CADTH

CADTH Reimbursement Review

Patient Input

Osimertinib (Tagrisso)

(AstraZeneca Canada Inc.)

Indication: Non-small cell lung cancer.

CADTH received patient input from:

Canadian Cancer Survivor Network (CCSM)

CanCertainty

Lung Cancer Canada

Lung Health Foundation / The Ontario Lung Association

April 16, 2021

CADTH

CADTH Reimbursement Review
Patient Input Template

Name of the Drug and Indication	***TAGRISSO for adjuvant treatment of early stage EGFR mutated NSCLC***
Name of the Patient Group	**Canadian Cancer Survivor Network (CCSN)**
Author of the Submission	[redacted]
Name of the Primary Contact for This Submission	[redacted]
Email	[redacted]
Telephone Number	[redacted]

1. About Your Patient Group

Describe the purpose of your organization. Include a link to your website.

The Canadian Cancer Survivor Network (CCSN) is a national network of patients, families, survivors, friends, community partners, funders and sponsors who have come together to take action to promote the very best standards of care, whether it be early diagnosis, timely treatment and follow-up care, support for cancer patients, or issues related to survivorship or quality of end of life care. https://survivornet.ca

2. Information Gathering

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

In order to capture the patient perspective on the usefulness of disease free survival (DFS) data in the absence of overall survival (OS) data, CCSN contracted Broadstreet to conduct qualitative interviews with Canadian survivors of early stage lung cancer. The interviews were conducted via Zoom and lasted approximately 45 minutes. We interviewed individuals who had been diagnosed with Stage IB-IIIA lung cancer, as this is the patient population who participated in the ADURA phase III trial. We found our participants from our Right2Survive (right2survive.ca) mailing list, a website for Canadian lung cancer survivors. In order to participate, individuals had to meet the following criteria:

1) Treated for Stage IB-IIIA lung cancer
2) Living in Canada
3) Fluent in English, and
4) Capable of providing informed consent.

Recruitment took place between January 7 – February 11, 2021 and interviews took place between January 13 – February 18, 2021. Among the 18 participants who were interviewed, 83% (n=15) identified as female and the remaining participants (n=3) identified as male. The regional breakdown is as follows: Atlantic (22%, n=4), Prairies (22%, n=4), Central (50%, n=9), West Coast (6%, n=1). Half of the participants (n=50) were diagnosed with stage IIIA lung cancer, while 33% (n=6) were stage IB and 17% (n=3) were stage II. The vast majority of participants (89%, n=16) had received surgery as part of their past treatment, while approximately half of the respondents (n=10) had received chemotherapy. The age of participants range from 51-85, with a mean age of 64 years. The age of participants at the time of their diagnosis range from 45-74, with a mean age of 58 years. Each of the 18 participants were patients, and no caregivers were interviewed as part of the study. None of the participants had previous experience with Tagrisso, but were able to comment on the usefulness of disease free survival as a metric based on their prior experiences with lung cancer treatment.

3. Disease Experience

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

When describing their treatment goals, 44% (n=8) of the participants in our study expressed a desire to be cured of the disease, while 22% (n=4) wanted their treatment to allow them to survive, regardless of whether it completely cured them.

"You can live a decent life without being cured of cancer if you can keep it stable or under control."

Five of the participants wanted their treatment to allow them to lead a relatively normal life and therefore wanted the treatment side effects to be limited.

Almost all of the participants who were interviewed expressed fear and concern at the time of their diagnosis due to the relatively low 5-year net survival rate for lung cancer compared to other cancer types. Many expressed concerns that their tumour may not be operable and were worried about whether surgery would be an option.

"I guess I was kind of desperate to think I was going to be okay and asked how things looked. And, she told me at the time that I had a 15 percent chance of surviving five years...For me, that pretty much sealed my fate. And so, it becomes such a psychological burden that, you know, I was looking at 15 people out of a 100 survive for five years. What's the chance that I would be one of those 15?"

Our interviews demonstrated that DFS is intrinsically relevant to most participants, as it aligns with their treatment priorities. Even in the absence of extended OS, participants valued DFS and associated it with an improved quality of life.

"If you had a better quality of life…even though your mortality is the same time, it should still be considered...Like 'You're going to live better and your relapse will happen longer down the road even though your life isn't extended."

"I would go for the quality over the quantity"

Most participants who perceived their treatment as curative found that DFS was a more meaningful endpoint than OS. Among 4 participants that definitively described their treatment as curative, 3 expressed that DFS better related to their treatment priorities.

"I was hoping for disease-free survival and so far, knock on wood, that's what they've accomplished for me."

"I was definitely into the disease-free. Yeah. I wasn't even thinking of the other one. It never even entered my mind."

4. Experiences With Currently Available Treatments

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

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

The vast majority of participants (89%, n=16) had received surgery as part of their past treatment, while approximately half of the respondents (n=10) had received chemotherapy.

The majority of participants who underwent surgery reported success, although one participant noted that her cancer metastasized before her surgery, so the surgery was not successful.

Another participant was hesitant to undergo surgery due to an underlying condition called alpha-1 antitrypsin which causes scarring on her lungs. After she received surgery, she was devastated due to the changes in her lifestyle reduced lung function would cause.

One participant we interviewed declined chemotherapy because her doctor could not guarantee that it would cure her of her disease. Therefore, the side effects of chemotherapy would not be worth it.

"So then I said to him, I said, "Well, I'll tell you what. Can you guarantee me I'll never get cancer back?" He said, "No, I can't do that." And I said, "Well, then therefore I'm going to refuse the chemo. I'm going to go with more of a holistic approach."

5. Improved Outcomes

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

A significant theme that emerged from this study was the importance that the patients placed on having agency regarding their treatment path. Being involved in treatment decision-making, doing their own research, or receiving comprehensive information from their physician about all the available treatment options before making a decision allowed patients to feel more confident about the quality of care that were receiving.

The patients we interviewed emphasized the importance of decision makers quickly approving treatments based on DFS when OS data are not yet available. Patients believe that they should be able to choose whether a treatment that has been shown to improve DFS is right for them. Many expressed their belief that it is important for drugs to be approved more quickly in order to give patients immediate access to potentially life-saving medication. Some have noted that drug approval time is excessive in Canada and at times Canada has lagged behind in their approval of drugs that are widely approved elsewhere. Additionally, getting funding approved at the provincial level is another hurdle, and so your geography can prevent you from accessing a drug that has been approved in Canada.

"I'm a firm believer if there is something that is a potential to help, give it."

"Once the medication's been studied and they went through trials, then it should be made available as soon as possible."

