine) and Clozaril (clozapine), were used prior to Nuplazid and may still be prescribed in certain situations.

Depending on which symptoms are present, different types and levels of support may be necessary. Some people may need help with household duties like laundry, grocery shopping or bill paying. Others might require help with showering and dressing, or preparing and eating meals.

Within the home, spouses or live-in partners usually supply the majority of assistance. If finances allow, you might consider hiring a home health aide or certified nursing assistant to help with certain tasks, such as transferring out of bed or bathing.

Growing care needs or certain symptoms — such as walking or balance issues that increase risk of falls, cognitive problems, or hallucinations or delusions — may affect a person’s ability to continue living alone or at home. In these instances, assisted-living or skilled-nursing facilities may provide alternative solutions. Assisted-living varies, but often includes meals, medication administration and some personal care. Skilled-nursing facilities provide full medical care and 24-hour supervision if greater levels of attention are required.

Medication adjustments may be necessary to meet evolving non-motor and motor symptoms as well as any drug-associated complications that appear.

4. Experiences With Currently Available Treatments

CADTH examines the clinical benefit and cost-effectiveness of new drugs compared with currently available treatments. We can use this information to evaluate how well the drug under review might address gaps if current therapies fall short for patients and caregivers.

Describe how well patients and caregivers are managing their illnesses with currently available treatments (please specify treatments). Consider benefits seen, and side effects experienced and their management. Also consider any difficulties accessing treatment (cost, travel to clinic, time off work) and receiving treatment (swallowing pills, infusion lines).

All medications currently available for the management of PD are directed at improving quality of life by easing the motor and non-motor symptoms that can arise throughout the course of the disease. The choice of treatment is based on many factors, including the type and severity of a person’s symptoms, other medical conditions and prescriptions, age and personal preference.

At some point in the course of the disease, most people will take levodopa for the treatment of motor symptoms. Other medications that target motor symptoms (and can be used in conjunction with and, in some cases, instead of levodopa) include dopamine agonists, MAOB inhibitors, amantadine, anticholinergics and COMT inhibitors.

As disease progresses, medication regimens often must be adjusted to address evolving non-motor and motor symptoms as well as any drug-associated complications that appear. Long-term use of levodopa, in conjunction with longer duration of PD, may lead to change in medication response called motor fluctuations. Motor complications are divided into two categories: motor fluctuations and dyskinesia.

Motor fluctuations are “OFF” states when medication is not working optimally to control Parkinson’s symptoms. “OFF” periods can come on gradually, meaning a dose of medication wears off before the next dose is due, or they can arise suddenly and unpredictably (**Parkinson’s 360°, P44**). Over time, levodopa may seem less effective: Individual dosages may fail to kick in, gradually wear off before the next dose is due, or stop working unexpectedly, leading to more “OFF” time (periods when symptoms are not optimally controlled).

Dyskinesia, on the other hand, usually (but not always) occurs during “on” times when medication otherwise is managing symptoms well. (In some people, it might occur as levodopa is kicking in or wearing off.) Dyskinesia is uncontrolled, involuntary movement — often writhing or wriggling — that can involve any body part. It may look like swaying, head bobbing or fidgeting.

The MJFF asked our email and social communities to take a brief survey on the impact “OFF” episodes. With long-term use, Parkinson’s medications lose their efficacy and symptoms may reappear before it’s time for another dose. The fluctuations in motor abilities are called “ON/OFF” episodes. More than 3,000 people with Parkinson’s Disease took our survey, teaching us about the lived experience of “OFF” episodes. More than 90% of people reported they have at least one “OFF” episode per day. Nearly 65% of respondents were “OFF” for two or more hours per day with more than 20% reported “OFF” greater than four hours. Close to half of respondents said their “OFF” times are moderate to severe, causing them to avoid or stop activities they can perform while “ON”. The average disability rating was almost twice when describing “OFF” compared to “ON” (visual). (**SOURCE: FOXFEED BLOG – Capturing and Elevating the Patient Voice – Posted by Maggie McGuire Kuhl – November 10 2014**).

If significant “OFF” time and/or dyskinesia occur, a variety of management options may be relevant. These include modifications of the drug regimen, enrollment in a clinical trial testing a therapy for these symptoms or deep brain stimulation (DBS) surgery. Many people with moderate Parkinson’s have experienced a dramatic improvement in symptoms and quality of life after DBS. While this therapy can make a real difference, it is not for everyone, and even good candidates for the procedure still must grapple with the significant decision of whether to undergo invasive treatment.

5. Improved Outcomes

CADTH is interested in patients’ views on what outcomes we should consider when evaluating new therapies. What improvements would patients and caregivers like to see in a new treatment that is not achieved in currently available treatments? How might daily life and quality of life for patients, caregivers, and families be different if the new treatment provided those desired improvements? What trade-offs do patients, families, and caregivers consider when choosing therapy?

A valuable resource on the impact of “OFF” time on patients are caregivers can be found here: http://n.neurology.org/content/88/16_Supplement/P6.007

“OFF” time may be familiar to those who have been living with Parkinson’s for many years. This is when motor symptoms (tremor, stiffness and slowness) and sometimes also non-motor symptoms (anxiety or mental foggy, for example) emerge because medications aren’t working optimally. Current treatments for “OFF” times are limited (**SOURCE: FOXFEED Another Motor Symptom Under FDA Review – posted by Rachel Dolhun, MD, June 12 2018**).

Current treatment of “OFF” times are somewhat limited. Doctors might adjust medication dose or timing, or prescribe Apokyn (apomorphine injection) to use as needed. This drug mimics the effect of dopamine, the brain chemical that decreases in Parkinson’s. It’s effective but has limitations: giving yourself an injection can be challenging, especially if you are experiencing heavy Parkinson’s symptoms, and it can cause low blood pressure and nausea (**SOURCE: FOXFEED Under-the-Tongue Apomorphine Therapy for “OFF” Time Submitted to FDA, Rachel Dolhun, MD, March 30 2018.**)

Apomorphine is the only available drug for “OFF” rescue, but the need for injection discourages use. It also may cause side effects of nausea and vomiting (**SOURCE: FOXFEED Under-the-Tongue Film Strip for “OFF” Rescue Gaining Momentum, September 1 2016**). While it’s an effective drug, it has been largely under-prescribed due to undesirable side effects- in particular, many who take the drug experience painful nodules under the skin. (**FOXFEED Novel Form of Apomorphine One of 2012s Top Ten Neurology Projects to Watch Posted by Nate Herpich, November 1, 2012.**)

Under-the-tongue apomorphine, a drug that mimics the activity of the brain chemical dopamine, aims to meet this need. The drug is an add-on therapy to one’s regular Parkinson’s medication regimen. (**SOURCE: FOXFEED Another Motor Symptom Under FDA Review – posted by Rachel Dolhun, MD, June 12 2018**).

The under-the-tongue formulation, called APL-130277, may be easier to use and offer longer relief than the injected apomorphine. Initial studies, show fewer side effects, as well (**SOURCE: FOXFEED Novel Form of Apomorphine One of 2012s Top Ten Neurology Projects to Watch Posted by Nate Herpich, November 1, 2012**).

6. Experience With Drug Under Review

CADTH will carefully review the relevant scientific literature and clinical studies. We would like to hear from patients about their individual experiences with the new drug. This can help reviewers better understand how the drug under review meets the needs and preferences of patients, caregivers, and families.

How did patients have access to the drug under review (for example, clinical trials, private insurance)? Compared to any previous therapies patients have used, what were the benefits experienced? What were the disadvantages? How did the benefits and disadvantages impact the lives of patients, caregivers, and families? Consider side effects and if they were tolerated or how they were managed. Was the drug easier to use than previous therapies? If so, how? Are there subgroups of patients within this disease state for whom this drug is particularly helpful? In what ways?

MJFF does not have direct patient experience with the drug, but our perspectives are shaped by both scientific insight into the program and our feedback from the community on research updates on the program during development.

Patients report that “OFF” episodes seriously impact quality of life, which is why treating them is a priority for the MJFF foundation. Innovative ideas for new therapies are often untested, which it difficult for them to get funding. MJFF was founded to take bold chances and help these ideas move forward. (**SOURCE: Fox Feed Blog, A Note from Our CEO: A comprehensive Approach to Parkinson’s Posted by Todd Sherer, PHD, October 16 2018**).

Current treatment for “OFF” times are limited. Under-the-tongue apomorphine, a drug that mimics the activity of the brain chemical dopamine, aims to meet this need. The drug is an add-on therapy to one’s regular Parkinson’s medication regimen. It can be taken as needed, up to five times per day, to treat motor symptoms of “OFF” time. In studies, participants noted an improvement within about 30 minutes that lasted up to 90 minutes. (**SOURCE: FOXFEED Another Motor Symptom Therapy under the FDA Review, Rachel Dolhun, MD, June 12 2018**).

“The Michael J. Fox Foundation funded two early-stage trials of under-the-tongue apomorphine by the company Cynapsus, which Sunovion acquired in 2016.” (Source: FoxFeed Blog Another Motor Symptom Therapy under FDA Review – posted by Rachel Dolhun, MD, June 12, 2018

MJFF recognized Cynapsus Therapeutics for their novel formulation of the drug apomorphine, a dopamine agonist that has been used in Parkinson’s patients to treat symptoms experiencing during “OFF” episodes once they have begun (**SOURCE: FOXFEED Novel Form of Apomorphine One of 2012s Top Ten Neurology Projects to Watch Posted by Nate Herpich, November 1, 2012**).

Apomorphine...the need for injection discourages use. It also may cause side effects of nausea and vomiting (**SOURCE: FOXFEED Under-the-Tongue Film Strip for “OFF” Rescue Gaining Momentum, Maggie McGuire Kuhl, September 1 2016**). While it’s an effective drug, it has been largely under-prescribed due to undesirable side effects- in particular, may who take the drug experience painful nodules under the skin. (**FOXFEED Novel Form of Apomorphine One of 2012s Top Ten Neurology Projects to Watch Posted by Nate Herpich, November 1, 2012**.)

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7. Companion Diagnostic Test

If the drug in review has a companion diagnostic, please comment. Companion diagnostics are laboratory tests that provide information essential for the safe and effective use of particular therapeutic drugs. They work by detecting specific biomarkers that predict more favourable responses to certain drugs. In practice, companion diagnostics can identify patients who are likely to benefit or experience harms from particular therapies, or monitor clinical responses to optimally guide treatment adjustments.

What are patient and caregiver experiences with the biomarker testing (companion diagnostic) associated with regarding the drug under review?

Consider:

- Access to testing: for example, proximity to testing facility, availability of appointment.
- Testing: for example, how was the test done? Did testing delay the treatment from beginning? Were there any adverse effects associated with testing?
- Cost of testing: Who paid for testing? If the cost was out of pocket, what was the impact of having to pay? Were there travel costs involved?
- How patients and caregivers feel about testing: for example, understanding why the test happened, coping with anxiety while waiting for the test result, uncertainty about making a decision given the test result.

8. Anything Else?

Is there anything else specifically related to this drug review that CADTH reviewers or the expert committee should know?

“Through our ongoing work with people living with Parkinson’s Disease, we know the community is eager for more treatment options that may help alleviate “OFF” episodes, which are often disruptive to their daily lives. We’re heartened to see this drug is successfully continuing through the regulatory process, and we are hopeful for its approval and future availability.” Quote from Todd Scherer, PhD, CEO of The Michael J Fox Foundation. **(SOURCE: FOXFEED Another Motor Symptom Therapy under the FDA Review, Rachel Dolhun, MD, June 12 2018).**

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH CDR and pCODR programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.
2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

MJFF provided funding support to external researchers for the Foundations for a Patient-Reported Natural History of Parkinson Disease: Cross-sectional Analysis of the MJFF Fox Insight (FI) Platform project. The findings of that effort are attached to this submission.

