

Science-Metrix

EVALUATION OF CADTH

FINAL REPORT

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Prepared by:



Science-Metrix Inc.

1335 Mont-Royal E. ■ Montréal ■ Québec ■ Canada ■ H2J 1Y6

1.514.495.6505 ■ 1.800.994.4761

info@science-metrix.com ■ www.science-metrix.com

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Werner Meier
Evaluation Team Leader
Vice-President
Evaluation Services
Science-Metrix

Executive Summary

This report presents the findings, conclusions, and recommendations stemming from the impact evaluation of CADTH, covering the years 2012-2013 to 2015-2016. The evaluation was conducted by Science-Metrix, an independent evaluation firm contracted by CADTH following the public request for proposals C-151880. The evaluation fulfills CADTH's commitment, as outlined in its Contribution Agreement with Health Canada, to periodically conduct an evaluation to assess ongoing relevance, results, and cost-effectiveness in the delivery of its programs and services. CADTH last underwent an organization-wide evaluation in 2012.

Established in 1989, CADTH is an independent, not-for-profit, pan-Canadian organization that produces and disseminates evidence-based assessments of drugs and medical devices. CADTH's activities have been consistent with the Government of Canada's objectives of addressing the need to increase the access to, and use of, relevant evidence to inform the optimal and cost-effective use of drugs and health technologies. The Government of Canada has committed to providing CADTH with up to \$80,631,924 in funds to support the organization's work as outlined in the Contribution Agreement effective 1 April 2013 to 31 March 2018.

This evaluation focused on the relevance and performance of CADTH. It aimed to identify impacts to which CADTH has made a contribution through its role as a producer or broker of evidence-based information. The evaluation took into consideration observed trends in both the Canadian health care system and health care worldwide. The evaluation covered the period 1 April 2012 through 31 March 2016, thus effectively encompassing CADTH's 2012-2015 Strategic Plan as well as the implementation of the 2015-2018 Strategic Plan. This evaluation used five lines of evidence: a literature and document review, analysis of administrative and financial data, key informant interviews, an online survey, and case studies.

The findings of the evaluation led to the following conclusions:

Conclusion #1: CADTH occupies a niche within the highly decentralized and diversified health care landscape in Canada. It has contributed significantly to coordination, alignment, and capacity building with regard to health technology assessment (HTA) functions. In particular, CADTH has been able to demonstrate its relevance by assisting provinces that have limited HTA capacities, while working closely with provinces with more substantial capacity in these areas.

Conclusion #2: CADTH has been at the forefront of assisting decision-makers to identify and respond to emerging trends in HTA activities that have potential to influence quality, cost-effective health care services for Canadians. In the face of increased demand for HTA products and services, CADTH has introduced initiatives to manage that demand and facilitate an effective use of scarce public resources, while improving its offering of products and services and reorienting its relationships with some stakeholders.

- Conclusion #3:** Rapid innovation and convergence in drug and medical device technologies demand new or improved HTA processes and methodologies, analytical inputs, and approaches to HTA. CADTH has taken a leadership role with local and international partners on novel methods for HTA.
- Conclusion #4:** As the demands placed on CADTH's operations are diverse and ever-changing, there have been limits to CADTH's capacity to respond, because of a lack of external resources, competing demands for available internal resources, some disconnection in program operations, and bottlenecks in priority-setting mechanisms within CADTH.
- Conclusion #5:** CADTH has undergone continuous organizational transformation in order to adapt to an ever-changing environment and ensure its capacity to meet customer needs. There are signs of a need to improve committee structure, program cohesiveness, and alignment of different program operations with respect to a shared view of the organization's strategic orientation.
- Conclusion #6:** Despite CADTH's efforts, there remains unmet stakeholder demand for the assessment of existing drugs, new drugs, and medical device technologies, as well as advisory services. Moreover, there are opportunities for CADTH to better support customers in the implementation of recommendations associated with some HTA products and services.
- Conclusion #7:** CADTH has achieved immediate and intermediate outcomes (e.g., awareness and uptake), but determining the social and economic value to its customers in terms of health care system efficiencies and improved health outcomes remains a collective challenge.
- Conclusion #8:** There are opportunities to better market CADTH's suite of products and services to customers, to communicate the role of some of the Knowledge Mobilization and Liaison Officer team (KMLO) functions internally, and to better demonstrate CADTH's performance to external audiences.

Recommendations

The following recommendations address areas for improvement identified in the aforementioned conclusions. These recommendations address governance, product mix, and performance measurement.

Recommendation #1: CADTH should examine the process through which the strategic direction and priorities of the organization are established and implemented, with a particular focus on the governance structure, including the roles, responsibilities, relationships, and connectivity of the Board of Directors, advisory and expert committees, and Secretariat-supported groups, to best position itself in the dynamic health care setting. [Reference: Conclusions 4, 5, 8]

Recommendation #2: CADTH should implement processes to identify unmet and emerging demands of customers. In addressing those demands, CADTH should consider the following:

- The current mix of products and services offered
- Mechanisms for operational planning
- The optimal allocation of resources within CADTH
- The need for products to include context-specific analysis
- The capacities and capabilities of customers to implement recommendations. [Reference: Conclusions 1, 2, 3, 4, 6, 7]

Recommendation #3: CADTH should improve performance measurement to better quantify and qualify its impact on the health system and its contribution to downstream impacts, ideally in collaboration with its funders, recognizing:

- that both internal and external factors influence the realization of CADTH's intended contribution to outcomes, and
- the supporting role that CADTH's funders have in providing access to indicator data. [Reference: Conclusions 7, 8]

Table of Contents

Acknowledgements	iii
Executive Summary	i
Table of Contents	iv
Tables	vi
Figures	vi
Abbreviations	vii
Introduction	1
Background	1
Evaluation Approach	1
Theoretical Approach	1
Evaluation Matrix.....	1
Evaluation Objectives and Scope	1
Evaluation Issues	2
Alignment With Priorities.....	2
Performance Against Objectives.....	2
Impact and Value.....	3
Findings: Alignment With Priorities	4
CADTH must keep up with the rapid pace of change in the HTA sphere, in Canada and globally.	4
A critical component of CADTH's relevance is its ability to understand and adapt to changes in Canadian governments' priorities regarding HTA.....	5
Canada has no perfect alternative to CADTH as a source of information for decision-makers with respect to optimal use and the harms and benefits of new or existing health technologies.....	9
Despite CADTH's best efforts, it is difficult to address and satisfy all emerging customer needs.....	12
Findings: Performance Against Objectives	14
CADTH operates at close to full capacity, with a diversified customer base. Fluctuations in the demand for particular products or services resulted in a backlog and the need to reassess priorities regarding operational plans.	14
There were insufficient data to draw a definitive conclusion regarding operational efficiency.....	19
There were opportunities to use external experts more efficiently.....	19
Findings: Impact and Value	21
CADTH is contributing to evidence-informed decision-making regarding optimal use of drugs and devices in Canada, while efforts could be made to better ensure utility for some products and services.....	21
CADTH has made positive contributions to building receptivity and awareness for health evidence; it is also possible to improve operations and program cohesiveness.	23
By fostering collaboration among health stakeholders, CADTH has contributed to reducing duplication in HTA processes in Canada.....	26
CADTH has demonstrated leadership in improving HTA coordination, championing meaningful evidence, and leading novel HTA methodologies; there are also opportunities for continued work in this area.....	28
Evidence on the uptake and use of CADTH's products and services was strong, but it is difficult to determine the economic value derived by jurisdictional customers, or downstream health care system outcomes, under current performance measurement systems.....	30
CADTH's ability to provide economic value to its customers could be enhanced with improvements to the process of strategic direction-setting.	33
Conclusions	36

Recommendations	40
Appendix A: CADTH Profile	42
CADTH Profile	42
Customers and Key Stakeholders.....	43
Program Logic Model, Key Activities, and Targeted Results	44
Key Activities.....	44
Governance	46
Resources.....	48
Appendix B: CADTH's Logic Model	49
Appendix C: Evaluation Matrix	50
Appendix D: Details of the Evaluation Objectives, Scope, and Methodologies.....	53
Objectives.....	53
Scope 53	
Key Considerations.....	54
Evaluation Issues, Questions, and Data Collection Matrix	56
Data Collection	58
Literature and Document Review.....	58
Administrative and Financial Data Analysis.....	59
Bibliometric Data.....	60
Key Informant Interviews	61
E-survey 61	
Case Studies.....	62
Challenges and Limitations	63
Appendix E: Advisory Bodies That Play a Role in the Work of CADTH.....	65
Appendix F: CADTH Customers' Perceived Alternative Sources of Health Technology	
Assessment Information for Formulary Decisions.....	67
References	69

Tables

Table 1	Niche areas for CADTH's products and services	13
Table 2	CADTH's planned and actual production capacities by major line of products, 2012-16	15
Table 3	CADTH's outputs, by jurisdiction, 2012-16	16
Table 4	CADTH's portfolio of products and services.....	45
Table 5	CADTH's revenue and expenses 2011-12 to 2014-15.....	48
Table 6	Key considerations identified by CADTH as influencing its operating environment.....	55
Table 7	CADTH datasets used in this evaluation.....	59
Table 8	Distribution of interviewees by group.....	61

Figures

Figure 1: Pressures on Drug Plan Managers From Different Stakeholders	8
Figure 2: Customers' Perception of the Uniqueness and Quality of CADTH's RRS	11
Figure 3: CDR Submissions Volumes and Review Activity by Calendar Year (January 2012 to 21 March 2016).....	17
Figure 4: Distribution of CADTH's Sources of Revenue, 2015-2016	18
Figure 5: CADTH Percentages of Administrative to Program Expenditures, FY 2012-2013 to FY 2015-2016	19
Figure 6: Responses to Survey Question "What Was the Purpose of Your Most Recent RRS Request?"	31
Figure 7: KMLO Function: Type of Impact Realized in Q3 2015-2016	33
Figure 8: CADTH-Health Canada Strategic Alignment	43
Figure 9: CADTH Governance Structure	47
Figure 10: Alignment of Strategic Goals, outcomes, and Evaluation Questions.....	57

Abbreviations

ACP	Advisory Committee on Pharmaceuticals
CAC	Canadian Optimal Medication Prescribing and Utilization Service (COMPUS) Advisory Committee
CADTH	Canadian Agency for Drugs and Technologies in Health
CDEC	CADTH Canadian Drug Expert Committee
CDR	CADTH Common Drug Review
DCM	Data Collection Matrix and Evaluation Matrix
DPAC	Drug Policy Advisory Committee
DSEN	Drug Safety and Effectiveness Network
EUnetHTA	European network for Health Technology Assessment
F/P/T	federal, provincial, and territorial
HQO	Health Quality Ontario
HTA	health technology assessment
HTERP	Health Technology Expert Review Panel
HTM	health technology management
HTPF	Health Technology Policy Forum
IEF	Impact and Evaluation Framework
IHE	Institute of Health Economics
INAHTA	International Network of Agencies for Health Technology Assessment
INESSS	Institut national d'excellence en santé et en services sociaux
LO	Liaison Officer
NICE	National Institute for Health and Care Excellence
OU	optimal use
PAA	Program Alignment Architecture
PAC	pCODR Advisory Committee
PAG	pCODR Provincial Advisory Group
PBS	Pharmaceutical Benefits Scheme (Australia)

pCODR	CADTH pan-Canadian Oncology Drug Review
pCPA	Pan-Canadian Pharmaceutical Alliance
pERC	pCODR Expert Review Committee
PM Strategy	Performance Measurement Strategy
RHA	Regional Health Authority
RRS	Rapid Response Service
SMC	Scottish Medicines Consortium

Introduction

Background

This report presents the findings and main recommendations stemming from the impact evaluation of CADTH, covering the years 2012-2013 to 2015-2016. The evaluation was conducted by Science-Metrix, an independent evaluation firm contracted by CADTH following the public request for proposals C-151880. The evaluation fulfills CADTH's commitment, as outlined in its Contribution Agreement with Health Canada, to periodically conduct an evaluation to assess ongoing relevance, results, and cost-effectiveness in the delivery of its programs and services. Appendix A presents an overview of CADTH's profile, including its customer base and stakeholders, key activities, and targeted results, as well as its governance structure. Appendix B presents CADTH's logic model.

Evaluation Approach

The overall approach to this evaluation is set out below, beginning with a synopsis of the theoretical approach underpinning the evaluation design. This is followed by the presentation of the evaluation matrix and sampling strategy and approaches to data collection and analysis.

Theoretical Approach

Science-Metrix applied a theory-based evaluation.¹ The use of an explicit theory of change helped to draw conclusions about whether and how an intervention contributed to observed outcomes. In the context of case studies, for example, this approach examined the theory, or causal linkages, that demonstrates how CADTH's activities and outputs promote a series of results to achieve an impact — or a change of behaviour — in a target group. This evaluation followed the line of enquiry along the continuum of CADTH's approved logic model (see Appendix B).

Evaluation Matrix

The detailed evaluation matrix and data collection matrix (DCM) used in this evaluation is presented in Appendix C, complete with evaluation indicators, data sources, and the intended methodologies. The DCM was consistent with the research approach, objectives, and framework for this evaluation. It was designed based on CADTH's Impact and Evaluation Framework, the CADTH–Health Canada Contribution Agreement Performance Measurement (PM) Strategy, the CADTH business model, underlying theory of change, and the indicators and intended outcomes (immediate, intermediate, and long-term) for which CADTH holds itself accountable as per the PM Strategy. Findings and recommendations from previous evaluations of CADTH were also considered.

Evaluation Objectives and Scope

This evaluation focused on the relevance and performance of CADTH. It aimed to identify impacts to which CADTH has made a contribution through its role as a producer or broker of health knowledge

and information. Additionally, the evaluation assessed CADTH's current and potential role in light of observed trends in both the Canadian health care system and health care worldwide.

Additional details about the objectives and scope of the evaluation, as well as details about the data collection methodologies implemented, are provided in Appendix D.

Evaluation Issues

The following evaluation issues and questions were explored in the evaluation.

Alignment With Priorities

Issue 1: Alignment with current environment of health technology management in Canada and globally

Q1. Are there any changes in the operating environment that present opportunities for and/or challenges to the continued need for CADTH's products and services?

Issue 2: Alignment with policy-making needs regarding health technology management in Canada

Q2. What is the positioning of CADTH within the landscape of Canadian governments' priorities regarding health technology management (HTM)?

Q3. In the absence of CADTH, how would decision-makers obtain information they require to make decisions on optimal use and risks and benefits of new or existing health technologies?

Performance Against Objectives

Issue 3: Objective 1 – Inform health policy and clinical practice by getting the right information to the right decision-makers at the right time

Q4. To what extent is CADTH delivering on its intended contribution to evidence-informed decision-making with respect to optimal use and HTM of drugs and devices in Canada?

Issue 4: Objective 2 – Build receptivity for health evidence

Q5. To what extent is CADTH delivering on its intended objective of building receptivity and awareness for evidence?

Q6. To what extent and effect has CADTH fostered collaboration among health stakeholders, including partner organizations and other producers of evidence?

Issue 5: Objective 3 – Champion meaningful evidence and leading methods

Q7. How has CADTH demonstrated leadership in improving coordination of HTA, and what more can be done in this area?

Impact and Value

Issue 6: Activities are developed and delivered in a manner that makes optimal use of human and financial resources in the production of outputs and progress toward expected outcomes

Q8. To what extent are CADTH's products and knowledge mobilization (KM) activities fulfilled in an efficient manner?

Q9. To what extent does CADTH have the human and financial resources to meet current and emerging HTA needs?

Issue 7: CADTH's efforts provide economic value to its customers' jurisdictions

Q10. How is CADTH best positioned to provide value to its customers?

Findings: Alignment With Priorities

This section positions CADTH within its broader environment, taking into account the Canadian and international context regarding HTA activities and the corresponding policy-making needs. Contextual factors are important in assessing outcome achievement: they affect the implementation of activities and the production of outputs, and they have potential to trigger the uptake of advice and recommendations in decision-making processes by CADTH's customers.

This section presents a number of broad thematic observations related to CADTH's relevance, stemming from this evaluation. Each theme's associated evaluation findings are grouped below it and discussed in further detail.

CADTH must keep up with the rapid pace of change in the HTA sphere, in Canada and globally.

This evaluation documented changes in CADTH's operating environment that present opportunities for and/or challenges to the continued need for the organization's products and services.

Finding #1: There is an increased demand for HTA that has resulted from a combination of factors, including rapid innovation in health technologies and convergence in drug and medical device technologies.

Because of a lack of consistent data, it was challenging to confirm the full extent of changes in demand for CADTH's products and services, or to quantify the level of unsatisfied demand. However, the following trends were observed:

- There has been a rapid expansion in the number of new drugs, especially for oncology and rare disease treatments. The building of a robust new drug pipeline by pharmaceutical companies is expected to result in a significant number of new drugs launched to market in coming years.
- Pharmaceutical firms are changing their business and research and development models. They are moving away from blockbuster drugs to niche areas in rare diseases and customized therapies, which are expected to have higher prices and profit margins.
- Innovation in medical device technologies is changing the way health systems replace their equipment. Replacement is increasingly as a result of technology becoming obsolete, as opposed to equipment coming to the end of its usable life.
- Convergence in drug and medical device technologies is apparent. This trend implies more complex treatments, a more complex multi-stakeholder environment, and the relevance of systemic approaches to HTA in which health technologies are assessed in terms of their individual merits and in light of their possible interaction with other health technologies.