"Time is of the essence with cancer. Right? Like mine metastasized within a couple of weeks. That's how aggressive it was. So yeah, speed is important."

Thirteen of the participants interviewed indicated that they would take a new drug that offered improved DFS even in the absence of OS data. Additionally, participants noted that whether the side effects were manageable would have an impact on whether they would want to take a new drug. This is because DFS is associated with an increased quality of life, and if the drug which accomplishes this has severe side effects, it would make it less appealing.

"Yes, [I] would want to know about side effects, [and whether it] would be a good trade-off between how bad you feel on the medication and how much more relapse-free time you get."

6. Experience With Drug Under Review

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

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

None of the participants in the study had experience with the drug under review.

7. Companion Diagnostic Test

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

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

Consider:

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

Not applicable.

8. Anything Else?

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

Lung cancer is the most commonly diagnosed cancer in Canada. It kills more than 21,000 Canadians every year — more people than colorectal, breast, and prostate cancers combined. Lung cancer is in fact many diseases, requiring different treatment approaches and therapeutic options. It is imperative that drugs which can improve the quality of life or survivorship of lung cancer patients are approved in a timely manner in order to provide lung cancer patients with the best chance at beating their disease. By the time a lung cancer patient becomes metastatic, it becomes much more difficult to provide effective treatment. Therefore, it is essential that drugs which can help people in the early stages of lung cancer are available. Presently, it can take 18-24 months for a life changing treatment option to be publicly reimbursed, negatively impacting cancer patients across Canada.

Appendix: Patient Group Conflict of Interest Declaration

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

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

No.

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

Shelagh Szabo and Andrea Bever of Broadstreet were contracted to conduct interviews with lung cancer survivors. The data from their interviews formed the basis for CCSN's submission.

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

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

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

Name: Jackie Manthorne
Position: President & CEO
Patient Group: Canadian Cancer Survivor Network
Date: April 15, 2021

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Patient Input Template

Name of the Drug and Indication	**Osimertinib; adjuvant therapy after tumour resection in patients with stage IB-IIIA non-small cell lung cancer (NSCLC) whose tumours have epidermal growth factor receptor (EGFR) exon 19 deletions or exon 21 (L858R) substitution mutations.**
Name of the Patient Group	**CanCertainty**
Author of the Submission	[redacted]
Name of the Primary Contact for This Submission	[redacted]
Email	[redacted]
Telephone Number	[redacted]

1. About Your Patient Group

The CanCertainty Coalition is the united voice of more than 30 Canadian patient groups, cancer health charities, and caregiver organizations from across the country, joining together with oncologists and cancer care professionals to significantly improve the affordability and accessibility of cancer treatment.

For more information about the CanCertainty Coalition, please visit: https://www.cancertaintyforall.ca/

2. Information Gathering

Osimertinib is indicated for patients with stage IB-IIIA non-small cell lung cancer (NSCLC) whose tumours have epidermal growth factor receptor (EGFR) mutations. Because osimertinib is an orally administered oncology drug, it is not automatically funded by certain provincial governments. In Ontario and the Atlantic provinces, only individuals over the age of 65 are automatically covered for oral oncology drugs.

The goal of our data collections efforts was to estimate the number of yearly lung cancer diagnoses with EGFR mutations among the under 65 population who do not have private or automatic public prescription drug coverage. Lung cancer incidence data was sourced from the Canadian Cancer Society[1] (Statistics Canada) in collaboration with the provincial and territorial cancer registries. In their 2020 special report on

[1] Canadian Cancer Statistics Advisory Committee. *Canadian Cancer Statistics: A 2020 special report on lung cancer*. Toronto, ON: Canadian Cancer Society; 2020. Available at: cancer.ca/Canadian-Cancer-Statistics-2020-EN

lung cancer, the Canadian Cancer Society provided lung cancer data for all of Canada (excluding Quebec) broken down into age groups (Figure 1). We applied the age-specific lung cancer incidence rates to the 2016 population demographics[2] of each province to arrive at the number of new lung cancer cases each year by age and province.

The EGFR mutation has only been identified in patients with NSCLC. In the same 2020 special report, the Canadian Cancer Society provided the percent distribution of lung cancer cases by specific histological type. We calculated the number of adenocarcinoma cases (the primary type of NSCLC; 48%) and "all other NSCLC" cases (40%) each year by age and province. The EGFR mutations are present in approximately 20% of adenocarcinoma cases and in 3% of all other NSCLC cases. These estimates were provided by a systematic review of EGFR mutation incidence[3]. With these percentages, we estimated the number of yearly lung cancer cases with EGFR mutations by age and province. In other words, this is the estimated number of individuals who will become eligible for osimertinib each year.

We chose to measure "potential financial toxicity" using data on lack of private drug coverage. The Canadian Life and Health Insurance Association[4] provides data on "extended health coverage." For each province, we extracted the percentage of individuals under the age of 65 without private drug coverage AND without automatic public drug coverage. These province specific percentages were applied to the EGFR mutation rates to arrive at the final estimation: *the number of yearly lung cancer cases with EGFR mutations among the under 65 population without private or automatic public prescription drug coverage.*

Limitations

We calculated these estimates to highlight an issue, not to be absolutely precise.

- We used the same age-specific incidence for all provinces. The Canadian Cancer Society did not break down the age-specific incidence by province. This means that the lung cancer estimates for some provinces are marginally too high (e.g. British Columbia), while for other provinces the lung cancer estimates are marginally too low (e.g. New Brunswick).
- The estimation of 20% of adenocarcinoma patients having these EGFR mutations is just that, an estimation. The epidemiology on EGFR mutations is not rigorous. This percentage was estimated from a systematic review of multiple studies whose primary outcome measurement was not the proportion of adenocarcinoma patients with EGFR mutations. The EGFR mutation rate is suspected to be higher among east Asian populations (~40%) and lower among Oceanic populations (~12%).
- Just because someone younger than 65 does not have private insurance does not mean that they are without financial support for their oral oncology medication. In each province, multiple programs exist to support individuals with high drug costs. Based on our experience as a patient advocacy group, we made the assumption that individuals with private health insurance incur less cost when prescribed oral oncology drugs.

3. Disease Experience

[2] Statistics Canada. (2020) *Annual Demographic Estimates: Canada, Provinces and Territories* [Data Visualisation Tool]. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501

[3] Midha A, Dearden S, McCormack R. EGFR mutation incidence in non-small-cell lung cancer of adenocarcinoma histology: a systematic review and global map by ethnicity (mutMapII). *Am J Cancer Res*. 2015;5(9):2892-2911. Published 2015 Aug 15.

