Common Drug Review
Patient Group Input Submissions

ombitasvir/paritaprevir/ritonavir and dasabuvir (Holkira Pak) for Hepatitis C, chronic

Patient group input submissions were received from the following patient groups. Those with permission to post are included in this document.
Canadian Liver Foundation — permission granted to post.
Canadian Treatment Action Council — permission granted to post.
HepCBC Hepatitis C Education and Prevention Society — permission granted to post.
Pacific Hepatitis C Network — permission granted to post.

CADTH received patient group input for this review on or before December 22, 2014.

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

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

Canadian Liver Foundation

Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest		Ombitasvir/paritaprevir/ritonavir + dasabuvir for chronic hepatitis C
Name of the patient group		Canadian Liver Foundation
Name of the primary contact for this submission:		[redacted]
Position or title with patient group		[redacted]
Email		[redacted]
Telephone number(s)		[redacted]
Name of author (if different)		
Patient group's contact information:	Email	clf@liver.ca
	Telephone	416-491-3353
	Address	3100 Steeles Avenue East, Suite 801, Markham, ON L3R 8T3
	Website	www.liver.ca
Permission is granted to post this submission		Yes

1.1 Submitting Organization

When it was founded in 1969, the Canadian Liver Foundation (CLF) was the first organization in the world dedicated to supporting education and research into all forms of liver disease. Today, the CLF continues to be the only national organization committed to reducing the incidence and impact of liver disease for Canadians of all ages living with or at risk of liver disease. The CLF is the sole lay organization in Canada directing funds specifically for liver disease research and has invested more than $20 million in the scientific search for causes, preventative measures and potential treatments for liver disease, including viral hepatitis. As the largest community organization dedicated to liver disease, the CLF reaches over 250,000 Canadians through our public and professional education programs, patient support programs and other fundraising and outreach efforts. Over the past 40+ years, the CLF has invested more than $50 million in health education and prevention programs.

1.2 Conflict of Interest Declarations

a) We have the following declaration(s) of conflict of interest in respect of corporate members and joint working, sponsorship, or funding arrangements:

In the past, the Canadian Liver Foundation has received unrestricted educational grants and/or has worked on joint initiatives with Abbvie Corporation, Astellas Pharma Canada Inc., Boehringer Ingelheim (Canada) Inc., Gilead Sciences Canada Inc., Janssen Inc., Merck Canada Inc., Novartis Pharmaceuticals Canada Inc. and Hoffmann-La Roche Limited.

b) *We have the following declaration(s) of conflict of interest in respect of those playing a significant role in compiling this submission:*

Dr. Sherman, Chairperson of the Canadian Liver Foundation, has received honoraria from Abbvie Corporation, Boehringer Ingelheim (Canada) Inc., Merck Canada Inc., Janssen Inc., Hoffmann-La Roche Limited, Gilead Sciences Canada Inc., Vertex and Bristol Myers Squibb.

Section 2 — Condition and Current Therapy Information

2.1 Information Gathering

In order to gather a broad range of input, the CLF invited patients, caregivers and health care professionals from across Canada to fill out an online survey modelled on the CADTH questionnaire. The survey was made available via a link on the CLF's website and 22 responses were received. Patient experiences collected from previous hepatitis C surveys were also considered in the creation of this submission. Quotes from survey respondents are included in italics in various sections of this submission. Other information was provided by CLF Chairperson Dr. Morris Sherman.

2.2 Impact of Condition on Patients

Please note: *Quotes in italic text are excerpts from survey responses.*

The hepatitis C virus can lurk undetected for years, even decades, without causing any obvious symptoms. As a result, progressive liver damage develops over time and can lead to cirrhosis, liver cancer and liver failure. The majority of people living with hepatitis C in Canada today are adults in the 'baby boomer' age bracket who contracted the virus many years ago before it had been identified and before the effective screening and sterilization protocols were in place both in Canada and in countries around the world. These individuals are often diagnosed by 'accident' or after they start suffering from symptoms related to advanced liver disease. Once diagnosed however, patients report suffering from fear of their uncertain future.

"I found out four years ago that I had hepatitis C…it has affected my relationship in a huge way. My spouse was diagnosed at the same time I was and he passed away in January 2014 due to liver cancer caused by hep C. Financially I am not able to afford any kind of treatment because I have no coverage whatsoever." – hepatitis C patient

"I have had hep C for 38.5 years...I get very frustrated living like this. It would be wonderful to find out what it is to feel normal." – hepatitis C patient

"I have had hepatitis C for over 15 years. I now have cirrhosis from the hep C. I have no energy, my liver is always inflamed and I cannot sleep anymore. It's impacting my life in a negative way. I am caring for my daughter that suffers from schizophrenia and also taking care of my 2 year old grandchild. This disease is preventing me from caring for them and if I cannot care for them who else will? They only have me." – hepatitis C patient

Hepatitis C is viewed by both the general public and many health care professionals as a disease primarily of injection drug users and it is often linked with HIV. As a result, patients become victims of the stigma associated with hepatitis C and of the misconceptions and fears of those close to them. Many talk of being shunned by friends, family and co-workers thereby losing their social networks and support systems. They become isolated and depressed and often marriages and other personal relationships cannot survive the strain.

"Whenever I have told people about my condition, it was always met with criticism, fear and rejection. People seem to 'know all about it' when in fact they do not." – hepatitis C patient

While patients may live for years with few, if any, symptoms, once they progress to more advanced disease they find their lives unbearable due to physical symptoms which impact their ability to support themselves or even function on a daily basis. Patients report having to give up work and go on disability and struggling to complete basic household tasks due to constant fatigue and pain.

"*I've had hepatitis C since late 1980s and I was always ill with flu symptoms, tiredness, nausea, sensitivity to light and noise, depression, aches and physical pains. I had to quit my job and my relationship with my family went from up and down to critical. My mental health was also poor." – hepatitis C patient*

Chronic fatigue, mental confusion (when the liver can no longer clear the body of toxins), memory loss and mood swings mean patients who once had gainful employment or even their own businesses now live at or below the poverty line.

"unable to work = unable to have a quality life. I'm tired all the time and have brain fog. I have a limited to very low income. Very sore. Some days mental health is poor. Always stressed." – hepatitis C patient

Patients also report a litany of other debilitating symptoms including nausea, headaches, sensitivities to light and food, itchy skin, abdominal pain, severe joint and muscle pain, portal hypertension, sleeplessness, slowed reflexes, psoriasis, peripheral neuropathy, osteopenia, diarrhea and muscle wasting.

2.3 Patients' Experiences With Current Therapy

Please note: *Quotes in italic text are excerpts from survey responses*.

Based on their genotype and their insurance coverage and/or the reimbursement criteria in their province, patients have the option of dual therapy which combines pegylated interferon with ribavirin for 24 - 48 weeks or triple therapy which combines pegylated interferon, ribavirin and a direct-acting antiviral (boceprevir or telaprevir) for 12 -48 weeks. Unfortunately, patients who cannot tolerate interferon or cannot take it due to other health issues have not had a viable treatment option until recently.

Interferon-based therapies are very hard on patients and cause the most debilitating side effects. The fortunate ones report having fatigue and muscle aches but others are forced to deal with a range of severe side effects which are as bad, if not worse, than the disease itself. These side effects include anemia, sleep loss, depression, mood swings, joint pain, rashes, hearing loss, skin sores, hair loss, headaches, chills, nausea, severe fatigue and excessive weight loss.