The volume of new technologies has increased the pressure on CADTH to complete more drug reviews within a given time frame. It has also required an expansion in the scope of CADTH's products and services to accommodate the growing need for information about drugs and medical device technologies. Customers are increasingly aware of the need to assess the value of health technologies to the health system as part of an informed decision-making process, and CADTH has responded by improving the links between HTA activities and customer priorities.

According to interviews and case studies, CADTH's ability to remain relevant will be influenced by the extent to which it can help health authorities navigate this increasingly complex environment. There is a need to carefully reconsider current processes and methodologies, unified methods, and analytical inputs, as well as approaches to HTA that promote consistency and transparency in health care funding decisions.

Key messages:

- CADTH's increasingly complex operating environment presents both opportunities and challenges regarding the continued need for its products and services.
- As the volume and speed of innovation in health technologies increase, so too does the need for quality and timely HTA products and services.
- Rapid innovation in health technologies and convergence in drug and medical device technologies mean that, in order to remain relevant, HTA producers must constantly evaluate their processes and methodologies, analytical inputs, and approaches to HTA, while maintaining consistency and transparency.

A critical component of CADTH's relevance is its ability to understand and adapt to changes in Canadian governments' priorities regarding HTA.

The Canadian health care system is decentralized, with significant demographical differences from region to region. This, when combined with a recent change in administration at the federal level and continued slow economic recovery globally since the financial crisis of 2008, means there has been ongoing change in federal, provincial, and territorial (F/P/T) government priorities relating to HTA over the evaluation period. CADTH is uniquely positioned as a pan-Canadian organization, and its ability to understand and adapt to these changes through diversifying its products and services to suit both customer needs and its operating environment has ensured it has remained relevant.

Finding #2: The decentralized nature of the Canadian health care system has resulted in a high level of fragmentation, complexity, and overlapping of HTA functions, while some provinces lack the capacity to perform HTA functions altogether. CADTH has supported decision-makers in navigating the HTA market across Canada, especially in provinces with a greater need (i.e., those without comparable assessment capacity).

The evidence confirmed that Canada's decentralized health care system, and the distribution of roles and responsibilities between federal and provincial governments, results in a high level of complexity and overlapping of HTA functions in the country. Interviewees and survey data emphasized the diversified structure of the market, including HTA activities at universities and hospital-based and regional HTA bodies for drugs.

The evidence noted that CADTH's customers have varying capacity to access or conduct HTA. Provinces with significant HTA capacities see CADTH as a partner, while in the case of provinces with low or no HTA capacity, CADTH has acted as the de facto local HTA organization. For example, New Brunswick's Drugs and Therapeutics Committee turned to CADTH when it needed relevant, specialized evidence to inform and support its decisions. In addition to implementing initiatives to learn

about CADTH's drug review processes, the Committee based its review decisions on CADTH's independently reviewed evidence whenever possible. Similarly, the BC Health Technology Review, which focuses on medical device decision-making, has specifically required the inclusion of a CADTH report to support each business case under consideration.

The role CADTH has played in helping decision-makers to navigate and make sense of a diversified HTA market in Canada and globally is significant, given its pan-Canadian breadth. The information available for decision-makers is dense and often difficult to process in relatively narrow time frames. Additionally, the diverse and often disconnected approaches to HTA at local, regional, provincial, and national levels translate into different priorities and capacities when addressing demands for HTA information. Consequently, there was a persistent need for CADTH to assist decision-makers in the processes of collecting, filtering, and synthesizing relevant evidence.

Key messages:

- In Canada, the market for HTA products and services is fragmented and complex. This has resulted in an overlap of HTA functions across some provinces, while in other cases, provinces have insufficient capacity to perform these functions at all.
- As a pan-Canadian organization, CADTH occupies a well-defined niche helping decision-makers to navigate and make sense of a diversified HTA market, both in Canada and globally.
- There are different levels of jurisdictional capacity to conduct and implement HTA in Canada, and there is no immediate substitute for CADTH.

Finding #3: In line with F/P/T governments' commitments to HTA collaboration and their goal of improving the efficiency and cost-effectiveness of public health care service provision, CADTH has introduced initiatives to improve coordination and knowledge sharing between HTA producers, and has changed its traditional relationships with some customers.

Despite the recent change in administration, the federal government has maintained a commitment to address priority health issues by supporting key pan-Canadian organizations.² The government's stated intent remains to "engage with stakeholders from the provinces and territories to share knowledge and information related to health technology management, and to minimise duplication of efforts with respect to the introduction, diffusion, and utilisation of health technologies."³ In addition, concern regarding value and cost-effectiveness has been growing owing to the prevailing economic conditions, such that CADTH, the federal government, and the provinces share common interests related to health outcomes and value. F/P/T governments and health partners have viewed collaborative work as being necessary to improve the effectiveness, efficiency, and accountability of their respective health care systems.⁴

CADTH has maintained its alignment with the new federal government's roles and responsibilities in relation to HTA and health care across Canada. In particular, CADTH has been able to contribute to the objectives of assisting health care systems to keep pace with innovation in health technologies; implementing collaborative approaches to health care delivery; and improving coordination between F/P/T governments in relation to drug and medical device technologies.⁵ This alignment of government priorities and CADTH's activities is positive, considering that the federal government, as a

single entity, is the largest user of CADTH's products and services in terms of volume, as discussed in detail later in this report (Table 3).

In this context, evidence on CADTH's ongoing organizational transformation demonstrated its efforts to adapt and respond to emerging trends in its operational environment, while keeping with the goals of rationalizing public expenditure. CADTH continued to develop new products and services even as federal funding was reduced. For example, CADTH improved coordination and knowledge sharing by adopting a new strategic approach to partnerships to help broaden the reach of HTA in Canada. This included support to the Health Technology Policy Forum (HTPF) to produce an Environmental Scan report on existing personalized medicine policies and practices across Canada, develop a common typology of terms used in the personalized medicine arena, and develop a common assessment framework for companion diagnostics.

Another example of improved collaboration and knowledge sharing between HTA producers is the pan-Canadian Health Technology Assessment Collaborative (pCHTC), a network of HTA producers formed in 2012 with the goals of sharing best practices, minimizing duplication of effort through sharing information, and identifying and contributing to joint initiatives. CADTH is a founding member of pCHTC and has contributed secretariat support to facilitate the activities of this network. According to interviews, members like Health Quality Ontario (HQP) and Institut national d'excellence en santé et en services sociaux (INESSS) have shown a willingness to tighten collaboration with CADTH; beginning in 2015, the three organizations initiated efforts to align agendas and methodologies and to avoid duplications of assessment.

Interviews and the literature review documented CADTH's role in supporting the rationalization and coordination of health care interventions. A highlight was the transfer of the pan-Canadian Oncology Drug Review (pCODR) to CADTH, which was implemented efficiently. Despite the initial concerns of pCODR members, patients, and the pharmaceutical industry, this transfer was viewed positively once completed.

CADTH also changed its traditional relationships with some stakeholders. Although capacity development workshops for customers remain available free of charge, products and services such as the CADTH Symposium, skills development workshops, and the Scientific Advice Program are provided on a cost-recovery basis. Additionally, in 2014 and 2015, CADTH introduced application fees for CADTH Common Drug Review (CDR) and pCODR submissions to help finance an increase in the number of drugs CADTH reviews annually. The fees supplement existing F/P/T funding. This initiative was not free of controversy, however. Some stakeholders initially perceived that this would negatively affect CADTH's independence. However, as with similar concerns surrounding the transfer of pCODR to CADTH, there is no evidence to support these concerns.

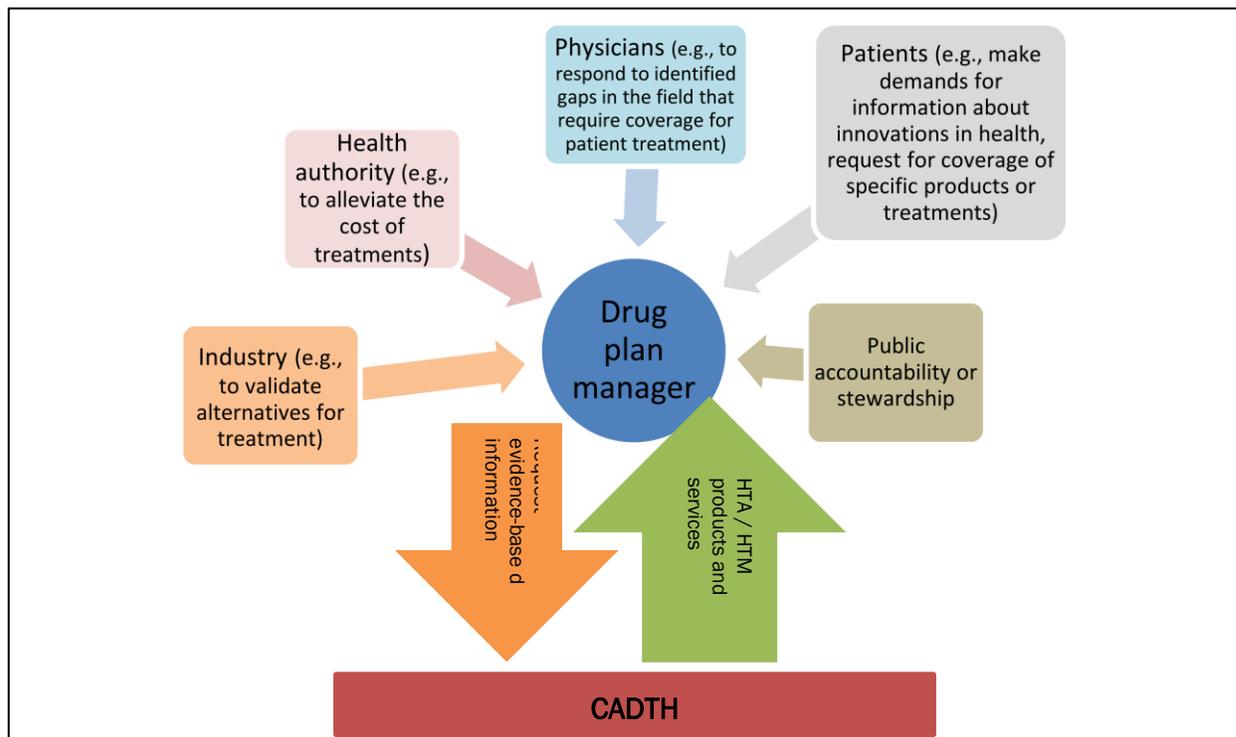
Key messages:

- CADTH is well aligned with F/P/T governments’ commitments to HTA collaboration and the search for enhanced efficiency and cost-effectiveness in public health care service provision.
- In response to a changing operating environment, CADTH has evolved as an organization able to deliver different products and services to meet emerging needs.
- Significant organizational transformations include the transfer of pCODR, a new strategic approach to partnership-building, and the adoption of cost-recovery schemes to supplement the funding available for certain products and services.

Finding #4: Canadian health care system stakeholders felt increasing pressures to demonstrate performance with scarce public resources. CADTH has responded by improving or diversifying its products and services.

Interviewees and survey respondents viewed CADTH as a valuable resource in the health care system, particularly for customers who need to respond to significant pressures and demonstrate a more rational use of scarce public resources. For example, drug plan managers indicated that they have had to respond to many and often disconnected demands from industry, patient groups, physicians, and government organizations; moreover, they need to respond in a way that maintains transparency and accountability in the use of public resources (Figure 1). Interviews and the literature review showed that decision-makers find themselves needing more evidence to support their decisions on issues affecting health care provision, including financial constraints, demographic changes, and the costs of new technologies.

Figure 1: Pressures on Drug Plan Managers From Different Stakeholders



HTA = health technology assessment; HTM = health technology management.
Source: Interview data.

Interviewees also highlighted significant differences in information needs across jurisdictions. For example, the population of Atlantic Canada is, on average, older than in other parts of the country. As the population ages, the burden of chronic illness will also rise, potentially creating a greater need than in other regions for information on new developments in the treatment of chronic and age-related diseases.

In terms of volume and pace of growth over the evaluation time frame, the Rapid Response Service (RRS) was the most significant specific product generated by CADTH. Since 2012, CADTH has also emphasized activities associated with environmental and horizon scanning, two activities whose efficacy was studied in the 2012 Evaluation of CADTH. These activities, along with the continuation of rapid reviews, helped to meet customers' evolving needs. In addition, the organization continued to explore and undertake initiatives to broaden the scope of therapeutic reviews (TRs; optimal use [OU] products that assess a class of drugs) that address demands for information about a broader range of drugs, including therapeutic vaccines and biologics, as well as meet demands for more HTA of medical devices.

A direct implication associated with these observed trends in CADTH's operational environment, and CADTH's corresponding response, is that the information provided by CADTH should be increasingly valuable to health decision-makers. Different lines of evidence showed that CADTH is well placed to conduct credible HTA that can inform decisions on technologies. A theme discovered through the evaluation is that CADTH enjoys a high level of satisfaction among its customer base, while there is also a high degree of uptake of recommendations associated with some of CADTH's products.

Key messages:

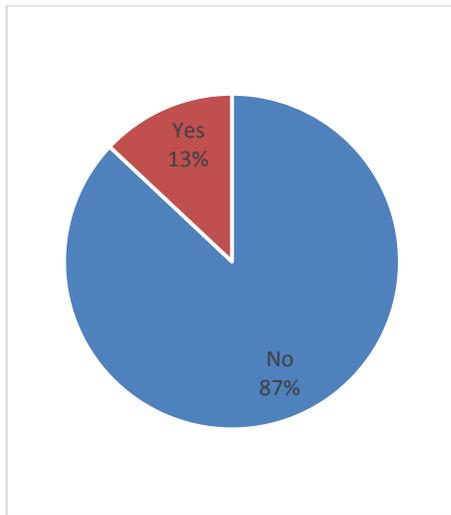
- CADTH supports customers who need to respond to significant financial pressures and demonstrate a more rational use of scarce public resources.
- Different jurisdictions face distinct challenges in relation to health care and HTA, depending on factors such as population trends and capacities to conduct and implement HTA activities, among others.
- Consistent with diversified demands and customer characteristics, CADTH has made efforts to improve or diversify its products and services. However, these offerings need to continually accommodate the dynamic nature of the market for HTA products and services.

Canada has no perfect alternative to CADTH as a source of information for decision-makers with respect to optimal use and the harms and benefits of new or existing health technologies.

Finding #5: In Canada, there was no single organization that could be considered a perfect substitute for CADTH. In the absence of CADTH, customers would either develop in-house capacities, or attempt to mobilize other jurisdictions' capacities, resources from universities, or online sources.

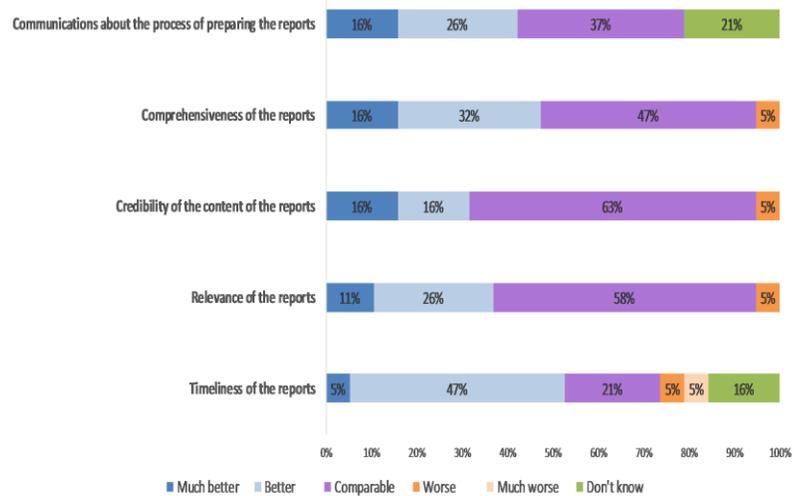
Canada's HTA market has a multiple niche structure. Within this, CADTH has played a role in strengthening pan-Canadian coordination and harmonization, as well as serving as a link between different users and producers. Multiple lines of evidence showed that no other organization in Canada is able to assume such a role. For instance, survey participants indicated that CADTH offers quality products and services for which there is no immediate substitute; the RRS is one example of this (see Figure 2).

Figure 2: Customers' Perception of the Uniqueness and Quality of CADTH's RRS



N = 146

Panel A: Are there any other organizations from which you have received a service similar to RRS?



N = 19 (RRS customers who identified other organizations offering a similar service)

Panel B: How does the CADTH RRS compare to similar services provided by other organizations with respect to the following factors?

RRS = Rapid Response Service.
Source: Survey data.

Interviews and documented evidence corroborated the niche occupied by provincial HTA organizations. Significant HTA capacities exist in Ontario (HQO), Quebec (INESSS), and Alberta (Institute of Health Economics [IHE]). These organizations are consulted mainly by the health care decision-makers of their host provinces and occasionally by health care decision-makers from other provinces. Continued collaboration with these organizations is valuable, and beginning in 2015, efforts have been ongoing between the three organizations to align agendas and methodologies and to avoid duplication of assessments. Many HTA providers were identified through the literature review and the online survey, but interviewees usually referred only to a small proportion of these (Appendix F).