[4] Sutherland, Greg, and Thy Dinh. *Understanding the Gap: A Pan-Canadian Analysis of Prescription Drug Insurance Coverage*. Published in Canada | All rights reserved | Agreement No. 40063028 | *Incorporated as AERIC Inc.

British Columbia, Alberta, Saskatchewan, Manitoba, Quebec, NWT, Yukon, and Nunavut cover the reimbursement of oral cancer drugs for all in need. Ontario and the Atlantic provinces do not.

In Ontario and Atlantic provinces, with respect to access to approved cancer treatments, there is institutional discrimination against those who are under the age of 65, uninsured and who have cancer requiring take-home cancer treatment. With 60% of all new cancer drugs being developed with oral formulations, this issue urgently needs to be resolved through policy change. Traditionally, cancer treatments were administered to patients by an IV in the hospital. Over the past 15 or so years, an increasing number of effective cancer treatments can be taken at home by pill or injection. Take-home cancer medications are now a fundamental part of today's cancer treatments and should be recognized equally within our health care systems. Patients requiring an intravenous treatment can start that medication as soon as needed and don't face any financial or administrative burdens provided the drug is included on the provincial formulary.

However, when take-home cancer medications are prescribed, patients in Ontario and the Atlantic provinces, who are under 65, and lack adequate private insurance, have to apply to a variety of funding assistance programs and ultimately pay a significant deductible or co-pay from their personal savings. In some cases, the cost to the patient might be as high as $23,400 annually, based upon Nova Scotia's Family Pharmacare Program. To qualify for assistance programs, patients and their families have to submit significant amounts of personal and financial information and often face weeks of stressful delay in starting their cancer treatment until the paperwork and approvals are resolved.

Even for patients with private drug insurance, the reality is that many face significant co-pays, deductibles or annual/lifetime caps. For example, some private insurance plans have a cap of $2,000 for prescription drugs for the entire year. The majority of take-home cancer drugs cost more than $20,000 per year. Two-tiered pharmacare in Ontario and the Atlantic Provinces discriminates on the basis of age, income, geography, cancer type, and cancer treatment, and is financially ruining many lives.

A survey[5] of over 1,600 Nova Scotians, commissioned by the CanCertainty Coalition, demonstrates that drug coverage for cancer patients is a serious and growing problem.

- More than half (57 percent) of Nova Scotians expect the provincial health care system will pay for take-home cancer medications. In reality, patients will ultimately pay a significant deductible or co-pay from their personal funds.
- Three out of five people in Nova Scotia (60 percent) said they would consider leaving the province if faced with having to pay for their cancer drugs. Only seven percent could afford monthly drug costs of over $200.

4. Experiences With Currently Available Treatments

Take-home cancer drugs (THCD) are medications used for the active treatment of cancer and are usually dispensed for administration in the home (e.g., oral chemotherapy). These drugs have become a standard treatment for many cancers and present opportunities for patients, providers, and the health system. However, flaws in our current drug coverage system result in some patients not being able to access these treatments.

The term "financial toxicity" describes the distress and hardship arising from the financial burden of cancer treatment. Even in counties with government funded universal healthcare, financial toxicity is an issue for cancer patients and their families. Financial toxicity comes in many forms: out of pocket costs, lost income, travel expenses etc. Patients may deal with their financial burden by delaying or foregoing care. They may take less medication than prescribed, utilize over-the-counter drugs in place of prescribed medications, decline procedures, and skip appointments in an attempt to defray costs. The combination

[5] Strategic Directions. *Cancertainty & Strategic Directions IVR Report*. 2017. Available at: https://d3n8a8pro7vhmx.cloudfront.net/cancertainty/pages/119/attachments/original/1490212245/CanCertaintySurvey_October2016.pdf

of high drug prices, particularly of oral targeted anticancer drugs, and increased cost sharing has made patients more vulnerable to medication non-adherence. Patients who are younger, have lower income, and are uninsured appear to be at greater risk of medication non-adherence. Although government funded public healthcare exists in many very high development index countries, financial toxicity is still common among cancer patients and caregivers. The evidence suggests that those with a shorter time since diagnosis, not currently working, and with more severe cancers have higher rates of financial toxicity, including stress and strain[6].

An unfunded oral oncology drug is financially toxic compared to a funded IV oncology drug. The disease experience of cancer patients that require oral drugs is a dual track of disease and economic hardships. After receiving their diagnosis, deciding on a medication, and dealing with the side effects, patients in Ontario and the Atlantic provinces have to consider the financial side of their diagnosis. *"Hearing that you have cancer is devastating. Finding out that you can't pay for the medication that will make you well is catastrophic. It doesn't have to be this way"* ([redacted] Ontario).

The financial side of cancer treatment is unnecessarily burdensome. *"When you are going through any kind of sickness, whatever the severity of it, the last thing you should have to worry about is your medication cost"* ([redacted] Ontario). In addition to dealing with cancer, and not being well enough to work, patients in Ontario and the Atlantic provinces spend days on end, sometimes months, wading through paperwork in order to get approval for coverage of the oral chemotherapy that has kept them alive. Because some cancer treatments are not automatically funded, treatment is delayed for many patients. They wait weeks for government approval before dealing with insurance companies and pharmacies to receive their prescription. Patients often pay out of pocket for the first few weeks of their treatment, which they may not be reimbursed for. *"My doctor prescribed a new drug that is not covered by the government therefore I had to find insurance to cover it which costs around $5000.00 a month, I came up with insurance to cover it but I had to pay the pharmacy first then the insurance would reimburse me some time later. My problem I do not have the $5000 to pay out let alone wait till they reimburse me"* ([redacted] Ontario).

"Cancer isn't fair, but access to treatment should be!" ([redacted] Ontario).

5. Improved Outcomes

Each year, an estimated 3,150 cases of non-small cell lung cancer (NSCLC) whose tumours have epidermal growth factor (EGFR) mutations will be diagnosed in Canada.

Of these 3,150 cases, 788 (25%) will be in individuals under the age of 65. Depending on where these individuals live, their oral oncology medication may or may not be covered by the provincial government. Residents of the western provinces are covered for all (approved) oral oncology drugs. Residents of Ontario and the Atlantic provinces under the age of 65 are not automatically covered under public plans. Each year, approximately 109 residents of British Columbia under the age of 65 will be diagnosed with EGFR mutated lung cancer. Their medication will be automatically covered by the province. For the equivalent 304 individuals in Ontario, their route to treatment access is not so simple. By our estimations, 46 of these Ontario cancer patients will not have private insurance. Before they can receive their medication these patients will have to navigate a complicated process of funding applications, approval delays, locating a pharmacy, and waiting for their medication in the mail. They will incur out of pocket costs and sizeable portion of their income will go towards their medication.

