The pan-Canadian Oncology Drug Review (pCODR) was established by Canada’s provincial and territorial Ministries of Health (with the exception of Quebec) to assess cancer drug therapies and make recommendations to guide drug-funding decisions. The pCODR process brings consistency and clarity to the cancer drug assessment process by looking at clinical evidence, cost-effectiveness and patient perspectives.

**pERC Final Recommendation**

This pERC Final Recommendation is based on a reconsideration of the Initial Recommendation and feedback from eligible stakeholders. This pERC Final Recommendation supersedes the pERC Initial Recommendation.

**pERC RECOMMENDATION**

The pCODR Expert Review Committee (pERC) does not recommend funding ceritinib (Zykadia) monotherapy for patients with anaplastic lymphoma kinase (ALK)-positive locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC) who have disease progression on or with intolerance to crizotinib.

pERC made this recommendation because the Committee was not confident of the net clinical benefit of ceritinib due to limitations in the evidence from available clinical trials. While pERC was confident that ceritinib produces a tumour response pERC was unable to determine how ceritinib compares with other treatments including best supportive care alone with regards to outcomes important to decision-making such as overall survival, progression-free survival and quality of life.

pERC noted that ceritinib aligned with patient values as there is a clear unmet need for more effective treatment options for patients with ALK-positive NSCLC who have disease progression on or with intolerance to crizotinib. The Committee also concluded that ceritinib was likely not cost-effective based on the uncertainty of clinical data included in the submitted economic evaluation.

**POTENTIAL NEXT STEPS FOR STAKEHOLDERS**

No next steps were identified.
SUMMARY OF pERC DELIBERATIONS

pERC discussed the burden of illness of advanced NSCLC and the proportion of patients expected to have the ALK gene mutation. It was noted that NSCLC is the leading cause of cancer-related deaths and that approximately 4% of patients with NSCLC are expected to have the ALK mutation. Standard treatment for patients with ALK-mutation positive advanced NSCLC is crizotinib, which has recently been approved for funding in Canada. For patients with disease progression on or with intolerance to crizotinib, current standard treatment includes intravenous chemotherapy with platinum-based doublet therapy, such as cisplatin or carboplatin combined with one of gemcitabine, vinorelbine, paclitaxel, docetaxel, or pemetrexed. pERC considered that there is an unmet need for effective treatments for patients with ALK positive NSCLC who have disease progression on or with intolerance to crizotinib. During the reconsideration of the pERC Initial Recommendation for ceritinib, pERC reiterated the need for effective treatment options for patients at this stage of their disease.

pERC deliberated upon the results of two non-randomized, non-comparative studies evaluating ceritinib (ASCEND-1 and ASCEND-2). The Committee was not satisfied that the available evidence clearly demonstrated a net overall clinical benefit of treatment with ceritinib. While pERC considered that the ASCEND-1 and ASCEND-2 trials were appropriately conducted non-randomized studies, the Committee noted that only limited conclusions could be drawn from these studies. While pERC considered that the magnitude of objective tumour response observed with ceritinib in the two trials was important, pERC felt it was not sufficient evidence of effectiveness. pERC was concerned about the strength of the evidence due to potential biases in non-comparative studies, and reliance on tumour response as the principal measure of benefit. Upon reconsideration of the pERC Initial Recommendation, pERC discussed the feedback received from the patient advocacy group as well as provincial tumour groups through the Provincial Advisory Group (PAG) regarding the clinical benefit of ceritinib. pERC reiterated that there is anti-tumour activity with ceritinib as it targets the ALK gene mutation, the magnitude of effect was uncertain given the lack of comparative data and long term outcome data on patient important outcomes such as overall survival and progression-free survival. pERC has accepted evidence from non-comparative studies in previous submissions for reasons that are context (drug and disease) specific. In this situation, pERC was not confident that the magnitude and duration of response were sufficient to conclude that there was a net clinical benefit of ceritinib. pERC further noted it is feasible to conduct a randomized controlled trial versus standard care, and there are ongoing randomized comparative trials which may provide clarity on the comparative effectiveness of ceritinib in relation to standard of care options (docetaxel and pemetrexed monotherapy) in previously treated patients. pERC noted that objective response rate is an uncertain surrogate for overall survival in most solid tumours and that neither trial provided any comparative evidence on overall survival, which has been a standard outcome in lung cancer studies. pERC noted that the quality of life results reported in the ASCEND-2 study were maintained across the course of the study and that patients generally tolerated ceritinib well with an acceptable toxicity profile. The most frequently observed adverse events included elevated liver enzymes, nausea, vomiting, and diarrhea. However, given the lack of a comparator arm in the ASCEND-1 and ASCEND-2 trials, pERC considered the safety data to be preliminary. Upon reconsideration of the pERC Initial Recommendation, pERC was unable to conclude that there was a net overall clinical benefit with treatment with ceritinib and thus the current best available evidence was insufficient to recommend funding ceritinib. pERC reiterated ongoing randomized comparative trials with ceritinib in this setting may provide clarity on the effectiveness of ceritinib compared with standard of care options.