With respect to the international landscape, the literature review showed that some countries possess long-standing capacity in HTA, but new HTA producers are emerging. The search for alternative sources of HTA information needs to consider the differences between Canada and the international HTA community in terms of political structures and approaches to HTA to achieve impact. Nonetheless, the evaluation found mention of outstanding HTA capacities in the UK (National Institute for Health and Care Excellence [NICE] and the Scottish Medicines Consortium [SMC]) and Australia (the Pharmaceutical Benefits Scheme).

Key messages:

- CADTH offers quality products and services for which there is no immediate substitute in Canada.
- As a pan-Canadian organization, CADTH is a major player in strengthening coordination and harmonization, and serves as a link between different users and producers of HTA products and services.
- Continued collaboration with other Canadian HTA agencies is valuable to avoid duplication of efforts.

Despite CADTH's best efforts, it is difficult to address and satisfy all emerging customer needs.

Finding #6: There were niche areas in which CADTH can continue to respond to customer needs.

The evaluation identified several niche areas in which CADTH has an opportunity to address unmet or emerging needs. Some opportunities suggest a deepening of CADTH's ongoing activities, while others would require broadening the scope of HTA products and services. Note that these opportunities, presented in Table 1, were derived from data collected through all lines of evidence and are based on external perspectives. It was apparent that interviewees were not always aware of ongoing actions within CADTH, as the organization had already undertaken work in some of the suggested areas. While some interviewees tended to agree that CADTH may not be in a position to address many of these issues, given its current structure, mandate, and resources, it was evident that CADTH needs to make choices and to carefully select the issues it will seek to address.

According to interviewees, a key opportunity is the assessment of drugs associated with companion diagnostics that are neither assessed nor introduced to the market at the same time. Conducting separate assessments of the two leaves decision-makers with little guidance about ways in which they can be used in combination once they are both introduced into the market.

The need for a comprehensive view of health technologies and HTA activities in health care organizations — as a broader process that encompasses different aspects of the planning, use, and management of health technology assets, and technology more generally in health care organizations — signals the move toward increased importance and demand for HTM by CADTH's customers.

Key messages:

- The emerging need for HTM means that this is an area of opportunity for CADTH.
- Customers are frequently unaware of changes to products and services that are intended to respond to their needs.
- Some customers considered CADTH not to be in a position to address many emerging issues, given its current structure, mandate, and resources.

Table 1: Niche Areas for CADTH's Products and Services

Opportunity	Description	CADTH's Related Actions (as of July 2016)
Enhanced economic analysis included in Therapeutic Reviews	Customers identified economic considerations as a fundamental topic in health care systems across Canada, and recommended including these topics more prominently in Therapeutic Reviews. Interviewees underscored the need to provide drug plan managers with more guidance on how to include information on the affordability, sustainability, and possible impacts associated with new drugs in jurisdictional deliberations and recommendations.	Evidence from documents and interviews indicated that information on cost-effectiveness or comparative assessment of drugs (provided by the manufacturer) has been taken into consideration by CDEC since 2009 and has been integrated into the Therapeutic Review process since 2010 (information provided by scientific partners or produced in-house). Interviewees and the literature review documented that products such as the <i>Guidelines for the Economic Evaluation of Health Technologies, 3rd Edition</i> are already well placed among CADTH's customer base. A new edition of the document is in production as of July 2016. ⁶ Additionally, a pCODR Economic Guidance Panel provides such advice during the evaluation of economic assessments submitted by industry as part of pCODR reviews.
Validation of HTA-related outputs developed by regional health authorities	Case study participants suggested implementing an approach like that used for urinary tract infections and the treatment guidelines for community-acquired pneumonia. This is one in which CADTH would essentially validate medical directives or new treatment guidelines developed by regional health authorities, as opposed to doing the design, development, and dissemination itself.	--
Harmonization with the regulator	Increased harmonization was desired between the regulatory process of approval of a new drug, HTA reviews, and price negotiations. Interviewees advocated for exploring opportunities to bring some alignment to scientific agendas and assessment methodologies.	CADTH has adopted a policy to accept CDR submissions prior to issuance of a Notice of Compliance from Health Canada. Representatives of the pCPA attend some CADTH committee meetings and use CDR reports to inform the negotiation process.

CDEC = CADTH Canadian Drug Expert Committee; CDR = CADTH Common Drug Review; HTA = health technology assessment; pCODR = pan-Canadian Oncology Drug Review; pCPA = Pan-Canadian Pharmaceutical Alliance.

Source: Interview data, case study evidence, and document and literature review.

Findings: Performance Against Objectives

This evaluation assessed the extent to which CADTH activities were developed and delivered in a way that made optimal usage of human and financial resources in the production of outputs and progress toward expected outcomes. The evidence indicated that CADTH operated at close to full capacity, according to targets set in annual work plans. Although data were not available to assess operational efficiency by specific program or major product or service line, based on observed HTA market trends, it is apparent that CADTH has insufficient human and financial resources to meet the increased demand for broader Therapeutic Reviews and the growth in both drug and medical device technologies.

As with the findings on relevance, this section presents a number of broad thematic observations stemming from this evaluation, with each theme's associated evaluation findings grouped below it and discussed in further detail.

CADTH operates at close to full capacity, with a diversified customer base. Fluctuations in the demand for particular products or services resulted in a backlog and the need to reassess priorities regarding operational plans.

Finding #7: Data on CADTH's planned and actual production showed that it operated at a level close to full capacity.

Data on CADTH's planned and actual production capacities by major product or service line for the period 2012-2016 suggested that the organization operated at a level close to full capacity (Table 2). Actual production differed across products and service lines, while some variation was evident between planned and actual output, in part reflecting fluctuations in customer demand. OU drug therapeutic class reviews are a case in point, with production between 2012–13 and 2015–16 consistently below capacity. In contrast, the volume of Environmental Scan reports was less predictable; actual output was 20% to 50% above plan in 2015-2016. Despite these variations, CADTH had enough flexibility to adjust production levels according to fluctuations in demand.

In terms of customer base, the federal government, as a single entity, is the largest consumer of CADTH's products and services by volume, using about 17.8% of CADTH's total output over the period covered by this evaluation (Table 3).

Table 2: CADTH's Planned and Actual Production Capacities by Major Line of Products, 2012-2016

Product Line		Planned Production ^a				Actual Production			
		2012-2013	2013-2014	2014-2015	2015-2016	2012-2013	2013-2014	2014-2015	2015-2016
HTM Products	Rapid Response Service	301 to 362	183 to 268	183 to 266	250 to 300	236	240	349	358
	HTAs of blood products	1 to 2	1 to 2	1 to 2	1 to 2	---	1	1	1
	HTAs of products without recommendations	---	---	---	5 to 8	---	---	---	7
	OU (products with recommendations from a CADTH expert committee)	1 to 2	1 to 2	1 to 2	4 to 6	1	1	2	3
	OU – drug therapeutic class reviews	4 to 6	4 to 6	4 to 8	4 to 8	2	1	2	1
Environmental Scans (Reports)		---	10 to 15	6 to 8	5 to 8	14	4	5	10
Horizon Scans	Newsletter and bulletin	8	4 to 8	4 to 8	10 to 15	6	5	6	19
Formulary Reviews and Reimbursement Recommendations	CDR applications (submissions and resubmissions) ^b	30 to 35	30 to 35	30 to 35	40 to 45	33	30	37	49
	Drug plan Requests for Advice	2 to 4	2 to 4	2 to 4	2 to 4	2	6	1	1
Total						294	288	403	449

CDR = CADTH Common Drug Review; HTA = health technology assessment; HTM = health technology management; OU = Optimal Use.

^a Based on CADTH's Annual Business plans, since 2012.

^b Includes 4 Joint Oncology Drug Reviews for 2012; 3 to 5 non-industry submissions, with recommendations.

Source: CADTH data.

Table 3: CADTH's Outputs, by Jurisdiction, 2012 to 2016

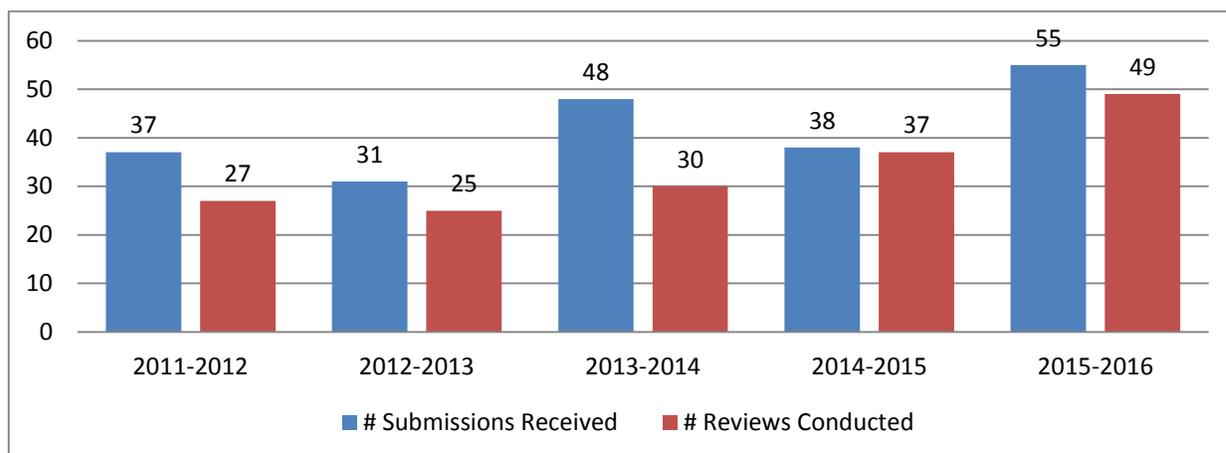
Jurisdiction	2012-2013	2013-2014	2014-2015	2015-2016	Total
Alberta	34	23	38	47	142
British Columbia	38	38	50	63	189
Federal Programs	56	52	69	73	250
Manitoba	5	5	21	14	45
New Brunswick	6	13	17	17	53
Newfoundland and Labrador	15	18	15	23	71
Northwest Territories	7	6	4	8	25
Nova Scotia	9	16	7	13	45
Nunavut			5	3	8
Other	67	61	102	116	346
Prince Edward Island		1	12	17	30
Saskatchewan	54	52	57	50	213
Yukon	3	3	6	5	17
Grand Total	294	288	403	449	1,434

Notes: The majority of reports requested by jurisdiction are Rapid Response reports. Those identified as "Other" primarily cover reimbursement recommendations formulary reviews and Environmental and/or Horizon Scans. There may be multiple requesters for a given project type.

Source: CADTH's Enterprise Project Type database.

A comparison between the number of CDR submissions received and reviewed completed from 1 January 2012 through 21 March 2016 (Figure 3) revealed a mismatch between production capacity and demand for CDR reviews. This mismatch supported the rationale for implementing application fees to help finance an increase in the number of drugs that CADTH had to review. It is still too early for there to be any significant evidence on the effect that collecting fees might have on the organization's financial stability; however, this initiative highlighted the need for a mechanism to manage the volume of submissions, so as to minimize the possibility of future queuing. The data also signal the challenging position in which CADTH has found itself in terms of responding to emerging issues in its operating environment. As innovation in health technologies increases, so does the demand for certain products and services, leading to increased pressure to optimize resource allocation across major product and service lines.

Figure 3: CDR Submission Volumes and Review Activity by Calendar Year (January 2012 to 21 March 2016)



CDEC = CADTH Canadian Drug Expert Review Committee; CDR = CADTH Common Drug Review.

Notes:

- The number of reviews conducted in a calendar year does not match the number of submissions received in the same year because some submissions are actively under review (may carry over into the next year, depending on when the submission was received and initiated), or are withdrawn by the manufacturer, or are suspended or rejected, or the Request for Advice submission did not result in the issuance of a CDEC recommendation (i.e., a Record of Advice was issued instead).
- The 2013-2014 data on recommendations reflect the impact of the queue or backlog.

Source: CADTH.

Key messages:

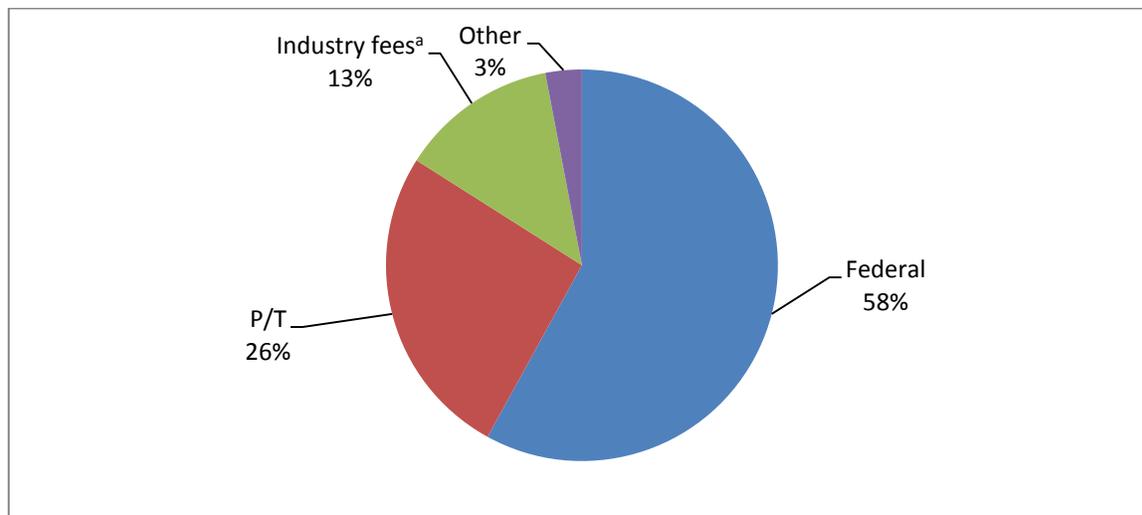
- CADTH operates at close to full capacity, with variations between production plans and actual output explained by fluctuations in demand.
- There is great diversity in the extent of use of CADTH's products and services at the jurisdictional level. The federal government is its most active consumer.
- CADTH has introduced an application fee in order to supplement the resources available for the production of CDR reviews.
- As innovation in health technologies increases, so does the demand for certain products and services. This also increases the pressure to achieve optimum resource allocation across major product and services lines.

Finding #8: It is understood that CADTH has insufficient human and financial resources to meet the increased demand for broader Therapeutic Reviews and the growth in both drug and medical device technologies.

The documented evidence and interviews recommended that a long-term resource strategy should help CADTH meet performance requirements while maintaining accountability and transparency. Interviewees in particular suggested the pertinence of making choices about which issues are of importance and to plan resourcing of CADTH's activities accordingly. CADTH's anticipated revenue mix for 2015-2016 is presented in Figure 4. As discussed in Finding #7, CADTH introduced application fees for industry submissions and resubmissions to the CDR program. While the expected share of income from industry fees is expected to increase significantly, relative to other funding

sources, according to CADTH's internal documentation, this fee scheme remains a short- to medium-term solution because of the risk of CDR experiencing funding constraints once submissions exceed 45 to 50 per year.

Figure 4: Distribution of CADTH's Sources of Revenue, 2015-2016



^a Includes the Scientific Advice Program.
Source: CADTH.

Finding #7 likewise documented that CADTH operated at close to full capacity over the time frame for this evaluation. Although data on the extent of CADTH's human resources allocations were not available for this evaluation, it is reasonable to expect that a significant increase in the output of some of CADTH's more complex and technically demanding products would present a staffing challenge. Resources would need to be reallocated from other activities. While improved priority-setting may help in dealing with some of these growth pressures, the data suggested there is a need for careful planning of CADTH activities based on the available resources.

Key messages:

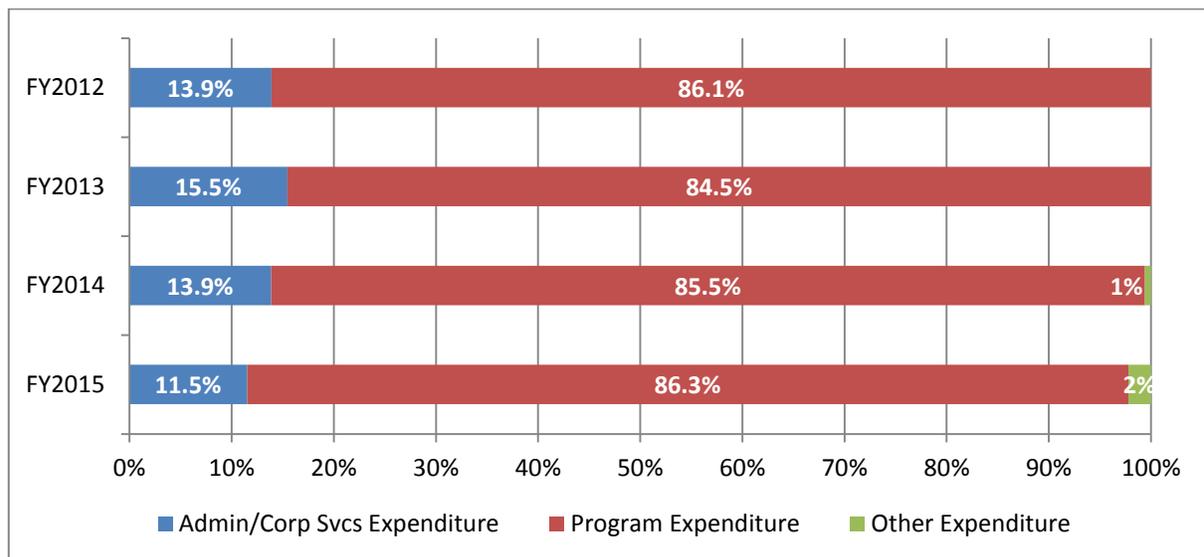
- The limited data available suggest CADTH has insufficient human and financial resources to meet a larger and increasingly diversified demand for HTA products and services.
- While CADTH has introduced short-term initiatives to cope with emerging demands, sustainable operations require a resourcing strategy with a long-term perspective.
- CADTH has had to reassess priorities regarding operational plans based on emerging demands. Data could be collected to help assess current and expected needs for human and financial resources.
- Enhanced priority setting regarding operational plans could help in dealing with growing pressures on CADTH's operations.