The access problems are so difficult that in many hospitals and cancer centres across Canada, such as those in Ontario, a new type of social worker known as a *drug access navigator* has been established (and funded) to assist patients and clinicians navigate the byzantine treatment access structures. In Ontario, the organization that supports these navigators is known as the Oncology Drug Access

[6] Longo, C.J., Fitch, M.I., Banfield, L. *et al.* Financial toxicity associated with a cancer diagnosis in publicly funded healthcare countries: a systematic review. *Support Care Cancer* **28,** 4645–4665 (2020). https://doi.org/10.1007/s00520-020-05620-9

Navigators of Ontario (ODANO). They describe the problem that their association works to resolve as follows:

> *Drugs are an important part of cancer treatment, yet patients often have difficulty accessing coverage for the most effective medicines. The complexity of cancer drug coverage in Canada can overwhelm patients and families.*
>
> And
>
> *For example, although cancer drugs administered in hospitals and clinics are often offered free of charge to patients, half of all new cancer drugs are taken at home and, therefore, many are not covered by the public health system. Unfortunately, many of our patients do not have any private insurance. If a patient is fortunate enough to have private coverage, many drug plans require a 20% co-payment, which can quickly become a financial burden to patients on expensive medications.*[7]

Assuming Osimertinib is ultimately funded by the provinces and territories for NSCLC, the following chart details the number of patients in each province/territory that would be face financial barriers in accessing this treatment:

	New lung cancer cases per year[i]		Adenocarcinomas[ii]		Other NSCLC[iii]		EGFR mutation[iv]		Without private drug coverage	
	65 +	< 65	65 +	<65	65 +	<65	65 +	<65	65 +	<65
Canada	21,868	7,296	10,497	3,502	8,747	2,918	2,362	788	0	53
BC	3,151	1,011	1513	485	1,261	404	340	109	0	0
AB	1,938	775	930	372	775	310	209	84	0	0
SK	611	208	293	100	244	83	66	22	0	0
MB	708	241	340	116	283	96	76	26	0	0
ON	8,322	2,812	3,995	1,350	3,329	1,125	899	304	0	46
NB	545	168	262	81	218	67	59	18	0	4
NS	666	207	320	100	266	83	72	22	0	2
PE	102	32	49	15	41	13	11	3	0	1
NL	367	116	176	56	147	46	40	13	0	0

(i) Based on Canada wide incidence rate
(ii) 48% of lung cancer cases
(iii) 40% of lung cancer cases
(iv) 20% of adenocarcinomas; 3% of all other NSCLC

6. Experience With Drug Under Review

CanCertainty's focus for this submission is on issues related the distress and hardship arising from the financial burdens associated with cancer treatment. If Osimertinib were to be reimbursed as adjuvant therapy after tumour resection in patients with stage IB-IIIA non-small cell lung cancer (NSCLC) whose tumours have epidermal growth factor receptor (EGFR) exon 19 deletions or exon 21 (L858R) substitution mutations, there would be some patients in Ontario and Atlantic Canada that would face significant financial and administrative barriers in accessing treatment.

[7] https://odano.ca/about-us/

7. Companion Diagnostic Test

N/A

8. Anything Else?

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

Equitable Access

We recommend that pCODR, when assessing and reporting on implementation issues with respect to Osimertinib for NSCLC, examine the issues of equitable access across all Canadian jurisdictions.

Safety

With respect to implementation, we believe pCODR should also examine the issue of safety with respect to take-home cancer drugs. From 2006 to 2011, it is estimated that Ontario's computerized provider order entry system, the *Oncology Patient Information System* (OPIS) prevented 8,500 adverse drug events, 5,000 physician office visits, 750 hospitalizations, 57 deaths, and saved millions in annual healthcare costs. But, this system is only used for IV Drugs. As a result, patients requiring THCDs are (currently) subject to significant safety challenges, and health systems are subject to significant annual costs (physician office visits, hospitalizations etc)[8].

In Ontario, dispensing and delivery models for THCD have been documented to be inconsistent and pose serious safety concerns for patients and their families. Some patients receive their medication from hospital pharmacies, some from specialty pharmacies, and some from community pharmacies that lack specialization and training in the handling of toxic cancer medications. This contrasts with the robust guidelines and clear processes that have been developed for intravenous cancer drugs (IVCD) where delivery is more comprehensive, organized, safer and patient-centred than THCD. There are numerous known safety and quality deficits related to the current method of community dispensing of THCD including incorrect dosing and handling, limited monitoring and non-adherence (which can lead to under or overdosing), serious toxicity, morbidity, and mortality. Patient lives and well-being are at stake. Ontario urgently needs to reform its systems for THCD dispensing that embed high-quality, safe practices that recognize the unique aspects of these drugs.

In April 2017, Cancer Care Ontario organized the Oncology Pharmacy Task Force with the mandate to advise Cancer Care Ontario (CCO) on how to enhance the current system for THCD delivery to optimize quality and safety; and subsequently, to deliver a report to the Ministry of Health and Long-Term Care (MOHLTC) based on the findings of the Task Force. The Task Force included representatives from patient advocacy groups, pharmacy and pharmacist associations, regulatory and standard setting organizations, and subject matter experts. On March 25th, 2019 the report was completed and published on the CCO website, **but there has been no follow up or action taken to the many important recommendations.** The report Enhancing the Delivery of Take-Home Cancer Drugs in Ontario (March 2019) can be found at:

https://www.cancercareontario.ca/sites/ccocancercare/files/guidelines/full/1_CCO_THCD_Report_25Apr2019.pdf

CanCertainty suggests that pCODR include the issues of safety and dispensing when examining and reporting on issues concerning pan-Canadian implementation of osimertinib for NSCLC.

[8] eHealth Ontario. *Cancer Care Ontario and eHealth Ontario Partner to Deliver Safer Chemotherapy Treatment.* Toronto, ON: 2011. Available at: https://ehealthontario.on.ca/en/news/view/cancer-care-ontario-ehealth-ontario-partner-to-deliver-safer-chemotherapy

COST OF SAME TAKE-HOME CANCER TREATMENT BY PROVINCE

CANCERTAINTY
EQUAL AND FAIR CANCER TREATMENT FOR ALL

CANCER PATIENTS IN ONTARIO AND ATLANTIC FACE SIGNIFICANT OUT OF POCKET COSTS

[1] Ontario
$3,400 Trillium Deductible
(4% of household net income)

[2] Québec
$1,046 Maximum Individual Deductible

[3] New Brunswick
$2,000+ Annual Insurance Premium per adult, $0 annual deductible, $30 copayment per prescription

[4] Nova Scotia
$23,400 Deductible, $17,550 Copayment, NS Family Pharmacare pays 100% after $29,250

[5] Prince Edward Island
$14,400 Family Deductible under Catastrophic Drug Program = 12% on household income > $100,000

[6] Newfoundland & Labrador
$8,500 (10% Net family income)
Out-of-pocket limit set at 5%, 7.5%, or 10% of net family income

CANCER IS CANCER.
TREATMENT IS TREATMENT.
WHEREVER IN CANADA YOU LIVE.
WWW.CANCERTAINTYFORALL.CA

ASSUMPTIONS

1. Based on total household income of $120,000 ($85,000 net).
2. Oral cancer medication costing $6,000 per month for 12 months.
3. No private insurance.