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review.

MJFF annual and financial reports can be found here:
<https://www.michaeljfox.org/foundation/finance.html>

Excerpt from the MJFF 2017 Annual Report:

From the MJFF Biotechnology and pharmaceutical companies play a key role in the Foundation's roadmap strategy to accelerate improved treatments for Parkinson's disease. Their support expands our capability to speed clinical trials, engage the Parkinson's community in research, and bring science closer to a cure. Collectively, these partners contributed more than \$5 million to our programs in 2017.

We also extend our gratitude to the 2017 Parkinson's Disease Education Consortium. This alliance of industry partners supports our commitment to furnishing high-quality educational resources for the PD community while preserving our track record of efficiency in stewarding donor-raised contributions for maximum impact on Parkinson's drug development. Learn more at michaeljfox.org/sponsors.*

Abbvie

*Acadia Pharmaceuticals**

Acorda Therapeutics

*Adamas Pharmaceuticals**

Allergan

Amgen

Amicus Therapeutics

BIO (Biotechnology Innovation Organization)

Biogen
Bristol Meyers Squibb
*Cellular Dynamics International**
Charles River Laboratories
GlaxoSmithKline
Impax Laboratories
Institut de Recherches
Internationales Servier
*Lundbeck**
Medical Device Innovation Consortium (MDIC)
Merck and Co
Meso Scale
Diagnostics
*Pfizer**
*Prothena Biosciences**
Regeneron Pharmaceuticals
*Sunovion Pharmaceuticals**
Takeda Pharmaceuticals International
UCB
United Technologies
Voyager Therapeutics

Company	Check Appropriate Dollar Range			
	\$0 to 5,000	\$5,001 to 10,000	\$10,001 to 50,000	In Excess of \$50,000
Sunovion Pharmaceuticals Inc. provided The Michael J. Fox Foundation as a member of the Parkinson's Disease Education Consortium (PDEC). The foundation-led Consortium provides educational materials to the Parkinson's Disease Community.				X
Sunovion provided MJFF with a grant repayment of \$1M. In 2014 MJFF provided supplemental funding to Cynapsus for APL-132077 in the amount of \$500,000. The 2014 agreement included provision for MJFF to receive ten percent (10%) of net sales received by Grantee (a term that applies to Cynapsus) in excess of U.S. \$5 million, up to a maximum of two (2) times the amount of MJFF's supplemental funding.				X

Nets sales includes amounts received for the sale, license or other transfer of APL-130277 to a third party (i.e. Sunovion). Such return payment to MJFF was paid after the one (1) year anniversary that Grantee received more than U.S. \$5 million.				

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Tara Hastings

Position: Associate Director, Research Partnerships

Patient Group: The Michael J. Fox Foundation for Parkinson's Research

Date: May 29, 2020

Foundations for a Patient-Reported Natural History of Parkinson Disease: Cross-sectional Analysis of the MJFF Fox Insight (FI) Platform

Authors: Lakshmi Arbatti¹, Andrew Nguyen², Lauren McLaughlin³, Luba Smolensky³, Catherine Kopil³, Emily Flagg⁴, Carol A. Christopher¹, Ira Shoulson¹

¹Grey Matter Technologies LLC (Sarasota, FL), ²University of San Francisco, ³Michael J Fox Foundation for Parkinson's Disease Research (NY, NY), ⁴University of Rochester

Background

The Parkinson Disease Patient Reported Outcome of Problems (PD-PROP), modeled after the Huntington Disease (HD)-PROP¹, was devised to capture the verbatim accounts of PD patients about their bothersome problems ("What bothers you the most about your PD?"), the functional consequences ("In what way does this problem bother you by affecting your daily functioning?"), and problem severity (0-1-2-3 categorical scale).

Since March 2017, the PD-PROP has been embedded in the Fox Insight (FI) research platform <https://foxinsight.michaelfox.org>, and as of November 2017, has captured keyboard-entered data on more than 5,000 consenting PD patients, including self-reported date of PD diagnosis.

Methods

We used an analytic dataset consisting of 4998 PD patients (2648 men, 2350 women) who were within 10 years of PD diagnosis. Verbatim reports were examined by natural language processing (NLP) and n-gram analyses and were analyzed per patient respondent.

FIG 1: DISTRIBUTION BY AGE AND GENDER: TOTAL N=4998

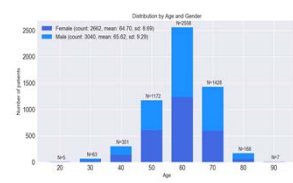
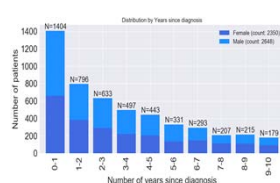
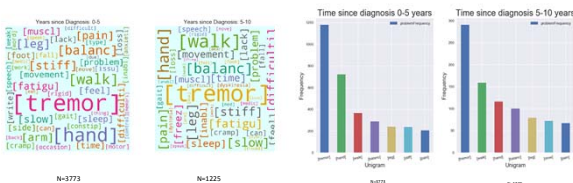


FIG 2: DISTRIBUTION OF YEARS SINCE DIAGNOSIS (N=4998 FOR RANGE 0-10 YEARS)



Unigram Output of Most Bothersome Problem 0-5 vs 5-10 years since diagnosis

FIG 3: A WORD CLOUD FOR THE UNIGRAM OF MOST BOTHERSOME PROBLEM BY YEARS SINCE DIAGNOSIS (0-5 AND 5-10 YEARS).

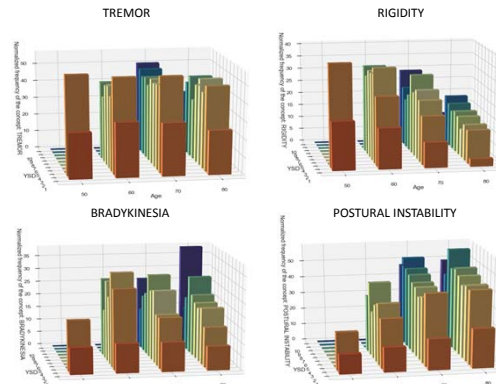


Among the 0-5 year PD-duration group (n=3773), Tremor>Hand>Walk>Balance>Leg were the most bothersome NLP outcomes reported compared with Tremor>Walk>Hand>Balance>Leg among the 5-10 year group (n=1225).

Results

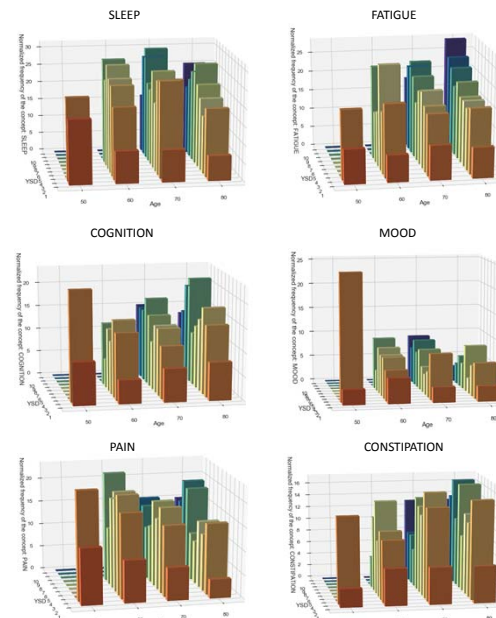
This cohort, aged 65.0 ± 9.3 years (mean ± sd) comprised a predominantly well-educated Caucasian population; 3773 patients (2018 men, 1755 women; aged 64.7 ± 9.4 years) were within 5 years of PD diagnosis (2.2 ± 1.6 years), and 1225 (630 men, 595 women; aged 66.0 ± 8.7 years) were 6-10 years of PD diagnosis (7.7 ± 1.4 years). Verbatim keyboard-captured "1st most bothersome problem" was reported by 97.7% respondents; 85.8% respondents reported up to their 5th most bothersome problem.

Motor Symptoms vs Patient Age and Years since Diagnosis (YSD)



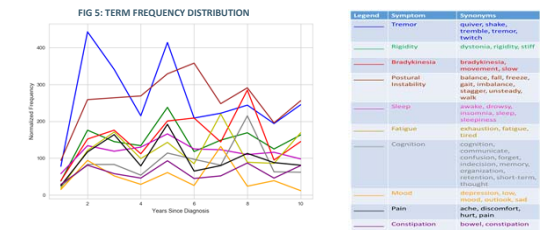
For each of PD motor symptoms (Tremor, Rigidity, Bradykinesia, Postural Instability), terms similar in meaning with frequencies of 2 or more were grouped together and normalized against the group size and then plotted against years since diagnosis (YSD) and age. Group sizes of 50 or more patients were used as cut off, and groups less than 50 patients were not included in the analysis.

Non-Motor Symptoms vs Patient Age and Years since Diagnosis (YSD)



For each of PD non-motor symptoms (Sleep, Fatigue, Cognition, Mood, Pain and Constipation), terms similar in meaning with frequencies of 2 or more were grouped together and normalized against the group size and then plotted against years since diagnosis (YSD) and age. Group sizes of 50 or more patients were used as cut off, and all groups less than 50 patients were not included in the analysis.

Most Bothersome Problems 0 – 10 years



PD motor and non-motor symptoms were selected for each year of the 0 – 10 years since diagnosis, and the normalized unigram term frequency was plotted across the time frame. The normalized term frequency was obtained by dividing the raw term frequency by the total number of patients in that category.

FIG 6: TERM DISTRIBUTION OF EACH SYMPTOM BY MOST BOTHERSOME PROBLEM

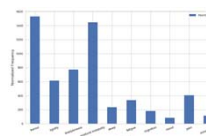
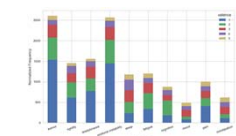


FIG 7: TERM DISTRIBUTION OF EACH SYMPTOM BY VALENCE (1=MOST BOTHERSOME...TO 5 = 5th MOST BOTHERSOME)



Comparative histograms were plotted for the motor and non-motor symptoms. The data were normalized across years since diagnosis and age groups. In figure 7 data were plotted for occurrence in each of the valences with 1 = Most Bothersome problem to 5 = 5th most bothersome problem

Symptom	Term Distribution Percentage (YSD : 0-5)	Term Distribution Percentage (YSD : 5-10)
Tremor	23 %	17 %
Rigidity	10 %	10 %
Bradykinesia	9 %	10 %
Postural Instability	17 %	20 %
Sleep	9 %	10 %
Fatigue	7 %	8 %
Cognition	5 %	6 %
Mood	3 %	2 %
Pain	7 %	6 %
Constipation	5 %	4 %

The ten 'most bothersome' PD symptoms were selected for categories 0-5 and 5-10 years since diagnosis (YSD). For each term in this subset, percentage of its occurrence was calculated by the symptom frequency, divided by the total number of term frequencies in the subset. Comparing 5-10 yr with the 0-5 yr YSD groups, some symptom frequencies (e.g., Tremor) declined and some (e.g., Postural Instability) increased.

Conclusions

Comparing patients 0-5 vs. 5-10 years from diagnosis (YSD), Hand problems became less frequent and Walk and Leg problems more frequent with duration of PD. Overall, NLP terms referable to Tremor, Rigidity, and Bradykinesia were sustained or increased with duration of PD, while Postural Instability increased with the age of the patient as well as duration of illness. Analyses of this learning set have been expanded to include non-motor symptoms that tended to increase in frequency with the duration of PD.

These analyses provide a preliminary, cross-sectional, patient-reported profile of the natural history of PD. The Fox Insight PD-PROP cohort (Foxinsight.org) continues to grow (currently ~15,000 participants) and accrue longitudinal data. Analyses are underway of the relationships of verbatim-reported problems to (1) their functional consequences, and (2) anti-PD medications. More granular analyses of other bothersome problems and the application of machine learning techniques will help refine the utility of capturing verbatim reports of the problems that PD patients face and in turn inform clinical care and research.