There were insufficient data to draw a definitive conclusion regarding operational efficiency.

Finding #9: The limited data available indicated that the proportion of total expenditure linked to administrative activities decreased over the evaluation period.

The proportion of administrative expenditure relative to total expenditure was calculated as a proxy measure for operational efficiency. The proportion of administrative costs to total expenditure decreased from 13.9% in financial year (FY) 2012 to 11.5% in FY 2015 (Figure 5).

Figure 5: CADTH Percentages of Administrative to Program Expenditures, FY 2012-2013 to FY 2015-2016



FY = financial year; Corp Svcs = Corporate Services.

Source: ¹Non-audited financial data; information produced by CADTH for the purpose of this evaluation.

Key messages:

- Efforts were made to improve efficiency in resource use, as the proportion of administrative costs to total expenditure has decreased.
- Data to assess efficiency at the program level were unavailable.

There were opportunities to use external experts more efficiently.

Finding #10: There was a capacity constraint among CADTH stakeholders participating in advisory bodies, committees, and working groups, among others.

CADTH has improved its governance, largely due to a reorganization of staff and committees in 2009, but some streamlining and enhanced communication would be helpful in making specific activities more efficient. Key informants with an overall vision of CADTH's current organization noted the need to streamline the committees associated with pCODR (Provincial Advisory Committee [PAC] and the pCODR Expert Review Committee [pERC]) and CDR (Drug Policy Advisory Committee [DPAC] and

CDEC). Concerns were raised about the unbalanced workload between CDR and pCODR activities (e.g., the number of drugs to be reviewed by each committee in each session).

Compounding this issue is the fact that in addition to these four expert and advisory bodies, there are an additional 16 working groups, panels, and other forums in which CADTH has oversight or fills a secretarial role. Analysis of the membership of these 20 expert and advisory bodies shows there are 22 individuals who sit on more than one committee, including several who sit on up to three. The advisory bodies meet at varying intervals — some monthly, some quarterly, some annually — with some meetings by teleconference and others held in person. According to information provided by the project authority, the scheduling of meetings is undertaken partially with the use of a corporate calendar, reflecting operational requirements and participant availability; however, it appears pCODR-related scheduling and the scheduling of Clinical and Economic Guidance Panels (n = 11) are undertaken separately.

Interviewees referenced a then-anticipated (April 2016) alignment of CADTH's recommendation framework as being likely to contribute to a better alignment in the levels of effort. Nonetheless, the number and variety of drugs to be reviewed have to be taken into consideration in the allocation of the resources needed to perform the reviews. The workloads of committee members should be a consideration in light of pressures to increase CADTH's activities regarding medical device assessments.

Interviewees mentioned challenges experienced by some jurisdictional representatives who sit on more than one drug committee. Time commitments and the management of travel-related expenses were reported as being a burden, particularly among representatives of jurisdictions with low HTA capacities, where there may also be only a few individuals with the appropriate expertise to represent those jurisdictions.

Key messages:

- Streamlining and enhanced communication would help gain efficiencies in specific activities involving the use of external expertise in the key decision-making bodies associated with CADTH's products and services.

Findings: Impact and Value

In order to assess the extent of CADTH's operational effectiveness, this evaluation looked at many elements, including CADTH's contribution to the following:

- Informing health policy and clinical practice by getting the right information to the right decision-makers at the right time
- Building receptivity for health evidence
- Demonstrating the capacity to champion meaningful evidence and leading methods
- Adding economic value to its jurisdictional customers.

The evidence indicated that CADTH was effective in achieving immediate and intermediate outcomes (e.g., awareness and uptake), but determining the social and economic value to its customers in terms of health care system efficiencies and improved health outcomes remains problematic.

As with the findings on relevance and efficiency, this section presents broad thematic observations relating to CADTH's effectiveness that stem from this evaluation. Each theme's associated evaluation findings are grouped below it and discussed in further detail.

CADTH is contributing to evidence-informed decision-making regarding optimal use of drugs and devices in Canada, while efforts could be made to better ensure utility for some products and services.

Finding #11: CADTH has improved timeliness in responding to customers' requests, but enhanced alignment with the provincial decision-making process (particularly for OU products) could have better ensured utility.

The lack of meaningful administrative data on the overall timeliness of CADTH's delivery of products and services meant this evaluation had to rely on alternative lines of evidence in the form of the online survey (see Figure 2 for details), case studies, and interviews. According to these lines of evidence, over the time frame covered by this evaluation, CADTH's customers generally felt that the response time to their requests was adequate or improving. Customers acknowledged that more recently, the organization has made efforts to improve timeliness. CADTH was successful in addressing a backlog in CDR production over 2013-2014 (Figure 3), although this required the use of some financial reserves to cover the cost of producing reports over and above planned capacities. As mentioned in the context of Finding #7, CADTH has since implemented application fees to help finance an increase in the number of drugs that CADTH reviews annually. These fees supplement existing F/P/T funding.

Case study evidence illustrated how timeliness can influence the uptake and impact of CADTH's knowledge products; for example, the timely arrival of a report with recommendations may make a difference during price negotiations between drug plan managers and industry, and could provide stakeholders with the evidence they need to choose between several technologies. According to interviews, a CADTH Therapeutic Review report on new oral anticoagulants for atrial fibrillation showed that the efficacy and safety of dabigatran and rivaroxaban were comparable. However, if the information had been available at the time of the analysis, the inclusion of data on apixaban in the

comparison could have helped drug plan managers decide whether all three drugs needed to be covered. Moreover, this information might have been useful for securing a better price during negotiations with manufacturers.

Customer interviewees expressed concerns about the timeliness of some TR and OU products, as they either aligned somewhat poorly with the time frame in which decision-makers had to address particular issues or, in the case of medical device assessments, were affected by the fast pace of technological change. Interviewees suggested that one method for improving the balance between these decision-making requirements and the quality of the information needed to produce a timely report would be to offer a service somewhere between RRS and the more detailed reviews (e.g., TR, OU reports), depending on user needs and whether other relatively similar products have already been assessed.

Key messages:

- CADTH's customers acknowledged its efforts to improve timeliness, and are generally satisfied with its response time to their requests.
- CADTH can improve timeliness of some TR and OU products to better match decision-makers' time frames for addressing particular issues. An option is to offer a service somewhere between RRS and the more detailed reviews.
- CADTH's ability to address the tensions between the depth of the analysis required and the timely delivery of its products and services is often constrained by the availability of information on particular health technologies.
- There is room to improve on the collection of administrative data on the overall timeliness of CADTH's delivery of products and services.

Finding #12: Users of CADTH's products and services were highly satisfied with their quality, utility, relevance, and credibility. There were differences in the way customers used CADTH's products depending on their capacities to conduct HTA or to implement recommendations.

Users of CADTH's products and services were highly satisfied with the quality, utility, relevance, and credibility of CADTH's current offerings. For example, both survey participants and interviewees recognized the RRS as a service addressing a large range of needs in the decision-making process. In the case of survey participants, 99% of them stated they intended to submit new requests to the RRS, and to recommend the service to others.

Generally, CADTH has a positive reputation. Customers with limited HTA capacity rely on CADTH to underpin their decision-making process and find its contributions to be very helpful in addressing their needs for a substantive evidence base. Those customers with more substantial in-house HTA capacities have recognized CADTH's input into their decision-making process. Collaboration has improved, particularly among those jurisdictions with HTA capacity, with one outcome being less duplication of work. According to interviewees, an increasing number of jurisdictions no longer re-examine the products that come through CADTH on a regular basis for formulary management at the jurisdictional level. Case study participants recommended a regular update of Environmental Scans so they could be incorporated into any emerging information or policy changes within the country.

Key messages:

- CADTH's customers were highly satisfied with the quality, utility, relevance, and credibility of the organization's current offerings.
- The perception of utility and value of CADTH's products and services is influenced by the extent of development of its customers' capacities and capabilities to conduct and implement HTA.

CADTH has made positive contributions to building receptivity and awareness for health evidence; it is also possible to improve operations and program cohesiveness.**Finding #13: An awareness of some new and traditional products and services, including HTA related to devices, was not consistently high across stakeholder groups, including customers.**

Over the period covered by this evaluation, has adopted new approaches to customer service and knowledge mobilization, accompanied by efforts to strengthen some key products and services (i.e., reviews of medical device technologies). For example, CADTH's Customer Service Strategy presents 14 concrete actions aimed at providing clarity and strengthening staff customer service skills. These actions were designed to enable CADTH to assess and adapt products and services in response to evolving customer needs.⁷ In 2014, the creation of the KMLO team reorganized and consolidated two previously separate functions, with increased emphasis on addressing issues regarding awareness-building, knowledge mobilization, capacity building and support initiatives, outreach and impact tracking, and customer follow-up and value for money.

An expanded offering of products and services includes the introduction of the Scientific Advice Program. In addition, interviewees noted that CADTH has implemented changes in the products already offered, as well as the topics covered, to maintain or improve efficiency. For example, in response to the need for drug and companion device assessments as well as the integration of ethical, economic, and implementation considerations, the more operational topics were assigned to the Formulary Working Group and the assessment of classes of drugs was assigned to the Optimal Use Working Group. This thereby made the best use of the available expertise. In response to emerging demands for medical device assessments, CADTH started the Health Technology Expert Review Panel (HTERP) in 2011, giving it a mandate to provide recommendations.

Despite this activity, it was clear through the interview process that external stakeholders were insufficiently aware of certain products and services, and that these products and services were not always well understood. Suggestions were made to map CADTH's products and services regarding both drug and medical device technologies. Interviewees and case study participants suggested the need for CADTH to better communicate its new orientations and priorities both internally and externally.

Some interviewees also suggested CADTH should continuously monitor factors that affect the visibility of its work on drug and medical device technologies. For example, health care practitioners and decision-makers noted the high rotation of staff in health care, and that those who interact with CADTH change quickly; as such, health system managers new to their positions may not be aware of

CADTH and the services it offers. According to stakeholders, while it is important to improve CADTH's work, the organization should also maintain its proactive stance of engaging with a changing stakeholder base.

Key messages:

- Efforts to enhance CADTH's contribution to receptivity and awareness for health evidence include the adoption of new customer and knowledge mobilization approaches, as well as changes in the suite of products and services.
- Operations with respect to certain products and services have been reorganized to optimize the use of resources and expertise and ensure capacity to continuously meet customer needs.
- External stakeholders were insufficiently aware of CADTH's efforts to revamp its current offering of products and services, and these products and services were not always well understood.
- In order to improve awareness and impact, CADTH should maintain its proactive stance of engaging with a changing stakeholder base.

Finding #14: CADTH was one of the few HTA organizations and networks (EUnetHTA, NICE, SMC) that has been proactive in the systematic implementation of patient engagement as part of its HTA processes. Incorporating the patient perspective lends additional credibility to CADTH's products and services and increases the likelihood of uptake by customers.

The literature review documented the growing interest of policy-makers, health care practitioners, and patient groups in organizing and empowering patients to facilitate their involvement in and influence on HTA and health decision-making more broadly. The intent is to make the assessment of health technologies more open to and inclusive of patient needs through enhanced interaction between HTA producers and patients. Documented and case study evidence asserted that patients seldom perceive the value of a given piece of health technology in isolation; rather, their opinions tend to reflect their experiences with the health care services they receive, and the extent of their knowledge about alternatives for treatment. Both documented and interview evidence agreed on the challenges of including patient inputs in HTA activities: patients have diverse interests in and knowledge about health technologies, while there is also influence from industry lobbying and marketing strategies.

According to interviewees and the literature review, CADTH was recognized as one of the few HTA institutions in which patient engagement has been implemented in a systematic way, making CADTH an international leader on this front. Patient engagement activities include the following:

- Adopting mechanisms for collecting patient input into CADTH's decision-making process through the CADTH website
- Including submissions from patient groups in drug review reports, and including information on patient perspectives from the literature in HTA and device OU products. For example, patients can provide details of their experience with a specific drug
- Opening up membership of CDEC to representatives of the public who have familiarity with the health system

- Providing a secretariat for the Patient Community Liaison Forum, which allows CADTH to engage directly with the patient group community to share information and gather feedback on patient engagement processes and supports
- Sharing knowledge and contributing to capacity building for patient engagement in Canada. For example, in collaboration with CADTH, the Canadian Cancer Action Network has developed a tool to include patient input in its evaluation processes. This has resulted in the creation of the role of the HTA Navigator — a person who assists patient groups in writing up input for submissions to the pCODR program. While this practice is currently experimental, it could become more permanent.

Interviewees recommended some areas for further improvement in CADTH's efforts toward patient engagement:

- Improve the definition of *patient*, in order to make a clear distinction between patient and public representatives as different stakeholders
- Identify the optimal combination of methods by which patient input can be obtained
- Build on mechanisms for balancing between specific lobbies and patients acting as individuals.

In moving forward, according to both the literature review and interviews, international organizations such as Agència de Qualitat i Avaluació Sanitàries de Catalunya (AQuAS) in Spain or NICE in the UK offer examples of good practice in the area of patient engagement. The following initiatives undertaken by international HTAs may be of interest:

- EUnetHTA: Integration with regulatory bodies from clinical trial registration all the way through to post-marketing. This provides the kind of early-stage evidence needed by the HTA body so that when a drug is approved by the regulatory body, clear recommendations and post-market monitoring processes (if needed) are available.
- NICE: Patient engagement and patient trainees, as well as dual- or multi-technology reviews.

Key messages:

- CADTH is a leader in the implementation of patient engagement in HTA processes.
- The inclusion of patient input in HTA processes should be handled with care, making efforts to identify and validate the relevant inputs and possible biases.
- Partnerships and collaboration with other HTA producers in Canada and internationally should help in improving methodologies and approaches to patient engagement.

Finding #15: The role and potential value of the KMLO function is well understood among external stakeholders, who expressed a high degree of satisfaction with CADTH's capacity-building and knowledge mobilization activities, although the value of the knowledge mobilization function and the Liaison Officer (LO) activities as a link between CADTH and its customer base was not always well understood internally.

The evidence was mixed with regard to the role of CADTH's LOs. According to external stakeholders, LOs facilitate the identification of customer needs and help users access CADTH's products and services. The view was that these qualities help in enhancing clinician engagement processes. LOs have also made it possible to economize resources at CADTH, as they frequently redirect customers to existing knowledge products — available through CADTH's website, for example — so that it is

possible to meet new demand by leveraging previous work. LOs also fulfill an important intelligence-gathering function and are able to provide insights into local political environments.

By contrast, that the knowledge mobilization function and the LOs work as a link between CADTH and its customer base appears to not be very well known internally, or well integrated with other activities within CADTH. To some extent, these functions were perceived by CADTH staff as an unnecessary intermediary between customers and the units responsible for providing certain products or services.

Key messages:

- The evidence was mixed on the role and potential value of some KMLO functions, both internally and for CADTH's customers.
- CADTH could improve internal communication and program cohesiveness to enhance understanding of how each program aligns with its orientations and priorities.

Finding #16: CADTH exhibits a high degree of transparency and accessibility of its knowledge products. While this has enhanced its credibility, some groups identified a need for additional transparency in the therapeutic review and device review discussions.

According to the literature review and interviews, a national-level HTA process plays a significant role in promoting consistency and transparency in health care funding decisions; it provides some minimum uniformity to analytical methods and inputs. Stakeholders interviewed recognized CADTH's high level of transparency and positioning as a pan-Canadian HTA organization. The accessibility (via the website) of the inputs and outputs of reviews, including final reports, is greatly appreciated and contributes to the credibility of CADTH. Despite this high degree of credibility, some stakeholder groups wished for more transparency with respect to the context and content of the discussions that take place during drug and device review processes. For instance, patient groups, once having made a submission to a review process, would appreciate the opportunity to provide further clarification on information contained in their submissions. In their view, this would ensure their input was interpreted correctly.

Key messages:

- CADTH exhibits a high degree of transparency, credibility, and accessibility of its knowledge products. There were requests for additional transparency regarding the therapeutic and device review discussions.

By fostering collaboration among health stakeholders, CADTH has contributed to reducing duplication in HTA processes in Canada.

Finding #17: CADTH has improved collaboration with most of the identified stakeholders, particularly those that possessed long-standing HTA capacities (e.g., HQO and INESSS).

This evaluation found documented evidence on CADTH's efforts to respond to its changing operational environment, including through participation in debates on novel methodologies and

approaches to HTA, and collaboration with peer organizations in Canada and internationally. According to CADTH strategic documentation, collaboration opportunities have been identified in areas related to common methods for producing HTA in Canada; approaches to enable HTA information-sharing (e.g., a searchable repository for HTA reports produced in Canada); Canadian HTA bodies and Health Canada working together on approaches to regulating and assessing health technologies; use of pre- and post-market HTA evidence; identification of key entry and influencing points for health technologies to the health care system; and use of regional and hospital-based HTA to inform local decision-making.