SOURCES
http://www.health.gov.on.ca/en/public/programs/drugs/programs/odb/opdp_trillium.aspx
http://www.ramq.gouv.qc.ca/en/citizens/prescription-drug-insurance/Pages/amount-to-pay-prescription-drugs.aspx
NS Family Pharmacare Calculator: http://novascotia.ca/dhw/pharmacare/family-calculator.asp
NS Family Pharmacare Deductibe must be paid in FULL before patients start to pay "only" the copay amount of 20% per prescription.
NLPD Assurance Plan via http://www.parl.gc.ca/Content/LOP/ResearchPublications/prb0906-e.htm
New Brunswick Drug Plan Premium: http://www2.gnb.ca/content/gnb/en/departments/health/MedicarePrescriptionDrugPlan/NBDrugPlan/Premiums.html
http://healthpei.ca/catastrophic

Appendix: Patient Group Conflict of Interest Declaration

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

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

   This submission was completed exclusively using CanCertainty resources and personnel and contract personnel.

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

Data was collected and analyzed using CanCertainty personnel/contract personnel.

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

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

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

Name: Robert Bick
Position: Co-Lead
Patient Group: CanCertainty
Date: April 16, 2021

CADTH

CADTH Reimbursement Review
Patient Input Template

Name of the Drug and Indication	Tagrisso (osimertinib) as an adjuvant therapy after tumour resection in patients with stage IB-IIIA non-small cell lung cancer (NSCLC) whose tumours have epidermal growth factor receptor (EGFR) exon 19 deletions or exon 21 (L858R) substitution mutations.
Name of the Patient Group	Lung Cancer Canada
Author of the Submission	[redacted]
Name of the Primary Contact for This Submission	[redacted]
Email	[redacted]
Telephone Number	[redacted]

1. About Your Patient Group

Lung Cancer Canada is a registered national charitable organization that serves as Canada's leading resource for lung cancer education, patient support, research and advocacy. Lung Cancer Canada is a member of the Global Lung Cancer Coalition and is the only organization in Canada focused exclusively on lung cancer.

https://www.lungcancercanada.ca/

Lung Cancer Canada is registered with CADTH.

2. Information Gathering

- Data collection: The information was collected through interviews of stage 1B – 3A EGFR+ non-small cell lung cancer (NSCLC) patients located in Canada. The thoughts and experiences of the patients have been included in the submission. The information was accessed March – April 2021.
- Demographic data:
    - EGFR+ NSCLC is found to be more common in non-smokers, women, young adults and those of Asian descent.

Gender	Age	Patient/Caregiver	Source	Location
Female	65	Patient	Interview	Canada
Male	45	Patient	Interview	Canada
Female	69	Patient	Interview	Canada
Female	56	Patient	Interview	Canada
Female	N/A	Patient	Interview	Canada
Female	56	Patient	Interview	Canada

3. Disease Experience

A diagnosis of lung cancer, the most commonly diagnosed cancer and the leading cause of cancer death in Canada can leave patients and their loved ones shocked and filled with worry and anxiety. This is because lung cancer causes more deaths than colorectal, pancreatic and breast cancers combined, and has a 5-year survival rate of just 19% (Canadian Cancer Society, 2020).

Unlike previous recent submissions CADTH has received for lung cancer, this submission is for EARLY stage lung cancer. Treatment is with CURATIVE intent.

Early-stage lung cancer occurs in about 30% of lung cancer cases. A diagnosis of lung cancer at this stage is treated with cure as an end goal. However many are not actually cured, and 30 - 50% of patients will relapse within 5 years and may die despite earlier surgical resection. There is a high unmet need in early stage lung cancer for treatments that help prevent recurrence.

There are two main types of lung cancer, with non-small cell lung cancer (NSCLC) occurring in about 85% of cases. Over the years, biomarkers have been identified and this has allowed for life-extending treatment choices for patients. For this submission, the EGFR mutation, found in about 15% of NSCLC patients is the one under consideration. Treatments targeting the EGFR mutation are universally used to treat EGFR+ advanced staged lung cancer and is the standard of care. These oral treatments have played a critical role in substantially improving survival and quality of life for patients.

Osimertinib, the treatment being considered in this submission is a standard of care for the treatment of advanced EGFR+ NSCLC. Results of the recent ADAURA trial have shown osimertinib is also effective in early-stage EGFR+ NSCLC by providing “insurance” from recurrence and a more durable cure.

Lung Cancer Canada believes this form of treatment should be considered for this group of patients. With the known high recurrence rates and poor prognosis of lung cancer with even poorer rates in advanced stages, there is a high unmet need to prevent or delay the recurrence of the cancer and achieve a higher cure rate in early stages. A diagnosis of

lung cancer can be quite devastating regardless of stage. This treatment can help insure against the cancer coming back. This is an opportunity to improve the odds so they can live longer and be disease-free. It helps to prevent progression to an advanced stage that is associated with possible debilitating symptoms and additional costs both to the healthcare system, and costs and burdens for the patients, their caregivers and loved ones.

4. Experiences With Currently Available Treatments

The treatment for early-stage lung cancer is surgery with chemotherapy and radiation therapy, which are given based on stage, tumor location and other comorbidities. The currently available comparator to the requested treatment is adjuvant chemotherapy.

Patient experience on chemotherapy in this group of patients is consistent with the experience and burden of care seen with the treatment of chemotherapy in any other lung cancer treatment settings. The experiences of patients on chemotherapy are well documented and discussed in previous Lung Cancer Canada submissions.

It should be noted, patients treated with adjuvant chemotherapy still relapse showing this form of treatment is not effective at preventing recurrence or keeping patient disease-free.