References

- Perks, J. L., Harris, M., Anderson, K. E. & Shoulson, I. Applying Natural Language Processing (NLP) to Verbatim Patient-Reported Outcomes. *Ann Neurology* 88, S69-S69, (2016)
- Arbatti, L., Nguyen, A., McLaughlin, L., Smolensky, L., Kopil, C., Flagg, E., Christopher, C.A., Shoulson, I. Foundations for a patient-reported natural history of Parkinson disease: Cross-sectional analysis of the MJFF Fox Insight (FI) platform. Poster presentation at the ICTM 14th Annual Meeting, Washington, DC, February 21, 2018.

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	Kynmobi – Parkinson disease
Name of the Patient Group	Parkinson Association of Alberta
Author of the Submission	[REDACTED]
Name of the Primary Contact for This Submission	[REDACTED]
Email	[REDACTED]
Telephone Number	[REDACTED]

1. About Your Patient Group

Parkinson Association of Alberta (PAA) is the voice of Albertans and their families living with Parkinson disease (PD) and Parkinson’s Plus Syndromes.

PAA provides direct programming in three areas – support (mental, emotional & peer), education (information, resources, referrals, webinars) and active (physical, speech/swallowing, cognitive & social) – to the over 10,000 Albertans with PD or a Parkinson’s Plus Syndrome, their families and care partners. We also provide education and information to health care professionals, community partners and the public at large.

PAA also funds innovative research for a better and brighter future for Parkinson’s.

PAA is a stand-alone Alberta-based registered charitable organization. PAA relies on donations and fundraising initiatives to support the services, resources and programs offered.

www.parkinsonassociation.ca

2. Information Gathering

PAA gathered data and perspectives from the Parkinson’s community by conducting an online survey that was distributed across Alberta and beyond.

54 responses were gathered between March 9, 2019 and March 15, 2019. PAA reached out to clients again in June 2020 to see if any additional respondents were wanting to contribute feedback. An additional 7 people provided feedback, bringing the total number of respondents to 61.

All respondents, save 2 (from Ontario) were from Alberta. Respondents identified that where they resided was defined as urban (67%), suburban (20%) and rural (13%).

74% of respondents are people with Parkinson disease; 26% are care partners or family members of people with Parkinson disease.

In terms of gender 51% of respondents identified as female, 49% identified as male.

49% of respondents are between the ages of 65-74, 25% between the ages of 55-64, 18% between the ages of 75-84, 5% over the age of 85, and 3% between the ages of 45-54.

72% of respondents are retired. This is followed by 8% who are working full time, an additional 8% at home full time, 7% who are working part time, and 5% who are on disability.

3. Disease Experience

From Parkinson Association of Alberta's survey results, the following are areas respondents indicated as being most negatively impacted by Parkinson disease:

- Overall quality of life – 74%
- Participation in recreational/exercise activities – 57%
- Participation in social activities – 53%
- Loss of independence – 47%
- Managing family obligations – 47%
- Loss of confidence – 43%
- Relationships – 43%
- Work/employment – 22%

"Parkinson's impacts my life in every way, as it does those who are caring for me. One of the people caring for me left a well established 30 year career because I became unable to care for myself and was also unable to care for myself with the help of my partner."

"Having to constantly remind my husband to do his exercises, voice and physical, trying to get him to do them with some vigor and intensity not just go thru the motions. His constant drooling and at times is not conscious of it so his clothes are always stained with drool marks plus our furniture and floors. Because of his unsteadiness and bad balance having to be always aware of what he is doing and reminding him to move feet before body and to turn slowly. Very trying and stressful."

"I had to resign from work due to Parkinson's."

"This has really impacted my partners daily living in every way. sleep, dining, visiting, thought concentration ,numbers, business etc."

"Loss of me. Now describe things as "in my past life or better life" and "life now."

"I am grieving the loss of activities I used to do and people I used to do things with."

Respondents ranked ten aspects/symptoms of Parkinson disease in terms of being most important to control and/or manage, they are listed below in order of indicated as most important to least important):

- Changes in Mood
- Freezing/Unpredictable ON-OFF periods
- Changes in cognition and memory
- Rigidity
- Speech and Swallowing Issues AND bladder/bowel issues (tied)
- Fatigue/Sleep Issues
- Impaired balance
- Slowness and stiffness
- Tremors

4. Experiences With Currently Available Treatments

There are a wide number of symptomatic treatments available for Parkinson disease. These include medications, surgical/medical procedures (ie: DBS, Duodopa), other forms of rehabilitation therapy (physiotherapy, occupational therapy, speech therapy, exercise) and psychological follow-up (ie: counselling). All treatments can have a significant impact on improving quality of life, especially when a personalized combination is utilized as opposed to a one-size fits all approach. 6% of respondents indicated that they were not currently utilizing any Parkinson's treatment options.

"Medication is helping. On the same amount of medication since I started taking medication seven years ago. Exercise is helping!"

Medications

The majority of respondents (93%) indicate that they or their loved one are currently utilizing medications as part of their treatment options. The benefit to utilizing medications is maintaining day-today functioning by way of better management of symptoms.

"Ease of implementation and use (of medications). Following a rigid timing of medication, helps control the tremors...definitely know when a 'wearing off' of medication has happened."

In terms of medications being taken to manage Parkinson's, 56% of respondents have reported that they or the person they are taking care of have experienced side effects. The most noted side effects that respondents indicated were most difficult to endure were: constipation/bowel issues and fatigue/drowsiness.

When it comes to experiencing difficulties receiving/taking medication as a treatment for Parkinson's respondents indicated the following:

- Difficulties with timing of and/or remembering to take medications – 44%
- Difficulties swallowing medications – 13%
- Portability issues of medications – 8%
- Storage of medications – 3%
- Other (includes Difficulties with availability of medications/shortages, nausea, medication interactions) – 13%

"Unavailability of medications ie out of stock, production issues Patients left to their own designs to deal with the absence of medications."

Rehabilitation

56% have included some form of rehabilitation (physio, occupational/speech therapy and/or exercise)

"Exercise is maintaining my muscle flexibility and strength, my ability to function as independently as possible. Word/mind games keep my brain active."

"physiotherapy is very important in maintaining activity and mood"

When it comes to experiencing difficulties receiving rehabilitation as a treatment for Parkinson's respondents indicated the following:

- Lack of motivation/apathy – 37%
- Other difficulties mentioned - No access to or wait lists/times to access rehabilitation opportunities

"I was over a year on the waitlist to see a speech therapist, and never got in. We moved from Grande Prairie area to Edmonton to improve accessibility of service."

Psychological Follow-up

20% have included psychological follow-up.

When it comes to experiencing difficulties receiving psychological follow-up as a treatment for Parkinson's respondents indicated the following:

- Difficulties communicating and/or expressing myself – 25%

Surgical /Medical Procedure

0 respondents have undergone a surgical/medical procedure as part of the treatment they are receiving for Parkinson's.

In terms of accessing treatment for Parkinson disease respondents indicated difficulties with the following:

- Access to appropriate healthcare professionals and/or service providers – 38%

"Long waiting lists for physio, O.T., speech, neurologists. Getting only 15 minutes for appointments- for a chronic disease you can barely go over a concern and the appointment is over. Lack of knowledge about P.D. among General health care staff. Another barrier to get over before you can get some help."

"Twice a year is not enough for seeing a neurologist."

"We have no neurologists in or coming to Grande Prairie. Edmonton is 5 hours away with no bus or train access"

"I am currently living in the Edmonton area, and I am able to access healthcare service providers. I previously lived in one of the medium sized Alberta cities, and sometimes it was difficult to access service providers with experience and expertise with Parkinson's."

"better access to services beyond Edmonton and Calgary"

- Issues with Insurance coverage (25%) and Cost of medications (22%)

"Health insurance only covers so much and when on a fixed income costs can add up quickly. Additionally, health care expects clients to try the cheapest forms of the drugs (generic) before brand names. My client has had allergic reactions to generic brands and has had to get doctors to write letters to support the use of brand names. The public is told generic and brand names are the same but they are not. it is hard enough to battle a disease without having to fight for medication that works"

"More Health care coverage of medications. Currently costs me about \$1000 per month."

"Although we have some insurance coverage, it does not cover some of the 'extras' that would be of assistance to me such as Physio, acupuncture, etc. and I financially am not able to cover these costs myself."

- Transportation to and time off work for appointments/treatments at 9% each

5. Improved Outcomes

Survey respondents indicated a variety of improvements that they would like to see that are currently not being achieved. The most reported improvement indicated was a treatment option that would better treat tremors and/or not increase dyskinesia as time went on. This was followed by medications that would treat cognitive issues. Also medications to “better treat depression and apathy; medications with “less side effects” – particularly constipation and exhaustion/tiredness. Alternative medication delivery systems were also noted (ie: patch, sprays, creams, etc).

“If the needs were addressed we could socialize, participate in fitness and community activities, make plans and follow through on them which can't be done now as we never know day-to-day what the client will be like in terms of abilities and, pain, mood. Generally, have a quality life.”

“ the Quality of life for both of us would be greatly improved. He would feel better about things I would have a whole lot of less stress. he would be able to communicate better with friends, family and order in a restaurant without me repeating what he said as they cannot understand him. have less bladder and bowel issues, be able to do more things”

“My life and daily activities won't be controlled by the tremors.”

“With more money for living could live a more enjoyable life.”

“If my cognitive skills were improved, I likely would be able to return to work.”

“Tasks of daily living would be faster. I would be less frustrated and more confident. I hold back on social and other opportunities.”

“Less off time. Less side effects. Better tools for diagnosis and expert/compassionate/honest knowledge on medication. (Most GPs and Pharmacists do not truly understand PD or the current treatments!!) It would be good to see other forms of medication in Canada. The patch, nasal spray, creams, injection, etc for medication.”

“As long as the side effects are minor (eg: dizziness) and I see how the med is helping, I'm all for taking it. If a medication impacted me in a major way such as sleep interruption or nausea, I'd be hesitant to take it.”

6. Experience With Drug Under Review

97% of respondents were NOT aware of Kynmobi (apomorphine hydrochloride) as a treatment option for Parkinson disease, while 4% were aware.

No respondents were being treated and/or knew of anyone being treated with Kynmobi (apomorphine hydrochloride).

65% of respondents said they would consider (along with their treating physician) trying Kynmobi (apomorphine hydrochloride) to see if it would be beneficial in treating their or their loved one's Parkinson's. 7% said they would not consider it and 28% weren't sure.

“Trying a new treatment options, especially when what one is taking is proving to be ineffective, is a moral obligation. A person will never know the benefit to themselves or those who come after them if a treatment option is not tried.”

“I would have to talk more about its benefits considering all the medications for a number of health effects my partner deals with.”

“We would want to sit down with our Neurologist and discuss the side effects good and bad and what improvements it might make in his day to day living.”

“of course a net benefit greater than that of your current medication program would have to be evident. An evaluation of all pertaining symptoms would be necessary to determine that what might be the side effects”

“Any treatment that proves to be helpful taken in coordination with our existing program is something we are open to. I will be anxious to hear more about Kynmobi and get our neurologist’s opinion on the issue.”

“why have i not been told about this option by my health care worker if it helps me to last longer between episode “

“Kynmobi sounds as though it is EXACTLY the medication that would give us our lives back .”

“Mom is currently having wearing off symptoms. It would be easier to use a sublingual substance than trying to time a pill. The film would also act more quickly.”

7. Companion Diagnostic Test

- **Not applicable**

8. Anything Else?

People with Parkinson’s need access to a variety of options to ensure they can be on a treatment regimen that offers the best possible control of their unique set of symptoms and an improved quality of life. The unpredictability of the disease and loss of quality of life is forcing people with Parkinson’s to withdraw from normal activities too soon (e.g. day-to-day activities (including self-care and household chores) work, travel, maintaining relationships, etc.).

