Review

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The impact of willingness-to-pay threshold on price reduction recommendations for oncology drugs: a review of assessments conducted by the Canadian Agency for Drugs and Technologies in Health

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Since late 2020, the Canadian Agency of Drugs and Technologies in Health (CADTH) has been using a threshold of $50,000 (CAD) per quality-adjusted life-year (QALY) for both oncology and non-oncology drugs. When used for oncology products, this threshold is hypothesized to have a higher impact on the time to access these drugs in Canada. We studied the impact of price reductions on time to engagement and negotiation with the pan-Canadian Pharmaceutical Alliance for oncology drugs reviewed by CADTH between January 2020 and December 2022. Overall, 103 assessments reported data on price reductions recommended by CADTH to meet the cost–effectiveness threshold for reimbursement. Of these assessments, 57% (59/103) recommendations included a price reduction of greater than 70% off the list price. Eight percent (8/103) were not cost-effective even at a 100% price reduction. Of the 47 assessments that had a clear benefit, in 21 (45%) CADTH recommended a price reduction of at least 70%. The median time to price negotiation (not including time to engagement) for assessments that received at least 70% vs >70% price reduction was 2.6 vs 4.8 months. This study showed that there is a divergence between drug sponsor's incremental cost–effectiveness ratio (ICER) and CADTH revised ICER leading to a price reduction to meet the $50,000/QALY threshold. For the submissions with clear clinical benefit the median length of engagement (2.5 vs 3.3 months) and median length of negotiation (3.1 vs 3.6 months) were slightly shorter compared with the submissions where uncertainties were noted in the clinical benefit according to CADTH. This study shows that using a $50,000 per QALY threshold for oncology products potentially impacts timely access to life saving medications.

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Cancer remains the leading cause of mortality in Canada. Two in five Canadians are expected to be diagnosed with cancer in their lifetime and about one in four will die from the disease [1]. The economic burden of cancer in Canada has been estimated from a societal perspective to be $26.2 billion (CAD), of which nearly 30% is borne by patients and families [2].

Although the risk of death from cancer has decreased with the most recent statistics from USA [3] the age standardized incidence rates are expected to decrease in males and increase in females [4], the prevalence of cancer in Canada is still high and new therapies are needed to alleviate the disease burden [5]. With limited budgets, the funding of newly developed anticancer therapies present challenges for payers (public- and private). Any new cancer treatments receiving regulatory approval need to be cost-effective when compared with the current standard of care to be considered for reimbursement. Previous studies have shown that cancer patients' survival can be adversely affected by the inherent delays in the regulatory and reimbursement review process in Canada [6,7].

In Canada, health technology assessment (HTA) is performed by the Canadian Agency of Drugs and Technologies in Health (CADTH) for all provinces, except Quebec and the Institut national d'excellence en santé et en services sociaux (INESSS) for Quebec. The Government of Canada has proposed that CADTH will be changed as the Canadian Drug Agency in the future [8]. CADTH makes reimbursement recommendations to participating federal, provincial and territorial publicly funded drug plans, while INESSS issues them to the Quebec Ministry of Health. Individual government drug plans use guidance from CADTH or INESSS to make the final reimbursement decision about whether to list a drug and determine the specific listing criteria which usually follows the HTA recommendation. The pan-Canadian Pharmaceutical Alliance (pCPA) is the collective bargaining process with all government drug plans that negotiates a confidential net price for a drug with the manufacturer after the CADTH and INESSS reimbursement review process is completed [9].

CADTH considers several aspects of a new medicine before recommending it for reimbursement. These include the clinical benefit and cost–effectiveness of the drug compared with standard of care, patient input about the disease and their need for the therapy, clinician's input regarding the unmet need for a treatment for the indication of interest, and the adoption feasibility for the drug which includes the affordability based on the budget impact assessment of the drug and the organizational feasibility based on the enablers and barriers to the implementation.

Cost–effectiveness is the key factor in the approval of oncology therapies for reimbursement in many countries [10]. However, the use of quality adjusted life-year (QALY) to calculate an incremental cost–effectiveness ratio (ICER) has always been debated due to the inherent deficiencies in its use in different clinical trial settings [11]. CADTH does not have an official published ICER willingness-to-pay threshold for reimbursement recommendations. Nevertheless, since late 2020, CADTH recommendations for both oncology and non-oncology drugs refer to a willingness-to-pay threshold of $50,000 per QALY [9] and more new reimbursement recommendations for oncology medicines include price reductions to meet this cost–effectiveness threshold.

To understand the impact of price reduction recommendations to meet the $50,000/QALY threshold on the time to engagement and negotiations with the pCPA, we reviewed oncology drug recommendations made by CADTH in 2020, 2021 and 2022 to examine the impact of price reductions on the oncology drugs with completed pCPA negotiations.