"*I was totally disabled while on treatment. I spent 48 weeks on my couch throwing up, experiencing chronic fatigue and horrible joint pain. I developed severe anemia and should have been prescribed iron infusions by my hep C doctor at the time….participate in normal activities? NO WAY was I able to do that!! My partner left me and I had to leave our home with my children after treatment was over. It didn't work and it has ruined my life at this stage. It was hell*." *– hepatitis C patient*

"After 14 weeks the treatment had to be discontinued due to the fact that the interferon had made me suicidal. I had very bad anemia and took Eprex injections but I was unable to work or function in any

capacity. Anxiety, depression, insomnia, hallucination and much, much more. I was completely dependent upon my parents for everything." – hepatitis C patient

Hepatitis C treatment with dual therapy involves weekly injections of interferon and 6-8 ribavirin pills per day. Triple therapy involves the addition of even more pills – 9-12 per day for boceprevir or telaprevir – making the treatment regimen complicated for both patients and caregivers to manage especially when also coping with side effects and the additional medication required to treat them.

"To date I have undergone 4 treatments, none of which have been successful…the last treatment in 2013 I was on interferon, ribavirin and Victrelis. This 48-week treatment was particularly gruelling and I was anemic almost immediately. I suffered from lack of energy, broke out in numerous rashes and my blood, platelet and hemoglobin count was much lower than normal. I was taking approximately 20 pills a day and an injection of interferon once a week. Unfortunately, I was not able to sustain my SVR." – hepatitis C patient

"The latest treatment my husband just completed was Sovaldi with pegylated interferon. This treatment was easier physically for him but harder emotionally. He became very irritable, depressed and very easily agitated. This was stressful for me as a caregiver since I never knew what mood he would be in day to day." – caregiver caring for a hepatitis C patient

The newest generation of hepatitis C therapies are interferon-free but few patients have had access to them except through clinical trials or in special cases where private or employer insurance plans have covered the costs.

"I underwent treatment 8 years ago and was very ill with fatigue, nausea, hair loss and in the end it was not successful. In February 2014, I was treated with the combination of simeprevir and sofosbuvir and after 4 months my viral load was down to 0. I had to take 2 pills per day and my only symptom was a slight headache. I was fortunate because my employer paid the cost but now they no longer do."— hepatitis C patient

"Current treatments are effective only in 50-65% compared to the newer therapies being effective in 95%. It is time to get rid of all interferon based therapies. The latter are associated with poor tolerance, severe side effects compared to 12 week therapies that are easier to handle. Our patients with HCV expect same access to available care as patients with HIV." -- health care professional treating hepatitis C patients

2.4 Impact on Caregivers

Please note: *Quotes in italic text are excerpts from survey responses.*

The burden of care for patients with hepatitis C often falls to spouses, parents and adult children. The symptoms of hepatitis C and the side effects of current therapy can leave patients completely dependent and unable to contribute financially, physically, psychologically or emotionally to the household or the relationship. Caregivers report having to endure their loved one's mood swings, dietary problems, lack of energy and concentration while shouldering the responsibility for managing doctor's appointments, drug regimens and all household responsibilities. Due to a patient's inability to work, caregivers often become the sole income earner which adds even more stress. As the patient's symptoms and behaviour become more difficult to manage, families and marriages can break apart due to stress, financial difficulties and social isolation.

"I'm always on alert for symptoms of another variceal bleed. Plans change at the last minute due to nausea, bleeding gums at night cause severe nausea on numerous mornings. Exhaustion curtails a lot of everyday activities, ascites causes him to be short of breath. So many symptoms impact every day of our lives."— caregiver for hepatitis C patient

"My husband contracted hepatitis C from tainted blood in the 1980s. The medical team indicated at the outset of my husband's illness that this journey would be a rollercoaster and that it is 'as bad as it gets'. At times we have required full-time care with family taking shifts for day and night, using holiday time and days off work. Both of us had to leave work and as he has transitioned from disability to retirement, the financial impact has been significant. Our children fear losing their father and fear the unknown. With the symptoms of the disease, sleep is difficult, both for myself and my husband. As a result, fatigue is relentless." – caregiver for hepatitis C patient.

As already noted, hepatitis C treatment with currently available drug therapies is complex and comes with many side effects which often require additional medication. For physicians and nurses, the challenges of caring and achieving a cure for hepatitis C patients are enormous. Patients require a great deal of education and counselling about treatment options and if they decide to undergo treatment it can require additional tests, lab results, forms and appeal letters before patients can actually access the therapies they need.

"For all patients, treatment algorithms require a long commitment and the boceprevir and telaprevir patients experience more side effects. The current treatment is also contraindicated for patients with advanced disease due to the medication's side effect profile. Providing care for patients on treatment often requires a team approach with specialist, nurse specialist, family doctor and in some cases, addictions and mental health. As a result of the complex algorithms and need for a team involvement, many potential health care providers opt out of treating hepatitis C patients." – health care professional treating hepatitis C patients

"If patients are on pegylated interferon, the nursing hours of care can accumulate very quickly as some have low tolerance to adverse events or are very ill during therapy. Some patients have yet to recover from the adverse events even post therapy." – health care professional treating hepatitis C patients

Section 3 — Information about the Drug Being Reviewed

3.1 Information Gathering

As mentioned previously, the CLF invited patients, caregivers and health care professionals from across Canada to fill out an online survey modelled on the CADTH questionnaire. We received responses from several patients who had participated in clinical trials for ombitasvir/paritaprevir/ritonavir + dasabuvir. Quotes from survey respondents are included in italics in the sections below.

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

a) Based on no experience using the drug:

Ombitasvir/paritaprevir/ritonavir + dasabuvir, known as the Abbvie 3D combo, is an all-oral treatment that involves taking pills twice a day (3 pills in the morning and 1 in the evening for a total of 4 pills per day). This therapy is interferon-free but may be taken with or without ribavirin. The length of treatment is 12 weeks which is significantly shorter than older regimens and equivalent to Gilead's Harvoni. In clinical trials, the general sustained viral response (SVR) rate after 12 weeks was 95% and higher for a

broad cross-section of patients including those with and without cirrhosis and those who had undergone previous treatment but relapsed or did not respond.

Among the patients responding to our survey, 28% had not yet been treated for hepatitis C with the most common reasons being fear of the side effects associated with current treatment options and the inability to pay the costs of treatment. 35% had undergone previous treatment but were not able to achieve and maintain a sustained viral response (SVR). Both patients who had undergone therapy and those who had not were asked to rank the following factors with regard to a new treatment in order of importance to them:

- Ease of use
- Interferon-free
- Affordability
- Possible drug interactions
- Cure rate
- Side effects
- Length of treatment

The three factors ranked as the top three most important were cure rate, affordability and interferon-free.

Although the majority of survey respondents had not participated in clinical trials for ombitasvir/paritaprevir/ritonavir + dasabuvir, there was excitement regarding the potential of having an interferon-free option available as long as it was made financially accessible.

"If this treatment does not involve interferon and is safe for epileptics then I feel it should be approved."— hepatitis C patient

"It might offer an improvement but unless you can get it into the formulary in the next 6 months then it isn't much of an improvement in my thinking. I have stage 4 cirrhosis and don't know how long my liver will stay compensated. The more drug combos there are for treatment, the better it is. Maybe the price would go down because of the competition…when you don't have private insurance as a senior, you are sunk." – hepatitis C patient

b) Based on patients' experiences with the new drug as part of a clinical trial or through a manufacturer's compassionate supply:

All survey respondents who had undergone treatment with ombitasvir/paritaprevir/ritonavir + dasabuvir achieved SVR with few, if any, side effects. The side effects that were reported (mainly fatigue) were manageable especially when patients knew there was a very high success rate for the treatment.