An example of progress regarding Canadian partnerships was the launch of the pCHTC, formed in 2012 with the goals of sharing best practices, minimizing duplication of effort by sharing information, and identifying and contributing to joint initiatives. Initially, the pCHTC brought together policy decision-makers (Regional Health Authority executives, provincial health departments, and Health Canada), the academic community (University of Alberta), HTA producers (HQO, INESSS, CADTH, IHE), and other stakeholders (Policy Forum and Health Technology Analysis Exchange). According to interviews, HQO and INESSS have shown a willingness to tighten collaboration with CADTH; beginning in 2015, the three organizations initiated efforts to align agendas and methodologies and to avoid duplication of assessments.

Interviews and the literature review also documented that pCODR was efficiently transferred to CADTH. Despite the initial concern of pCODR members, patients, and industry, in general this decision is reported as being positive. The management of the transfer was completed in a satisfactory manner, according to evidence collected through both the document review and interviews.

Key messages:

- CADTH has improved collaboration with its stakeholders, particularly those with long-standing HTA capacities.
- CADTH is leading or proactively contributing to debates on novel methodologies and approaches to HTA in Canada and internationally.
- The transfer of pCODR to CADTH was efficiently implemented.

Finding #18: CADTH's collaboration with provincial HTA organizations has facilitated consistency in the work across jurisdictions. Anecdotal evidence indicated a reduced need for different organizations to assess the same health technology. The most evident outcome of this was the decreasing number of jurisdictions that felt the need to re-review drugs before the drugs are included in the provincial formulary.

Collaboration with provincial HTA organizations was identified as a mechanism to enhance consistency and, to some extent, reduce duplication of HTA work across Canada. Evidence from interviews indicated that progress has been achieved with regard to drug reviews, where CADTH has played an important role in strengthening pan-Canadian coordination. The main perceptible outcome was the decreasing number of provincial and territorial governments needing to re-review drugs before the drugs are included in formularies. Interviewees mentioned some positive dynamics with respect to collaboration between major HTA organizations for the production of medical device technology

assessments; in some cases, this has led to a division of labour at the operational level. For example, for one technology, the IHE carried out an economic assessment and CADTH the clinical assessment.

Interview data presented opportunities for CADTH to further engage with F/P/T customers and to support them in implementing the optimal use of health technologies in a broad sense. For instance, CADTH could explore ways to provide practical support in the implementation of recommendations, aligned with the conditions and capacities of jurisdictions. It was hoped that CADTH could work with provincial HTA organizations so that in addition to a sound scientific evidence base, reviews can include contextualized information about budget impact, local patient perspectives, and local policy priorities. According to interviewees, contextualization could be enhanced by bringing in more expertise from the field on, for example, clinical practice on the sequencing of various therapies for a particular treatment of disease, or for specific environments (e.g., rural or remote areas) or patients. Users would also benefit from knowledge about possible constraints associated with the health care system.

Key messages:

- Through collaborations with provincial HTA producers, CADTH has contributed to reducing duplication in HTA processes in Canada.
- CADTH could further enhance its HTA processes by including more context-specific evidence and inputs from the field.
- CADTH could explore ways to provide more practical support in the implementation of recommendations, aligned with the HTA capacities and capabilities of jurisdictions.

CADTH has demonstrated leadership in improving HTA coordination, championing meaningful evidence, and leading novel HTA methodologies; there are also opportunities for continued work in this area.

Finding #19: CADTH has led international debates and initiatives in novel methods for HTA, and has collaborated with international HTA organizations and networks (e.g., EUnetHTA, INAHTA).

Interviewees and documented evidence corroborated CADTH's efforts to maintain collaboration with international HTA organizations and networks, including the EUnetHTA and INAHTA. Active participation in international forums has increased the organization's visibility and leadership in an otherwise largely European-dominated space. Examples of results from international collaboration include setting up communities of practice to discuss the proliferation of expensive drugs, an ethics group, a patient involvement group, an internship program, methodological work, harmonization and standardization of HTA terminology, and mechanisms to facilitate information-sharing. Additional short-term outcomes include CADTH staff members participating in international HTA meetings; contributing to international conferences, workshops, and peer-reviewed publications; or assuming leadership positions within some of these organizations. An example of how CADTH has benefited from international collaboration is the development of a horizon scanning program tailored to spinal cord injury, with the assistance of the Australian Institute for Safety, Compensation and Recovery Research (ISCRR).

Key messages:

- CADTH has led international debates and initiatives with respect to novel methods for HTA, while evidence was collected mostly on short-term outcomes.

Finding #20: CADTH has demonstrated leadership in identifying drug and medical device topics of importance for customers through broad consultations with stakeholders. The evidence was insufficient to assess the extent of influence on the quality, consistency, and utility of CADTH's knowledge products.

Interviews and document data showed that CADTH has followed a proactive approach of engaging in broad consultations with different stakeholders to identify emerging topics of interest. These topics are expected to reflect stakeholders' priorities and needs regarding HTA, including but not limited to medical device-related topics. In addition to topic intelligence gained through regular outreach with customers at all levels of the health system, consultations on topics have taken place through informal (e.g., discussions between health decision-makers and CADTH LOs) and formal mechanisms. Some examples of the latter are as follows:

- Open calls for input and feedback on CADTH's website. With medical devices, the list of topics is examined periodically according to a scoring tool, which has been available on the website since November 2015.⁸ Topics are then ranked and validated (with respect to capacity and priority) by CADTH senior managers, LOs, and HTERP. Customer interest and commitment are key criteria.
- Consultations with HTA producers and other key stakeholders leading to the development of a pan-Canadian HTA collaborative model for the production, dissemination, and uptake of HTA information.
- Focus group sessions held with customers from across the country, including senior-level representatives of the health care systems involved in decision-making related to drugs and devices. Information collected about customer experiences and perspectives on key priorities has informed CADTH's topic identification processes.
- Horizon scanning.

Interviewees welcomed the strategy of consulting with stakeholders to hear and learn about their needs regarding HTA. This was expected to strengthen CADTH's influence on policy-making. However, interviewees also expressed their wish for a more economical use of resources, through CADTH finding alternative ways to conduct consultations. For example, CADTH could reduce the need to mobilize people to attend meetings, but use alternative means to reach out more broadly, based on more clearly defined criteria for selecting consultation participants. More importantly, the suggestion was made to strike a balance between CADTH's decision-making based on strategic directions, and the extent of influence granted to the information collected through consultations.

Key messages:

- CADTH has demonstrated leadership in informing its HTA processes through broad participatory processes and engagement with stakeholders.
- The evidence was insufficient to assess the extent of influence on the quality, consistency, and utility of CADTH's knowledge products.
- CADTH could improve consultation processes by making more rational use of resources, and by improving the way in which external inputs are collected.

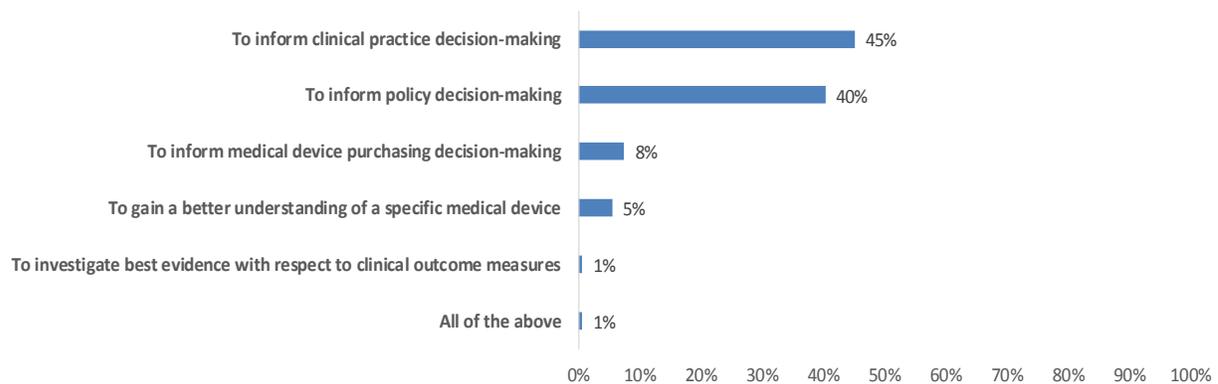
Evidence on the uptake and use of CADTH's products and services was strong, but it is difficult to determine the economic value derived by jurisdictional customers, or downstream health care system outcomes, under current performance measurement systems.

Finding #21: There was strong evidence of the use of CADTH's products and services. CADTH has created awareness, understanding, and receptivity for health evidence that has informed policy decisions and clinical practice across jurisdictions and individual health practitioners.

The value of CADTH's products and services can be determined in part by the extent to which they are used by customers. Multiple lines of evidence showed a high level of usage of CADTH's products and services in informing clinical practice, coverage decisions, and other policy-making decisions. For products with recommendations — more specifically, formulary reviews — administrative data indicated a 90% congruence level between recommendations included in CDR reports and actual uptake by participating drug plans over a five-year period. The variability observed in uptake levels across jurisdictions can be explained by the timing of formulary decisions made in different jurisdictions.

CADTH's products are serving their intended purpose. In the case of the RRS, 85% of customers reported that the purpose of their most recent request was to inform clinical practice decision-making (45%) or policy decision-making (40%) (Figure 6). Some variation in the specific use of RRS was evident across jurisdictions. The highest proportions of respondents indicating that the primary purpose of the RRS reports was to inform policy decision-making were seen in British Columbia (17%), Alberta (14%), and New Brunswick (14%). The highest proportions of respondents indicating that the primary purpose of RRS reports was to inform clinical decision-making were seen in Alberta (23%), British Columbia (20%), and Saskatchewan (15%).

Figure 6: Responses to Survey Question “What Was the Purpose of Your Most Recent RRS Request?”



Source: Survey data.

With regard to capacity-building activities, those attending CADTH’s workshops expressed a high degree of satisfaction with the content and format. Owing to differences in the audiences and nature of the capacity-building activities conducted by CADTH, it is less straightforward to draw definite conclusions on the actual capacity of participants to mobilize their newly acquired knowledge.

Notwithstanding stakeholders’ high level of satisfaction with CADTH’s current offerings, the evidence from interviews suggested that there is room to improve the positioning of some products and services among the customer base. For instance, interviewees commented that the Horizon Scanning function has been useful mainly for those jurisdictions that are more advanced in terms of HTA capacities. In contrast, jurisdictions with lower HTA capacities have found the service to be beyond the scope of their priorities. For example, these provinces are focused on improving their ability to implement current recommendations on products already on the market or newly approved drugs. These jurisdictions do not have the resources to engage with an exercise looking into future trends.

Key messages:

- There was strong evidence of the usage of CADTH’s products and services.
- Variability in uptake levels across jurisdictions can be explained by the timing of decision-making processes, the complexity of specific products or services, intended use, and actual implementation capacities in each jurisdiction.
- There was room to improve the positioning of some products and services among the customer base.

Finding #22: Data collection efforts at CADTH are concentrated at the activity and output levels. Systems are not in place to track the extent of CADTH’s contribution to long-term outcomes (e.g., improved health outcomes, policy changes, policy coordination). These could not be assessed because of an absence of any secondary data and a lack of informed stakeholder opinion.

CADTH’s ongoing organizational transformation included a number of key strategic elements, each designed to support increased profile and impact for HTA in Canada. For example, the decision to

streamline the KMLO functions was intended to integrate and leverage CADTH's investments in communications-related actions and functions, including media relations, stakeholder engagement, outreach, partnerships, conferences, government relations, knowledge exchange, marketing, Web and new media development, and internal and external communications. The streamlining of the KMLO function included a revamping of data collection processes and a steady move toward the present KMLO impact database. Bibliometric data are also systematically collected to assess performance.

However, this evaluation found there was no centralized repository or system for storage, retrieval, processing, and quality assurance of performance data at CADTH. In its current form, data collection and performance tracking seem to reflect a disconnected view of the organization; while individual units collect data and report on performance, there is no consistent way to make the links between the data and performance indicators as per CADTH's PM Strategy.

This evaluation tried to obtain data on long-term outcomes such as social, economic, and health or health system benefits, as well as examples of changes in policy practices or enhanced policy coordination. Based on the information collected and on interaction with different stakeholders during the data collection process, it was determined that such data do not exist in any form that would enable them to be linked back to CADTH. Overall, for the time frame covered in this evaluation, it was too early to observe any major health care changes associated with recent activities undertaken by CADTH.

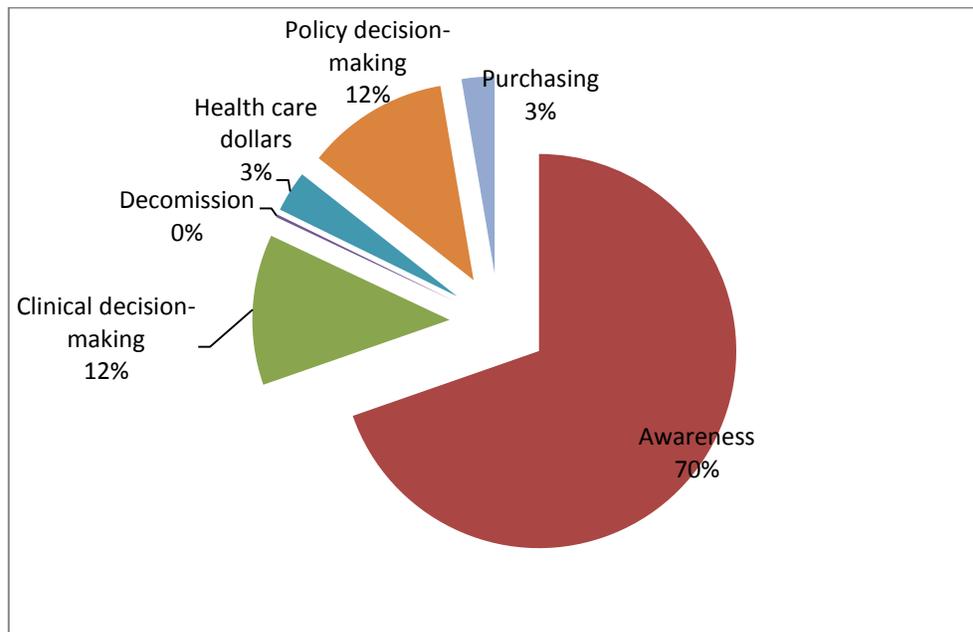
The individuals whom the evaluators spoke to as part of the interview and case study lines of evidence were unable to qualify or quantify the long-term impact of having taken up or used CADTH's products, despite the fact that they generally found tremendous value in those products. Nevertheless, as indicated in Finding #18, interview data revealed that enhanced coordination between CADTH and provincial HTA organizations may have helped to reduce duplication in HTA work. However, because the number of such reductions could not be precisely quantified, it was not possible to establish a rough value of the actual benefits that could be associated with this observed outcome. The evaluation arrived at a similar conclusion in the case of outcomes related to CADTH's contribution to the harmonization of international HTA activities — for example, it was mentioned that Scotland no longer repeats reviews of devices that CADTH has already undertaken.

CADTH collects anecdotal evidence on the uptake and impact that can be associated with KMLO activities. As indicated in Figure 7, the largest share of the KMLO activities conducted in 2015-2016 are linked to awareness (of CADTH and evidence-informed decision-making) outcomes (70%), followed by policy decision-making and clinical decision-making outcomes (12% each). The remaining outcomes correspond to decisions about purchasing, health care dollars saved, and decommissioning. While these data provide a general sense of CADTH's intended contribution to outcomes at the health care system level, the extent to which those outcomes materialize could not be confirmed. Interviewees recognized the role of the KMLO function, particularly the LOs, in the collection of impact data. However, this collection remains a challenging task.

Based on interviews, case study data, and the review of administrative data, the evaluation found that in order to assess the economic value of CADTH products, additional effort is needed to determine both the appropriate outcomes to be measured (e.g., the amount of money saved by adopting a more cost-effective technology, or by reducing the overuse of a product) and how to capture CADTH's

contribution relative to other factors that may have had an influence on the specific outcome. The evidence collected also identified some limiting factors for the uptake and impact of CADTH's products and services, including the timeliness of the reports (i.e., TR and/or OU HTA projects), political buy-in and support, the nature and pace of regulatory changes, and the incidence of a condition in a given population. These should be taken into account when assessing CADTH's contribution to long-term outcomes.

Figure 7: KML0 Function: Type of Impact Realized in Q3 2015-2016



KML0 = Knowledge Mobilization and Liaison Officer team.
Source: CADTH's KML0 database, new version.

Key messages:

- Data collection efforts at CADTH are concentrated at the activity and output levels.
- Performance measurement systems are not in place to track the extent of CADTH's contribution to long-term outcomes.
- The absence of a centralized system to integrate performance tracking efforts is symptomatic of a need to better connect and align different programs according to a commonly shared strategic orientation for the organization as a whole.
- It is possible that future, improved performance measurement needs to consider CADTH's ability to influence outcomes outside Canada.

CADTH's ability to provide economic value to its customers could be enhanced with improvements to the process of strategic direction-setting.

Finding #23: Over the time frame of the evaluation, CADTH made significant improvements to the efficiency and effectiveness of the governance structure and practices; however, there are opportunities for further enhancements.