Materials & methods

Data

CADTH reimbursement review reports published between January 2020 and December 2022 were identified. All reports for medicines categorized as oncology pharmaceuticals or cell and gene therapies were included. Data extracted from the reports included the drug's name, any drugs used in combination with it, the drug's indication, the population subgroup, whether the medicine was for a hematologic malignancy (yes/no) or metastatic disease in the sponsors requested indication (yes/no), the time horizon used in economic analyses, the base case manufacturer reported ICER, CADTH's suggested ICER, and the percentage price reduction recommended by CADTH. For disease severity, only metastatic disease indication was used in the analysis and neoadjuvant/adjuvant/perioperative or any other forms of disease severity were not considered. For reports recommending reimbursement, time to engagement by pCPA after the CADTH recommendation and the length of negotiation data were obtained from the online pCPA database for the oncology drugs with successfully completed price negotiations as of 14 June 2023. Medicines with 'active negotiation', 'negotiations were not pursued', 'concluded without an agreement' or 'under consideration for a negotiation' status were excluded from the analysis. Some medicines had multiple assessments with different indications and/or comparisons within each submission and, consequently, the total number of assessments is greater than the total number of reports. ICER values and price reduction recommendations are presented according to the total number of assessments.

Analysis

Manufacturer-reported and CADTH-revised base case ICERs were stratified according to <$50,000, $50,000-<$100,000, $100,000–$150,000 or >$150,000 per QALY and proportions of recommendations within each category calculated. In reimbursement reports that included both manufacturer-reported and CADTH-revised base case ICERs, the difference between two values was calculated. Reports that did not include a numerical value for the ICER were excluded from the analysis when an ICER difference was calculated. Assessments with respect to disease stage were categorized as metastatic/advanced disease or non-metastatic indications and whether the indication was for a hematologic or non-hematologic malignancy. Where CADTH noted uncertainty about the

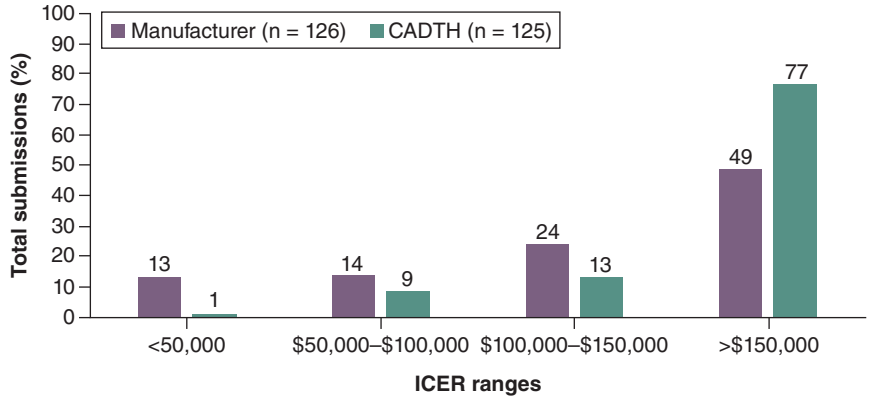

Figure 1. Manufacturer and CADTH reported base-case ICERs across oncology submissions with positive recommendations (January 2020–December 2022). $ are in CAD.

magnitude of the clinical benefit, uncertainty in the results, the clinical benefit was unknown, or no conclusions could be drawn about the clinical benefit, the report was categorized as an assessment with uncertain clinical benefit. For the pricing analysis, any reimbursement assessments that did not report a price reduction value were excluded from the analysis.

Results

From January 2020 to December 2022, CADTH reviewed 95 unique submissions of oncology pharmaceuticals and oncology cell and gene therapies [12–106], resulting in 206 assessments. Of the 95 submissions, 80 (184 assessments) received a positive reimbursement recommendation with or without a condition to reduce the price to meet the cost–effectiveness threshold of $50,000 per QALY. Only two drugs – trastuzumab emtansine for early breast cancer and gemtuzumab ozogamicin for acute myeloid leukemia – were considered cost-effective by CADTH. Of the assessments, 20% were for hematologic cancers and 80% were for non-hematologic cancers. The majority of the reports with a positive recommendation used a 10-year time horizon for the economic model (Supplementary Table 1).

ICERs

Figure 1 shows data for the ICERs reported by manufacturers and CADTH. The data presented show that 49% of the manufacturer-reported base case ICERs were >$150,000 per QALY, which increased to 77% for the CADTH-revised estimates. While only 10% of the manufacturer-reported base case ICERs were under the CADTH acceptable threshold of $50,000 per QALY, only one submission trastuzumab emtansine for early breast cancer had a CADTH-revised ICER $17,714/QALY under the threshold ($50,000/QALY). The median ICER across all manufacturer-reported base cases was $145K per QALY and the corresponding median value for CADTH-revised base case ICERs was almost double at $295K per QALY.

Clinical benefit

CADTH considers clinical benefit as a key factor in the reimbursement decision. It reported a clear net clinical benefit in 65 of the 184 assessments (35%) receiving a positive-conditional recommendation, while CADTH noted uncertainty or could not identify a clinical benefit in the other 119 assessments. Figure 2A shows the median ICER values reported by manufacturers and CADTH according to the clinical benefit identified by CADTH. Median ICERs reported by manufacturers were lower for the assessments with clear clinical benefit when compared with assessments with uncertain clinical benefit ($103,833 vs $151,852 per QALY). This difference was more pronounced in the CADTH-revised base case ICER estimates ($207,406 vs $352,899 per QALY).