"I did not feel any different until the last month when I became very fatigued but knowing there was a light at the end of the tunnel made it bearable as we knew at this point that it was working according to the test results. I would not say anything negative about the experiences with the drugs." – hepatitis C patient

"All positive. Virus is undetectable. No side effects and much easier than interferon treatment." – hepatitis C patient

"It had no specific effects on my condition. I was just more tired. I wasn't able to do many sports. No other effects to mention." – hepatitis C patient

Section 4 — Additional Information

The Abbvie 3D combo is the second therapy to offer an interferon-free option for hepatitis C patients. Although it requires a slightly more complex daily regimen than Gilead's ledipasvir/sofosbuvir (4 pills per day vs. 1 per day), it has a similar treatment length and impressive 90+ efficacy rates making it a welcome addition to the hepatitis C treatment arsenal.

Now that manufacturers have broken through the interferon barrier, hepatitis C treatment is getting shorter, simpler, significantly more tolerable and comes with cure rates that are approaching 100 per cent. The Abbvie 3D therapy allows patients to be treated who could not be treated previously due to adverse reactions to interferon or complicating health conditions (chronic anemia, autoimmune diseases, renal transplant patients and those with psychiatric conditions) which made interferon contraindicated. This significantly expands the pool of patients that can be treated thereby reducing unnecessary deaths from the complications of hepatitis C.

Hepatitis C is the most common indication for liver transplant but these patients still have the hepatitis C virus in their blood post-transplant. Immunosuppressive drugs allow the hepatitis C virus to more rapidly attack and damage the transplanted liver. In the past, interferon-based treatments were rarely tested in post-transplant patients and there was significant risk of drug interactions. The Abbvie 3D combo not only provides an effective therapy that can help patients avoid having a transplant but it has also been shown to be an effective treatment post-transplant thereby preventing re-infection of the transplanted liver leading to substantially improved outcomes.

With the ushering in of the long-awaited interferon-free era, hepatitis C treatment will become increasingly more personalized. No two patients are exactly alike in their disease stage, drug sensitivities, treatment history and co-existing health conditions – consequently no one drug therapy will fit the needs of all patients. The Abbvie 3D combo offers a new interferon-free option for both patients who have previously undergone treatment unsuccessfully as well as those that have never been treated. Whether this therapy is best for any one patient however, is up to his or her doctor to decide. For this therapy to make the greatest impact, it must be accessible to all hepatitis C patients and their treating physicians regardless of geographic location, financial status, treatment status or disease severity. The CLF believes that to effectively treat hepatitis C, the medical community must have access to the most effective treatments in order to best meet the needs of their patients. Physicians are the most equipped to decide what treatment option holds the greatest odds of a cure for their patients so there should be no restrictions on access except those dictated by patients' medical conditions.

For the sake of all hepatitis C patients, we call upon the CDR Committee to recommend reimbursement for ombitasvir/paritaprevir/ritonavir + dasabuvir (Abbvie 3D combo) for the treatment of hepatitis C without restriction.

Canadian Treatment Action Council

Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest		OMBITASVIR/PARITAPREVIR/RITONAVIR/DASABUVIR (AKA: 3D; Abbvie Corporation) Indication: Chronic hepatitis C Infection
Name of the patient group		Canadian Treatment Action Council
Name of the primary contact for this submission:		[redacted]
Position or title with patient group		[redacted]
Email		[redacted]
Telephone number(s)		[redacted]
Name of author (if different)		[redacted]
Patient group's contact information:	Email	[redacted]
	Telephone	416.410.6538
	Address	555 Richmond St. W, Suite 612. Toronto, ON
	Website	www.ctac.ca
Permission is granted to post this submission		Yes

1.1 Submitting Organization

The Canadian Treatment Action Council (CTAC) is Canada's national non-governmental organization addressing access to treatment, care and support for people living with HIV and hepatitis C. CTAC's organizational goals are to meaningfully engage community members, service providers, policymakers and other relevant stakeholders to identify, develop, and implement policy and program solutions. CTAC understands that treatment access should be considered in its holistic form, encompassing the range of treatment, care and support needs required to reach the most successful treatment experience possible for people living with HIV and/or viral hepatitis co-infection.

Full CTAC membership is reserved for: a) individual people living with HIV (including HCV co-infection); b) organizations, groups or projects with a substantial HIV mandate (including HCV co-infection). Associate CTAC membership is open to any individual, organization, group or project that supports CTAC's mandate and objectives.

1.2 Conflict of Interest Declarations

a) We have the following declaration(s) of conflict of interest in respect of corporate members and joint working, sponsorship, or funding arrangements:

CTAC received unrestricted organizational and educational grants from the following organizations in the 2013-2014 fiscal year: Abbott/Abbvie, Boehringer Ingelheim, Gilead Sciences, Janssen, and ViiV Healthcare.

Section 2 — Condition and Current Therapy Information

2.1 Information Gathering

On Wednesday December 10th, 2014, CTAC delivered a national consultation webinar that provided an overview of the Common Drug Review (CDR) patient input process as well as key findings from the 3D (OMBITASVIR,/PARITAPREVIR/RITONAVIR/DASABUVIR)clinical trials (*SAPPHIRE, PEARL, and TURQUOISE)*. This consultation webinar was presented by Adam Cook, Policy Researcher at CTAC. CTAC members, organizational partners, and interested stakeholders were invited to participate.

15 people attended the webinar. A link to both the consultation webinar video and online feedback survey were provided to webinar attendees. This link was made available through CTAC's social media outlets (ctac.ca, YouTube, facebook, and Twitter) as well as a direct link in the webinar itself. The survey was live and online from December 10th to December 22nd 2014. CTAC has compiled data from the feedback survey, all respondents of which had viewed the webinar.

8 attendees completed the survey in full. 4 identified as female and 4 identified as male. 3 declared residency in Ontario and 2 were from British Columbia. Manitoba, Quebec, and New Brunswick were each represented by 1 participant each. 5 were hepatitis C (HCV) negative and 4acted as primary caregivers, while 2 respondents are presently undergoing treatment with Harvoni. 1 respondent reported being uncertain of their HCV status. No respondent had treatment experience with 3D or any of its components. Some patients declared a history, experience, or knowledge of Ribavirin (which can be included with 3D). Accordingly, data from CTAC's previous patient input submission report regarding other HCV medications has served to complement this report.

2.2 Impact of Condition on Patients

Hepatitis C is a serious and life-threatening virus that can impair liver functions, lead to cirrhosis, and is considered the leading cause of hepatocelluar carcinoma. Most recent data from Health Canada suggests that as many as 300,000 Canadians are presently infected with HCV, with as many as 70% of those unaware of their infection and Health Canada data further suggests there are as many as 8,000 new cases annually.