Upon reconsideration of the pERC Initial Recommendation, pERC discussed feedback from the submitter and the patient advocacy group regarding the clinical effect of ceritinib, particularly the response seen in patients with brain metastases. After considerable discussion, pERC acknowledged response in brain metastases is uncommon for lung cancer treatment and this observation in the two trials with ceritinib was encouraging. However, these trials were not designed to measure the impact of ceritinib on brain
metastases. pERC remained uncertain whether ceritinib improved outcomes, such as function or alleviated symptoms related to brain metastases.

pERC discussed input from a patient advocacy group on ceritinib. It was noted that ceritinib is an oral treatment, which would be easier for patients to take and would not require as much personal and caregiver time and resources (e.g., trips to the hospital) as receiving intravenous chemotherapies. pERC also noted that patients valued additional treatment options relevant to their genotype. pERC considered patient input that highlighted data suggesting that ceritinib crosses the blood-brain-barrier, and may, therefore, have activity in brain metastases. pERC noted that although this is an interesting finding, it is preliminary and more evidence is required to assess the effectiveness of ceritinib in the treatment of patients with NSCLC and brain metastases. pERC considered that ceritinib aligns with patient values. It was noted that the robust number of patients who had direct experience with ceritinib was very useful to pERC in determining if ceritinib aligned with patient values. During the reconsideration of the pERC Initial Recommendation for ceritinib, pERC discussed feedback from the patient advocacy group who felt that two of the key elements presented in their input were not fully considered: time and quality of life filled with hope. pERC appreciated the feedback from the patient advocacy group and understood that patients with lung cancer are in desperate need for more effective treatment options that allow them to spend more time alive with their loved ones. pERC relies on the deliberative framework to guide decision-making. Ultimately pERC felt that they did not have sufficient evidence to inform whether ceritinib addresses the key outcomes that patients expressed they value. Following a robust discussion, the Committee was uncertain whether the current evidence demonstrates ceritinib improves health-related quality of life or survival compared to current treatment options.

Also upon reconsideration, pERC discussed feedback from the patient advocacy group that the pERC Initial Recommendation stands in contrast to the US FDA and Health Canada approvals for ceritinib on safety, strength of evidence, and the need for randomized trial. pERC noted that regulatory agencies, such as the US FDA and Health Canada, examine safety and efficacy, but have a different purpose than health technology assessment bodies such as pCODR. Whereas a regulatory agency needs to determine a minimum efficacy level and acceptable safety profile, health technology assessment examines the comparative effectiveness of different treatment strategies looking at multiple dimensions while aiming to provide a balance between the values, needs, preferences, and perspectives of patients and those of society. pERC further noted that while the US FDA gave regulatory approval for ceritinib as a monotherapy treatment in patients with ALK-positive advanced NSCLC, the agency required confirmatory phase III trials to further establish the efficacy, safety and long-term outcomes of ceritinib.

pERC deliberated upon the cost-effectiveness of ceritinib. Because of the limitations in the available clinical information of ceritinib from non-randomized studies, pERC concluded that it was challenging to draw conclusions on the cost-effectiveness of ceritinib. In addition, pERC noted that the Economic Guidance Panel’s estimates of cost-effectiveness were somewhat higher than the submitter’s estimates. pERC considered that the Economic Guidance Panel’s estimates and assumptions were more realistic. Upon reconsideration of the pERC Initial Recommendation, pERC considered feedback from the submitter regarding an additional retrospective observational study providing data to inform treatment options for patients who had disease progression on crizotinib therapy. pERC noted that this study was excluded from the pCODR systematic review because it was an unpublished retrospective study. However, as the study informed inputs in the submitted economic evaluation, pERC had indeed reviewed the study during its initial review as part of the pCODR Economic Guidance Report.