Of the 184 assessments receiving a positive reimbursement recommendation, 103 reported data on price reductions set by CADTH to meet the cost–effectiveness threshold of $50,000 per QALY. In this group, according to CADTH, 56 (54%) had an uncertain clinical benefit and 47 (46%) had a clear clinical benefit. However, in the group with clear clinical benefit, CADTH still suggested a price reduction of at least 70% in 21 (45%) of the assessments and 26 (55%) had a recommended price reduction of less than 70% off the list price. A higher

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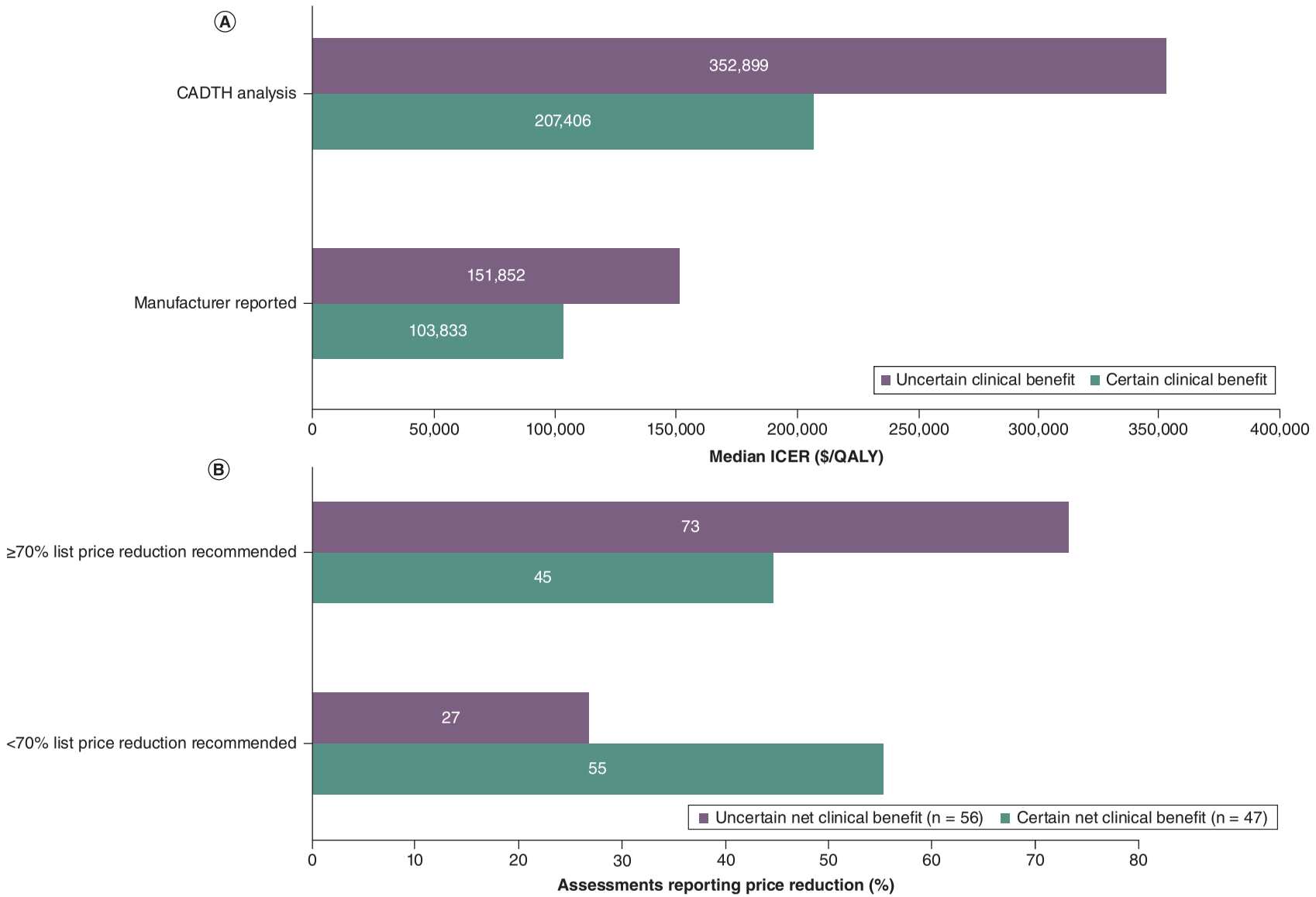

Figure 2. Incremental cost–effectiveness ratio and price reduction according to clinical benefit. (A) Median ICER according to clinical benefit of the oncology product. **(B)** Recommended list price reductions according to clinical benefit of the oncology product. $ are in CAD.
CADTH: Canadian Agency of Drugs and Technologies in Health; ICER: Incremental cost–effectiveness ratio.

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proportion of assessments (73%) with uncertain clinical benefit had a suggested price reduction of at least 70%, while 27% had a recommended price reduction of less than 70% (Figure 2B).