5. Improved Outcomes

For this group of patients who are typically back to “normal” after surgical resection and adjuvant therapy, expected outcomes with osimertinib include:

- Prevent cancer from returning
- Prolong patients’ cancer-free life
- Ensure patients are actually cured
- Allow patients fulfil their life goals and can live longer
- Return to a high level of “normal” similar to life before cancer
- Treatment should not adversely affect their quality of life

6. Experience With Drug Under Review

This submission discusses patients with early-stage lung cancer which is curable with treatment. Patients want to be disease-free. They want a treatment that will prevent the cancer from recurring and will also not interfere with their daily living. Unlike advanced stages where patients may be unable to manage their daily activities which adversely affects their livelihood, these early-stage patients are actually quite well and continue to do so with treatment.

It should be noted, patients diagnosed at an early stage are a different population compared to those diagnosed at a later stage and they have a very different disease experience. Unlike advanced cases, the treatment goal for these patients is to be cancer free and be able to return to their normal lives. This “normal” is a very high level of living – close to pre-cancer - that allows them to continue being productive, go back to work and return to life.

Experiences from patients on osimertinib are detailed below.

Access to Treatment:

See chart below:

Gender	Age	Year of Diagnosis	Stage	Currently on Treatment	Duration on treatment	If not on treatment, why?	Source of Treatment
F (A)	65	2015	1B – 3A	No	nil	Yet to start	Access program
M (B)	45	2020	2	Yes	1 month	N/A	Access program
F (C)	69	2018	3A	No	3 months	Pneumonitis	Clinical Trial
F (D)	56	2020	3A	Yes	2 months	N/A	Insurance
F (E)	69	2017	1A – 1B	Yes	3 months	N/A	Access Program
F (F)	56	2020	3A	Yes	4 months	N/A	Insurance

Osimertinib allows patients to continue living their normal lives:

Receiving a lung cancer diagnosis was devastating for Patient B and his family, but after surgery and since starting treatment with osimertinib, he feels good, is back to work full time and is hopeful for the future. For him, this treatment is much better than chemotherapy. While Patient C was on the treatment, she tolerated it quite well and was able to continue with her daily livelihood but stopped early due to pneumonitis. Almost 3 years later, the cancer has not returned and her recent CT scan 2 weeks ago was clear.

Patient D, is a non-smoker and has a family history of colon cancer. Her lung cancer diagnosis was unexpected and a huge shock. She says it is easy to take a pill and go about her daily activities unlike chemotherapy where she was stuck in the hospital. She too is back to work full time and able to live a normal life. Follow-up tests since starting osimertinib showed one of two remaining nodules after chemotherapy had resolved while another had shrunk significantly.

Patient E was initially diagnosed with stage 1A in 2017 and was treated successfully with surgery. The cancer recurred in 2020 and is currently stage 3. She was glad to be offered the treatment and hopes it will prevent the cancer from returning. Upon initially testing, Patient F was thought to have stage 1A lung cancer. Further testing showed it was stage 3A. Post-surgery and chemotherapy she was given a clean bill of health and then she was placed on osimertinib and has been able to continue with her daily living.

The patients interviewed concur that with osimertinib they are able to stay active, go back to work and return to their normal lives.

Dosage Route:

The patients interviewed are pleased to have this form of treatment administration with osimertinib, which is an oral pill. Having been treated with adjuvant chemotherapy which is given via the intravenous route, patients definitely prefer this treatment method. It is easy to take and allows them continue with their daily lives. It also reduces the burden on their caregivers and loved ones as they sometimes have to take them for their treatments at the clinics or hospitals. It is also a treatment that does not increase hospital burden as it does not occupy a chemo chair.

Side Effects were Manageable:

The most common side effects associated with osimertinib are fatigue, rash, diarrhea, anemia, rash, musculoskeletal pain, neutropenia, dry skin, stomatitis, fatigue, and cough.

Patients interviewed experienced minimal to no side effects. Patient B developed a slight rash on his face and chest but says it has not adversely affected his daily life. Patient C was delighted that she was able to receive a drug that could help her even though she had to stop after just 3 months. She had no side effects while on osimertinib, however a follow-up x-ray showed she had developed pneumonitis and she subsequently had to stop the clinical trial.

Chemotherapy, Patient D says was not fun at all as she developed nausea and extreme fatigue. She had to take sick leave at the time due to the effects of chemotherapy. Currently on osimertinib, her quality of life is much better. She did develop skin pustules which were treated with cortisol and have since resolved, but otherwise has no other adverse reactions with the treatment. Patient E has had no side effects since taking osimertinib. Unlike chemotherapy

which gave her severe nausea and fatigue, with osimertinib, Patient F has only experienced mild nausea on the treatment.

Key Patient Values and Considerations:

The values in this group of patients are completely different from patients with advanced stage disease. Osimertinib in early-stage lung cancer is used as an adjuvant treatment and unlike its use in advanced stage, is only used for three years. Therefore the patient values and considerations centre on the impact of this additional treatment for three years post-surgery and/chemotherapy.

When offered osimertinib as a treatment that could possibly keep them cancer-free for a longer period of time, patients considered several factors including the need for the treatment as well as the financial burden. They weighed the pros and cons of the treatment, their current condition and the whether to take the treatment now or later if they progressed. For stage 1 – 2 patients, there was the need to keep the cancer at bay. For some, the cancer had already come back, one patient actually had 2 recurrences going from initially a stage 1B to now a stage 3A. For stage 3A patients there was the need to ensure margins were clean and any remaining tumours were treated and did not return. So, after calculated considerations and even discussions with their loved ones, all the patients interviewed decided to take osimertinib and are all doing well.

Prevention of recurrence is a key consideration for patients

Patient E is a firm believer in getting things done earlier and was glad to be offered the treatment especially after having one recurrence of cancer. Patient F decided to take the treatment to prevent the cancer from coming back. Knowing with odds of a possible recurrence and the low survival rates in lung cancer, she feels this was the right option for her and was glad to have it available. One patient believes anyone given the opportunity to take this medication would grab it, especially if it means the possibility of life and another wanted to give herself every possible chance.

Patient A was first diagnosed in 2015 with stage 1B lung cancer, a right upper lobectomy was performed and she was given adjuvant chemotherapy. The cancer recurred in 2017, but this time due to the location it was deemed inoperable and she was treated with chemotherapy and radiation therapy. All treatments were successful. In 2020, yet again the cancer came back and this time it was stage 3A. She recently had another successful surgery and will be treated with adjuvant chemotherapy and subsequently osimertinib. For her, the treatment is the promise of hope and life and felt it would be a lot better to have it now rather than waiting for cancer number 4 to come along. She recently had surgery 4 weeks ago and will be starting chemotherapy which will be followed by osimertinib. Her mother passed away from lung cancer in 2002 and her older sister also passed away from lung cancer only a year after her diagnosis. When she received her diagnosed all she could think about was how long she had to live. But now she is hopeful that when she receives the treatment it will help prevent another recurrence.