pERC also discussed the feasibility of implementing a funding recommendation for ceritinib. The Provincial Advisory Group noted that there are a small number of patients with the ALK-mutation. They also noted that if crizotinib is funded in the first line setting, then ceritinib would replace intravenous chemotherapy for ALK+ NSCLC in the second line setting. pERC noted, however, that it is unclear if this change in the sequencing of treatment is effective as well as cost effective.
Final Recommendation for Ceritinib (Zykadia) for Metastatic Non-Small Cell Lung Cancer
pERC Meeting: September 17, 2015; pERC Reconsideration Meeting: November 19, 2015

© 2015 pCODR | PAN-CANADIAN ONCOLOGY DRUG REVIEW

EVIDENCE IN BRIEF

pERC deliberated upon:
- a pCODR systematic review
- other literature in the Clinical Guidance Report providing clinical context
- an evaluation of the manufacturer’s economic model and budget impact analysis
- guidance from pCODR clinical and economic review panels
- input from two patient advocacy groups (Lung Cancer Canada)
- input from pCODR’s Provincial Advisory Group.

Feedback on the pERC Initial Recommendation was also provided by:
- input from pCODR’s Provincial Advisory Group
- one patient advocacy group (Lung Cancer Canada)
- the Submitter (Novartis Pharmaceuticals Canada Inc.)

The pERC initial recommendation was to not fund ceritinib (Zykadia) monotherapy for patients with anaplastic lymphoma kinase (ALK)-positive locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC) who have disease progression on or with intolerance to crizotinib.

Feedback on the pERC Initial Recommendation indicated that the manufacturer and patient advocacy group disagreed with the initial recommendation. pCODR’s Provincial Advisory Group agreed with the initial recommendation.

OVERALL CLINICAL BENEFIT

pCODR review scope
The purpose of the review was to evaluate the safety and efficacy of ceritinib (Zykadia) monotherapy, as compared with standard therapies in patients with anaplastic lymphoma kinase (ALK)-positive locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC) who have disease progression on or with intolerance to crizotinib.

Studies included: Two non-comparative studies
The pCODR systematic review included two open-label, non-randomized studies (ASCEND-1 and ASCEND-2) evaluating the safety and efficacy of ceritinib in patients with ALK positive NSCLC who had disease progression despite previous treatment with crizotinib. ASCEND-1 (N=255) included a dose-escalation phase followed by an expansion phase while all patients in the ASCEND-2 (N=140) study received the recommended dose of 750 mg per day and had been pre-treated with crizotinib as their last prior therapy. pERC noted that the non-randomized designs made interpreting the efficacy and safety results difficult, especially when assessing outcomes such as response rate and progression-free survival, endpoints that are more open to subjective bias.

Patient populations: Majority of patients had brain metastases in both studies
Both trials enrolled adult patients diagnosed with documented ALK-positive status locally advanced or metastatic NSCLC who had disease progression despite standard therapy. Both trials allowed patients with asymptomatic or neurologically stable central nervous system disease at baseline to be enrolled. Of the 246 patients in ASCEND-1 with ALK+NSCLC treated with ceritinib at 750 mg/day, 50.4% (n=124) had brain metastases at study entry. Of the 140 ALK+NSCLC enrolled patients in ASCEND-2, 71.4% (n=100) had brain metastases at study entry.

Key efficacy results: Objective response rate, magnitude of comparative benefit unclear
The key efficacy outcome deliberated on by pERC was objective response rate (ORR). In ASCEND-1, the ORR was 56.4% (95%CI: 48.5-64.2) for patients who had received prior therapy targeted against ALK. In ASCEND-2, the ORR was 38.6% (95%CI: 30.5-47.2). The median duration of response was 8.3 months in ASCEND-1 and 9.7 months in ASCEND-2. The median PFS was 6.9 (95%CI: 5.6-8.7) and 5.7 months (95%CI: 5.4-7.6) in ASCEND-1 and ASCEND-2, respectively. The median OS was 16.7 and 14.9 months in ASCEND-1 and ASCEND-2, respectively. Overall intracranial response rate (OIRR) among patients who had received prior therapy targeted against ALK was 29.2% in ASCEND-1 (n=7) and 45.0% in ASCEND-2 (n=9). However,
given the small numbers and subjectivity of OIRR, pERC noted it was challenging to interpret the magnitude of benefit among patients with brain metastases. pERC noted that although there is antitumour activity with ceritinib, the magnitude of the effect was uncertain given the lack of comparative and long term outcome data. During the reconsideration of the initial recommendation for ceritinib, pERC agreed with feedback from PAG that evidence needs to be mature prior to a funding recommendation and a clinical trial with an appropriate comparator is warranted in this circumstance. Overall, pERC considered these results promising but insufficient to confirm an overall clinical benefit.