The inability to appropriately control their symptoms on a continuous or predictable basis causes undue stress, anxiety and can lead to depression and/or social isolation.

Furthermore, survey respondents reported it would be a significant financial burden if they did not have coverage to help with their drug costs. Many people with Parkinson’s and care partners report having to leave the workforce early or reduce hours due to the progression of the disease. This limit of incoming resources coupled with increasing expenses for travel to appointments for follow-up/treatment and any incurring drug costs causes a great amount of additional stress and strain on families.

When a disease is not only life-long, but as life limiting as Parkinson’s it is essential to provide coverage to ensure treatments are affordable and accessible for all who need it.

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH CDR and pCODR programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest

Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.

No

2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review.

Company	Check Appropriate Dollar Range			
	\$0 to 5,000	\$5,001 to 10,000	\$10,001 to 50,000	In Excess of \$50,000
Sunovion Pharmaceutical		√		

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Brandi La Bonte

Position: Operations Manager

Patient Group: Parkinson Association of Alberta

Date: 2020-06-26

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	apomorphine hydrochloride (Kynmobi) for the treatment of OFF episodes experienced by people with Parkinson's disease
Name of the Patient Group	Parkinson Canada
Author of the Submission	██████████
Name of the Primary Contact for This Submission	██████████
Email	████████████████████
Telephone Number	██

1. About Your Patient Group

If you have not yet registered with CADTH, describe the purpose of your organization. Include a link to your website.

Parkinson Canada provides support services and education to people living with Parkinson's disease, their families, and the health care professionals who treat them.

Operating since 1965, the organization advocates on issues that concern the Parkinson's community in Canada. The Parkinson Canada Research Program funds innovative research for better treatments and a cure.

A national registered charity, Parkinson Canada fulfils its mission through the generosity of donors and is an accredited organization under the Imagine Canada Standards Program.

www.parkinson.ca

2. Information Gathering

CADTH is interested in hearing from a wide range of patients and caregivers in this patient input submission. Describe how you gathered the perspectives: for example, by interviews, focus groups, or survey; personal experience; or a combination of these. Where possible, include **when** the data were gathered; if data were gathered **in Canada** or elsewhere; demographics of the respondents; and **how many** patients, caregivers, and individuals with experience with the drug in review contributed insights. We will use this background to better understand the context of the perspectives shared.

Parkinson Canada has gathered evidence and feedback from people diagnosed with Parkinson's and caregivers on their experience living with Parkinson's disease. The

findings from three surveys, as well as interviews conducted by Parkinson Canada, will be brought together for the purpose of this review.

In June-July 2017, Parkinson Canada conducted a survey and received responses from 863 people. The vast majority of responses were gathered from Canada with the following breakdown:

53 per cent from Ontario; 12 per cent from Quebec; 11 per cent from Manitoba; 9 per cent from British Columbia; 5 per cent from Atlantic Canada; 4 per cent from Alberta; 3 per cent from Saskatchewan; Less than 1 per cent from the territories; and less than 3 per cent of the responses were gathered internationally from people in the United States and Europe.

61 percent (526) of respondents are people with Parkinson's disease and 39 per cent (337) are caregivers of people with Parkinson's disease.

63 per cent of respondents are retired. This is followed by 16 per cent who are working full-time. Eight per cent are working part-time or on disability respectively. The remaining respondents are home full time, volunteers, students or looking for work.

In October 2017, Parkinson Canada partnered with Ipsos to conduct a nationwide survey to determine areas of greatest concern for individuals diagnosed with Parkinson's, caregivers, and health care providers with regards to the experience of living with Parkinson's, and access to care and treatment to manage the disease. The survey was completed by nearly 1500 people across Canada. The breakdown of the respondents is 45% people diagnosed with Parkinson's; 30% caregivers; 20% health care professionals; and 5% other stakeholders.

The regional breakdown for respondents diagnosed with Parkinson's are as follows: 57% Ontario; Quebec 9%; Atlantic 9%; Manitoba 9%; BC 7%; Alberta 4%; Saskatchewan 4%. There were not enough respondents from the Territories to yield a statistically valid sample.

The regional breakdown for respondents who identify as caregivers are as follows: 65% Ontario; Quebec 6%; Atlantic 6%; Manitoba 10%; BC 6%; Alberta 4%; Saskatchewan 4%. There were not enough respondents from the Territories to yield a statistically valid sample.

The drug being reviewed, Kynmobi, is a delivery method of apomorphine hydrochloride that has very recently been approved by Health Canada; however, the drug Movapo, which is a different delivery method of apomorphine hydrochloride was reviewed in 2017. In preparation for the review of Movapo, Parkinson Canada staff gathered information from five patients who have experience using apomorphine hydrochloride. Four were gathered from a survey we conducted in June-July 2017, and one was provided via an email exchange with Parkinson Canada staff directly. The results of those interviews will be relevant for Kynmobi.

Furthermore, Parkinson Canada conducted a survey with a group of volunteers to get their feedback on the sublingual delivery method that Kynmobi will offer. This survey was conducted in December 2018. 55 people living in Canada responded. 40 respondents are

diagnosed with Parkinson's; 11 are caregivers; and 4 respondents know someone living with Parkinson's.

3. Disease Experience

CADTH involves clinical experts in every review to explain disease progression and treatment goals. Here we are interested in understanding the illness from a patient's perspective. Describe how the disease impacts patients' and caregivers' day-to-day life and quality of life. Are there any aspects of the illness that are more important to control than others?

From Parkinson Canada's June-July 2017 survey results, overwhelmingly people with Parkinson's describe the "loss of confidence" that they have experienced since developing Parkinson's disease and the impact that has on their daily life:

"It is increasingly more challenging to manage care of myself, dog, & home. Also attending the local Parkinson's exercise group, and other activities is becoming more limited. Because of my Parkinson's tremor, even with medication, I have lost my confidence in any social situations where food is served, and so no longer want to participate in these activities."

This "loss of confidence" reported is in large part due medication "wearing off". Medication "wearing off" also described as "off times". This is when the effectiveness of medication stops causing a resurgence of motor and non-motor Parkinson's symptoms (e.g. freezing episodes, tremor, mood swings, panic attacks etc.). For some people there is a certain degree of predictability to "off times", but for many these fluctuations are unpredictable.

"My father's quality of life has been impacted and that's what has been most difficult. He has to plan his day and time out of the house based on his [sic] medication schedule because he can't be out when the meds start to wear off and he gets stiff. This makes it difficult for him to enjoy time with family".

Nearly 40 per cent of respondents specifically mentioned that Parkinson's has negatively impacted their ability to socialize and maintain relationships because they have had to stop engaging in recreational activities (e.g. sport) or family life:

"I have a hard time with all aspects of daily life (recreational, meal prep, have to cancel planned activities with family and friends) because of the following: very low energy, fall asleep unexpectedly, emotional, difficulty walking for prolong period, hard time moving my body at night in bed."

"Loss of independence in many areas including driving a car, relationships, social interactions, reading and writing."

Nearly 10 per cent of respondents discussed having to leave the workforce or reduce hours due to Parkinson's:

"I had to go on disability and stop working, which made me sad and also put more stress on my husband as he became the sole supporter of our family."

In addition to the ability to maintain relationships, many survey respondents also discussed their loss of independence citing challenges in doing household chores and getting dressed.

People with Parkinson's who report being able to maintain relationships and engage in daily activities often reported slowness and balance issues as being a challenge to their participation. It is important to understand that Parkinson's is a progressive disease causing abilities to change and making participation in daily activities increasingly more difficult overtime.

Survey respondents ranked the following symptoms of Parkinson's as most important to control: slowness and stiffness, impaired balance, cognitive changes and memory, and rigidity of the muscles.

Survey respondents who are caregivers most often reported a lack of time due to the demands of caring for a person with Parkinson's. This lack of time creates a challenge for maintaining social and/or recreational activities. Caregivers also discussed that the loss of confidence being experienced by the person they care for (due to "off times") as being a barrier to engaging in social or daily activities with the person they care for:

"The disease has a direct impact on every aspect of life for the caregiver. As the symptoms develop and increase in severity, everything becomes unpredictable. Managing household chores, planning for the day's and week's activities, etc. all become difficult. The stress takes its toll on the caregiver..."

The October 2017 survey Parkinson Canada conducted with Ipsos asked for a ranking of symptoms. The most common symptoms of those diagnosed with Parkinson's are slowness, fatigue, tremors, stiffness and sleep disturbances. Care providers, report a higher incidence of all symptoms, particularly impaired balance and muscle rigidity. Roughly Half of respondents with Parkinson's report experiencing anxiety, pain and changes in thinking/memory, with one-third experiencing issues with intimacy, changes in mood and depression. Overall, anxiety, stress, loss of confidence and sadness are the most common emotional changes experienced.

4. Experiences With Currently Available Treatments

CADTH examines the clinical benefit and cost-effectiveness of new drugs compared with currently available treatments. We can use this information to evaluate how well the drug under review might address gaps if current therapies fall short for patients and caregivers.

Describe how well patients and caregivers are managing their illnesses with currently available treatments (please specify treatments). Consider benefits seen, and side effects experienced and their management. Also consider any difficulties accessing treatment (cost, travel to clinic, time off work) and receiving treatment (swallowing pills, infusion lines).

There are a wide number of symptomatic treatments that are available for Parkinson's disease. These include medications (e.g. levodopa carbidopa), surgical procedures (e.g. Deep Brain Stimulation), and other forms of therapy (e.g. physiotherapy, occupational therapy, speech therapy, exercise) and psychological follow up. All of these treatments can have a significant impact on improving an individual's quality of life and should be available. However, an individual with Parkinson's becomes more reliant on their

medication to maintain their ability to function as the disease progresses, and dosage has to be increased over time, for as long as possible. A balance between the side effects of the medication and the benefit often becomes more difficult with time. Medication schedules become more complex and the timing of when medications are given becomes crucial.

The benefit to taking medications can be a return to regular daily living activities and functionality:

“Every morning it takes an hour for my multiple medications to take effect, so that I can perform activities at a comfortable pace such as dressing and meal preparation. The effect of my medications wears off within 2 1/2 hours, causing very painful foot dystonia two to three times a day.”

However, 67 per cent of survey respondents have experienced side effects when taking medications to manage their Parkinson’s. The most reported side effects, according to survey respondents, are disturbed sleep, nausea, constipation, dyskinesia, fatigue and hallucinations.

14 per cent of survey respondents have experienced difficulty in accessing treatments for Parkinson’s disease. The following challenges are reported: wait times to see a physician to have medication prescribed or adjusted; transportation and travel to receive treatment; insurance requirements to receive a branded medication over the generic; cost; and drug shortages.

“Cost, constantly traveling to drug store to pick up something as the insurance company only releases the coverage dependent of the individual cost. Very frustrating to have to drive back and forth 4 x to get the pills I need for my husband every month.”

The most common reported difficulties in receiving treatment from survey respondents are swallowing, remembering to take medication, and timing their medication with meals.

Swallowing

Difficulty in swallowing is present in many people with Parkinson’s. The reason for this difficulty is a prolongation of the triggering of the swallowing reflex, a reduced rate of swallowing, and slowness of sequential muscle movements.

Remembering to take medication

The daily medication regimen for individuals with Parkinson’s can be complicated. As Parkinson’s progresses many individuals have to take more types of medication, adjust dosing and increase the frequency of taking medication. In addition to this, the majority of people with Parkinson’s will experience some degree of cognitive changes with 30 per cent having dementia.

Medication and meals

The medication levodopa (currently the first line in treating Parkinson’s disease) is a protein building block, so it competes for absorption with other proteins. Eating a meal high in protein reduces the likelihood of effectively absorbing levodopa; therefore meals need to be timed and/or adjusted to ensure medication is properly absorbed.