Of the assessments receiving 100% price reduction, in other words, those drugs that seemed not cost effective at $50,000/QALY even with a price reduction of 100%:

- isatuximab indicated for adults with relapsed or refractory multiple myeloma who have received one to three prior lines of therapy,
- nivolumab indicated for adjuvant treatment of adult patients with urothelial carcinoma who are at high risk of recurrence after undergoing radical resection of urothelial carcinoma, and
- pembrolizumab in combination with lenvatinib indicated for the treatment of adult patients with advanced endometrial carcinoma that is not microsatellite instability high or mismatch repair deficient, who have disease progression following prior platinum-based systemic therapy, and are not candidates for curative surgery or radiation,

showed clear clinical benefit, while the other drugs did not show certain clinical benefit according to CADTH.

Disease severity

Of the 184 assessments that received positive reimbursement recommendations, 126 (69%) were for metastatic/advanced cancer indications and 58 (31%) were for non-metastatic indications. Figure 3A shows the median of ICER values reported by manufacturers and CADTH analyses according to the disease severity of the indication in the assessment. Median ICERs reported by manufacturer were lower for assessments with non-metastatic disease compared with assessments with metastatic/advanced disease ($89,557 vs $151,852 per QALY). This difference was higher in the CADTH-revised base case ICER estimates ($194,360 vs $349,063 per QALY). In assessments with metastatic/advanced disease, 69% had recommendations to reduce the price by at least 70% compared with 45% in the assessments with non-metastatic disease (Figure 3B). Median ICERs reported by manufacturer and CADTH reanalysis were lower for hematological cancers when compared with non-hematological cancers. Median ICER for hematological cancer indications was lower for manufacturer reported ICERs when compared with CADTH reanalysis ($87,997 vs $257,720 per QALY). Similarly for non-hematological cancer indications, the median ICER was lower for manufacturer reported ICERs when compared with CADTH reanalysis ($151,852 vs $294,805 per QALY).

Price reductions & pCPA negotiation

Figure 4 shows the proportion of assessments that received a price reduction recommendation based on a $50,000 per QALY threshold. Only five (5%) of the assessments that reported price reduction data had a price reduction of less than 25% of the list price. Only acalabrutinib indicated for previously untreated chronic lymphocytic leukemia had a recommended price reduction of <10% off the list price.

Additionally, the following drugs had a recommended price reduction of <25% off the list price:

- pembrolizumab for first-line treatment of adult patients with unresectable or metastatic microsatellite instability-high or mismatch repair deficient colorectal cancer
- abemaciclib in combination with endocrine therapy for the adjuvant treatment of adult patients with hormone receptor–positive, human epidermal growth factor receptor 2–negative, node-positive, early breast cancer at high risk of disease recurrence based on clinicopathological features and a Ki-67 score of at least 20%, and
- atezolizumab as monotherapy for adjuvant treatment following resection and platinum-based chemotherapy for patients with non–small cell lung cancer whose tumors have programmed death-ligand 1 expression on 50% or more of tumor cells.

All these drugs had a CADTH-revised ICER of between $60,000 and $80,000 per QALY.

In addition, pembrolizumab for the treatment of adult and pediatric patients with refractory or relapsed classic Hodgkin lymphoma as monotherapy, who have failed autologous stem cell transplant or who are not candidates for multi-agent salvage chemotherapy and autologous stem cell transplant, had a recommended price reduction in the range of 13–29% to meet the $50,000 per QALY threshold.

Eighteen assessments (18%) had a price reduction recommendation of 25–50% off the list price and another 21 (20%) had a price reduction of 51–70% off the list price. Of the reviewed assessments, a higher proportion