A hearty and unique virus, HCV is transmitted through blood-to-blood contact. While approximately 20% of people infected will pass the virus naturally, approximately 80% will not and the presence of the virus will develop into a chronic HCV infection. Asymptomatic for much of its cycle, HCV infection slowly causes significant liver damage, contributing to fibrosis, cirrhosis, and even liver cancer. Past strategies for treatment suggested a wait-and-see approach to determine if the virus was passed naturally, or to confirm that liver damage progression (fibrosis) was fast and severe enough to demand treatment (metavir score > F2). New evidence, however, suggests that more than 60% of all HCV sufferers will sustain fibrosis and incur liver damage necessitating quick and effective treatment. Left untreated for long periods of time, chronic HCV can lead to decompensated liver cirrhosis or hepatocellular carcinoma, the leading causes of liver transplantation in Canada. Consider the impact of this strategy to special populations in Canada, as one caregiver respondent noted, "As an example, an individual I am working with had taken great strides to achieve stability in her life with the hopes of getting on hepatitis C treatment. She is in supportive housing, and had stopped her substance use. After visiting the hepatitis C clinic and being told she was not eligible because her liver was too healthy, she questioned why she had put all that effort into maintaining sobriety and began her substance use again, putting her housing at risk. She had all the pieces lined up, and would have been in a good spot to initiate

treatment, however this news has sent her on a path that may indeed lead to liver damage, but also a more chaotic situation that would not be conducive to an easy treatment for her."

HCV's often-asymptomatic nature is considered an important variable in its prevalence and spread. Many people live unknowingly with this infection and quietly suffer significant damage. As one HCV sufferer responding to CTAC survey reported, "*I was unaware that I had hepatitis C until 2009, some 30 years after contracting it. It is my understanding that there are ongoing symptoms… but all would have been considered a normal part of my adult life as I was a teenager when I was infected.*" Most people seek diagnosis and treatment when experiencing symptoms of fibrosis, cirrhosis, or severe liver damage, but these symptoms are the result of the infection already being possibly decades old. The respondent continued, "*I was diagnosed with F3 liver damage, so it is reasonable to say that hepatitis C treatment saved my life.*" HCV sufferers do sometimes report impact of their infection or liver damage early, however. Many respondents echoed the remarks of one 52 year-old female from British Columbia, who said her symptoms included "Chronic fatigue, some short-term memory concerns." Both of these symptoms significantly impacted the sufferer's ability to maintain employment or social activities.

Also of interest to CTAC, a significant number of people living with HIV infection are co-infected with HCV. Approximately 13,000 Canadians are co-infected with HIV and HCV. Extrapolating from existing Health Canada data, we can postulate that approximately 20% of all people living HIV would be infected with HCV, and approximately 5% of all people living with HCV would be infected with HIV. Not only do people living with co-infection suffer under increased stigma and differing treatment needs, both viruses exacerbate the progression of the other, and many of their respective medications impact one another. For example, patients using HIV protease inhibitor tipranavir-ritonavir must be careful of possible drug interactions with sofosbuvir-based HCV treatments.

While the Public Health Agency of Canada has suggested that a significant proportion of those infected by HCV are receiving treatment, IMS MIDAS market data publicly reports HCV treatment sales, which suggest that approximately only 10,000 of the suspected 250,000+ are currently being treated. While HCV treatments become more effective and more tolerable, the relative lack of sufferers being treated is a conspicuous and jarring discrepancy.

2.3 Patients' Experiences With Current Therapy

Three respondents to our feedback survey had either treatment-experience or caregiver/service-provision experience with the previous standard of care (daily doses of ribavirin, weekly injections of pegylated interferon, for a treatment regimen not less than 48 weeks). This respondent's experience was echoed and corroborated by other respondents when they listed their concerns regarding side effects. Specifically, respondents were concerned that Ribavirin might be needed for HCV sufferers of Genotype 1A, but not for Genotype 1B. 3 patients noted that they were discouraged from seeking treatment "…because of side effects of Ribavirin and Interferon poisons."

Respondents identify the most persistent treatment side effects of any HCV treatment as being, "fatigue Insomnia Constant (daily) headaches Weight loss Suppressed appetite Hair loss Some cognitive difficulties such as word recall Depression Irritability & easy to anger Short term memory loss Joint pain." Fortunately, the treatment landscape continues its robust and dynamic course and patient groups are extremely optimistic about the safety and efficacy of new Direct-Acting Antivirals (DAAs) while being very concerned about the public availability and accessibility of the same.

New treatments such as 3D promise to shorten treatment duration, increase efficacy and tolerance. It is worth noting, however, that at present, even newer medications are prescribed with pegylated interferon and/or ribavirin depending on past treatment experience, liver damage, or response-guided therapy. The persistence of out-dated therapies is itself impactful, as one support worker commented, "For those who do get the treatment, dealing with the side-effects can be extremely difficult, in particular, the depression. The injections associated with the interferon can also be a triggering factor for many people as well as a source of anxiety, given that many individuals being treated for hepatitis C have a history of injection drug use." This was echoed by many caregivers, who regularly noted the social impacts of HCV treatment, including "heavy pill burden, multiple side effects, dealing with needle phobia, or triggers with regard to past lifestyle."

As one caretaker respondent reported, "Living with someone who is taking interferon & ribavirin can be extremely challenging." Another respondent, themselves treatment-experienced, noted the impact treatment had not only on their well-being, but their relationships, noting that "Interferon is a very taxing, difficult drug. We need to eliminate it as soon as possible… I suffered through virtually a whole year of treatment on the interferon regimen and it was brutal." Second generation therapies involving new DAAs such as boceprevir and telaprevir, increased SVR and often reduced treatment durations. However, as per the ADVANCE and SPRINT-2 studies, as well as the 2012 black-box warning regarding telaprevir's association with adverse dermatological events and boceprevir's association with severe anemia, the HCV community is seeking a well-tolerated treatment.

While no respondents were treatment experienced with 3D or its components, there were some patients experienced with newer and current-generation HCV therapies, and all respondents expressed a positive outlook regarding the trials our webinar discussed (*PEARL, SAPPHIRE, and TURQUOISE*). Specifically in the reports of few serious adverse events, minimal drug drug interactions, and a comprehensive safety profile. Further, many respondents chose to contextualize this development as indicative of an industry-wide pharmaceutical response to the community call for more tolerable cures for HCV.

2.4 Impact on Caregivers

The majority of our survey respondents were caregivers or otherwise operated in the support network of one or more people living with HCV and/or undergoing treatment. They commonly identified the following as recurrent symptoms of both HCV and its contemporary treatments: fatigue, nausea, depression, anorexia/weight loss, possible treatment failure, and anxiety associated with side effects and the prospect of treatment failure. Respondents noted that while there were several side effects and a large incident rate of them associated with the 3D treatment, they were generally considered mild and tolerable.

One nurse from British Columbia suggested that "one of the largest challenges for individuals in British Columbia is accessing treatment to begin with. Criteria calls for evidence of liver damage before treatment can be initiated, and it is frustrating for individuals, especially those who are experiencing multiple barriers, to be told that they are not sick enough to start treatment." This places immense burden on caregivers to help navigate a complex and dynamic treatment landscape as well as call upon them a quick and coherent uptake of changing treatment requisites and standards. As one other service provider noted, both patients and caretakers can be frustrated by this, stating that patients were "not taken seriously until their health is seriously compromised." One caretaker listed some of their more significant challenges as "being able to provide them with the most up-dated information on treatment regimes, however, then not being able to provide them with the ability to access these newer agents. -

keeping them engaged while they wait -helping them understand their degree of disease & inability to predict disease progression/changes." Almost all respondents to the December 10th survey noted that inconsistent access to the same medication across provinces was a very serious obstacle in need of immediate reform.