Cost of treatment is a more significant consideration for this group of patients.

When Patient B was initially told about osimertinib, he jumped at chance but due to the cost he could not afford the treatment. After his last chemotherapy session, he was informed that he would be able to get the treatment through a special access program. He was really happy to get the news. For him this was chance to prevent the cancer from recurring. Patient A had no hesitations when she was offered the treatment and would not have been able to afford the treatment without a special access program. Patient C was enrolled in a clinical trial. Patients D and F accessed the treatment through insurance. 80% of Patient F's treatment was covered by her insurance and the remaining 20% by the manufacturer. One patient was so worried about the cost of treatment when she was offered and was even considering fundraising to be able to cover the cost, but thankfully was able to get the treatment through a special access program. Patients should not have to fundraise to get access to needed treatments.

Treatment cost is a significant factor for all cancer patients, regardless of stage. However in the early stage lung cancer, the decision to pay for treatment differs from late stage. One patient who was able to get osimertinib through a special access program says she would not have been able to afford it herself because of the high cost. Her private insurance would not cover the cost of the treatment. Patient D discussed the cost of treatment with her spouse and they felt it would be a financial burden for the family. This was the general agreement amongst the patients interviewed.

Stage of cancer and surgical outcome also influenced treatment decisions.

The treatment outcome for early stage lung cancer is for a cure. The threat of recurrence can jeopardize the cure. Early stage lung cancer is a spectrum that ranges from 1 to 3. Of the patients that were interviewed, observationally, it appeared that patients with later stage early lung cancer were more likely to accept osimertinib as treatment and make the decision to take treatment faster. For some patients, especially those at stage 3A where even after surgery the margins were not clean or after adjuvant chemotherapy some nodules still remained, the decision to take osimertinib was much easier.

Patients expect a high level of normal – close to pre-cancer

Life after initial treatment with surgery and chemotherapy for these patients has been about the ability to go back to some form of normalcy. For Patient A, despite two surgeries, chemotherapy and radiation therapy as well as some diminished lung capacity, she feels fine. She does get breathless with prolonged activity but otherwise is able to stay active. She has even been involved in cancer fundraising marathons in the last few years. With osimertinib, she hope to still be able to maintain her independence, functionality and stay physically active or as she says, "continue to have some kind of normal life".

Though patient C had to be taken off osimertinib after 3 months, she was quite active and living with a good quality of life. She was about to go on a trip and went in for a follow-up when pneumonitis was detected on her X-ray. She had no side effects with osimertinib and tolerated it really well. She initially took time off work then returned to work part-time while recovering from chemotherapy. She was back to full-time work for a year before retiring. For Patient D, normalcy is being able to work fulltime, travel, go out to restaurants and spend time with loved ones. While some activities have been halted due to the pandemic, she is back to her normal life and able to accomplish these goals. She plans to go golfing in the summer.

Patients do not want treatments to be a barrier to normal

Prior to her diagnosis, Patient D worked 5 days a week, from 9 to 5, with busy days and lots of meetings. After recuperating from surgery and chemotherapy she is back to work fulltime, but she currently works from home due to the COVID-19 pandemic. She has a lot of hope for this treatment and was glad to be able to receive it now rather than later when she may progress. She is also hopeful that the treatment can keep the cancer at bay. She says, “I am 56, so I want still want to be healthy and still want to do things like travel. Being cancer free at my age is better than waiting to see if there is progression when I am older and have worse symptoms”. Taking osimertinib gives me and my husband the ability to continue on with our normal life. I have hardly any side effects with this treatment and there is less disruption in our schedule. Covid depending, we can return to our love of travel, plan for vacations knowing that the medicine is keeping the lung cancer from reoccurring”. She did not hesitate when she was offered osimertinib.

Patient A is yet to start treatment, while she may not have the ability be as active due to previous surgeries and treatments, she hopes osimertinib will allow her to find other outlets, to be creative and continue being productive. This is treatment will hopefully give her the possibility of a long and “normal” life.

For these patients, disease-free survival means living longer, having a good quality of life, less burden on loved ones, reduced hospital visits, time to spend with family and loved ones and hope for the future. Osimertininib, which is an oral pill does not interfere with their daily lives. Side effects do no leave them nauseated, fatigued and in bed all day. This is a treatment that can allow patients to go back to their usual normal lives. These patients don’t want their cancer to come back and believe osimertinib will give them better odds and a better chance at preventing recurrence.

7. Companion Diagnostic Test

EGFR testing is routinely performed in many centres across the country for advanced stage lung cancer and can be expanded to include earlier stages. 15% of those living with lung cancer are EGFR positive. Given that 30 – 50% of early stage lung cancer eventually progress and that

EGFR is not an acquired mutation, the additional cost of testing does not have significant cost impact.

8. Anything Else?

The treatment of patients with early-stage lung cancer has the intent to give patients the best chance at a cure but unfortunately, 30 – 50% of patients develop a recurrence with many presenting at an advanced stage. Preventive treatments where possible should be made available to patients to give them a better chance at survival and the possibility of a longer and healthier life. Osimertinib, the requested treatment, which can offer patients this possibility has been shown to be effective in treating early-stage EGFR+ NSCLC patients.

The ADAURA trial, a phase 3, double blinded study was carried out to determine disease-free survival, overall survival, and safety in patients with stage IB to IIIA EGFR+ NSCLC. The results of the trial showed patients disease-free survival was significantly longer among those who received osimertinib compared those who received placebo (89% of the patients in the osimertinib group vs 52% in the placebo group at 24 months). These results show patients could benefit from this form of treatment. Osimertinib is the standard of care for the treatment of EGFR+ advanced NSCLC, but the results of the trial demonstrate it is also beneficial in earlier stages of lung cancer as well.

Lung Cancer Canada understands possible the financial burden of this treatment on the public healthcare system would be concerning for CADTH. A recent osimertinib pCODR economic analysis of this treatment (un-negotiated price) would cost over $100,000 per year. With these patients taking osimertinib for up to 3 years, it is a considerable cost. However, if patients were to progress to a later stage, the financial and economic implications are much higher than an early-stage diagnosis. There would be added costs for hospitalization, surgical and radiological procedures, supportive and palliative care. Patients could also lose productivity, wages and even become a burden on their loved ones and have other losses that are unquantifiable.