“Frequency and timing in conjunction with meals. Nobody with Parkinson's moves quickly and many have difficulty swallowing . A half hour window in which to eat, so that protein does not interfere with the Levodopa is impossible to realize and causes stress for the person with Parkinson's and for the caregiver.”

5. Improved Outcomes

CADTH is interested in patients' views on what outcomes we should consider when evaluating new therapies. What improvements would patients and caregivers like to see in a new treatment that is not achieved in currently available treatments? How might daily life and quality of life for patients, caregivers, and families be different if the new treatment provided those desired improvements? What trade-offs do patients, families, and caregivers consider when choosing therapy?

Survey respondents indicated many improvements that they would like to see from new treatments that are not currently achieved. Frequently reported is the need for longer lasting medications that limit or eliminate “off times”. Apomorphine hydrochloride, particularly with different delivery methods, offers a rescue to the “off times” and would provide increased confidence and security for people, especially when they are leaving their home or participating in social outings. This has the potential to help reduce the isolation and fears that many people with Parkinson’s have described regarding “off times”.

“I am tired of the unpredictability of my current meds regime and having several times per day when I am not feeling well”.

There is also an expressed need for medications that provide overall better symptom control with less side effects:

“Control of hallucinations and elimination of off times. If these symptoms were controlled I would hope to have a much more normal lifestyle”.

The described improvements would restore quality of life by allowing the freedom to make plans without fear of an “off time” resulting in loss of ability to function:

“To be able to go out and stay out for awhile, that he would last a little longer on an outing. We do not go out on planned outings”

“Medication that takes more rapid effect, does not lose it's effectiveness before the next dose is due (effectiveness wears off), and is more effective in treating inertia (freezing) and inability to walk; also medication to permit intelligible and normal speech. These improvements would enable more normal mobility and communication with family and others.”

Overall, 70 per cent of survey respondents have experienced “off” periods with their medication regime.

“Parkinson disease, even on the best of days, severely limits ones daily activity. Off-periods bring everything to a halt and are disorienting and uncomfortable. Adding extra functionality to a day makes a significant difference when one has only a few hours to begin with.”

Side effects are definitely a major consideration and concern for people with Parkinson’s and caregivers before starting a new treatment. Survey respondents indicated that the benefits versus potential side effects would need to be carefully weighed before starting any new medication.

Apomorphine hydrochloride in a sublingual form offers another option for people with Parkinson’s and care partners who may not be comfortable with the currently available injectable delivery method of apomorphine hydrochloride.

As of December 2018, 82% of survey respondents reported ongoing challenges managing “off times”. Access to options for medications and delivery methods of medications are necessary for people with Parkinson’s because the experience of the disease is individual to everyone affected.

6. Experience With Drug Under Review

CADTH will carefully review the relevant scientific literature and clinical studies. We would like to hear from patients about their individual experiences with the new drug. This can help reviewers better understand how the drug under review meets the needs and preferences of patients, caregivers, and families.

How did patients have access to the drug under review (for example, clinical trials, private insurance)? Compared to any previous therapies patients have used, what were the benefits experienced? What were the disadvantages? How did the benefits and disadvantages impact the lives of patients, caregivers, and families? Consider side effects and if they were tolerated or how they were managed. Was the drug easier to use than previous therapies? If so, how? Are there subgroups of patients within this disease state for whom this drug is particularly helpful? In what ways? If applicable, please provide the sequencing of therapies that patients would have used prior to and after in relation to the new drug under review. Please also include a summary statement of the key values that are important to patients and caregivers with respect to the drug under review.

Parkinson Canada has connected with five people with Parkinson’s who are using apomorphine. They have accessed this drug through public coverage in their respective jurisdictions or by participating in clinical trials.

Patient #1 from Ontario

- Uses the injectable pen and reports it is easy to administer and not more difficult than administering other medications for Parkinson’s
- Has experienced nausea and vomiting as side effect, but reports that it is not difficult to manage the side effects
- Reports that injectable apomorphine helps with end of dose “wearing off” and claims it has improved quality of life

Patient #2 from Quebec

- Uses apomorphine by injection and reports it is moderately easy to administer, but more difficult to use than other medications to treat Parkinson’s
- Has experienced nausea and vomiting and confusion as side effects, but report that they “wait it out”
- Reports that injection of apomorphine helps with end of dose “wearing off” and claims it has improved quality of life

Patient #3 from France

- Uses the injectable pen and reports it is easy to administer, but finds that although it is easy to administer it is more difficult to use than other medications to treat Parkinson’s
- Has experienced dyskinesia as a side effect that is difficult to manage
- Reports that the injectable pen helps with unpredictable “off” times and claims it has improved quality of life

Patient #4 from France

- Uses the injectable pen and reports it is easy to administer, but finds that although it is easy to administer it is more difficult to use than other medications to treat Parkinson’s
- Has experienced drowsiness or falling asleep, dyskinesia and pain in joints as side effects that are very difficult to manage
- Reports that the injectable pen did not improve quality of life and resulted in this patient stopping the drug

Patient #5 from Sweden

- Used the apomorphine injectable pen and is now using the pump (based on information apomorphine they become a candidate to receive the drug in pump form) . She claims that both have been “life changing” for her.

“Life is good, but when I’m stuck, locked in my own body, helpless and sad. When I can’t communicate with the outside world - if that’s the way it will be, I do not really want to live. But even from the darkest moments, the rebirth is “hallelujah moment” when the rigidity disappears and life returns and it’s good to live again”.

Patient evidence was also gathered from a friend of a person in the US who has reported an improved quality of life and better management of symptoms using apomorphine via pump.

Nearly a quarter of respondents in the December 2018 survey reported that the sublingual delivery method provides an option that does not pose the risk of choking and bypasses swallowing issues as can be an issue with pill form medications. 42% are in favor of a sublingual form of medication as it can provide a faster relief of the “off times”.

7. Companion Diagnostic Test

If the drug in review has a companion diagnostic, please comment. Companion diagnostics are laboratory tests that provide information essential for the safe and effective use of particular therapeutic drugs. They work by detecting specific biomarkers that predict more favourable responses to certain drugs. In practice, companion diagnostics can identify patients who are likely to benefit or experience harms from particular therapies, or monitor clinical responses to optimally guide treatment adjustments.

What are patient and caregiver experiences with the biomarker testing (companion diagnostic) associated with regarding the drug under review?

Consider:

- Access to testing: for example, proximity to testing facility, availability of appointment.
- Testing: for example, how was the test done? Did testing delay the treatment from beginning? Were there any adverse effects associated with testing?
- Cost of testing: Who paid for testing? If the cost was out of pocket, what was the impact of having to pay? Were there travel costs involved?
- How patients and caregivers feel about testing: for example, understanding why the test happened, coping with anxiety while waiting for the test result, uncertainty about making a decision given the test result.

N/A

8. Anything Else?

Is there anything else specifically related to this drug review that CADTH reviewers or the expert committee should know?

People with Parkinson’s need access to a variety of options to ensure they can be on a treatment regimen that offers the best possible control of their unique set of symptoms and an improved quality of life. The unpredictability of the disease as well as loss of confidence and independence that one experiences due to this unpredictability is forcing people with Parkinson’s to withdraw

from normal activities too soon (e.g. work, travel, daily chores, maintaining relationships etc.). Many people with Parkinson's report anxiety and excessive worry over the inability to appropriately control their symptoms on a continuous or predictable basis. Overall this causes a breakdown in relationships resulting in isolation.

Furthermore, survey respondents across all surveys report it would be a significant financial burden if they did not have coverage to help with their drug costs. As discussed earlier, many people with Parkinson's and caregivers report having to leave the workforce early or reduce hours due to the progression of the disease. This limit of incoming resources coupled with increasing expenses for travel to appointments for follow-up/treatment and any incurring drug costs causes a great amount of additional stress and strain on families.

When a disease is as life limiting as Parkinson's it is essential to provide coverage to ensure treatments are affordable and accessible for all who need it.

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH CDR and pCODR programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.

No

2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review.

Company	Check Appropriate Dollar Range			
	\$0 to 5,000	\$5,001 to 10,000	\$10,001 to 50,000	In Excess of \$50,000
Sunovion			X	

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Jacquie Micallef
 Position: Interim Lead, Communication and Public Affairs
 Patient Group: Parkinson Canada
 Date: July 20, 2020

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	Kynmobi – Maladie de Parkinson
Name of the Patient Group	Parkinson Québec
Author of the Submission	██████████
Name of the Primary Contact for This Submission	██████████
Email	████████████████████
Telephone Number	██████████

1. About Your Patient Group

If you have not yet registered with CADTH, describe the purpose of your organization. Include a link to your website.

Parkinson Québec est un organisme à but non lucratif possédant un CA propre. L'organisation se déploie autour de sa présidente, Mme Nicole Charpentier, en trois axes principaux:

- 1 - Développement de services, défense des droits, et financement de la recherche**
- 2 - Développement de revenus**
- 3 - Communication et gestion du réseau.**

En plus de son bureau central à Montréal, Parkinson Québec possède 4 bureaux régionaux (Rive Sud, Hautes et Basses Laurentides, Yamaska) relevant du même CA.

D'autre part, Parkinson Québec entretient des liens avec 8 organismes régionaux affiliés mais possédant leurs propres CAs (Parkinson Abitibi, Bas Saint Laurent, Mauricie, Montréal-Laval, Ville de Québec, Outaouais, Saguenay Lac Saint Jean). Tous les organismes régionaux ont pour mission de fournir localement de l'information sur la maladie et d'organiser des groupes de soutien et d'entraide.

Parkinson Québec ne fonctionne pas sur un système d'adhésion de membres. Tous les québécois atteints par la maladie et leurs familles peuvent utiliser nos ressources, à coût nul.

Parkinson Québec couvre l'ensemble de la province du Québec et propose ses services aux 25 000 personnes atteintes de la maladie de Parkinson (MP) et à leurs familles.

www.parkinsonquebec.ca

2. Information Gathering

CADTH is interested in hearing from a wide range of patients and caregivers in this patient input submission. Describe how you gathered the perspectives: for example, by interviews, focus groups, or survey; personal experience; or a combination of these. Where possible, include **when** the data were gathered; if data were gathered **in Canada** or elsewhere; demographics of the respondents; and **how many** patients, caregivers, and individuals with experience with the drug in review contributed insights. We will use this background to better understand the context of the perspectives shared.

Une étude en ligne a été diffusée aux personnes atteintes et à leurs proches qui utilisent traditionnellement nos services. Cette étude s'est déroulée entre le 15 février 2019 et le 15 mars 2019.

Les critères d'inclusion de cette enquête sont:

- **Personne atteinte de la MP ou proche aidant d'une personne atteinte de la MP,**
- **Age supérieur à 18 ans,**
- **A vécu un ou plusieurs épisodes off dans le dernier mois.**
- **Lieu de résidence : Québec**

Notre questionnaire est passé par une phase de validation auprès d'un neurologue et d'un échantillon de personnes atteintes de la MP. Lors de la phase de validation de notre questionnaire, nous avons renforcé la définition de période off afin de les distinguer du phénomène de blocage (freezing). Ainsi, les périodes off ont été présentées comme des périodes d'immobilité et d'intense fatigue liées à une fluctuation de l'efficacité de leur médication. Les personnes déclarant ne pas subir ces fluctuations d'efficacité ont été retirées de la base de données.

Après élimination des doublons et des personnes ne rencontrant pas les critères d'inclusion, nous avons un échantillon de 78 proches aidants (PA) et 292 personnes atteintes de la maladie de Parkinson (PAMP).

Les données démographiques de l'échantillon sont présentées dans la Table 1.

D'autre part, des verbatims ont été recueillis spécifiquement sur le ressenti des périodes off des patients lors d'entrevues téléphoniques à notre ligne Info-Référence.