Quality of life: No deterioration in quality of life
Data on patient-reported outcomes were assessed in ASCEND-2 using the European Organization for Research and Treatment of Cancer core quality of life questionnaire (EORTC-QLQC30) and the Lung Cancer Symptom Scale (LCSS). Throughout the treatment period, the change from baseline in global health status remained close to zero which suggested quality of life was maintained by patients and did not worsen during ceritinib treatment. Patients reported consistent improvements in lung-related symptoms (i.e. cough, pain in chest and dyspnea) and no worsening of cancer symptoms while on treatment, however, improvements did not meet the threshold for statistical significance.

Safety: Preliminary evidence suggests manageable toxicity
The most frequent grade 3 or 4 adverse event was an increase in alanine aminotransferase levels; this occurred in 29.8% and 13.6% of patients in ASCEND-1 and ASCEND-2, respectively. Other commonly reported grade 3 or 4 adverse events included but were not limited to nausea, diarrhea, and fatigue. Seventeen (10.4%) and 10 (7.1%) patients discontinued treatment due to adverse events in ASCEND-1 and ASCEND-2, respectively. pERC considered that ceritinib appeared to have a manageable toxicity profile, however, the non-comparative design of the studies made it challenging to assess the adverse events against a relevant comparator.

Limitations: No comparative OS data
pERC discussed several limitations in the two studies using ceritinib in ALK+ NSCLC. Both studies were non-comparative, thus there is substantial uncertainty regarding the magnitude of benefit with ceritinib compared to other therapies. In addition, these trials were open label by design which is subject to bias, especially when assessing outcomes such as response rate and progression-free survival. Upon reconsideration of the pERC Initial Recommendation, pERC acknowledged the feedback from the submitter that overall survival data were reported. However, pERC noted that the magnitude of effect compared to standard of care options is unknown and there is uncertainty as to whether response rate is a reliable surrogate outcome for overall survival in the lung cancer context. pERC noted that there are ongoing randomized trials that may address some of the limitations noted and provide more certainty on the effectiveness of ceritinib.

Need: Unmet need for patients with ALK+ NSCLC
Non-small cell lung cancer (NSCLC) remains the leading cause of cancer-related deaths globally for both men and women. The majority of patients present with non-curable disease. In Canada it is estimated that 20,900 Canadians will die from lung cancer in 2015, representing 27% of all cancer deaths. NSCLC is the most common type of lung cancer, accounting for about 85 percent of all cases. There is evidence that ALK+ tumours present at a more advanced clinical stage compared to non-ALK tumours. If left untreated, patients with advanced NSCLC have a short survival with a median survival from diagnosis of 4-5 months. pERC acknowledged that there is a need for effective treatments for these patients, as there is a need for all patients with NSCLC with progressive disease on treatment. Upon reconsideration of the pERC Initial Recommendation, pERC reiterated that there is a clear and pressing unmet need for patients with incurable lung cancer and acknowledged that patients expressed a strong desire for more effective treatment options.

PATIENT-BASED VALUES

Values of patients with non-small cell lung cancer: Current therapies have high toxicity and burden
The key symptoms associated with lung cancer include fatigue, loss of appetite, shortness of breath, cough, pain, and blood in sputum. They also noted the stigma associated with a diagnosis of lung cancer. The patient group reported that most Canadians with advanced lung cancer receive chemotherapy for first-line treatment of NSCLC, irrespective of their ALK status. The patient group reported that
Chemotherapy is associated with severe side effects including nausea, vomiting, hair loss, fatigue and the risk of fever and infection. Patient also experience the inconvenience of multiple blood tests, intravenous treatment and multiple visits to hospital for chemotherapy often associated with long wait times. The patient group submitted that this imposes a tremendous burden on patients and their caregivers, who must take time off from work to receive treatment, and then additional time off to manage chemotherapy toxicity, including frequent admission to hospital.

**Patient values on treatment: Perception that ceritinib may treat brain metastases**

The patients who had direct experience with ceritinib, have a perception that crizotinib does not cross the blood/brain barrier while ceritinib does, and thus ceritinib would be efficacious against brain metastases. pERC also discussed that ceritinib may have activity in brain metastases, but noted that the data are not available yet to draw any conclusions on the magnitude of effect of ceritinib on brain metastases due to NSCLC.