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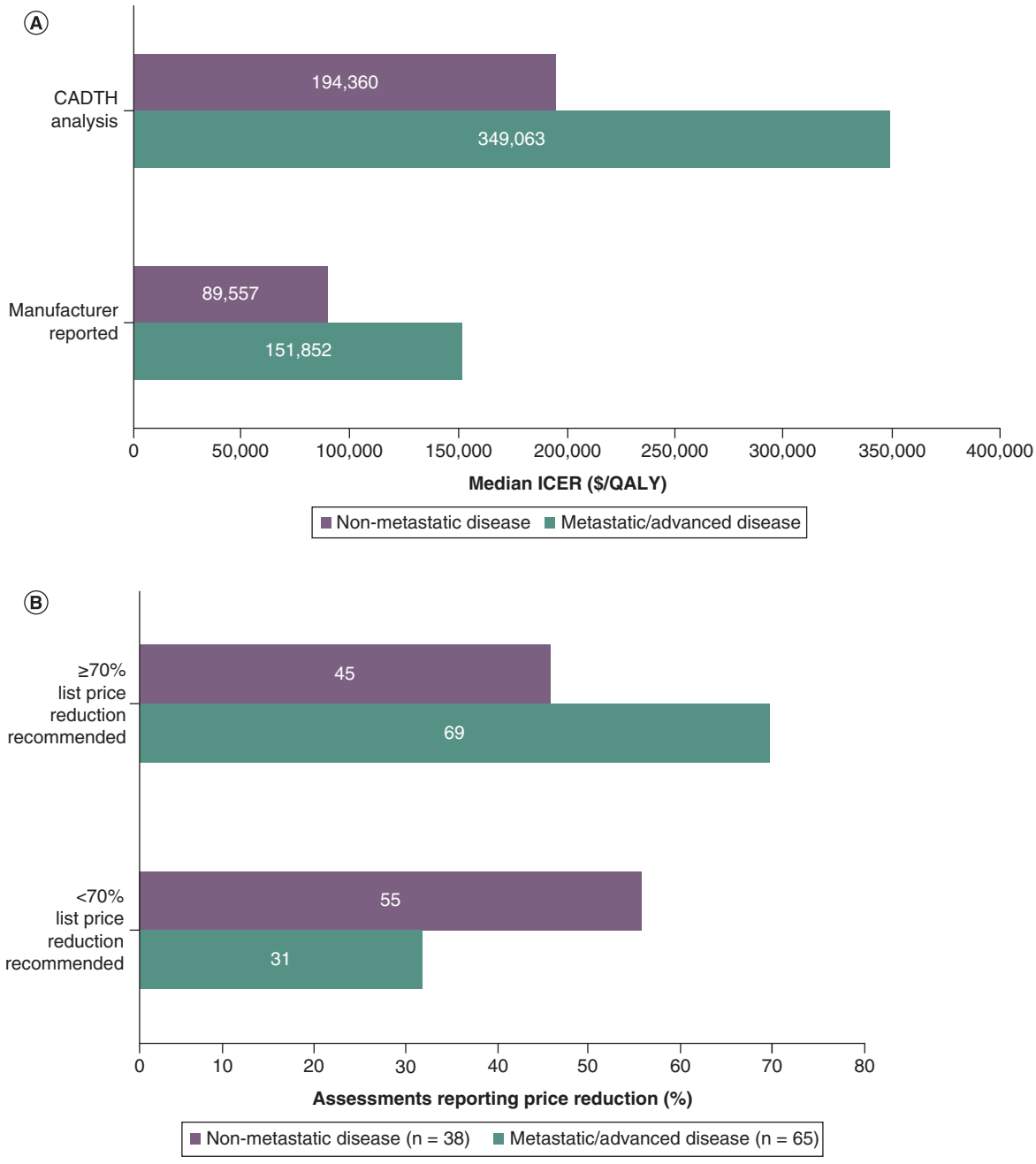

Figure 3. Incremental cost–effectiveness ratio and price reduction according to disease severity. (A) Median ICER according to disease severity. **(B)** Recommended list price reductions according to disease severity. $ are in CAD. CADTH: Canadian Agency of Drugs and Technologies in Health; ICER: Incremental cost–effectiveness ratio.

received more than a 70% price reduction for a conditional recommendation; 29 (28%) received a recommendation of 71–90% off the list price and 30 (29%) received a recommendation of 91–100% off the list price. Eight of 103 assessments (8%) had a recommendation of 100% off the list price. Recommended price reductions appear to correlate with CADTH-revised ICER estimates because assessments with higher ICERs received greater price reductions. All assessments, except venetoclax (indicated for newly diagnosed acute myeloid leukemia who are 75 years or older or who have comorbidities that preclude use of intensive induction chemotherapy), that received a recommended list price reduction of 100% had an ICER over $350,000 per QALY according to CADTH.

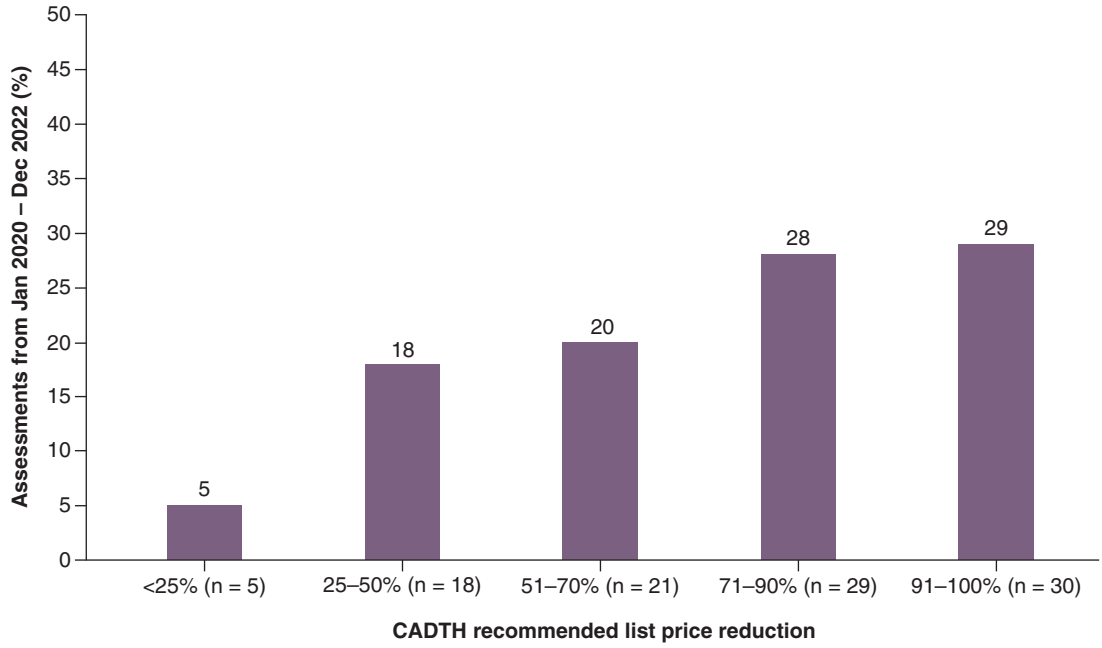

Figure 4. Price reductions recommended by Canadian Agency of Drugs and Technologies in Health for assessments from January 2020 to December 2022 (n = 103) based on a $50,000/quality-adjusted life-year for submissions with positive recommendation.
CADTH: Canadian Agency of Drugs and Technologies in Health.