3. Disease Experience

CADTH involves clinical experts in every review to explain disease progression and treatment goals. Here we are interested in understanding the illness from a patient's perspective. Describe how the disease impacts patients' and caregivers' day-to-day life and quality of life. Are there any aspects of the illness that are more important to control than others?

L'impact de la maladie sur la vie des patients est présenté en Table 2.

Verbatims collectés:

- **██████████ (PAMP) : "Quand la dose finie ou quand il y a un décalage, ça perturbe ma santé. Je panique de l'intérieur, ça ne parait pas de l'extérieur. Je reste figé, rien ne fonctionne. À cause de mes périodes off, j'ai abandonné mon travail, je ne sors plus, c'est très gênant, ça m'arrive à n'importe quel moment. C'est comme un moteur qui s'éteint. J'ai plus qu'à attendre que mon énergie revienne avec ma prochaine dose, alors je m'assoie. C'est long!"**
- **██████████ (PAMP) : "Quand ça commence, je me mets à faire des petits pas, je suis lent, mes bobos reviennent."**

- ██████ (PAMP) : "Ca gruge bcp d'énergie, mais on s'habitue à la misère. C'est comme un lendemain de brosse. J'attends que ça passe, on apprend à vivre avec ça."
- ██████ (PAMP) "Avant j'avais une bouteille pleine d'énergie. Maintenant, je vis avec 1/4 d'énergie et quand je suis en fin de dose, ma bouteille est vide."
- ██████ (PAMP) "Utter lack of energy. I am unable to concentrate , i am not able to think properly. It's nasty. You don't know how to get out of it. Everything is a mess. To solve this. I wait until my next dose, what else can I do?"
- ██████ (PAMP) "You have the will to go somewhere or do something but your body is determined to get you there by the slowest means possible, if at all, while exerting the most energy you have. It is like being imprisoned in your own body. What do I do when this happens? I just wait until it goes off"

La perspective des proches aidants sur l'impact de la maladie dans la vie des patients est présenté en Table 2.

4. Experiences With Currently Available Treatments

CADTH examines the clinical benefit and cost-effectiveness of new drugs compared with currently available treatments. We can use this information to evaluate how well the drug under review might address gaps if current therapies fall short for patients and caregivers.

Describe how well patients and caregivers are managing their illnesses with currently available treatments (please specify treatments). Consider benefits seen, and side effects experienced and their management. Also consider any difficulties accessing treatment (cost, travel to clinic, time off work) and receiving treatment (swallowing pills, infusion lines).

Les modalités de gestion actuelles des périodes off sont présentées dans la Table 3.

Les perceptions relatives à l'efficacité, au délai d'action, à la facilité de préparation, aux effets secondaires, à la satisfaction générale des moyens de gestion des périodes off sont présentées dans la Figure 1. La perception de nécessité d'un nouveau médicament est également présentée dans la Figure 1.

5. Improved Outcomes

CADTH is interested in patients' views on what outcomes we should consider when evaluating new therapies. What improvements would patients and caregivers like to see in a new treatment that is not achieved in currently available treatments? How might daily life and quality of life for patients, caregivers, and families be different if the new treatment provided those desired improvements? What trade-offs do patients, families, and caregivers consider when choosing therapy?

Les caractéristiques désirables d'un futur médicament pour traiter les périodes off sont présentées dans la Figure 2.

Les caractéristiques indésirables d'un futur médicament pour traiter les périodes off sont présentées dans la Figure 3.

6. Experience With Drug Under Review

CADTH will carefully review the relevant scientific literature and clinical studies. We would like to hear from patients about their individual experiences with the new drug. This can help reviewers better

understand how the drug under review meets the needs and preferences of patients, caregivers, and families.

How did patients have access to the drug under review (for example, clinical trials, private insurance)? Compared to any previous therapies patients have used, what were the benefits experienced? What were the disadvantages? How did the benefits and disadvantages impact the lives of patients, caregivers, and families? Consider side effects and if they were tolerated or how they were managed. Was the drug easier to use than previous therapies? If so, how? Are there subgroups of patients within this disease state for whom this drug is particularly helpful? In what ways? If applicable, please provide the sequencing of therapies that patients would have used prior to and after in relation to the new drug under review. Please also include a summary statement of the key values that are important to patients and caregivers with respect to the drug under review.

Aucun patient sondé ou interrogé n'a utilisé le produit Kynmobi.

7. Companion Diagnostic Test

If the drug in review has a companion diagnostic, please comment. Companion diagnostics are laboratory tests that provide information essential for the safe and effective use of particular therapeutic drugs. They work by detecting specific biomarkers that predict more favourable responses to certain drugs. In practice, companion diagnostics can identify patients who are likely to benefit or experience harms from particular therapies, or monitor clinical responses to optimally guide treatment adjustments.

What are patient and caregiver experiences with the biomarker testing (companion diagnostic) associated with regarding the drug under review?

Consider:

- Access to testing: for example, proximity to testing facility, availability of appointment.
- Testing: for example, how was the test done? Did testing delay the treatment from beginning? Were there any adverse effects associated with testing?
- Cost of testing: Who paid for testing? If the cost was out of pocket, what was the impact of having to pay? Were there travel costs involved?
- How patients and caregivers feel about testing: for example, understanding why the test happened, coping with anxiety while waiting for the test result, uncertainty about making a decision given the test result.

8. Anything Else?

Is there anything else specifically related to this drug review that CADTH reviewers or the expert committee should know?

L'enquête n'a été approuvée par aucun comité d'éthique. Par contre, les répondants ont fourni leur consentement de manière implicite en remplissant le questionnaire en ligne.

L'anonymat des répondants et la confidentialité des données est garantie par Parkinson Québec. La participation à un tirage de 20 guides Info-Parkinson, d'une valeur de 25\$, était offert à la fin de l'enquête.

Messages clés :

Les mots entre guillemets sont des citations directes de patients ou de proches aidants.

- 1) Dans une population présentant des stades intermédiaires de la maladie de Parkinson (score Hoehn & Yahr moyen de 2,39), les patients passent 22% de leur temps éveillé en période off. Dans une population plus avancée, ce nouveau médicament d'appoint sera d'autant plus nécessaire.
- 2) Ces périodes off apparaissent dans la majeure partie des cas lors de l'épuisement de l'effet de la dernière dose de lévodopa (34,8%) et lors d'épisodes de stress (28,6%). Pour la moitié des patients, ces épisodes sont rarement ou seulement quelques fois prévisibles. L'imprévisibilité des épisodes off est un facteur anxiogène important pour cette population. L'accès à un nouveau moyen de gestion des périodes off représente un "filet de sécurité" pour les patients et leurs proches aidants dans la réalisation de leurs activités quotidiennes. D'ailleurs, plus de 6 personnes atteintes sur 10 se déclarent aujourd'hui limitées dans l'accomplissement de certaines ou de beaucoup de leurs activités ou de leurs interactions sociales
- 3) Les patients ont majoritairement (51,4%) une approche d'attente de la prochaine dose de lévodopa pour faire passer leurs périodes off. Dans ces cas, les patients sont "confrontés à un symptôme non contrôlable et sur lequel ils sentent n'avoir aucun pouvoir". La perte du sentiment de contrôle est une caractéristique de la maladie de Parkinson. Un nouveau médicament d'appoint représente un moyen de reprendre confiance et de se donner le pouvoir d'agir.
- 4) Seul un patient sur trois pense que sa méthode de gestion des épisodes off est efficace et en est globalement satisfait. Trois patients sur quatre pensent qu'ils ont besoin d'un nouveau médicament pour traiter leurs épisodes off. Les perceptions des proches aidants sur l'efficacité, le délai d'action, la facilité de préparation, la tolérabilité des effets secondaires et la satisfaction générale par rapport aux modes de gestion des périodes off sont significativement plus faibles que celles de leurs aidés
- 5) Les trois caractéristiques les plus désirables pour un futur médicament sont : 1) Un délai d'action inférieur à 10 min; 2) une administration orale et 3) un traitement des épisodes off à la demande. Les trois caractéristiques les plus contraignantes sont: 1) La tolérabilité des effets secondaires (notamment les étourdissements et les nausées, puis les ulcères bucaux); 2) l'administration avec un stylo-injecteur; 3) le recours à une personne tierce pour la préparation du médicament.

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH CDR and pCODR programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.

No help received

2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

No help received

Sunovion n'a été impliqué dans aucune des phases de développement, de conduite et d'analyse de l'enquête.

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review.

Company	Check Appropriate Dollar Range			
	\$0 to 5,000	\$5,001 to 10,000	\$10,001 to 50,000	In Excess of \$50,000
Sunovion Pharmaceuticals 2018 : Soutien au développement du congrès bi-annuel de Parkinson Québec 2019 : Développement et la conduite d'une enquête indépendante sur le fardeau et la gestion des périodes off chez les personnes atteintes de la MP et leurs proches aidants.		X		

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Romain Rigal
Position: Director, Programs and Services
Patient Group: Parkinson Québec
Date: July, 14th 2020

	PA (n=78)	PAMP (n=292)
Sexe		
Femme	39 (50.0%)	141 (48.3%)
Âge (années)		
Moyenne (SD)	65.0 (11.5)	65.3 (10.3)
Âge au moment du diagnostic (années)		
Moyenne (SD)	58.1 (9.15)	59.1 (9.59)
Durée de la maladie (années)		
Moyenne (SD)	7.23 (5.71)	7.66 (5.08)
Durée de thérapie de la lévodopa (années)		
Moyenne (SD)	7.84 (5.57)	7.27 (5.16)
Score de Hoehn & Yahr		
Moyenne (SD)	2.34 (1.20)	2.39 (1.12)
Aide à la prise de médication Off		
Aucune aide requise/fournie	54 (69.2%)	209 (71.6%)
Aide à la préparation	11 (14.1%)	46 (15.8%)
Aide à la préparation et à la prise	13 (16.7%)	34 (11.6%)
Manquant	0 (0%)	3 (1.0%)
Lien avec la personne offrant/fournissant une aide		
Conjoint(e)	18 (23.1%)	71 (24.3%)
Autre membre de la famille	3 (3.8%)	4 (1.4%)
Professionnel(le) ou intervenant(e)	1 (1.3%)	4 (1.4%)
Autre	1 (1.3%)	1 (0.3%)
Non applicable	55 (70.5%)	212 (72.6%)

Table 1. Données démographiques.

	PA (n=78)	PAMP (n=292)
Nombre d'heures passées en période Off / jour		
Moyenne (SD)	3.47 (2.74)	3.44 (2.66)
Pourcentage de temps éveillé passé en période Off / jour		
Pourcentage moyen (SD)	0.24% (0.19%)	0.22% (0.18%)
Prévisibilité des périodes Off		
Rarement prévisible (< 25%).	23 (29.5%)	70 (24.0%)
Quelquefois prévisible (26-50%).	20 (25.6%)	61 (20.9%)
La plupart du temps prévisible (51-75%).	19 (24.4%)	92 (31.5%)
Tout ou presque tout le temps prévisible (> 75%)	15 (19.2%)	65 (22.3%)
Manquant	1 (1.3%)	4 (1.4%)
Moment d'apparition des périodes Off (plusieurs réponses possibles)		
Au coucher	15 (10.0%)	35 (6.0%)
Au réveil	22 (14.7%)	87 (14.9%)
Épisode de stress	43 (28.7%)	167 (28.6%)
Épuisement de l'effet	56 (37.3%)	203 (34.8%)
Oubli de dose	14 (9.3%)	91 (15.6%)
Impact des périodes OFF sur les activités et les interactions sociales de la personne atteinte		
Aucun impact dans l'accomplissement d'activités et d'interactions sociales	3 (3.8%)	10 (3.4%)
Impact dans l'accomplissement de CERTAINES activités et interactions sociales, mais pas de limitation	16 (20.5%)	76 (26.0%)
Impact dans l'accomplissement de BEAUCOUP d'activités et d'interactions sociales, mais pas de limitation	13 (16.7%)	24 (8.2%)
Limitation dans l'accomplissement de CERTAINES activités et d'interactions sociales	29 (37.2%)	89 (30.5%)
Limitation dans l'accomplissement de BEAUCOUP d'activités et d'interactions sociales	15 (19.2%)	90 (30.8%)
Manquant	2 (2.6%)	3 (1.0%)

Table 2. Description des périodes off

	PA (n=78)	PAMP (n=292)
Mode de gestion des périodes Off		
Attente de la prochaine prise de lévodopa	31 (39.7%)	150 (51.4%)
Augmentation de la fréquence des prises de lévodopa	29 (37.2%)	91 (31.2%)
Prescription de médicaments supplémentaires	13 (16.7%)	40 (13.7%)
Autre	5 (6.4%)	11 (3.8%)
Nombre de prises quotidiennes de médication pour traiter pour les périodes Off		
Une fois par jour	11 (14.1%)	37 (12.7%)
Deux fois par jour	10 (12.8%)	26 (8.9%)
Trois fois par jour	6 (7.7%)	20 (6.8%)
Quatre fois ou plus par jour	16 (20.5%)	51 (17.5%)
Non applicable	35 (44.9%)	158 (54.1%)

Table 3. Gestion actuelle des périodes Off.