With such low prognosis and survival rates, there is a high unmet need to ensure patients are truly cured and can continue living their normal lives. Osimertinib, an EGFR inhibitor is a form of treatment Lung Cancer Canada hopes CADTH provides a positive recommendation. For this group of patients, access to this treatment is a chance they can remain disease free, allowing them remain productive and continue living normal lives. A cure is the ultimate cancer goal and this is a chance that Lung Cancer Canada feels, is worth the cost.

Appendix: Patient Group Conflict of Interest Declaration

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

No

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

No

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

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

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

Name: Christina Sit
Position: Director, Programs and Stakeholder Relations
Patient Group: Lung Cancer Canada
Date: April 16, 2021

CADTH

Patient Input Template for CADTH CDR and pCODR Programs

Name of the Drug and Indication	**Osimertinib / Tagrisso** **Non-small Cell Lung Cancer**
Name of the Patient Group	**Lung Health Foundation / The Ontario Lung Association**
Author of the Submission	[redacted]
Name of the Primary Contact for This Submission	[redacted]
Email	[redacted]
Telephone Number	[redacted]

1. About Your Patient Group

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

The Ontario Lung Association (now named Lung Health Foundation) is registered with the CADTH and pCODR (www.lunghealth.ca).

The Lung Health Foundation (Ontario Lung Association) is a registered charity that assists and empowers people living with or caring for others with lung disease. It is a recognized leader, voice and primary resource in the prevention and control of respiratory illness, tobacco cessation and prevention, and its effects on lung health. The Foundation provides programs and services to patients and health-care providers, invests in lung research and advocates for improved policies on lung health. It is run by a board of directors and has approximately 35 employees, supported by thousands of dedicated volunteers.

2. Information Gathering

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

The information provided from the Lung Health Foundation (Ontario Lung Association) in this submission was obtained from eleven on-line surveys completed by people living with lung cancer and two caregivers to a family member living with lung cancer (all online input was

received in February 2021). Three virtual focus groups, held using the Zoom platform, were also completed in April 2021 and contributed to this submission. These focus group were comprised of 10 people, 7 people living with lung cancer and three caregivers to a family member living with lung cancer. Respondents were from British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia. Information on age and gender was not collected from any of the respondents. Input from a certified respiratory educator, whose role at the Lung Health Foundation includes answering the Lung Health Line and educating people living with lung disease, was also obtained for this submission. That individual reviewed sections related to disease experience, experiences with available treatments and outcomes.

3. Disease Experience

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

All 23 people responded to our questions focused on disease experience, and in order of significance, the symptoms and challenges that people experience as a result of their lung cancer are fatigue (64%), shortness of breath (64%), cough (27%), difficulty fighting infection (27%) and chest tightness (18%). A few other responses included: pain, wheezing, reduced appetite, weight loss, anxiety and sadness.

When asked whether this condition affected their day-to-day life, respondents indicated that it did indeed impact greatly their ability to work (54%), do household work / chores (40%), play sports / exercise (40%), participate in hobbies and leisure activities (36%), and socialize (29%). A few other responses included: use stairs, cook / meal preparation, take day trips and be optimistic / positive about the future.

And when asked to respond to any negative impacts on their life overall as a result of living with lung cancer, their replies included; feeling isolated, experiencing poor emotional well-being, being short-tempered / impatient with others, feeling cold much of the time, waking up in the night or very early in the morning and diminishing meaningful relationships with friends.

Some direct patient quotes are:

- "I feel so alone"
- "I was almost depressed while in treatment"
- "You never stop thinking about it"
- "It can be so overwhelming"
- "I find it difficult to think clearly"
- This condition negatively effects my emotional and social life"
- "I have a lot of anxiety and sadness now"
- "I can no longer walk far distances anymore"
- "My social life has all but disappeared"

- Waking up in the night or early in the morning because of breathing problems
- Not knowing how to deal with breathing problems
- Time spent managing symptoms
- Feeling cold
- Having difficulties with cuddling and kissing
- Excessive time spent attending medical appointments

The focus group participants shared the additional following thoughts on their experiences:

- Navigation – there is a huge need for this in the lung cancer journey (patient navigators exist in other cancers, so why not in lung cancer)
- There appears to be a discrepancy in supports based on type of cancer (lung cancer being at the bottom of this ladder in their experiences)
- Choice – there is a desire for more treatment options
- Patients are turning to United States for support and in some cases treatment / services
- Support (face-to-face / virtual / group / peer-to-peer) –there is a lack of what is needed – "This journey is so isolating"
- Family physicians should be more informed of possible signs and symptoms of lung cancer (this would lead to earlier diagnosis for some people)
- Stigma – exists for patients, family members and for oncologists
- Self-advocacy – this is needed at every stage (testing / diagnosis / treatment options / etc..) to ensure the best possible outcome for yourself

4. Experiences With Currently Available Treatments

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

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

Treatments tried by those who completed the on-line survey as well as the phone interview include: Gefitinib, Entrectnib, Anora Ellipta, Ventolin, Trelegy, Onbrez, Alvesco, Besylate, Amlodipine, Lyrica, Breo and one respondent indicated the use of Cannabis.

These treatments have some side effects such as fatigue, low energy, diarrhea, nausea, appetite loss, weight loss, heart palpitations and face blistering / rash. Two other side effects noted by patients were headaches and difficulty sleeping.

Quality of life, reduction in symptoms, improved symptom management and improved energy were the top four things mentioned when asked about what the most important benefits were when considering a new medication or treatment for their lung cancer.

5. Improved Outcomes

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

Key treatment outcomes for this group of lung cancer patients include stopping or slowing the progression of the disease, reducing pain, fatigue, and shortness of breath, and to improve appetite. All but one person mentioned a desire for more energy.

Quality of life, not just extension of life, was a theme that consistently emerged in the responses. More information about lung cancer that is readily available was mentioned as was more community based supports.

6. Experience With Drug Under Review

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

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

No patients within this evidence group submission has experience with the medication under review.

7. Companion Diagnostic Test

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

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

Consider:

- Access to testing: for example, proximity to testing facility, availability of appointment.
- Testing: for example, how was the test done? Did testing delay the treatment from beginning? Were there any adverse effects associated with testing?

- Cost of testing: Who paid for testing? If the cost was out of pocket, what was the impact of having to pay? Were there travel costs involved?
- How patients and caregivers feel about testing: for example, understanding why the test happened, coping with anxiety while waiting for the test result, uncertainty about making a decision given the test result.

Not applicable

8. Anything Else?

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

Not applicable

Appendix: Patient Group Conflict of Interest Declaration

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

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

No – not applicable

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

No – not applicable

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

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

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

Name: Peter Glazier
Position: Executive Vice President
Patient Group: Lung Health Foundation / Ontario Lung Association
Date: April 16, 2021