Like crizotinib, patients reported that ceritinib had manageable side effects and improved outcomes. Common side effects reported include elevated liver enzymes and heart palpitations. Other side effects were nausea and diarrhea that in most cases, were less frequent, or lasted a shorter time than those experienced with crizotinib. The patient group indicated that many of these patients continue to feel well and are highly functional. Additionally, patients are staying out of chemotherapy clinics and hospital, and both they and their caregivers are living more active lives because of these new treatments.

**ECONOMIC EVALUATION**

**Economic model submitted: Cost-utility analysis, partitioned survival model**

The submitter provided a partitioned survival economic model which was comprised of 3 states: stable disease; progressive disease; and death. pERC noted that the model was adequately designed and the limitations of the model were related to the paucity of the effectiveness inputs (that is, lack of comparative efficacy data) rather than the model’s structure. pERC noted that in partitioned survival models it is not possible to explicitly examine the impact of post-progression survival, which is a limitation when trying to assess the downstream effect of a treatment.

**Basis of the economic model: Ceritinib vs four comparators**

The economic analysis provided by the submitter compared ceritinib to 1) best supportive care, 2) pemetrexed, 3) Canadian historical controls in patients with ALK-positive NSCLC who were previously treated with an ALK inhibitor, and 4) docetaxel.

**Drug costs: Ceritinib more expensive than all comparators**

Ceritinib costs $67.47 per 150mg tablet. At a dosing regimen of 750mg/day, ceritinib costs $337.33 per day, and $9,445.32 per 28 day course.

Pemetrexed costs $4.29 per mg, $173.64 per day, and $4,862.00 per 28 day course. Of note, the price provided is the list price which may be higher than provinces are currently paying.

Docetaxel costs $4.46 per mg, $27.05 per day, and $757.35 per 28 day course.

Cisplatin costs $5.86 per mg, $35.57 per day, and $996.10 per 28 day course.

**Clinical effect estimates: Considerable uncertainty in clinical estimates**

The clinical inputs used in the submitted model were the best currently available. However, pERC discussed that the clinical estimates were not based on data from head-to-head trials. The historical control group that was used in the model was taken from a chart review from 6 oncology centres across Canada and may not be generalizable to the rest of Canada because of the limited sample size.

**Cost-effectiveness estimates: Overall the cost inputs were reasonable**

pERC agreed with the Economic Guidance Panel (EGP) that the majority of costs considered were reasonable. However, they also considered that the Clinical Guidance Panel (CGP) identified that the cost of treating neutropenia is very unlikely to be the same as febrile neutropenia which results in
hospitalization and, therefore, the EGP reduced this cost to zero in the best case estimate. pERC agreed with the EGP’s reanalyses and the limitations identified in the submitted economic model.

ADOPTION FEASIBILITY

Considerations for implementation and budget impact: Small patient population with ALK mutation

pERC discussed the feasibility of implementing a funding recommendation for ceritinib. The Provincial Advisory Group noted that there is a small number of patients with the ALK-mutation. They also noted that if crizotinib is funded in the first line setting, then ceritinib would replace intravenous chemotherapy for ALK+ NSCLC in the second line setting. pERC noted however that it is unclear whether this change in treatment sequencing would be cost effective.
DRUG AND CONDITION INFORMATION

Drug Information

- Anaplastic Lymphoma Kinase (ALK) Tyrosine Kinase Inhibitor
- Recommended dosage of 750mg per day administered orally. Treatment continues until disease progression.

Cancer Treated

- For treatment as monotherapy in patients with anaplastic lymphoma kinase (ALK)-positive locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC) who have disease progression on or with intolerant to crizotinib.

Burden of Illness

- NSCLC is the leading cause of cancer-related mortality in Canadians
- Approximately 4% of patients with NSCLC are ALK-positive.

Current Standard Treatment

- Pemetrexed
- Docetaxel
- Platinum-based doublet

Limitations of Current Therapy

- Response rates to chemotherapy are approximately 20% and responses generally last only a few months. Disease progression typically occur within three to four months and patients then require alternative treatment options.