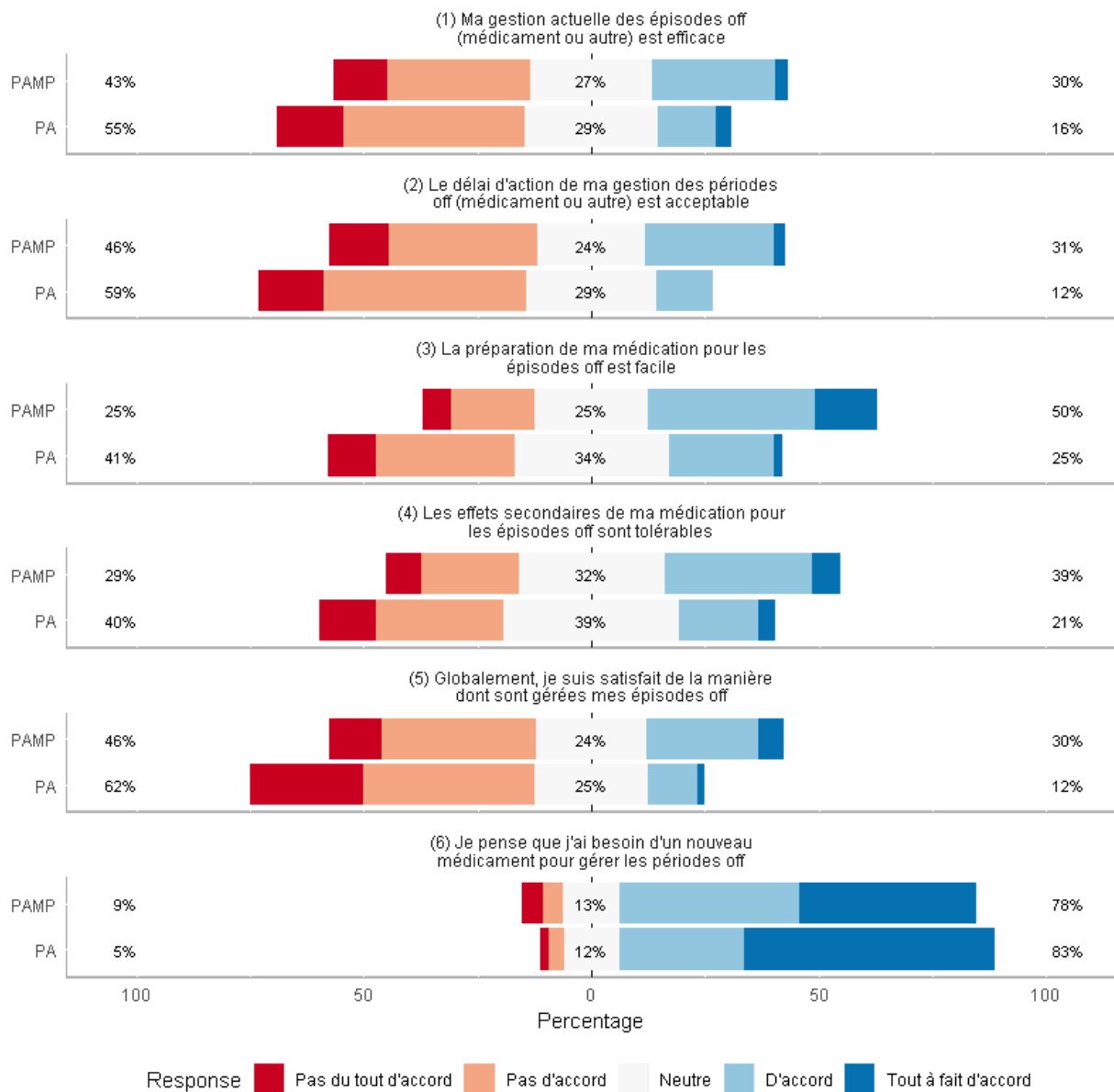


Figure 1. Perception de la gestion actuelle des périodes off

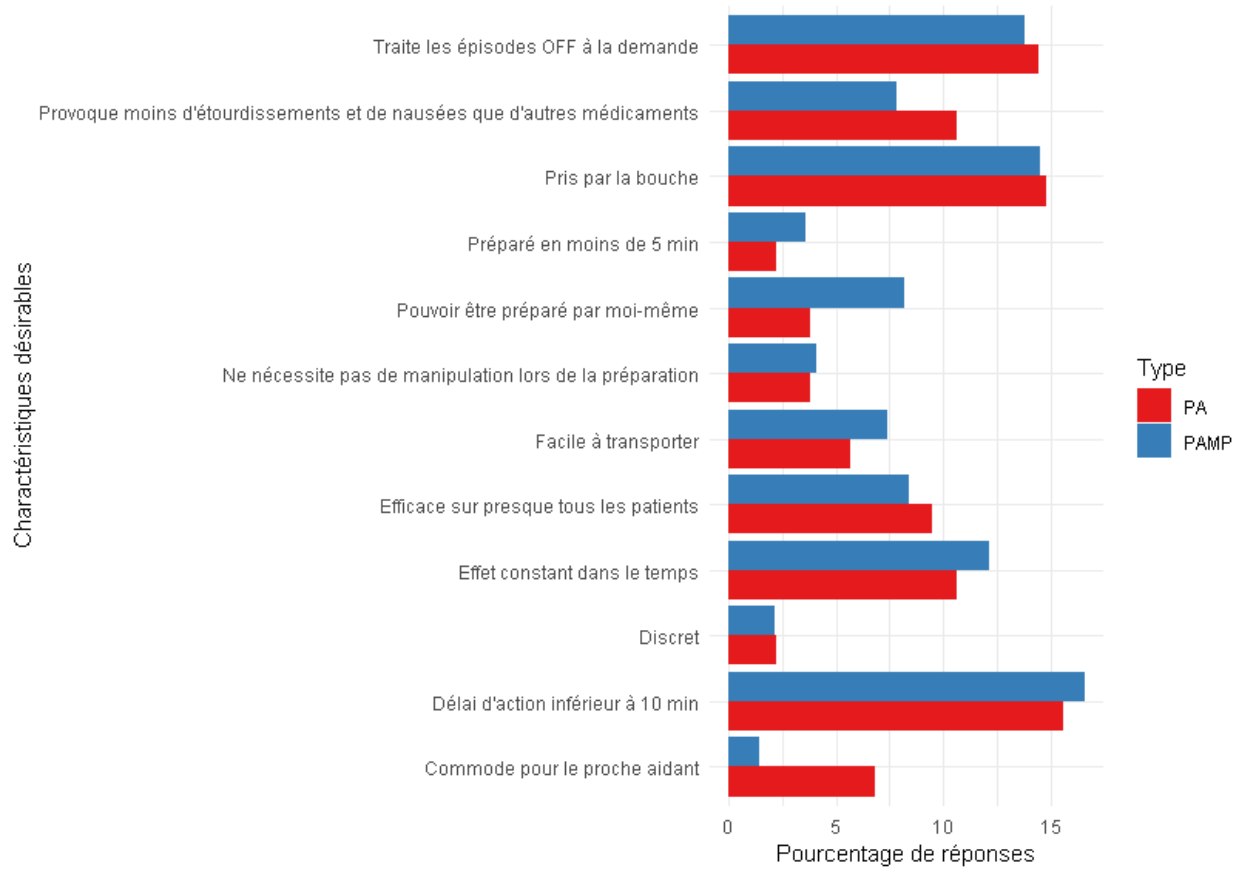


Figure 2. Caractéristiques désirables pour un médicament pour traiter les périodes off
(3 réponses préférées par répondant)

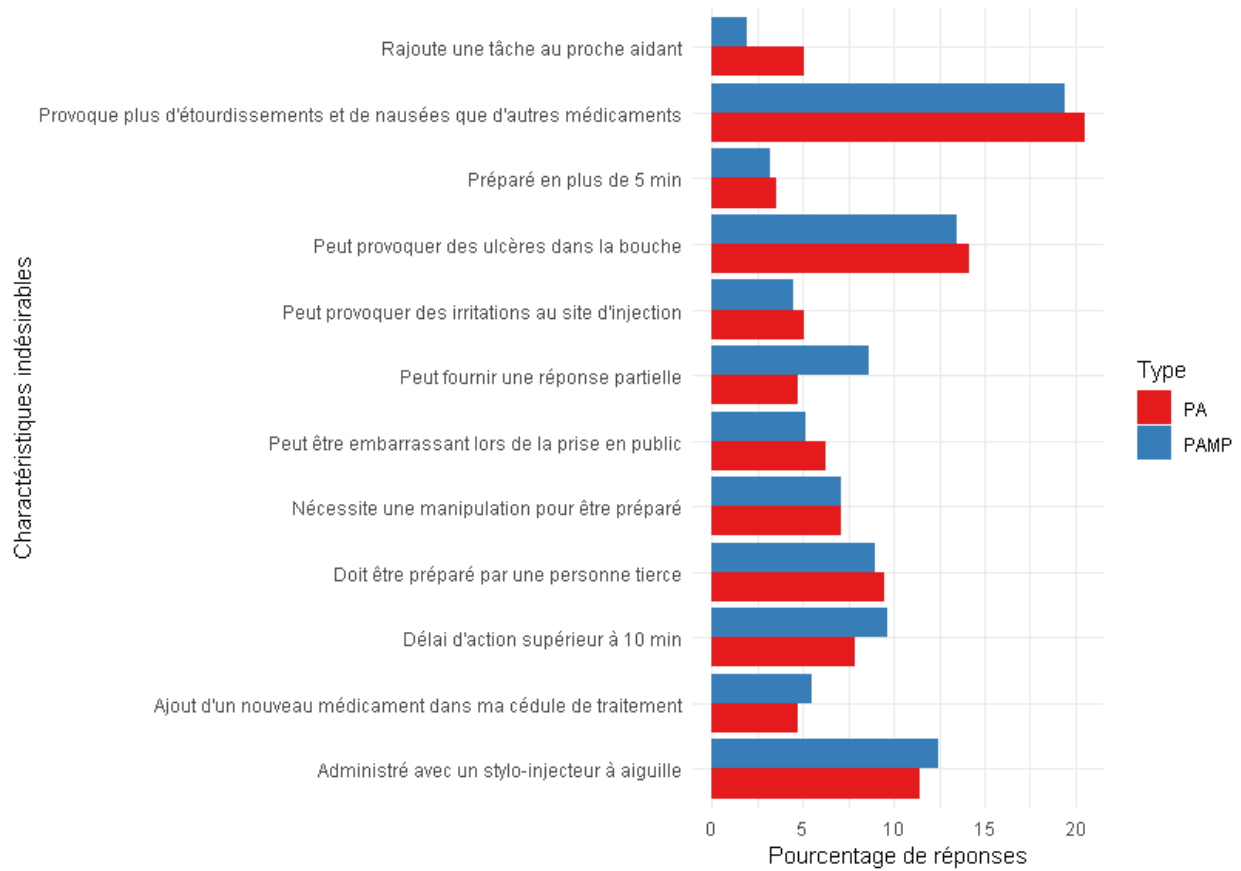


Figure 3. Caractéristiques indésirables pour un médicament pour traiter les périodes off
(3 réponses préférées par répondant)

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	<u>Kynmobi (apomorphine hydrochloride)</u> Parkinson's Disease (PD)
Name of the Patient Group	Parkinson Society BC (PSBC)
Author of the Submission	██████████
Name of the Primary Contact for This Submission	██████████
Email	████████████████████
Telephone Number	██████████

1. About Your Patient Group

If you have not yet registered with CADTH, describe the purpose of your organization. Include a link to your website.