This development of medical science knowledge is extremely important in the daily work of the caretaker, but only complement the more traditional task of aiding patients' experience of stigma and social isolation, as one noted, "There are many challenges in supporting people with hepatitis C…social issues including stigma due to ignorance of transmission risks as well as assumptions made about individuals' lifestyles. This stigma often comes from doctors and other medical staff as well as support workers in community organisations, and can be an unexpected barrier to receiving service." Even these obstacles only serve to further exacerbate other existing challenges, such as staffing ("we don't have enough personnel to take care of these people,") or funding ("not being able to get funding for certain treatments is a challenge,").

Section 3 — Information about the Drug Being Reviewed

3.1 Information Gathering

The information in this section was gathered in the same means as described in section 2.1.

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

Most respondents were quick to identify 3D as an effective medication that is representative of the present movement in HCV medication toward DAAs and away from older therapies (specifically pegylated interferon and Ribavirin). Many patients noted their apprehension about Ribavirin's inclusion into a 3D regimen for genotype 1A patients (as suggested by the *PEARL* and *SAPPHIRE* trial data). Genotype 1B patients were considered to be better candidates for this treatment, with one patient noting "given the fact that I've seen SVR rates to 100% (and I have) got G1b, my life will be different knowing that I've been cured from Hep C." Patients repeatedly suggested that 3D "without the ribavirin" was a preferable treatment regimen. However, patients also noted where 3D differed from other new generation medications, specifically that 3D is not a fixed-dose-combination of one-pill-once-a-day. The 3D pill burden of 4 pills over two dosing periods per day, combined with food, was noted as a potential inconvenience to patients and a possible negative influence on adherence.

Respondents continue to recognize immediate treatment as preferable to prolonged screening or waiting to achieve a certain level of fibrosis before qualifying for treatment. As one HCV sufferer noted, "were I to obtain an SVR on 3D, my quality of life would improve immeasurably, physically and mentally. And potential long-term costs to healthcare system would of course be reduced ... and likely lower than costs of medication." As one frustrated patient commented, "My hepatologist, whom I last saw in November and next see in May 2015, is awaiting approval of public-funding (Ontario Drug Benefit) for one of the newer medications--Harvoni. (I am, btw, coinfected with HIV. Was diagnosed with both in April 2014.)"

Several respondents noted that side effects seemed "much less severe," but that they tended to occur often. Indeed, 3D trial data suggests as many as 90% of all 2700 patients studied across *PEARL, TURQUOISE, and SAPPHIRE* suffered at least one adverse event, but that almost all incidences were considered extremely mild and tolerable. Further, many of the more serious adverse events seemed to be attributable to Ribavirin and its dermatological impacts.

Patients were reticent to recommend 3D as a treatment regimen for everyone, preferring that this medication be recommended to those with genotype 1B and/or treatment-experienced patients with partial, null, or negative responses to pegylated interferon and/or ribavirin. 30% of respondents said that 3D was not an ideal treatment option for them at all, preferring a sofosbuvir-based regimen such as Sovaldi or Harvoni.

Section 4 — Additional Information

CTAC continues to acknowledge and appreciate CDEC suggestions as to how to improve patient input submissions. Most recently, in response to patient input provided for Tivicay, CDEC requested more direct quotes from participants. CTAC has done its best to respond to this very agreeable request. However, due to poor response numbers, few participants, and incomplete trial data, this submission is supported from past patient input surveys (but only those describing the HCV condition or HCV DAA medication).

Accordingly, CTAC would like to include the patient experiences shared by participants on social media, including online patient community forums, where several individuals share and discuss their experiences with treatments that are not market-available in Canada. Many of these forums are based in the United States and are therefore very often experienced with the treatment in question. For example, no respondent to the 3D survey was fully experienced with that treatment (experiencing a full course). CTAC would like greater clarification as to whether it can include these experiences in our submissions and/or direct these participants to our webinars and surveys.
Clinical trial data presently comes from international sources; the human liver is not region-specific; CDEC needs treatment-experienced patient input; allowing us access to these patient sources *will* increase our number of respondents exponentially. This is CTAC's fourth such request for clarification, with past requests being made during CTAC Patient Input submissions on Prezcobix (HIV medication), Triumeq (HIV mediation) and Harvoni (ledipasvir/sofosbuvir, a HCV medication.

HepCBC Hepatitis C Education and Prevention Society

Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest		Ombitasvir / paritaprevir / ritonavir and dasabuvir
Name of the patient group		HepCBC Hepatitis C Education and Prevention Society
Name of the primary contact for this submission:		[redacted]
Position or title with patient group		[redacted]
Email		[redacted]
Telephone number(s)		[redacted]
Name of author (if different)		
Patient group's contact information:	Email	info@hepcbc.ca
	Telephone	250-595-3892
	Address	#20-1139 Yates St. Victoria BC V8V 3N2
	Website	www.hepcbc.ca
Permission is granted to post this submission		Yes

1.1 Submitting Organization

HepCBC is a registered non-profit society run by and for people infected with, or affected by, hepatitis C. Our mission is to provide education, prevention and support to those living with HCV. Our only office is in Victoria, BC. Run primarily by volunteers living with HCV since 1996, we have activities and groups in Nanaimo, Vancouver, and Surrey, BC, and travel throughout the province doing outreach. Our representatives attend provincial and federal-level conferences and we give information and support world-wide through our website. We publish a monthly bulletin, the *hepc.bull*. We provide peer support groups, anti-stigma activities and prevention education to the general public, and general hepatitis information especially to baby-boomer, aboriginal and immigrant communities. We encourage testing among at-risk groups -- including those who are no longer at risk but may have contracted hepatitis C decades ago. We work alongside local HIV/AIDS organizations in support of co-infected people.

1.2 Conflict of Interest Declarations

a) We have the following declaration(s) of conflict of interest in respect of corporate members and joint working, sponsorship, or funding arrangements:

HepCBC Hepatitis C Education & Prevention Society has received funding for hepatitis C-oriented projects such as publishing educational materials, organizing educational forums, attending and presenting at educational conferences, advertising in newspapers (events and hepatitis C patient awareness), and holding awareness activities from the following pharmaceutical companies over the last four years: Merck Pharmaceuticals, Hoffman-LaRoche, Vertex Pharmaceuticals, Gilead Sciences, Janssen Pharmaceuticals, Bristol Myers Squibb, Boerhinger-Ingelheim, and AbbVie.

b) We have the following declaration(s) of conflict of interest in respect of those playing a significant role in compiling this submission:
The author of this report and two of those who contributed individual patient submissions have attended several educational conferences and meetings for which registration and travel expenses were funded by the pharmaceutical companies listed above.

Section 2 — Condition and Current Therapy Information

2.1 Information Gathering

This report was developed using data from:

(1) A patient survey advertised through our website and our email list. In total there were submissions by twelve people living with hepatitis C (5 male, 7 female, with mean age 59 yrs, range 35 – 68 yrs,) Genotypes 1 through 4, and all ranges of liver damage (F0 through advanced cirrhosis) were represented. Eleven were from British Columbia and one was from Manitoba. One submitter had gone through a trial of this AbbVie therapy.

(2) In addition, three of the above are volunteers who have actively manned HCV+ phone and email support systems or several years, and have broad knowledge of patient concerns and experiences.

(3) We've included aggregate input from one of our monthly support groups as well.