ABOUT THIS RECOMMENDATION

The pCODR Expert Review Committee (pERC)
Recommendations are made by the pCODR Expert Review Committee following the pERC Deliberative Framework. pERC members and their roles are as follows:

*pERC Membership During Deliberation of the Initial Recommendation*

| Dr. Anthony Fields, Oncologist (Chair) | Dr. Bill Evans, Oncologist |
| Dr. Maureen Trudeau, Oncologist (Vice-Chair) | Dr. Allan Grill, Family Physician |
| Dr. Scott Berry, Oncologist | Dr. Paul Hoskins, Oncologist |
| Bryson Brown, Patient Member | Danica Wasney, Pharmacist |
| Dr. Matthew Cheung, Oncologist | Carole McMahon, Patient Member |
| Mario de Lemos, Pharmacist | Jo Nanson, Patient Member Alternate |
| Dr. Sunil Desai, Oncologist | Dr. Tallal Younis, Oncologist |
| Mike Doyle, Economist | Dr. Kelvin Chan, Oncologist |

All members participated in deliberations and voting on the initial recommendation except:
- Drs. Bill Evans and Allan Grill who were not present for the meeting
- Jo Nanson who did not vote due to her role as a patient member alternate
**pERC Membership During Deliberation of the Final Recommendation**

Dr. Anthony Fields, Oncologist (Chair)  
Dr. Maureen Trudeau, Oncologist (Vice-Chair)  
Dr. Scott Berry, Oncologist  
Bryson Brown, Patient Member  
Dr. Kelvin Chan, Oncologist  
Dr. Matthew Cheung, Oncologist  
Dr. Craig Earle, Oncologist  
Dr. Allan Grill, Family Physician  
Dr. Paul Hoskins, Oncologist  
Don Husereau, Health Economist  
Dr. Anil Abraham Joy, Oncologist  
Carole McMahon, Patient Member Alternate  
Dr. Katherine Moltzan, Oncologist  
Jo Nanson, Patient Member  
Karen MacCurdy-Thompson, Pharmacist  
Danica Wasney, Pharmacist

All members participated in deliberations and voting on the final recommendation except:

- Dr. Anil Abraham Joy who was excluded from voting due to a conflict of interest

**Avoidance of conflicts of interest**

All members of the pCODR Expert Review Committee must comply with the *pCODR Conflict of Interest Guidelines*; individual conflict of interest statements for each member are posted on the pCODR website and pERC members have an obligation to disclose conflicts on an ongoing basis. For the review of Ceritinib (Zykadia) for Metastatic Non-Small Cell Lung Cancer, through their declarations, one member had a real, potential or perceived conflict and based on application of the *pCODR Conflict of Interest Guidelines*, one member was excluded from voting.

**Information sources used**

The pCODR Expert Review Committee is provided with a *pCODR Clinical Guidance Report* and a *pCODR Economic Guidance Report*, which include a summary of patient advocacy group and Provincial Advisory Group input, as well as original patient advocacy group input submissions to inform their deliberations. pCODR guidance reports are developed following the pCODR review process and are posted on the pCODR website. Please refer to the pCODR guidance reports for more detail on their content.

**Consulting publicly disclosed information**

pCODR considers it essential that pERC recommendations be based on information that may be publicly disclosed. All information provided to the pCODR Expert Review Committee for its deliberations was handled in accordance with the *pCODR Disclosure of Information Guidelines*.

**Use of this recommendation**

This recommendation from the pCODR Expert Review Committee (pERC) is not intended as a substitute for professional advice, but rather to help Canadian health systems leaders and policymakers make well-informed decisions and improve the quality of health care services. While patients and others may use this Recommendation, it is for informational and educational purposes only, and should not be used as a substitute for the application of clinical judgment respecting the care of a particular patient, for professional judgment in any decision-making process, or for professional medical advice.

**Disclaimer**

pCODR does not assume any legal liability or responsibility for the accuracy, completeness or usefulness of any information, drugs, therapies, treatments, products, processes, or services disclosed. The information is provided “as is” and you are urged to verify it for yourself and consult with medical experts before you rely on it. You shall not hold pCODR responsible for how you use any information provided in this report. This document is composed of interpretation, analysis, and opinion on the basis of information provided by pharmaceutical manufacturers, tumour groups, and other sources. pCODR is not responsible for the use of such interpretation, analysis, and opinion. Pursuant to the foundational documents of pCODR, any findings provided by pCODR are not binding on any organizations, including funding bodies. pCODR hereby disclaims any and all liability for the use of any reports generated by pCODR (for greater certainty, “use” includes but is not limited to a decision by a funding body or other organization to follow or ignore any interpretation, analysis, or opinion provided in a pCODR document).