Established in 1969, Parkinson Society British Columbia (PSBC) is a non-profit organization governed by a volunteer Board of Directors. The Society receives no government funding and is supported entirely by donations from individuals, members, corporations, foundations and the dedicated efforts of volunteers.

We believe that every person touched by Parkinson's deserves to know that they are not alone in their journey. We are here for the person with Parkinson's, their care partners, family and friends. Our friendly and knowledgeable staff is committed to offering support, sharing reliable information and raising funds for programs and research.

<https://www.parkinson.bc.ca/>

2. Information Gathering

CADTH is interested in hearing from a wide range of patients and caregivers in this patient input submission. Describe how you gathered the perspectives: for example, by interviews, focus groups, or survey; personal experience; or a combination of these. Where possible, include **when** the data were gathered; if data were gathered **in Canada** or elsewhere; demographics of the respondents; and **how many** patients, caregivers, and individuals with experience with the drug in review contributed insights. We will use this background to better understand the context of the perspectives shared.

Please review PSBC's July 26, 2017 submission for [Movpro \(Apomorphine\) – Parkinson's disease](#)

Canadians/British Columbians have little to no experience with injectable Apomorphine and as Kynmobi is a brand new method of delivery, no experience.

Further to the two different ways of delivery of the drug, PSBC conducted a survey with the Parkinson's community in BC, February through March 2019. 65 people - 46 patients and 19 caregivers responded to the survey.

3. Disease Experience

CADTH involves clinical experts in every review to explain disease progression and treatment goals. Here we are interested in understanding the illness from a patient's perspective. Describe how the disease impacts patients' and caregivers' day-to-day life and quality of life. Are there any aspects of the illness that are more important to control than others?

Again, please review PSBC's July 26, 2017 submission for Movpro (Apomorphine) – Parkinson's disease

In the case of Kynmobi, people considered this to be of potential help in addressing frequent, sudden, debilitating and dangerous "off" periods or 'freezing'.

See below for what it is like to live with advanced Parkinson's Disease.

4. Experiences With Currently Available Treatments

CADTH examines the clinical benefit and cost-effectiveness of new drugs compared with currently available treatments. We can use this information to evaluate how well the drug under review might address gaps if current therapies fall short for patients and caregivers.

Describe how well patients and caregivers are managing their illnesses with currently available treatments (please specify treatments). Consider benefits seen, and side effects experienced and their management. Also consider any difficulties accessing treatment (cost, travel to clinic, time off work) and receiving treatment (swallowing pills, infusion lines).

An unfortunate side effect of levodopa, over time, is dyskinesia or involuntary writhing movements, and people in an advanced state of Parkinson's frequently experience these when they are 'on' to a severe extent. However, without levodopa, they are then reduced to an "off" state, an even more disabling, frightening stage where breathing and swallowing are at risk as described in this eloquent description that follows:

My Issues in Living With Parkinson's Disease and Its Progression – Chris Olsen, April, 2016 (see also

<https://www.youtube.com/watch?v=wtyOF9XhQ0A&feature=youtu.be>)

"I spend approximately 65% of my waking day in the "off" state when my medication is not working. This causes me to have difficulty moving independently, feeding myself, and performing basic tasks. The 35% I manage in the "on" state is with troublesome dyskinesia, very violent movements that again prevent me from doing most activities.

Overall my health and safety are concerning for the following reasons:

- *I have lost approximately 100 lbs in the past few years largely due to dyskinesias, these violent movements that are a side effect of my medication.*

- *I am at serious risk of aspiration and choking due to my inability to swallow properly when medication is not working.*
- *I have frequent dose failures with my medication, possibly due to my stomach not emptying properly. Medications to assist with stomach emptying have had adverse effects and made me even more ill. This makes my off periods fairly unpredictable and makes it difficult to plan my day (and my husband's day).*
- *Additionally, I am also at risk for malnutrition due to difficulties with swallowing as well as the increased caloric expenditure due to dyskinesia, and difficulty feeding myself while dyskinetic or in an 'off' state.*
- *If the serious symptom of not swallowing properly continues, there is a chance I may need a PEG tube for feeding to eliminate the risk of choking and ensure proper nutrition.*
- *I suffer from rigidity, bradykinesia, dystonia, tremor, and more recently freezing while off. I fell and hurt my hip recently due to a freezing episode in the night when I was up to the washroom. Due to my low weight and new freezing, there is a real concern of a serious fall resulting in a fracture which could lead to a further decline in my condition and the need for community support or an increased level of care*

These are the main safety concerns, although I have many severe symptoms that cause me to need help with my activities of daily living (such as dressing, getting to the toilet, eating)."

<https://www.parkinson.bc.ca/media/30933/what-is-parkinsons-disease.pdf>

<https://www.parkinson.bc.ca/media/31548/progression-of-parkinsons.pdf>

5. Improved Outcomes

CADTH is interested in patients' views on what outcomes we should consider when evaluating new therapies. What improvements would patients and caregivers like to see in a new treatment that is not achieved in currently available treatments? How might daily life and quality of life for patients, caregivers, and families be different if the new treatment provided those desired improvements? What trade-offs do patients, families, and caregivers consider when choosing therapy?

Survey respondents said they would consider taking either Apomorphine (MOVAPO), an injectable, or Kynmobi (apomorphine hydrochloride), taken orally, as a 'rescue' medication for the following reasons:

- I would consider an oral dose as this is easier to carry and take when out
- Offs are accompanied by extreme levels of anxiety, agitation, and paranoia. Prevention of offs could mean prevention of mental health issues.
- It is not good for those with low BP which is one of the non-motor symptoms with advanced PD.
- Current medications are not producing satisfactory results.
- to avoid being stranded away from home and preserve mobility as long as possible
- If it can reduce the "OFF" periods, this would improve my husband's quality of live.
- to keep a steady mobility when out or active
- I am clearly disabled when I have a significant off period
- Orally. The off periods as connected with extreme back and/or hip pain.
- Not Necessary yet
- With caution as I have had problems with dopamine agonists (psychosis).
- If off episodes can be managed without severe side effects, quality of life would be improved
- Off periods are hard for me to explain or predict or endure.
- Need help! Be so grateful if it works
- I would try it providing my movement disorder dr. recommended it.
- In order to restore normal movement and relief from "off" period ASAP
- Why not
- For improvement of life
- The off periods are the worst part of PD as not only the body freezes, but also the brain and its ability to "think".
- If necessary, the oral would be a choice.
- Sometimes I can't walk at all or I have pain so bad that I have to leave a restaurant for example in the middle of my meal, by being wheeled out in my walker.
- To enhance his mobility. He's constantly in the OFF mode. It's frustrating for him to move around.
- To see it would help with the off times

6. Experience With Drug Under Review

CADTH will carefully review the relevant scientific literature and clinical studies. We would like to hear from patients about their individual experiences with the new drug. This can help reviewers better understand how the drug under review meets the needs and preferences of patients, caregivers, and families.

How did patients have access to the drug under review (for example, clinical trials, private insurance)? Compared to any previous therapies patients have used, what were the benefits experienced? What were the disadvantages? How did the benefits and disadvantages impact the lives of patients, caregivers, and families? Consider side effects and if they were tolerated or how they were managed. Was the drug easier to use than previous therapies? If so, how? Are there subgroups of patients within this disease state for whom this drug is particularly helpful? In what ways?

Patients have not had access to Kynmobi in Canada. However, when asked about choice of Movapo injectable versus a sublingual, the majority (93%) chose sublingual.

7. Companion Diagnostic Test

If the drug in review has a companion diagnostic, please comment. Companion diagnostics are laboratory tests that provide information essential for the safe and effective use of particular therapeutic drugs. They work by detecting specific biomarkers that predict more favourable responses to certain drugs. In practice, companion diagnostics can identify patients who are likely to benefit or experience harms from particular therapies, or monitor clinical responses to optimally guide treatment adjustments.

What are patient and caregiver experiences with the biomarker testing (companion diagnostic) associated with regarding the drug under review?

Consider:

- Access to testing: for example, proximity to testing facility, availability of appointment.
- Testing: for example, how was the test done? Did testing delay the treatment from beginning? Were there any adverse effects associated with testing?
- Cost of testing: Who paid for testing? If the cost was out of pocket, what was the impact of having to pay? Were there travel costs involved?
- How patients and caregivers feel about testing: for example, understanding why the test happened, coping with anxiety while waiting for the test result, uncertainty about making a decision given the test result.

8. Anything Else?

Is there anything else specifically related to this drug review that CADTH reviewers or the expert committee should know?

Those that did not yet have advanced PD and were not yet experiencing frequent and severe 'OFF' periods, commented that they would consider taking Apomorphine. They were not asked which form but wanted to have the medication available to them as follows:

- improves quality of life
- because I want to keep going in the best possible way throughout my day without being a burden to anyone

- With Dr advice and supervision
- To prevent falls associated with “freezing”
- To aid in remaining mobile and functional. to get past "off periods" that may coincide with regular or important activities such as exercise classes (PWR, dance...) or important appointments.
- No reason to not try something which may be beneficial.
- Anything to give relief will be appreciated
- For prevention of debilitating symptoms and possible prevention of mental/psychological issues.
- At the stage I'm at right now, if am having more frequent off periods but I can still move. I'm better after I take my meds usually an hour. I have days where I feel I am off all day, as if I haven't even taken my meds. This makes me feel that my condition is worsening.
- It may be more successful than levodopa/carbidopa.
- because being able to move is preferable to not
- anything that would improve my quality of life
- I am willing to try anything that will give me added quality life.
- It would make life so much easier and freeing.
- Hopefully have fewer "OFF" periods.
- To ease the dependence of a full-time caregiver
- If it will help discomfort
- Anything that keeps me moving helps
- It is frightening to be immobile.
- Easier to lead a normal life
- I would hope that it gave some relief from the disease.
- I would try it providing my movement disorder dr. recommended it.
- Orally only, don't like needles.
- Helps keep life going.
- Rescue is a "good thing" of it makes me more functional and my movements are more predictable.
- Need more information and a discussion with my neurologist
- If and when the disease advances, I believe both of us would to anything within our means and power to make life more bearable and manageable.
- Improved temporary mobility
- I feel not moving isn't an option for me.
- For its quick response time
- Quality of life is too important not to have access to the best treatment available!
- To be active.
- If I need help, I will try what is available.
- So it works faster
- No other options at this point

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH CDR and pCODR programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.

No

2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review.

Company	Check Appropriate Dollar Range			
	\$0 to 5,000	\$5,001 to 10,000	\$10,001 to 50,000	In Excess of \$50,000
Sunovion	x			

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Jean Blake

Position: CEO

Patient Group: Parkinson Society BC

Date: March 12, 2019