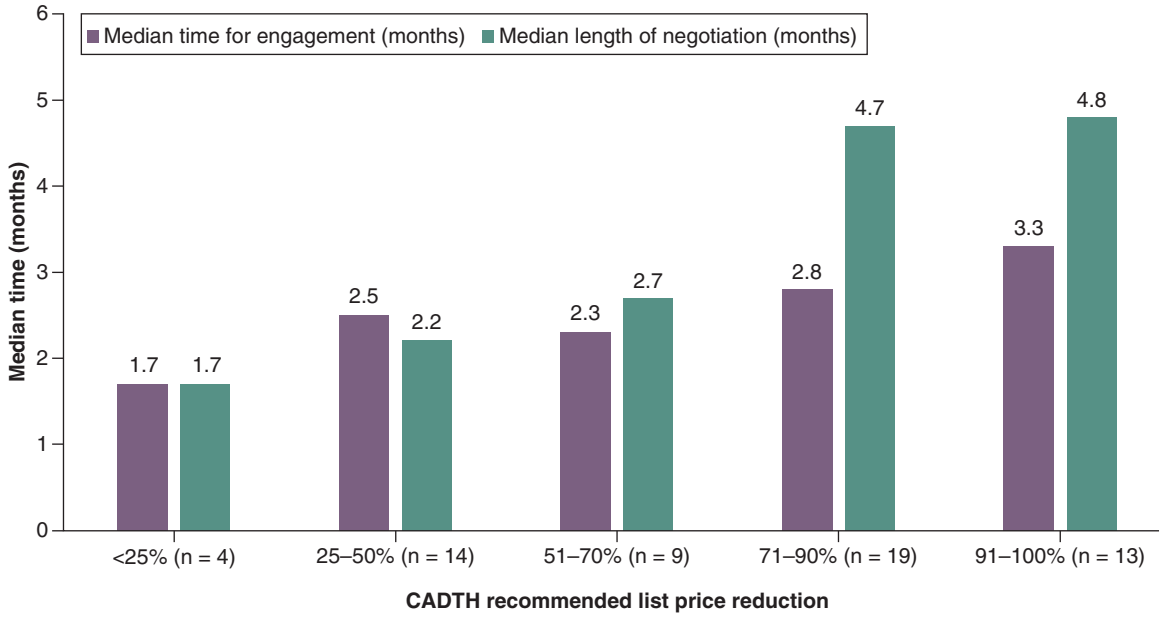

Figure 5. Median time for engagement and length of negotiation for the Canadian Agency of Drugs and Technologies in Health submissions from 2020 to 2022 completing pan-Canadian Pharmaceutical Alliance negotiations up to 14 June 2023.
CADTH: Canadian Agency of Drugs and Technologies in Health.

Venetoclax, although only having an ICER of $125,580 per QALY, was recommended with a price reduction of 100%.

For the recommendations that successfully completed negotiations with pCPA, Figure 5 presents data about the median time from CADTH recommendation to pCPA engagement and the median duration of the pCPA

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negotiation by CADTH recommended list price reduction. Any assessments with active negotiation status or under consideration for negotiation were excluded. Overall, 110 assessments completed the pCPA negotiation process by 14 June 2023, of which 105 assessments concluded with a letter of intent from pCPA. Of the 105 assessments, only 59 assessments were associated with price reduction recommendations and five assessments were considered cost-effective. Although not cost-effective at the manufacturer suggested price, the price reduction recommended by CADTH in 41 assessments did not specify the percentage of list price reduction needed to become cost-effective.

The median time to pCPA engagement was slightly different between assessments with a price reduction recommendation of 25–50% vs 91–100% (2.5 vs 3.3 months). The overall median time to pCPA engagement for all assessments that reported a price reduction was 2.8 months. From the data reviewed, it was clear that assessments recommended with higher price reductions had a higher median duration of pCPA negotiation. The median length of pCPA negotiation increased from 2.2 months for the assessments receiving a 25–50% price reduction recommendation to 4.8 months for assessments receiving a 91–100% price reduction recommendation. There was a difference in the median length of pCPA negotiation for assessments that received $\leq$70% vs >70% price reduction recommendations (2.6 v 4.8 months). Furthermore, the median length of pCPA negotiation for the 11 assessments with a recommended price reduction of at least 90% was 4.8 months, which is longer than a median of 3.3 months for assessments with a price reduction of less than 90%.