CADTH's ongoing transformation has assisted the organization to remain a relevant HTA provider within the landscape of Canadian governments' priorities around HTA. A case in point was the change made to the composition of the Board of Directors in 2011, which resulted in more diverse representation and helped to raise CADTH's reputation and trust among stakeholders. This transformation also resulted in a change in governance, in which expert and advisory committees report to the CEO, rather than directly to the Board. The evidence gathered through this evaluation suggests that a review of the CADTH committee structure (including those groups for which CADTH provides secretariat support) and connectivity of the committees with the Board may reveal opportunities to optimize inputs to strategic direction-setting.

Key messages:

- There are opportunities for further enhancements to the governance of CADTH.

Finding #24: As demand for CADTH reviews has increased, so has the expectation that CADTH would introduce holistic mechanisms for priority-setting. The “first-come, first-served” practice is no longer appropriate.

Interview evidence showed that CADTH implemented changes to priority-setting toward the end of the evaluation period. Initiatives included the following:

- Proactive identification of medical device–related topics that might have a significant impact on jurisdictions through informal discussions between CADTH LOs and health care decision-makers, and through an open call on CADTH's website (see discussion on Finding #16).
- CADTH has been mapping each HTA producer's work on devices and identifying sources of potential duplication. This work has been accomplished through two committees: the Health Technology Analysis Exchange, involving 12 jurisdictions in Canada (regional or hospital-based) and aimed at sharing information on methods, practices, and challenges; and the pCHTC, involving the four major HTA producers across Canada (CADTH, INESSS, IHE, HQO) and aimed at identifying common priority areas.
- Priority review criteria were implemented on April 23, 2014 as a result of the CDR backlog. Once the backlog was cleared, the priority review process was placed on indefinite hold, starting February 26, 2015 (i.e., the day the backlog was formally cleared and the first submissions were initiated on time).

This evaluation found a perception that because of the traditional way in which CADTH approaches its pipeline — on a first-come, first-served basis — the order in which reviews are performed has been supply-driven for CDR and customer-driven for OU. According to interviewees, this practice of “first come, first served” as the basis for planning production of drug reviews should be replaced by a more proactive policy whereby CADTH sets some priorities on drugs to be reviewed — in consultation with provincial jurisdictions, for example. Prioritization was found to go hand in hand with the need for harmonization in the assessment of health technologies in general.

Interviewees recommended revisiting the type of reviews performed on biosimilar and rare disease drugs. They noted that the general framework applied to assess drugs was not adapted to biosimilar and rare disease drugs, for various reasons. With regard to biosimilar drugs, given their similarities with other already assessed drugs, the time and level of effort expended could be reduced in order to

reallocate resources to more challenging assessments. In the case of rare disease drugs, given the small population and thus the very limited evidence at the time of regulatory approval, the assessment has a limited added value when undertaken. Instead, monitoring such items after their introduction on the market and later evaluating them when data are more available, as well as coordination and information-sharing with other international HTAs, may be more helpful.

Key messages:

- Revisiting the processes regarding operational priority-setting could help CADTH to better identify those areas with a highest potential for impact.
- The current “first-come, first-served” approach as the basis for planning production of drug reviews is no longer suitable to address the demands faced by CADTH.
- Prioritization should better reflect customers’ needs and opportunities to harmonize HTA processes with regulatory processes with respect to new and existing health technologies.

Conclusions

The findings of the evaluation led to the following conclusions.

Conclusion #1: CADTH occupies a niche within the highly decentralized and diversified health care landscape in Canada. It has contributed significantly to coordination, alignment, and capacity building regarding HTA functions. In particular, CADTH has been able to demonstrate its relevance by assisting provinces that have more limited HTA capacities, while working closely with provinces with substantial capacity in these areas. [Reference: Findings 2, 3, 4, 5]

The evaluation found that CADTH, as a pan-Canadian organization, is uniquely placed within the decentralized structure and operation of the Canadian health care system. CADTH interacts with a heterogeneous base of stakeholders who function based on different, sometimes divergent, mandates and orientations. These heterogeneous agents have varying capacity to make and implement decisions regarding HTA. There has been a demand from Canadian health decision-makers at various levels of the system for an organization, such as CADTH, to coordinate, integrate, and facilitate the operation of HTA producers and users. CADTH has aligned well with F/P/T governments' commitments to HTA collaboration and the search for enhanced efficiency and cost-effectiveness of public health care service provision.

Conclusion #2: CADTH has been at the forefront of assisting decision-makers to identify and respond to emerging trends in HTA activities that have potential to influence quality, cost-effective health care services for Canadians. In the face of increased demand for HTA products and services, CADTH has introduced initiatives to manage demand and facilitate an effective a rational use of scarce public resources, while improving its offering of products and services and reorienting its relationships with some stakeholders. [Reference: Findings 1, 3, 4, 7, 11]

Rapid innovation in health technologies, convergence between drug and medical device technologies, increased pressures on stakeholders to make more effective use of scarce public resources, and the need to demonstrate positive performance while remaining transparent and accountable have had an impact on the complex health care system. These trends have brought with them enhanced requirements for information about the merits and risks associated with current and emerging health technologies.

It was evident that CADTH has been responsive to observed trends in its operational environment. It has actively searched for ways to assist decision-makers to gather and interpret the increasingly complex evidence base they need to substantiate their decision-making processes. CADTH has successfully completed an organizational transformation, including the revamping of products and services, while exploring initiatives to broaden the scope of its already established products and services (e.g., TRs as a specialized component of the OU product line). CADTH is reorienting its relations with industry, which has included introducing application fees to supplement the resources required to produce drug reviews.

Conclusion #3: Rapid innovation and convergence in drug and medical device technologies demand new or improved HTA processes and methodologies, analytical inputs, and approaches to HTA. CADTH has taken a leadership role with local and international partners on novel methods for HTA. [Reference: Findings 1, 5, 6, 14, 17, 18, 19, 20]

CADTH has been challenged to continuously improve methodologies and approaches to HTA functions — including, for example, making those functions more democratic and inclusive of patients.

CADTH has assumed leadership in responding to emerging challenges and opportunities by leveraging partnerships locally and abroad. Examples include enhancement to patient engagement (on the leading edge of international best practice), the establishment of the pCHTC, and participation in international HTA networks, such as INAHTA and EUnetHTA.

There were opportunities for CADTH to continue to enhance further HTA processes by including more context-specific evidence and inputs from the field, as well as by taking a more active role in assisting customers to implement some of the recommendations attached to its HTA products. In addition, there was an emerging need for CADTH to contribute to HTM processes as part of its engagement with a broad customer base.

Conclusion #4: While demands placed on CADTH's operations were diverse and ever changing, there were limits to CADTH's capacity to respond, owing to a lack of external resources, competing demands on available internal resources, some disconnection in program operations, and bottlenecks in priority-setting mechanisms within CADTH. [Reference: Findings 6, 7, 8, 10, 15, 23, 24]

This evaluation found that CADTH operates at close to full capacity. It has had a diversified customer base, many of whom have shown specialization in the use of certain CADTH products or services. Having to mobilize finite financial reserves to address a backlog in the production of formulary reviews suggests that internal human and financial resources will be insufficient to adequately address future customer needs. Moreover, despite the high level of satisfaction expressed by CADTH's customers, some of them were of the view that CADTH did not seem to be adequately placed to address many emerging issues, given its current structure, mandate, and resources. The diverse nature and mandates of CADTH's customers, with their competing demands for products and services, revealed the need for a more holistic, organization-wide mechanism for priority-setting. The evaluation also identified capacity constraints related to the use of external advisory expertise and less-than-optimal mechanisms for operational priority-setting. The “first-come, first-served” practice seems inadequate for prioritizing the areas in which CADTH should concentrate efforts and resources.

Conclusion #5: CADTH has undergone continuous organizational transformation in order to adapt to an ever-changing environment and ensure its capacity to meet customer needs. There are signs of a need to improve committee structure, program cohesiveness, and the alignment of different program operations

with respect to a shared view of the organization's strategic orientation. [Reference: Findings 5, 9, 15, 20, 22, 23]

Over the period covered by this evaluation, CADTH has undertaken distinct initiatives to improve governance and operations, to better position itself to respond to changes in its operational environment, and to ensure its capacity to identify and meet ever-changing customer demands. Some examples of significant organizational transformations include the establishment of new governance practices following changes to the composition of the Board, the transfer of pCODR, the adoption of a new strategic approach to partnership-building, enhanced KMLO and customer strategies, and the adoption of industry application fees to supplement the funding available for some products and services. While there is evidence to suggest these transformations have had positive results, as captured by customer loyalty and the achievement of short- to medium-term outcomes, the findings also highlighted some areas in which further attention was required to ensure continued performance and sustainability.

There were also mixed views on the role and potential value of some of the KMLO functions, both internally and for CADTH's customers, and opportunities to improve internal communication and program cohesiveness aligned with the organization's orientations and priorities. While there are multiple emerging demands, CADTH could have made more transparent the factors considered to inform decisions in the areas it intended to prioritize.

Conclusion #6: Despite CADTH's efforts, there remains unmet stakeholder demand for the assessment of existing drugs, new drugs, and medical device technologies, as well as advisory services. Moreover, there are opportunities for CADTH to better support customers in the implementation of recommendations associated with some HTA products and services. [Reference: Findings 1, 4, 6, 7, 11, 12, 18]

CADTH's initiatives to improve operations were not always visible to stakeholders, and neither were efforts to cope with emerging demands. While the uniqueness of products initiatives such as Environmental Scans and Horizon Scans may help to explain their insufficient visibility, the evaluation also identified operational challenges. For instance, there was an interest in striking a better balance between coverage of current and emerging topics of relevance for the health care system, or between the quality of the information provided and the timing of the actual delivery of knowledge products. There was a desire for CADTH to be more consistent in responding to the information needs and timelines of F/P/T decision-makers. Concerns regarding inclusiveness and transparency in specific aspects of CADTH's operations have been partly addressed; it was expected that CADTH would provide more guidance, or even more actively assist customers to implement recommendations on formularies and optimal use of health technologies.

Conclusion #7: CADTH has achieved immediate and intermediate outcomes (e.g., awareness and uptake), but determining the social and economic value to its customers in terms of health care system efficiencies and improved health outcomes remains a collective challenge. [Reference: Findings 4, 9, 11, 12, 13, 19, 20, 21, 22]

CADTH was viewed as an independent and credible source of quality HTA products and services that has benefited policy decision-makers. CADTH's customers were satisfied with its ongoing efforts to improve the timely delivery of credible products and services, while maintaining or even increasing quality. Perceptions of quality, utility, and relevance were positive for all customer groups.

This evaluation found limited, anecdotal evidence on CADTH's contribution to the achievement of long-term health care system efficiencies and health outcomes. There is evidence that CADTH's activities have contributed to a reduced duplication in HTA functions at the provincial level, as well as evidence of the uptake of CADTH's recommendations, advice, and information to inform decisions about the procurement of existing drugs and other health technologies relative to new ones. However, data that would provide the evidence base needed to substantiate the contribution of these intermediate outcomes to health care system efficiencies, cost savings, improved patient care and enhanced health outcomes are not collected at the system level. CADTH and its stakeholders lacked sufficient information and data to assess the social and economic value of the uptake of specific HTA products and services to customer jurisdictions. Much larger-scale joint federal and provincial impact evaluation studies would have to be undertaken to assess CADTH's economic value proposition.

Conclusion #8: There are opportunities to better market CADTH's suite of products and services to customers, to communicate the role of some of the KMLO functions internally, and to better demonstrate CADTH's performance to external audiences. [Reference: Finding 6, 8, 13, 15, 16, 21, 22]

This evaluation found areas in which CADTH could gain efficiencies and improve performance and the tracking of performance by improving communication about the changing structure of CADTH's suite of products and services. A better understanding of, and appreciation for, the KMLO role on the part of CADTH staff would enhance the integration and cohesiveness of different operations within CADTH, including topic identification and prioritization, selection of subject matter experts and considerations related to implementation of recommendations.

Continuing on the topic of internal communication, interview evidence showed that improvements are possible with regard to the working groups of DPAC, including updates about each working group's progress, which would reduce the risk of creating a disconnect among them.

The evaluation found fragmentation and lack of coordination in the different databases available on organization-wide performance and financial data over the time frame of the evaluation. Data collection efforts are concentrated at the activity and output levels; a system to track CADTH's contribution to long-term economic and health outcomes is missing.

Recommendations

The following recommendations address areas for improvement identified in the preceding conclusions. These recommendations address governance, product mix, and performance measurement.

Recommendation #1: CADTH should examine the process through which the strategic direction and priorities of the organization are established and implemented, with a particular focus on the governance structure, including the roles, responsibilities, relationships, and connectivity of the Board of Directors, advisory and expert committees, and secretariat-supported groups, to best position itself in the dynamic health care setting. [Reference: Conclusions 4, 5, 8]

Much of the work done at CADTH is influenced and informed by committees. A review of the CADTH committee structure (including those groups for which CADTH provides secretariat support) and connectivity of the committees with the Board may reveal opportunities to optimize inputs to strategic direction-setting and strengthen the connection between strategic and operational decision-making. Further, consideration should be given to other, more efficient, mechanisms for engaging with decision-makers in order to free up internal and external resources.

Enhanced cohesion and coordination between programs would contribute to a common understanding of how different activities contribute to CADTH's long-term vision and strategic positioning within the health care system. For example, CADTH should better communicate, internally and externally, the value that its enhanced knowledge mobilization strategy potentially brings to the work of staff members, and to its customer base.

Recommendation #2: CADTH should implement processes to identify unmet and emerging demands of customers. In addressing those demands, CADTH should consider the following:

- **The current mix of products and services offered**
- **Mechanisms for operational planning**
- **The optimal allocation of resources within CADTH**
- **The need for products to include context-specific analysis**
- **The capacities and capabilities of customers to implement recommendations. [Reference: Conclusions 1, 2, 3, 4, 6, 7]**

CADTH's impact on the health system and sustainability as an organization is dependent upon its ability to anticipate and respond to the needs of its customers. In tandem with efforts to assess unmet and emerging customer needs, CADTH must give consideration to the types of products and services best suited to these needs, such as those containing context-specific analysis and those that straddle the line between timely and comprehensive. CADTH may also benefit from the adoption of improved operational planning processes aimed at the selective initiation of products, services, and other initiatives. This will help to ensure that resources are allocated optimally (i.e., in a way that generates the greatest value to customers) within the organization. Understanding the factors that prevent or enable

customers to effectively use and implement evidence-based information and recommendations prepared by CADTH can help to inform decisions about the types of products and services required in each case.

Recommendation #3: CADTH should improve performance measurement to better quantify and qualify its impact on the health system and its contribution to downstream impacts, ideally in collaboration with its funders, recognizing:

- that both internal and external factors influence the realization of CADTH's intended contribution to outcomes; and
- the supporting role that CADTH's funders have in providing access to indicator data. [Reference: Conclusions 7, 8]

CADTH should work with its funders to strengthen its ability to monitor performance in order to better demonstrate the value of its various products and services and related intermediate to longer-term outcomes to its customers. This information would strengthen CADTH's economic value proposition relative to other delivery alternatives and factors.

CADTH requires a centralized data tracking system for storing, retrieving, processing, and quality assurance of performance data aligned with the PM Strategy. Similarly, CADTH should align current accounting approaches to the management and monitoring of the use of financial and human resources in ways that facilitate consistent assessments of economy, efficiency, and effectiveness issues. This should include examining operations and maintenance costs, overhead costs, and resource allocation across product lines. At the same time, it should be possible to introduce systems that help monitor areas where there are resource constraints, or where it is possible to reorient the use of existing resources. For example, activity-based costing is one way to allocate costs based on the amount of resources a product or service line consumes. A better understanding of CADTH's cost structure by product line can inform priority-setting, improve production target setting, and enhance management accountability.