2.2 Impact of Condition on Patients

In the last few years HepCBC has done 11 hepatitis C drug submissions for both CADTH and BC PharmaCare, and have answered Questions 2.2, 2.3, and 2.4 as many times. Our respondents are, quite frankly, getting tired of answering the same questions so many times. And as a patient group, so are we. To avoid re-inventing the wheel we are shortening our responses and suggest you review our more detailed answers in these three recent submissions, made in July, August, and October of this year:

http://hepcbc.ca/wp-content/uploads/2014/10/20141008_ledipasvir_sofosbuvir_HARVONI_CADTH_redact.pdf

http://hepcbc.ca/wp-content/uploads/2014/10/20140826_HCV_GT1_TherapeuticReview_CADTH.pdf

http://hepcbc.ca/wp-content/uploads/2014/10/20140711_sofosbuvir_SOVALDI_Pharmacare_redact.pdf

What we are struck by at this particular time, both from the individual submissions we received and from what we are hearing on a daily basis from our clients, most of whom are in the "baby-boomer" cohort, is a growing sense of desperation and despair. They are like drowning men who can see the shore, but they're swimming against the tide, and the harder they swim, the further the shore seems to be receding into the distance. They know life-saving drugs are out there if they can just hold on long enough, to keep the liver cancer and end-stage-liver-disease at bay until the drugs are covered by their provincial drug plans. They know their time is almost over -- unless they can get treated in time. They are depressed, angry, and yet - sometimes - hopeful.

The debilitating stigma is still there, but it seems HCV+ baby-boomers are generally becoming more willing to be open about their status. The promise of the new drugs has meant hepatitis C has been covered more often in the media, and the public is starting to hear the voices and see photos of people fighting the disease who are clearly not IV drug users; stereotypes which fed the stigma are being

questioned. This makes it easier for people to 'come out of the closet' and seek testing and treatment. Patients and their families are at the end of their ropes, ready to do whatever it takes to get onto treatment, even if that involves exposing themselves to possible stigma at work, or amongst friends and family. Samples of their voices follow:

(F, 56, with cirrhosis, treatment-experienced and unable to take interferon): "I am so tired and weak. I feel like I am running out of time and I am frantically trying to build my legacy, but I am so tired and at times cannot think at all. It feels like there is a brick inside of my head and I am not quite here, or anywhere for that matter. I desperately need treatment but the system takes so long. My liver is badly scarred and I know it is a slowly-progressing disease, but how long can I go on feeling like I am half dead, and sad because it is too much effort to go anywhere or do anything. I do not have energy to look after myself properly, so often my husband helps. He goes to karaoke alone now because I am too sick. I cry because I do not want my life to end this way. That is how my life is right now. If I don't get treatment soon I am not going to be here for much longer."

(F, 66, recently cured through a trial): "Some of my friends are starting to develop ascites and esophageal varices, symptoms of advanced cirrhosis or even end-stage liver disease. They have heard that the new drugs probably won't be available to people with such advanced disease, so they are keeping their symptoms to themselves. They don't want these diagnoses to go onto their medical record for fear it will prevent them from eventually getting cured. This is risky; without treatment such as paracentesis or esophageal banding, they could die."

At the same time a high percentage of HCV+ people are asymptomatic while the disease does its terrible damage to their bodies. Many of them do not even know they have the disease until they receive the terrible news that they have liver cancer, or need a transplant. These people need to be tested, found, and treated as soon as possible. They are in as much danger of morbidity and mortality as those who are symptomatic.

2.3 Patients' Experiences With Current Therapy

See links in Section 2.1. Through the Internet and support groups, patients are very knowledgeable about the side-effects of interferon, ribavirin, telaprevir, and boceprevir. While recognizing and appreciating their merits, they want to avoid all of these drugs as much as possible. While simeprevir is now publicly funded in BC and patients know it has fewer side-effects than the other protease inhibitors, few patients are taking it simply because it is still paired with interferon and ribavirin.

The concept "current therapy" has become far more diversified over the last year, with patients getting treated quite differently according to genotype, their stage of liver disease, and whether they have private insurance or not. A large percentage of patients we come in contact with are being "warehoused", either by doctors or by themselves, simply rejecting the idea of taking current therapies, knowing vastly superior drugs are so close to being approved. Some of their voices:

(M, 58): "I was treatment naïve and was very concerned about the treatments available because I had talked to a few people about the types of drugs provided and had been on the internet reviewing my options. The standard treatment at the time was a combination of interferon and Ribavirin with a success rate of 40% and later with the addition of either boceprevir or telaprevir that was increased to 50-70%. The combo of interferon and either boceprevir or telaprevir was very hard on them and complications range from sickness to extreme rashes and for lack of a better term I will call it fire butt.

My (worst) concern was what I had read about the lasting effects of the interferon. So I stalled until I became very ill and there was no more waiting."

(M, 60):"15 years ago, my wife went on interferon+ribavirin treatment and is now Hep C free. She is still trying to recover from the side effects from this treatment. There is no follow up for her, the doctors don't know enough and don't care about the side effects you are left with after the treatment. She went through hell while on this drug."

(F, 67): "I had treatment with the SOC drugs almost 4 years ago but had to stop after 7 weeks because the interferon was damaging my eyesight. I am not on any current treatments because of the interferon that is included in them. I use herbs to help with my management of Hep C."

(F, 56): "I am treatment experienced, interferon/ribavirin, 2008 – 2009. SVR at 3rd month during treatment. I relapsed one month following treatment. Side effects were mainly anemia. I am (still) awaiting affordable treatment."

(F, 67): I am treatment-experienced, with interferon + ribavirin, 2010-2011. The treatment almost killed me and it didn't work. Later I was cured with an interferon-free, ribavirin-free BMS trial."

(M, 65): "My only experience with "current therapy" was with a Merck interferon-free trial, but it did include ribavirin. I had a major episode of atrial fibrillation during the trial and I was taken off the trial. I am now hoping to get treated with a medication which does not interfere with my heart medications."

2.4 Impact on Caregivers

See links in Section 2.1. The main impacts we see on caregivers are poverty, a sense of isolation, and uncertainty about the future. Poverty is due to their untreated HCV+ partner's/parent's/child's inability to lend support to the family, followed by the increased medical expenses as their condition deteriorates. Caregivers often feel isolated due to stigma against those with hepatitis C and ignorance about how it is spread. They also spend much of their time looking after their HCV+ family member, or doing the chores the family member no longer can do, which cuts down on the time they used to have to socialize. There is little way to plan for a future when you don't know how long your partner will be able to live independently, or to live at all; uncertain if your partner will be able to benefit from the new HCV drugs, or if he or she will develop liver cancer or need a liver transplant before they are accessible. Some voices:

(M, 60): "My wife is now my caregiver, trying to keep me on a balanced diet to keep my liver from failing with no money for proper food."

(M, 65): "The new therapies are so gentle compared to interferon-containing regimes. I do not see AbbVie's 3D as having any impact on caregivers at all (during the patient's time of treatment)."

Section 3 — Information about the Drug Being Reviewed

3.1 Information Gathering

Same as previous Section 2.1

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

a) Based on no experience using the drug:

Patients tend not to differentiate the various new drugs from one another since they're all so much better than the existing ones, and share the characteristics of being mostly tested on genotype 1, far greater efficacy, a far shorter treatment time, no interferon or needles, very few side-effects, and an extremely high price-tag. They really like the fact AbbVie's 3D will give some competition to Gilead's Harvoni, anticipating that the price of a cure will go down. The downside is that the AbbVie drugs often involve ribavirin, and that they consist of four pills a day rather than one. The number of pills per day is of little consequence; the ribavirin is more problematic though the shorter treatment time means that the side-effects will not be as serious over time. Patient advocates are very excited at the prospect of actually being able to eradicate the disease entirely from the world, though the price will have to be greatly reduced. Patient voices:

(F, 67): "After being cured, a person could lead a relatively "normal" life again. The positive side would be freedom from the damage the virus does to the liver and a possibility of the liver regenerating itself in 8 years or so."