Discussion

This review showed that both the manufacturer-submitted base case and the CADTH-revised ICERs are much higher than the $50,000 per QALY threshold CADTH uses in reimbursement recommendations. The median ICER from CADTH reanalyses is almost six-times the CADTH acceptable threshold of $50,000 per QALY. This threshold is being routinely used by CADTH to recommend price reductions for new technologies, and the high CADTH reanalyzed ICER values are leading to greater price reduction recommendations even with technologies that have a clear clinical benefit. Previous research examining both oncology and non-oncology submissions to CADTH has also shown similar results. Griffiths *et al.* also showed from their review of CADTH drug appraisals from 2010 to 2016 that revised ICERs were often higher than the manufacturer submitted model ICERs, and therapies were recommended with price reduction restrictions [107].

This review also assessed the impact of price reduction recommendations on time to engagement and time to negotiation for the drugs that entered the negotiation process with pCPA and completed it. We observed that drugs receiving a price reduction recommendation of at least 70% of the list price took longer time to complete the negotiation process when compared with the drugs with recommendations of less than 70% of the list price. Longer negotiation times might have an adverse impact on access to life saving therapies, and there could be several reasons and confounding factors influencing longer negotiation times observed in our review. The review period of assessments in this study overlapped with the COVID-19 pandemic period which might have contributed to some negotiation delays.

Concerns about the impact of price reduction recommendations on listing and accessibility of life saving drugs have been raised by patient advocacy groups. Binder *et al.* conducted a qualitative study where they discussed the impact of potential implications of price reductions on the reimbursement process for oncology drugs [9]. Our study was more quantitative and looked at stratified data for oncology products with and without clear clinical benefit according to CADTH and examined the price reduction differences between the groups. Also, in our work, we noticed that with a higher CADTH's revised ICER, the price reduction recommended was greater to meet the cost–effectiveness threshold.

Previous studies have shown that launch sequencing of drugs with multiple therapeutic indications also play role in the time to access the medications. Mills *et al.* looked at the launch sequencing of drugs with multiple indications in seven countries and noted that HTA coverage recommendations tend to be quicker for subsequent indications of the drugs when compared with the first indication for the drug. They speculated that this could be due to more robust clinical trial designs in the subsequent indication submissions and also first indications generally face higher barriers to entry [108]. Also, another aspect to be considered regarding quicker access to new cancer drugs is the expedited approval by regulatory agencies. Michaeli *et al.*, in their review noted that drugs with expedited approvals from FDA using 'orphan, fast track, accelerated approval, priority review, and breakthrough therapy' shorten the clinical development, and these kind of breakthrough drugs with special designations offer greater clinical benefit, however, these drugs cost more [109].

According to the data reviewed in this study, the applicability of the willingness-to-pay thresholds used by CADTH for oncology drugs is debatable. CADTH generally does not distinguish between oncology indications that are more severe having a shorter life expectancy and less severe indications with longer life expectancy. We also observed that most of the recommendations reported an unmet need according to the evidence review groups, clinicians and, more importantly, patient groups. This review included recommendations for a wide range of cancer indications where the standard of care comprises several treatment options such as chemotherapy, targeted therapy, and transplants. However, it is important to consider that the relative 5-year survival of patients with metastatic/advanced disease in several cancer types is still very short in spite of the availability of multiple treatment options. Shorter relative 5-year survival for advanced cancers warrants the need for more therapies, especially if the new treatments have low toxicity, more tolerance and comparable efficacy. Also, we acknowledge that in the submissions we reviewed in this work, CADTH noted uncertainty in the clinical benefit in several assessments, and there have been studies conducted to show that novel cancer treatments substantially reduce the risk of death and disease progression, however they extend the survival only marginally and the quality of evidence and patient benefit is variable [110].

Adjustment to specific circumstances of the cost–effectiveness threshold based on severity of the disease has been used by other countries. The National Institute for Health and Care Excellence uses an approach considering the disease severity modifier in technology assessment appraisals. When the committee assess severity of a condition, it considers both absolute and proportional QALY shortfall. The committee may apply greater weight to QALYs for treatments indicated for conditions with high severity [111]. In The Netherlands, a severity-based threshold of €80,000 per QALY is used for the most severe indications, while €20,000 per QALY and €50,000 per QALY are the other two thresholds used for less severe conditions [112]. Norway proposed to use the health-loss criterion to address the severity of the disease. Indications will be categorized into health-loss classes 1–3 depending on the number of healthy life years patients lose with the condition. Higher cost–effectiveness thresholds of up to 1 million Norwegian Kroner per healthy life year will be applied to indications in the health-loss class 3, compared with health-loss class 1 where the thresholds are up to 500,000 Norwegian Kroner per healthy life year [113]. Taking into consideration the successful application of severity-based cost–effectiveness thresholds in other countries, CADTH should explore and study the applicability of such approach within the Canadian framework of reimbursement. Additionally, in public payer healthcare systems, while pricing negotiations are needed to ensure that drug prices are affordable for a payer, managed entry agreements, particularly performance-based agreements at both patient- and population-levels, should be explored to make sure that new life saving treatments are accessible to patients [114]. Performance based agreements will serve as an important option for newer classes of oncology drugs that provide clear clinical benefit, especially if public payers view the new treatments as not cost-effective according to their set thresholds. Such agreements can lead to timely access of new oncology drugs for patients with very short life expectancy due to a cancer. Prior studies have looked at the launch and post-launch pricing of cancer drugs in the United States and noted that launch and post-launch price changes were not aligned with the clinical benefit offered by the drugs and that drugs with orphan status have greater launch and post-launch prices. Additionally, it was observed that market entry of new competitors was not associated with price reductions [115]. Furthermore, it should be noted that although cancer drugs with orphan drug status can fill unmet need significantly, frequently their approvals are based on single-arm and non-robust trials, which might overestimate the efficacy outcomes [116].