Appendix A: CADTH Profile

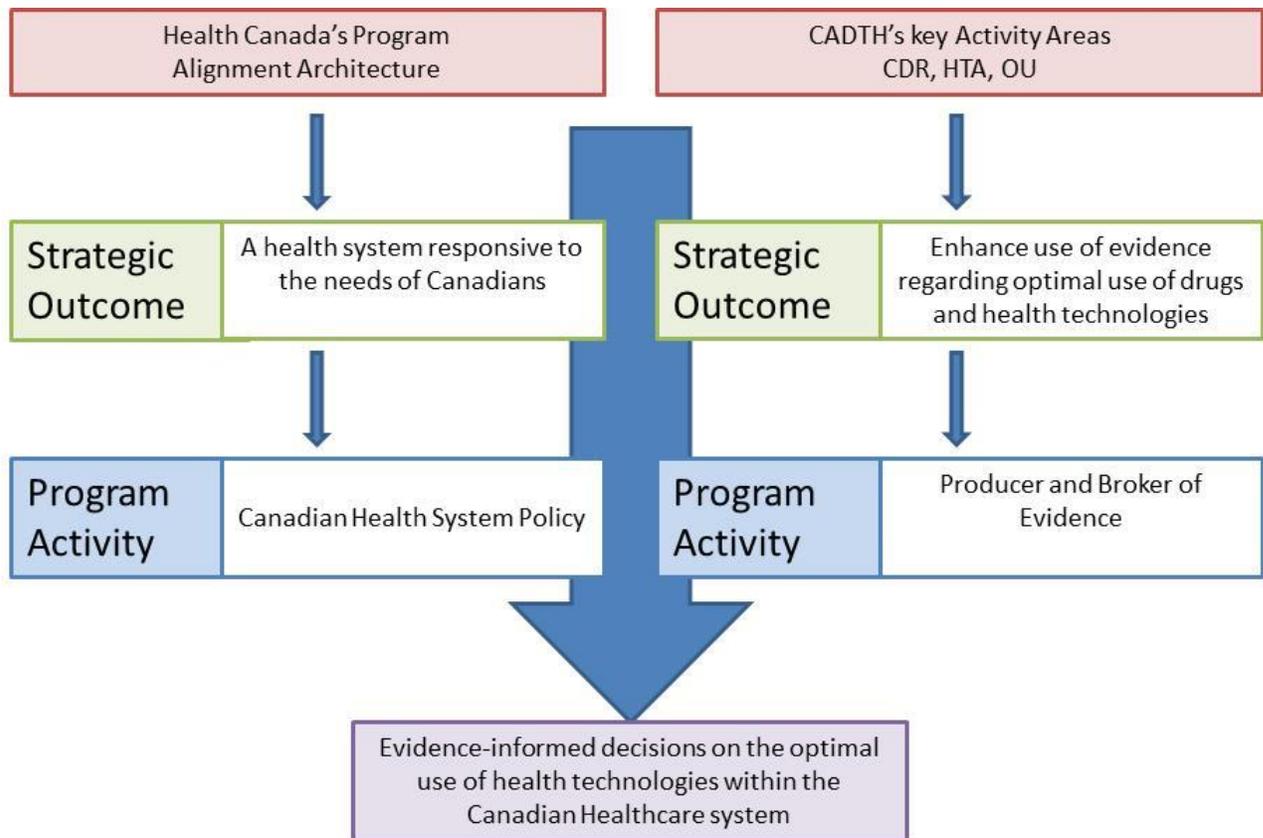
CADTH Profile

Established in 1989, CADTH is an independent, not-for-profit, pan-Canadian organization that produces and disseminates evidence-based assessments of drugs and devices. Throughout this document, the term *device* is intended to encompass medical devices; diagnostic tests; and medical, surgical, or dental procedures and programs. CADTH's value proposition is to work closely with its customers (i.e., health care decision-makers; this term is described in greater detail in section 1.4) to produce “unbiased information and advice, using the best available evidence, to support [Canada's] health care decision-makers. CADTH acts as a catalyst and connector, collaborating with other Canadian and international HTA producers and experts, to broker knowledge and leverage the health technology assessment capacity and resources available.”⁹

Similarly, in the context of CADTH, the term “health technology assessment” (HTA) is understood to mean activities that involve assessments of health technologies. HTA and optimal use (OU) products assess “clinical effectiveness and/or cost-effectiveness, and may include the ethical, legal, and social implications of health technologies on patient health and the health care system.”¹⁰ Health technology management (HTM) is a broader term that encompasses different aspects of the planning, use, and management of health technology assets, and technology more generally, in health care organizations.

The Government of Canada's objective in supporting CADTH is to address the need to increase the access to, and use of, relevant evidence to inform the optimal and cost-effective use of drugs and health technologies. In so doing, the Government of Canada seeks to harness the benefits of health technologies while getting the best value from its investments in health. As such, CADTH's mandate and objectives are consistent with Health Canada's Program Alignment Architecture, which links Health Canada's strategic outcome of “A Health System Responsive to the Needs of Canadians” to the program of “Canadian Health System Policy,” as illustrated in Figure 8.

Figure 8: CADTH–Health Canada Strategic Alignment



CDR = CADTH Common Drug Review; HTA = health technology assessment; OU = optimal use.
Source: CADTH internal documentation and correspondence.

Customers and Key Stakeholders

CADTH's customers are decision-makers (policy, practice, procurement) in ministries and departments of health and publicly funded organizations responsible for health service delivery, such as health authorities, health facilities (e.g., hospitals, long-term care facilities) and public health agencies (e.g., cancer agencies, transplant agencies, centres for disease control). As Quebec is not a CADTH funder, the Ministry of Health and the health regions, hospitals, and other groups funded by that provincial health ministry are not considered customers. Similarly, because of the funding arrangement with Ontario, the Ontario Ministry of Health and Long-Term Care is a customer for drug reviews, but it (and the Local Health Integration Networks, hospitals, long-term care facilities, and other groups funded by the provincial health ministry) is not a direct customer for HTA work. Through the CADTH website, CADTH's reports are freely available to any interested party.

CADTH stakeholders include clinicians, patient groups, provincial and national health associations, other HTA producers (both within Canada and internationally), academic institutions, and partner organizations, such as other pan-Canadian health organizations (e.g., Canadian Partnership Against Cancer, Canadian Patient Safety Institute, Canadian Institute for Health Information, and Canadian Foundation for Healthcare Improvement).

Program Logic Model, Key Activities, and Targeted Results

The CADTH logic model illustrates the links between CADTH's activities and its intended outcomes (Appendix B). CADTH uses the logic model to guide its program cycle from program design and planning, through implementation, to the final program evaluation and strategic reporting. The program theory and logic model follow chronological order; for example, intermediate outcomes can materialize only after the immediate outcomes have been realized. CADTH has developed a detailed impact and evaluation framework with a significant number of indicators to assess performance against intended outcomes.

The theory of change that underlies CADTH's activities is to enable informed decision-making about health technologies by providing evidence-based information to health decision-makers. Providing decision-makers with timely, evidence-based information that is relevant, of high quality, credible, and independent contributes to the optimal use of health technologies.

Key Activities

The focus of this evaluation is on the CADTH activities funded by Health Canada. CADTH's various Health Canada-funded activities include HTA, OU, and the CADTH Common Drug Review (CDR).¹¹ These serve to advance CADTH's role as a producer and broker of evidence (Table 4). Combined, these activities form the basis upon which CADTH's performance is assessed. The link between key outputs and intended program outcomes and impacts may be found in the CADTH logic model.

During the time frame for this evaluation, pCODR was transferred by the provincial and territorial governments (except Quebec) to CADTH. The program itself has not been assessed as part of this evaluation, but the transfer process was examined.

Table 4: CADTH's Portfolio of Products and Services

Product or Service	Description
CDR	CDR is a pan-Canadian process for conducting objective, rigorous reviews of the clinical, cost-effectiveness, and patient evidence for drugs, and providing reimbursement recommendations to the publicly funded drug plans in Canada (except Quebec). Reports include recommendations from a CADTH expert committee. The drug plans use this information to support their coverage decisions. CDR has been an operational program at CADTH since late 2003.
pCODR	pCODR assesses cancer drugs and makes recommendations to the provinces and territories (except Quebec) to guide their drug funding decisions. Established in 2010 by the provincial and territorial ministries of health, pCODR brings consistency and clarity to the assessment of new cancer drugs by looking at both clinical evidence and cost-effectiveness. On April 1, 2014, pCODR became a program within CADTH.
Rapid Response Service	The Rapid Response Service provides Canadian health care decision-makers with evidence-based information tailored to their requirements. The Rapid Response reports respond directly to urgent jurisdictional needs for information that will inform policy and practice decisions.
HTA Reports	The evidence produced within this product line is disseminated through various products and services that can vary in scope and complexity. The assessments provide a full analysis of the clinical and economic aspects of a technology, and may include other factors that examine the broader impact of the technology on patient health and the health care system. HTA reports can involve assessments of new technologies or reassessments of existing technologies. The report will provide conclusions, but will not include recommendations from a CADTH expert committee.
Horizon Scanning Reports	Horizon Scanning products alert decision-makers to new and emerging health technologies that are likely to have an impact on the delivery of health care in Canada. This early information supports effective planning for the introduction of new technologies within the health care system.
Environmental Scans	To better understand the national and international landscape, CADTH conducts environmental scans of health care practices, processes, and protocols inside and outside of Canada. Environmental Scans inform decision-makers about the use of health technologies in other jurisdictions, and help guide topic selection for some CADTH projects.
OU Projects	OU projects involve systematic reviews of the clinical evidence, cost-effectiveness analyses, and development of recommendations and guidance. The reviews are carried out in collaboration with a committee or panel comprising subject matter experts, public representatives, and other stakeholders from across Canada. OU projects are intended to encourage appropriate coverage, prescribing, and utilization of drugs and other health technologies. Reports include recommendations from a CADTH expert committee.
Knowledge Mobilization and Implementation Support	CADTH has adopted an integrated knowledge mobilization and implementation support approach that is applied throughout the product development life cycle and facilitates two-way communication between staff, decision-makers, patients, and partners. A number of tailored products and tools are developed to support decision-makers, and move the evidence into action. These products and tools provide CADTH customers with the information they need, when they need it, and in a way that they can use it successfully to inform decisions about the management of

Product or Service	Description
	health technologies.
Scientific Advice	The CADTH Scientific Advice Program is a voluntary, fee-for-service consultation offered to pharmaceutical companies. Through this program, CADTH offers advice on early drug development plans from an HTA perspective. The Scientific Advice Program provides an opportunity for CADTH to influence the evidence that is generated, potentially leading to more complete and relevant evidence on which to base CADTH recommendations.

CDR = CADTH Common Drug Review; HTA = health technology assessment; OU = Optimal Use; pCODR = CADTH pan-Canadian Oncology Drug Review.
Source: CADTH document review.

HTA activities help reduce uncertainty about health technologies by providing relevant, timely, and credible evidence-based information about them. Moreover, HTA organizations such as CADTH go beyond the risk-benefit assessments completed by regulatory bodies by looking at the comparative clinical effectiveness and cost-effectiveness relative to therapeutics and other technologies already available in the market. The assessments include available evidence generated post-marketing, particularly to incorporate information on serious adverse events that did not arise during the controlled clinical trial phase.¹²

As a pan-Canadian HTA organization, CADTH's products and services are designed to address the priorities of customers by providing timely evidence to inform the decisions on drugs and health technologies. In this way, CADTH contributes to the improved performance and sustainability of health care systems in Canada.

Knowledge mobilization activities support CADTH in achieving outcomes and impacts. In 2014, the Knowledge Mobilization and Liaison Officer (KMLO) teams were integrated into a single collaborative outreach team to better harmonize the complementary customer-facing roles. The KMLO team is a multidisciplinary, multi-skilled group that includes nurses, pharmacists, communication professionals, a social worker, a physician, a researcher, educators, a medical radiation technologist, a microbiologist, and a librarian. The team is well connected and integrated into health systems through relationships with clinicians, specialty practices, hospital committees, departments, health regions, facility management, clinical protocol, pathway development, procurement and other decision-making groups, joint Regional Health Authority–Ministry committees, policy and advisory committees, and other organizations.

Other mechanisms through which CADTH contributes to an environment for evidence generation and adoption across Canada include the publication of methods documents, the annual CADTH Symposium, the CADTH Lecture Series, and membership in and provision of secretariat support to several committees (described in section 1.5).

Governance

CADTH is governed by a Board of Directors elected by the Deputy Ministers of Health of participating federal, provincial, and territorial (F/P/T) governments (as CADTH's corporate members). The 13-member Board is composed of an independent chair, seven jurisdictional representatives, and five non-

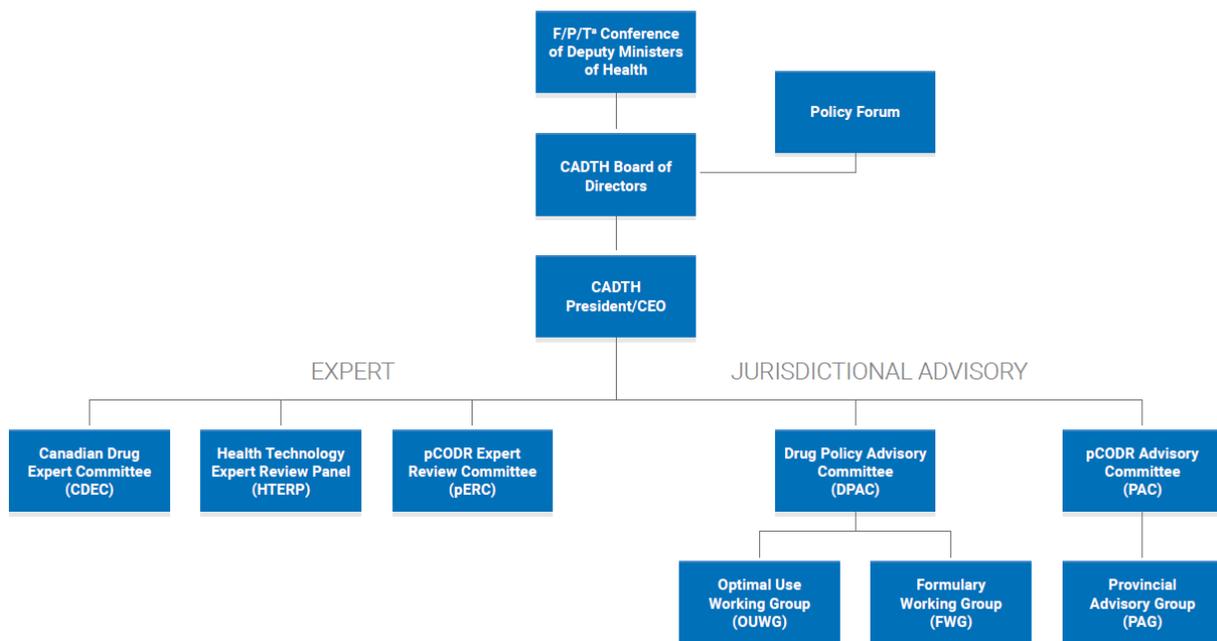
government representatives from health authorities, academia, and the public. While Quebec does not provide funding to CADTH, a representative is appointed as an observer to the Board of Directors.

Many panels, committees, and working groups play a role in the work of CADTH. They consist of experts in various health fields, and essentially facilitate the production of CADTH outputs, which are disseminated to customers and other users. These various advisory bodies are identified and briefly below, and are described in Appendix A:¹³

1. Drug Policy Advisory Committee (DPAC)
2. DPAC Formulary Working Group
3. DPAC Optimal Use Working Group
4. CADTH Canadian Drug Expert Committee
5. pCODR Provincial Advisory Group
6. pCODR Advisory Committee
7. pCODR Expert Review Committee
8. Health Technology Expert Review Panel
9. Pharmaceutical Directors Forum
10. Policy Forum
11. The Health Technology Analysis Exchange
12. Pan-Canadian Health Technology Assessment Collaborative.

The various lines of reporting and interactions are illustrated in Figure 9.

Figure 9: CADTH Governance Structure



F/P/T* = federal, provincial, and territorial.

Resources

CADTH is primarily funded by the F/P/T governments. The Government of Canada has committed to providing CADTH with up to \$80,631,924 in funds to support CADTH's work, as outlined in the Contribution Agreement effective April 1, 2013 to March 31, 2018.¹⁴ Table 5 shows CADTH's recent history of expenditures and revenues (which includes provincial and territorial contributions). The percentage of the federal contribution to overall revenue has decreased due to reduced funding from the federal government of 5% of total phased in over 2012-2013 and 2013-2014; one-time federal funding for work on isotopes ending in 2011-2012; and the introduction of industry application fees in 2014-2015.