(M, 65): "I have no direct experience of the drugs being reviewed; however, I do work in hepatitis C patient education and everything I have read is really exciting and promising. I would really like to see the AbbVie combo approved as soon as possible and hopefully covered very quickly by provincial Pharmacare plans. I am hoping that the 3D will help those who are interferon intolerant and who thus cannot take the Sovaldi and Galexos combos. As well, this will be so much better than the horrors of telaprevir. I would be willing to take the AbbVie combo at the drop of a hat. I really think it will cure me and that I won't have any side effects at all."

b) Based on patients' experiences with the new drug as part of a clinical trial or through a manufacturer's compassionate supply:

Only one respondent had direct experience with AbbVie's 3D therapy, and he was extremely enthusiastic about it even though he had to take ribavirin with it. 100% of the people he knew on this trial achieved SVR.

(M, 58): "I had cirrhosis (Fibroscan 35 kPa), and was in an AbbVie 3D clinical trial called Turquoise II with ribavirin. I took these drugs for 24 weeks and there was shortness of breath. The ribavirin make it hard to sleep and focus at times, but other than that the trial was a piece of cake. I did not experience any of these (side-effects) from the AbbVie drugs, but the ribavirin does make you anxious at time right after taking it and sleep was a problem at times. I understand that ribavirin may not be used for most treatments. So without that, the patient will have an easy time on this combination. What people need to look at is the proven success rate of this combo versus the average success rate of the old treatment, and then factor in the lasting damage the interferon can have on your system, and using the AbbVie drug is a no brainer."

"A lot of people who have done the old treatment have had to repeat it, at great risk to their health and a huge cost to the medical system. In contrast, this (AbbVie) treatment cures almost everyone. In the trial I was in there was ZERO relapses. I have been free of the virus since November, 2013 and my last Fibro Scan reading has now dropped from 35 down to 20 kPa." (His cirrhosis has reversed and is almost gone; the beginning of cirrhosis is approximately 17 kPa).

Section 4 — Additional Information

(F, 67): "Patients are really concerned that the prices of these drugs will be so high that CADTH (and/or provincial pharmacare plans) will either not approve the treatment at all, or will make treatment qualification criteria very high, or will decide that treatment-naïve people should first take and subsequently fail the current standard of care (with both interferon and ribavirin) before they're allowed to take AbbVie 3D therapy. There are no other diseases in which a patient has to prove significant damage to his/her bodily organs in order to get treated. And there are no others in which a patient has to take such clearly inferior - even harmful – treatments simply because of price."

(M, 58): "If you want to help Canadian citizens get rid of Hep C for good, the choice is easy. I am reading stories daily now with people on the new treatments clearing themselves of this disease. But I also hear the cries from those that are waiting to get cured; some are in the position that I was in and may not have long to wait, but either can't get access to the drugs or can't afford the cost. If I explained to you how lucky I feel and how much my health has returned would that convince you to make the right decision? I am counting on you to do the right thing and help these people out because they need and deserve your help."

(F, 35): "While I understand why treatment for genotype 1 is most important in North America, those of us with genotypes 2, 3, 4, and 6 are dying, too, and hope that once a treatment gets approved for genotype 1 that any additional applications for that drug to cover additional genotypes will get fast-tracked."

(M, 60): "Why do years of research on a drug to cure a disease that the average worker can't afford?"

Pacific Hepatitis C Network

Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest		Ombitasvir / paritaprevir / ritonavir and dasabuvir
Name of the patient group		Pacific Hepatitis C Network
Name of the primary contact for this submission:		[redacted]
Position or title with patient group		[redacted]
Email		[redacted]
Telephone number(s)		[redacted]
Name of author (if different)		
Patient group's contact information:	Email	info@pacifichepc.org
	Telephone	604 886 9539
	Address	PO Box 192, Roberts Creek BC, V0N 2W0
	Website	www.pacifichepc.org
Permission is granted to post this submission		Yes

1.1 Submitting Organization

Pacific Hepatitis C Network's mission is to provide a means for sharing information and coordinating mutual support and action that will strengthen the capacity of individuals and organizations throughout British Columbia to prevent new HCV infections and to improve the health and treatment outcomes of people already living with HCV. Our members include people living with chronic hepatitis C, people who are HCV antibody positive, people at-risk for hepatitis C infection, and anyone interested or concerned about hepatitis C (service providers, health care providers, family, friends).

1.2 Conflict of Interest Declarations

a) We have the following declaration(s) of conflict of interest in respect of corporate members and joint working, sponsorship, or funding arrangements:

PHCN recently received one-time project grants from AbbVie Corporation, Bristol-Myers Squibb, Gilead Science, and Janssen Pharmaceuticals for the "Hepatitis C Treatment Information Project", an online hep C treatment information resource.

b) We have the following declaration(s) of conflict of interest in respect of those playing a significant role in compiling this submission:

The Pacific Hepatitis C Network declares no conflicts of interest in the preparation of this submission.

Section 2 — Condition and Current Therapy Information

2.1 Information Gathering

Information was gathered through an online survey that was made available from November 11th to December 15th, 2014. The survey stated that all submissions were anonymous and asked all of the questions that this patient input submission suggested, including a few general questions about the patient's health and well-being. Invitations to complete the survey were sent out by word of mouth, through our mailing lists, and by posting the survey's information on our website, Facebook page, and Tweeter account. We received 15 completed surveys and 3 uncompleted surveys. Thirteen surveys were completed by those who have or have had their hep C cured; two were completed by caregivers of those with hep C.

2.2 Impact of Condition on Patients

Hepatitis C (HCV) is a serious and potentially life-threatening liver disease that may lead to liver fibrosis, cirrhosis, cancer, liver failure, and even death. However, in many cases those life-threatening HCV developments are only fought after years of worrying over the future and dealing with other HCV symptoms, which may not lead to hospital stays or liver transplants, but, in their own ways, are far more debilitating.

Hepatitis C symptoms are numerous and affect patients differently. Symptoms, reported by our members, range from "have not had hep C symptoms" to being "seriously affected by nausea, vertigo, brain fog, itchy skin (especially thighs), arthritic knees and fingers and other HCV-related symptoms". Furthermore, when asked if their HCV symptoms affected their daily living, someone replied: "I eat well and run and exercise and usually try to ignore the pain/discomfort."

Another wrote: "I think I should have more energy than I do. I work at home as a freelance writer. My output seems to be declining, partly because of cognitive decline, difficulty remaining focussed, holding it all in my head, etc. And I find myself unable to manage much beyond my writing (in terms of socializing or home/garden projects)."

What the person may be experiencing is "brain fog", a common symptom of hep C. The experience of "brain fog" includes difficulty thinking, remembering, understanding, and focusing. "Brain fog" can be very disabling, impacting negatively on a person's ability to function at home and in the workplace.