Additionally, in this review we noticed that in some submissions, manufacturers' assumptions in the cost–effectiveness models differed from that of CADTH, leading to higher ICERs in the revised analysis from CADTH and thereby subsequent price reductions to meet the threshold. To understand CADTH's revised assumptions to the manufacturer submitted models, a comprehensive review of the economic models submitted to CADTH would be required. Also, ICERs are not intended to be used to generate price recommendations, they present an opportunity cost and can give an idea of value for money in the reimbursement process, and should be supplemented by other considerations, such as disease severity, which is used in other countries. We acknowledge that public payer healthcare systems often encounter challenges to fund new therapies with a finite budget such that funding of more expensive new treatments with an ICER over the threshold can mean other treatments are not funded. To our knowledge, Canada is the only country that publishes price reductions in their recommendations based on ICER values to meet a threshold.

To our knowledge, this is the first study to comprehensively look at willingness-to-pay, clinical benefit, price reduction recommendations and time to negotiation of oncology drugs appraised by CADTH with a quantitative approach. The findings of this study provide new insights into the applicability of the willingness-to-pay thresholds

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used by CADTH for oncology drugs and may be used to inform policy changes for the reimbursement of oncology treatments in Canada. Studies looking at the impact of thresholds on time to listing or access to new oncology drugs to further understand the utility of thresholds in reimbursement process are needed.

This study has some limitations. The review includes only submissions from 2020 to 2022, which might be too few to draw conclusions that are generalizable. In the analysis to calculate the ICER differences between manufacturer submitted and CADTH revised base case, the assessments without a numerical ICER value were excluded and, therefore, the true ICER differences might not have been captured completely. The pCPA negotiation data for 2021 and 2022 assessments are not complete and further evaluation is required upon the completion of negotiations for all 2021 and 2022 assessments. Lastly, CADTH's definition of certain clinical benefit is not clear and may require an additional study; this review's authors used their judgement based on the language in the CADTH reimbursement reports.

Conclusion

This review showed that CADTH-calculated base case ICER was higher than the $50,000 per QALY threshold for 98% of the assessments reviewed, with a median ICER six-times the threshold. This study showed that there is a divergence between drug sponsor's ICER and CADTH revised ICER leading to a price reduction to meet the $50,000/QALY threshold. In a majority of the assessments that reported a condition of price reduction for recommendation – despite a clear clinical benefit – the price reduction was ≥70% off the list price. This descriptive analysis based on limited pCPA negotiation status data showed that oncology drugs with higher CADTH recommended price reductions also had longer pCPA negotiation times, particularly when the recommended price reductions were 90% or above.

Summary points

- Since late 2020, the Canadian Agency of Drugs and Technologies in Health (CADTH) has been using a threshold of $50,000 (CAD) per quality-adjusted life-year (QALY) for both oncology and non-oncology drugs.
- We studied the impact of willingness-to-pay threshold on price reduction recommendations for oncology drugs reviewed by CADTH between January 2020 and December 2022.
- This review also looked at the price reduction recommendation effect on time to engagement and negotiation with the pan-Canadian Pharmaceutical Alliance.
- This review showed that CADTH-calculated base case ICER was higher than the $50,000 per QALY threshold for 98% of the assessments reviewed, with a median ICER six-times the threshold.
- In a majority of the assessments that reported a condition of price reduction for recommendation – despite a clear clinical benefit – the price reduction was ≥70% off the list price.
- This descriptive analysis based on limited pan-Canadian Pharmaceutical Alliance (pCPA) negotiation status data showed that oncology drugs with higher CADTH recommended price reductions also had longer pCPA negotiation times, particularly when the recommended price reductions were 90% or above.

Supplementary data

To view the supplementary data that accompany this paper please visit the journal website at: https://bpl-prod.literatumonline.com/doi/10.57264/cer-2023-0178

Author contributions

C Balijepalli conceived the project, conducted formal analysis, wrote the original draft and revisions. L Gullapalli worked on data curation, conducted formal analysis, wrote the original draft and revisions. J Joshy worked on data curation and wrote the original draft. NSB Rawson provided intellectual inputs to the original draft and revision and supervised the work. All authors have read the final version of the manuscript.

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Competing interests disclosure

C Balijepalli and L Gullapalli are shareholders of Pharmalytics Group which has been sponsored by AbbVie to complete this work. J Joshy is an employee of Pharmalytics Group. NSB Rawson received research and consultation fee from: AbbVie, Canadian Cancer Survivor Network, Canadian Health Policy Institute, Fraser institute. Macdonald-Laurier Institute and 3Sixty Public Affairs, and article processing expenses from Medicines New Zealand and RAREI. The authors have no other competing interests or relevant affiliations with any organization/entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

Writing disclosure

No writing assistance was utilized in the production of this manuscript.

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Papers of special note have been highlighted as: • of interest; •• of considerable interest

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