People with "brain fog" describe having to take manual jobs requiring less cognitive function, even though this can pose other challenges if that work requires physical labour of any kind as fatigue is sometimes also a symptom of hepatitis C. Comments received about how HCV impacts quality of life were: "It all depends on the amount of fatigue I feel, if bad it is a stay at home day and I was at one time a active person", as well as, "work - i am too tired for the physical demands of my work", and "I am extremely exhausted most of the time."

The above quote not only touches on "brain fog", but it also expresses the uncertainty, helplessness, and worry, that often surrounds hep C. HCV doesn't only take a physical toll on patients, but takes psychological and emotional tolls on patients and their support networks as well. This is due, in part, to that fact that it is a disease that one often needs to wait and get sicker before receiving treatment, but it is also a disease that people die of before being able to find a treatment able to cure their hep C. One member wrote: "To be rid of something that has the potential to destroy one's body would have profound physical and psychological benefits."

Lastly, these physical and psychological tolls are often worsened by the social isolation, which comes from suffering fatigue, other hep C symptoms, and from the stigma that comes as a result of having hepatitis C, a communicable disease. We know that those who are socially isolated have poorer health outcomes, do not access care as quickly or as often as they could, and can have more hospitalizations due to acute illness.

2.3 Patients' Experiences With Current Therapy

The current standard of care is pegylated interferon with ribavirin alone or with either telaprevir or boceprevir (for HCV G1). Patients' experiences with this treatment range from being able to continue work while on treatment to experiencing such severe side effects that they virtually cannot function and need help with basic daily living and childcare. However, experiencing few or no side effects wasn't an experience described by anyone who completed our survey.

What was mainly described, by those who completed our survey, was a treatment that didn't have very good success in 'curing' their hepatitis C and that included side effects that made it difficult to complete. One person commented that their "severe anemia had to be treated with several blood transfusions when drugs would have worked but they were too costly and not covered by pharmacare", and another said, "now I feel worse then before Treatment without success". These are not uncommon experiences.

Additionally, some patients find the pill burden of taking multiple medications several times daily both physically and mentally challenging. Some treatments involve patients waking early, staying up late, or carrying medications and food with them (risking social stigma or embarrassing explanations), and cause anxiety around missing a dose. Organizing their daily schedule around medication times can be overwhelming.

2.4 Impact on Caregivers

The worry and concern over health and well-being that comes with not feeling in control of one's health and future isn't just felt by those living with HCV, but by their caregivers as well. All caregivers express concern about how hep C is impacting the health of their loved one and if they hadn't yet had treatment, are concerned about what treatment will be like. One of the most difficult situations is when treatment has failed and their loved one is still ill, or if treatment isn't an option.

In addition, caregivers talked about the complexity of needing to stay both alert to possible very adverse reactions while not interfering or being ''in the face" of their loved one on treatment.

Furthermore, treatment not only affects the lifestyles of the patients but the lifestyles of their loved ones as well. For example, suffering from treatment side effects decreases what one can do and increases the workloads, such as household chores and income earning, of others. Caregivers note a lack of social supports that are able to step in to support them while their loved one is on treatment. They also note that the increased workload can be very difficult and, at times, they end up feeling resentful of their partner and then guilty because they were mad at a sick person.

In addition to feeling resentful and overwhelmed, they also reported suffering from depression, lack of sleep, and additional stress, while their loved one was seeking treatment.

After treatment some caregivers said their lives returned to normal, especially after a successful treatment with fewer adverse effects, but not always. Sometimes their loved ones continue to

experience fatigue and other post-treatment conditions that continue to impact their lives and their families.

Section 3 — Information about the Drug Being Reviewed

3.1 Information Gathering

Information was gathered through an online survey that was made available from November 11th to December 15th, 2014.

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

a) Based on no experience using the drug:

There are a couple of expectations for ombitasvir / paritaprevir / ritonavir and dasabuvir, however, the expectation that is foremost is that the treatment's higher sustained virologic responses (SVR), which have been reached in clinical trials, will translate into a better chance of a cure for patients and, thus, enable them to start their lives anew.

In response to being asked what their expectations for the new drug are, one of our members wrote: "In my case [, my expectation is that] it would stop the virus from replicating and the cirrhosis and fibrosis I have would not get worse, it would just stay as it is now, and I would hope that I would feel better and be able to return to work."

Secondly, there is an expectation that ombitasvir / paritaprevir / ritonavir and dasabuvir will help address a large gap of unmet patient need. There's currently no HCV treatment available in Canada for null responders, relapsers, or those who have already undergone the current standard of care. Thus, there is an expectation that this treatment will help address that gap.

Thirdly, due to it's low toxicity and lack of significant drug interactions, it is expected that ombitasvir / paritaprevir / ritonavir and dasabuvir will open up treatment to patients who couldn't tolerate previous therapies (due to HIV co-infection, autoimmune conditions, or other co morbidities). We know that ombitasvir / paritaprevir / ritonavir and dasabuvir has also greatly improved treatment outcomes for those with compensated cirrhosis.

Fourthly, ombitasvir / paritaprevir / ritonavir and dasabuvir is also known to be a huge improvement over current treatments because it can be taken without interferon and, thus, treatment can be free of interferon's side effects. When asked what they hope ombitasvir / paritaprevir / ritonavir and dasabuvir can achieve, people say things like: "Avoid the Interferon-related side effects. That's really my primary concern, and the primary reason I have not sought treatment these last 19 years. If it could also give me a shorter treatment time and a greater chance of success - great!"

In addition, people also expect that "their fibrosis or cirrhosis will reverse. They won't be at such risk of liver failure, cancer, or transplant. Some will be able to return to work. Quality of life of everyone will improve." Basically, people expect that ombitasvir / paritaprevir / ritonavir and dasabuvir, and other new drugs will, "cure Hepatitis C with little to no side effects". It's that simple.

Finally, while most people are willing to accept serious adverse effects for weeks if there's a high probability of a cure, the expectation is that ombitasvir / paritaprevir / ritonavir and dasabuvir has far fewer adverse side effects than current and past treatments.

b) Based on patients' experiences with the new drug as part of a clinical trial or through a manufacturer's compassionate supply:

Only two survey respondent indicated that they had had experience with ombitasvir / paritaprevir / ritonavir and dasabuvir. Neither one of them reported any adverse side effect caused by the treatment but one stated that they had expected the treatment to be harder than it was, the other stated that they started treatment without any expectations.

Section 4 — Additional Information

"We need a treatment ASAP that is affordable to people like me. At this moment, because of demographics mainly, my only option is the boceprevir / peginterferon / ribavirin mixture approved and covered by PharmaCare. I have lots of scarring on my liver and advanced Hepatitis C, so the side effects of the interferon / ribavirin will be much worse. But I will do it just to get rid of this evil disease that has stolen my life from me."

There is a want to get better, to improve one's health, and to participate in more than they can with hep C, but we are concerned that the current standard of care that's covered by PharmaCare, comes with side effects that not all can endure. We are concerned that treatments, such as ombitasvir / paritaprevir / ritonavir and dasabuvir, with less side effects and shorter treatment durations, will remain unaffordable and unreachable.

We are concerned as well that patients may have to first undergo and fail a very challenging, longer treatment with a lower cure rate before having access to drugs like ombitasvir / paritaprevir / ritonavir and dasabuvir. Along with individual lives being saved and improved dramatically, early eligibility for and completion of ombitasvir / paritaprevir / ritonavir and dasabuvir is likely to result in financial cost savings to healthcare systems and should be considered. Ultimately, the wisest course is a reasonable balance between cost and clinical best practice in treating as many people as quickly as possible.