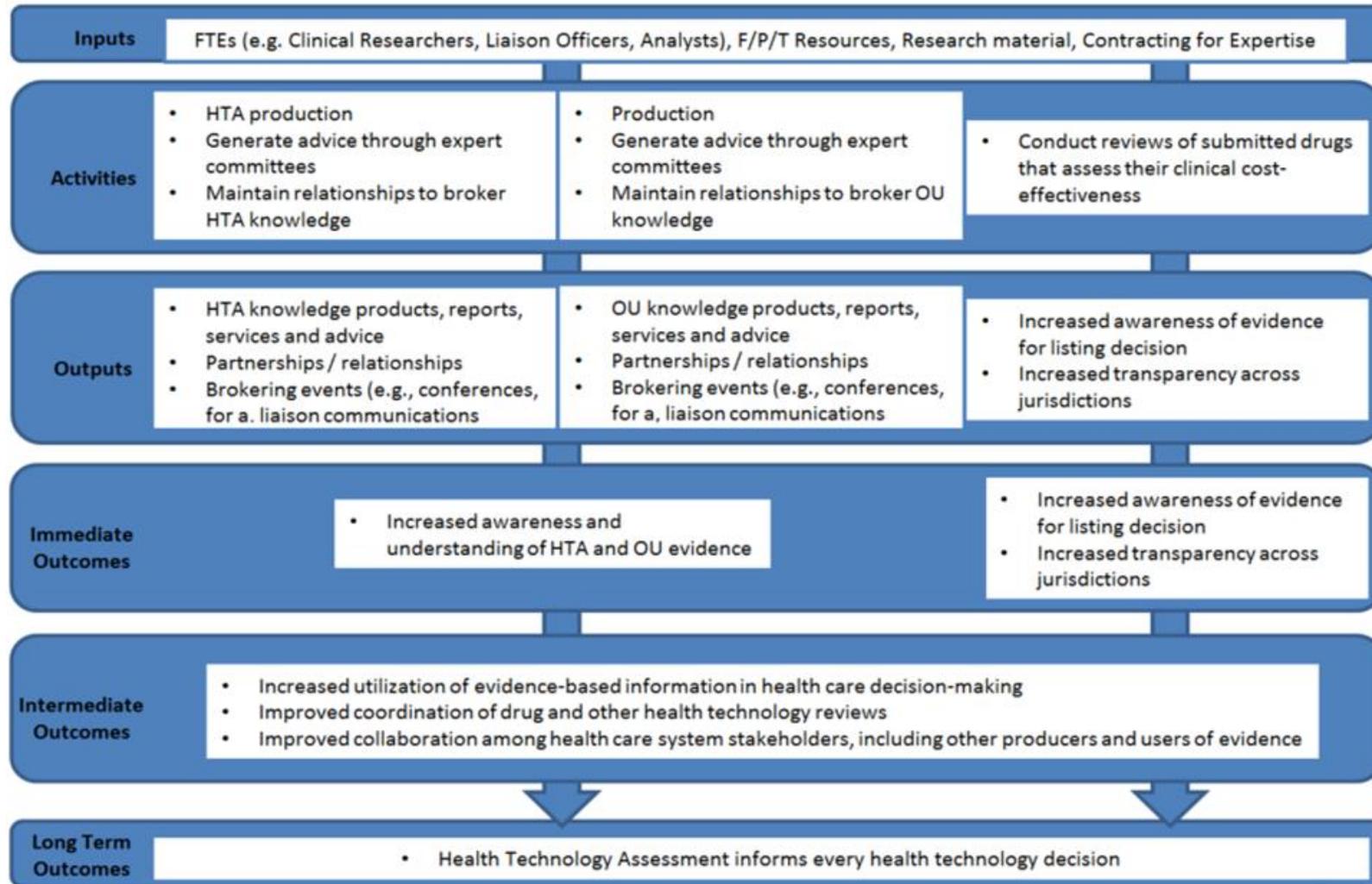
Table 5: CADTH's Revenue and Expenses 2011-2012 to 2014-2015

Expenditures	2012-2013	2013-2014	2014-2015	Total
Salaries and benefits	\$ 15,165,079	\$ 13,547,675	\$ 15,828,892	\$ 59,995,818
O&M	\$ 6,445,531	\$ 6,634,113	\$ 10,528,845	\$ 32,173,659
Total expenditures	\$ 21,610,610	\$ 20,181,788	\$ 26,357,737	\$ 92,169,477
Revenues	2012-2013	2013-2014	2014-2015	Total
Contributions	\$ 21,578,830	\$ 19,454,429	\$ 23,067,239	\$ 87,770,904
Other Income	\$ 433,949	\$ 669,123	\$ 1,580,942	\$ 3,062,131
Total revenue	\$ 22,012,779	\$ 20,123,552	\$ 24,648,181	\$ 90,833,035

Note: Other income includes Symposium and workshop revenue; interest revenue; other service revenue for work done for other organizations in 2013-2014 and 2014-2015; and industry application fees for the CADTH Common Drug Review program in 2014-2015. Data for 2015-2016 have not been included as the analysis was conducted prior to the conclusion of the fiscal year.

Source: CADTH internal financial documents.

Appendix B: CADTH's Logic Model



F/P/T = federal, provincial, and territorial; FTE = full-time employee; HTA = health technology assessment; OU = Optimal Use.

Appendix C: Evaluation Matrix

Issues	Questions	Key Indicators	Literature and Document Review	Review of Administrative and Performance Data	Semi-Structured Interviews	Case Studies	e-Survey
Relevance							
Alignment with current environment of HTM in Canada and globally	1. Are there any changes in the operating environment that present opportunities and/or challenges for the continued need for CADTH's products and services?	1.1. Extent to which there are changes in the structure and operation of health care systems at the F/P/T levels that influence CADTH's programming	●		●		
		1.2. Extent to which there are changes in international practices regarding HTM that influence CADTH's programming	●		●		
		1.3. Key actions undertaken by CADTH in response to changes in its operational environment that better position it to meet evolving needs for its products and services	●		●		
Alignment with policy-making needs regarding HTM in Canada	2. What is the positioning of CADTH within the landscape of Canadian governments' priorities regarding HTM?	2.1. Degree of adherence of the strategic goals to F/P/T government priorities in health care and HTA	●		●		
	3. In the absence of CADTH, how would decision-makers obtain information they require to make decisions on OU, risks, and benefits of new or existing health technologies?	2.2. Current or emerging niche or unmet needs that CADTH could address	●		●		●
		3.1. Extent of overlap, complementarity, and/or differentiation with regard to services and products from comparable organizations	●		●		●
		3.2. Factors that differentiate CADTH from other similar organizations in Canada	●		●		●
Performance — Effectiveness							
Inform health policy and clinical practice by getting the right information to the right decision-makers at the right time (SG1)	4. To what extent is CADTH delivering on its intended contribution to evidence-informed decision-making regarding OU and HTM of drugs and devices in Canada?	4.1. Level (%) of utilization of production capacities across all major product and service lines (HTA breakdown or OU)	●	●			
		4.2. Degree of match and satisfaction between customer needs (demand) and range of products, services, and activities offered	●	●	●	●	●
		4.3. Examples and evidence of effective means of dissemination to customers, by type of customer (effectiveness based on relevance of the information, timeliness, credibility [accuracy, independence, and transparency], and appropriateness of dissemination method)	●	●	●	●	●
		4.4. Examples and evidence of improved health outcomes, policy changes, or decisions that are a result of, or influenced by, CADTH products and services	●	●	●	●	●
		4.5. Factors that have helped or hindered the impact of CADTH's products	●		●	●	●

Issues	Questions	Key Indicators	Literature and Document Review	Review of Administrative and Performance Data	Semi-Structured Interviews	Case Studies	e-Survey
Build receptivity for health evidence (SG2)	5. To what extent is CADTH delivering on its intended objective of building receptivity and awareness for evidence?	5.1. Number, location, and nature of KM events that allow CADTH to engage with its customers and stakeholders	●	●			
		5.2. Degree of success in activities intended to support CADTH's customers to obtain the evidence they need to inform decision-making about HTA or OU of health technologies	●	●	●		
		5.3. Customer perception of areas or opportunities for improvement of the strategic approach to knowledge brokering regarding HTA or OU activities		●	●	●	●
		5.4. Examples of capacity-building initiatives and their contribution to promoting the receptivity, demand, and uptake of HTA or OU evidence	●	●	●	●	
		5.5. Examples or evidence of outcomes (improved health outcomes, policy changes, policy coordination) that can reasonably be linked to knowledge-brokering activities	●	●	●	●	●
		5.6. Factors that have helped or hindered delivery on intended objectives of building receptivity to evidence, increasing awareness of evidence, and improving understanding of how to use evidence?	●		●		●
		5.7. Number of CDR recommendations and reports made available to the public; specify method of dissemination		●			
	6. To what extent and effect has CADTH fostered collaboration among health stakeholders, including partner organizations and other producers of evidence?	6.1. Number and type of outputs generated by CADTH's key partnerships (i.e., DSEN, pan-Canadian HTA Collaborative, Accreditation Canada, Choosing Wisely)		●		●	
		6.2. Perceptions of clarity of the design and delivery of events aimed to train individuals	●		●		
		6.3. Perceptions of CADTH leadership in facilitating collaboration on the part of partners and collaborators			●		●
Champion meaningful evidence and leading methods (SG3)	7. How has CADTH demonstrated leadership in improving coordination of HTA, and what more can be done in this area?	7.1. CADTH membership in national and international groups with focus on methodology	●	●			
		7.2. Number and type of outputs generated by key partnerships		●			
		7.3. Number and type of publications created on methods (e.g., economic guidelines)		●			
		7.4. Extent of coordination and/or collaboration among partners and customers on HTA		●	●		●
		7.5. Perceptions of CADTH leadership in improving coordination of HTA on the part of partners and collaborators			●		●

Issues	Questions	Key Indicators	Literature and Document Review	Review of Administrative and Performance Data	Semi-Structured Interviews	Case Studies	e-Survey
Performance — Efficiency and Economy							
Activities are developed and delivered in a manner that makes optimal usage of human and financial resources in the production of outputs and progress toward expected outcomes	8. To what extent are CADTH's products and KM activities fulfilled in an efficient manner?	8.1. Views on the efficiency and effectiveness of the governance structure of CADTH	●		●		
		8.2. Evidence that recommendations to CADTH for improving efficiency and economy have been acted upon		●	●		
		8.3. Changes in the way CADTH operates as a result of the incorporation of pCODR	●		●		
	9. To what extent does CADTH have the human and financial resources to meet current and emerging HTA needs?	9.1. Year-over-year comparison of ratio of inputs to outputs to deliver programming	●	●			
CADTH's efforts provide economic value to its customers' jurisdictions	10. How is CADTH best positioned to provide value to its customers?	10.1. Estimated value of the adoption (and non-adoption or disinvestment) of health technologies where recommended by CADTH			●	●	●

CDR = CADTH Common Drug Review; DSEN = Drug Safety and Effectiveness Network; F/P/T = federal, provincial, and territorial; HTA = health technology assessment; HTM = health technology management; KM = knowledge management; OU = Optimal Use; pCODR = CADTH pan-Canadian Oncology Drug Review.

Appendix D: Details of the Evaluation Objectives, Scope, and Methodologies

Objectives

Four main objectives were identified for this evaluation, given the context of CADTH's role in the health care system.

At CADTH's organizational level:

- Assist in positioning CADTH within a changing Canadian health care landscape
- Provide a comprehensive and reliable evidence base to support decisions regarding CADTH's ongoing organizational evolution
- Assess how well CADTH is positioned to meet the goals and objectives of its 2015-2018 Strategic Plan.

At the level of CADTH's portfolio of products and services:

- Identify opportunities to meet the evolving needs of CADTH's funders and customers.

In addressing the above objectives, the evaluation carefully considered pertinent factors surrounding CADTH's activities, including those listed below.

Internal:

- Challenges related to CADTH in terms of its unique strategic position, being a pan-Canadian organization that evolves in an environment where federal, provincial, territorial, and regional organizations are changing.

Canadian context:

- Understanding the pan-Canadian health technology assessment (HTA) context and its relationship to CADTH
- The role of HTA versus health technology management (HTM)
- Trends regarding patient empowerment and participation in decision-making with respect to drugs and health technologies
- Transition of the pan-Canadian Oncology Drug Review (pCODR) to CADTH
- Complexity of drugs and health technologies (personalized medicine, hybrid technologies).

International context:

- Trends in international best practice for drug reviews, HTA, patient and public engagement, and other CADTH-relevant activities.

Scope

The primary intended audience for this evaluation is CADTH, in order to provide its decision-makers with the evidence they require to report on performance and impact, and to undertake operational enhancements to achieve its strategic objectives. The secondary audience is Health Canada, in fulfilment of the "Reporting on Progress, Evaluation and Finance" requirements to which CADTH committed in its Contribution Agreement. Health Canada's Office of Audit and Evaluation will incorporate results,

findings, and recommendations into its own evaluation reports for use internally and by the Treasury Board of Canada Secretariat.

The evaluation assessed the performance of CADTH for the period from April 1, 2012 through March 31, 2016. As such, it effectively encompassed CADTH's 2012-2015 Strategic Plan as well as the implementation of elements of the 2015-2018 Strategic Plan.

Key Considerations

CADTH identified several thematic considerations that have influenced its operating environment in recent years, including the following:

- HTA production in Canada
- Funding
- Harmonization
- Organizational transformation
- Patient and public involvement
- Transparency
- Innovation
- Drugs and devices
- Volume of health technologies.

Further details on these thematic considerations are provided in Table 6. While the evaluation collected evidence on these considerations, the data collection phase maintained a broad scope in order to identify additional issues and pressures affecting CADTH.

Table 6: Key Considerations Identified by CADTH as Influencing Its Operating Environment

<p>The following considerations about the environment in which CADTH operates serve as a lens through which the evaluation will be used to identify and examine gaps and opportunities for the organization to pursue.</p>
<p>HTA Production in Canada: In addition to CADTH, there are several provincial organizations (e.g., HQO, INESSS, IHE) and various hospital or region-based initiatives that also produce HTA. This creates the potential among funders and stakeholders for confusion about the mandate and role of CADTH. A major advantage to having a centralized producer of HTA is the establishment of an efficient, standardized approach that reduces the need for duplication of review processes and provides the jurisdictions with equal access to timely, evidence-based information and expert advice. However, CADTH has not been able to customize reviews to local context and needs to the extent that HTA producers embedded within the health system have been able to do.</p> <p>In recent years, a pan-Canadian Health Technology Collaborative (the Collaborative) has been established to explore opportunities for a collaborative approach to medical device HTM in Canada. The Collaborative is composed of representatives from CADTH and other HTA stakeholders from Alberta, British Columbia, Nova Scotia, Ontario, Quebec, and Health Canada. To date, the Collaborative has explored a range of topics including methods and post-market evidence. There remains much ground to cover in reaching the envisioned level of cooperation and cohesiveness.</p> <p>https://www.ispor.org/HTAspecialissue/Menon.pdf</p> <p>http://theta.utoronto.ca/content.php?pid=411861&sid=3379569</p> <p>http://www.cihr-irsc.gc.ca/e/47946.html</p> <p>https://www.cadth.ca/media/pdf/pan_canadian/HTA-Pan-Canadian-Key-Messages-en.pdf</p> <p>https://www.cdhowe.org/capturing-value-health-technologies-lean-times</p>
<p>Funding: Following the CDM review of CADTH in 2009, which suggested that CADTH should pursue opportunities to diversify its sources of funding, and in the face of recent funding pressures, CADTH has established application fees for CDR and pCODR and has introduced a fee-for-service Scientific Advice Program. While the application fees have increased the capacity of the organization to conduct reviews, this change has also drawn criticism that the funds may compromise the independence of CADTH.</p>
<p>Harmonization: The need for improved HTA-Regulator harmonization is a theme around the globe. Progress on this front has been made in Canada, particularly with respect to sharing of information related to drug reviews, but there is potential for more to be done.</p> <p>On a related note, a recent review conducted by IBM found that alignment of the CDR and pCODR programs with the pCPA could be improved upon in order to avoid duplication and redundancy. Similarly, the federal panel on innovation in health care discussed the potential for increased alignment between CADTH and DSEN.</p> <p>http://www.canadaspremiers.ca/phocadownload/pcca/pcca-the_goliath_of_market_access_oct2013.pdf</p> <p>http://www.knowledgedriven.com/articles/manufacturers/healthcare-delivery-in-canada.aspx#.VIS_e2eF07s</p>
<p>Organizational Transformation: The recent transition of pCODR to CADTH has provided the opportunity for synergies to emerge as practices and processes become aligned.</p> <p>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4461134/</p>
<p>Patient Involvement: Patients are becoming more actively involved in making decisions about their own health care, a trend that is expected to continue as the Baby Boomer generation increasingly interacts with the health system. Expectations that patients be involved in decision-making have translated from the clinical to the administrative side of health care with implications for governments and for organizations like CADTH. CADTH has established numerous mechanisms for incorporating the patient perspective into its processes, particularly related to drugs, and will need to continue to explore opportunities for this type of involvement.</p> <p>http://hqc.sk.ca/Portals/0/documents/Shared_Decision_Making_Report_April_08_2010.pdf</p> <p>http://www.cfhi-fcass.ca/sf-docs/default-source/documents/harkness-healthcare-priorities-canada-background-e.pdf?sfvrsn=2 : see section VII on patient engagement</p>
<p>Transparency: Because the organization receives public funding, and because it makes recommendations with the</p>

potential to affect access to drugs and medical devices, CADTH faces pressure from funders and stakeholders alike to be transparent about the processes used in developing products and reaching recommendations.

<http://www.hc-sc.gc.ca/home-accueil/rto-tor/index-eng.php>

Innovation: HTA is considered by some to serve as part of an innovation catalyzer for the introduction of promising new technologies, in addition to its traditional role as a “gatekeeper” for the health care system. Consequently, HTA producers become caught in the middle as they are expected to contribute to the bending of the cost curve in an era of constrained budgets without hindering growth and innovation in the health innovation sector of the economy.

<http://www.ncbi.nlm.nih.gov/pubmed/23845404>

Drugs and Devices: One of the issues affecting CADTH is the evolving nature of the health technologies it assesses. For example, hybrid technologies that combine elements of a drug and a device, such as drug-eluting stents, pose a challenge to existing review processes. We are entering a new era of so-called blockbuster drugs but also of personalized medicine, which includes drugs that are useful to a fraction of patients with a given condition, and thus are less easily assessed for value.

<http://www.fda.gov/downloads/ScienceResearch/SpecialTopics/PersonalizedMedicine/UCM372421.pdf>

http://www.genomecanada.ca/medias/pdf/en/PersonalizedMedecine_Policy-Directions-Brief.pdf

Volume of Health Technologies: CADTH also must contend with an overwhelming volume of health technologies: more than 8,000 medical devices enter the Canadian market annually and intelligence suggests that the drug development pipeline is robust, particularly for drugs for rare diseases and oncology.

https://www.ic.gc.ca/eic/site/lsg-pdsv.nsf/eng/h_hn01736.html

<http://m1.wyanokecdn.com/154294cceb75a0f83401b139bc08edf7.pdf>

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4489190/>

<http://www.ahdbonline.com/issues/2015/june-2015-vol-8-no-4/1940-the-2015-oncology-drug-pipeline-innovation-drives-the-race-to-cure-cancer>

<http://info.evaluategroup.com/rs/evaluatepharmaltd/images/2014OD.pdf>

<http://www.pharmacist.com/specialty-drug-approvals-review-2014-and-forecast-2015>

Further, the health care setting itself is changing, with patients taking more responsibility for self-monitoring and care increasingly being provided in the community setting.

<http://www.hc-sc.gc.ca/hcs-sss/pubs/system-regime/2011-hcs-sss/index-eng.php#a8> – see section titled

“Trends/Changes in Healthcare”

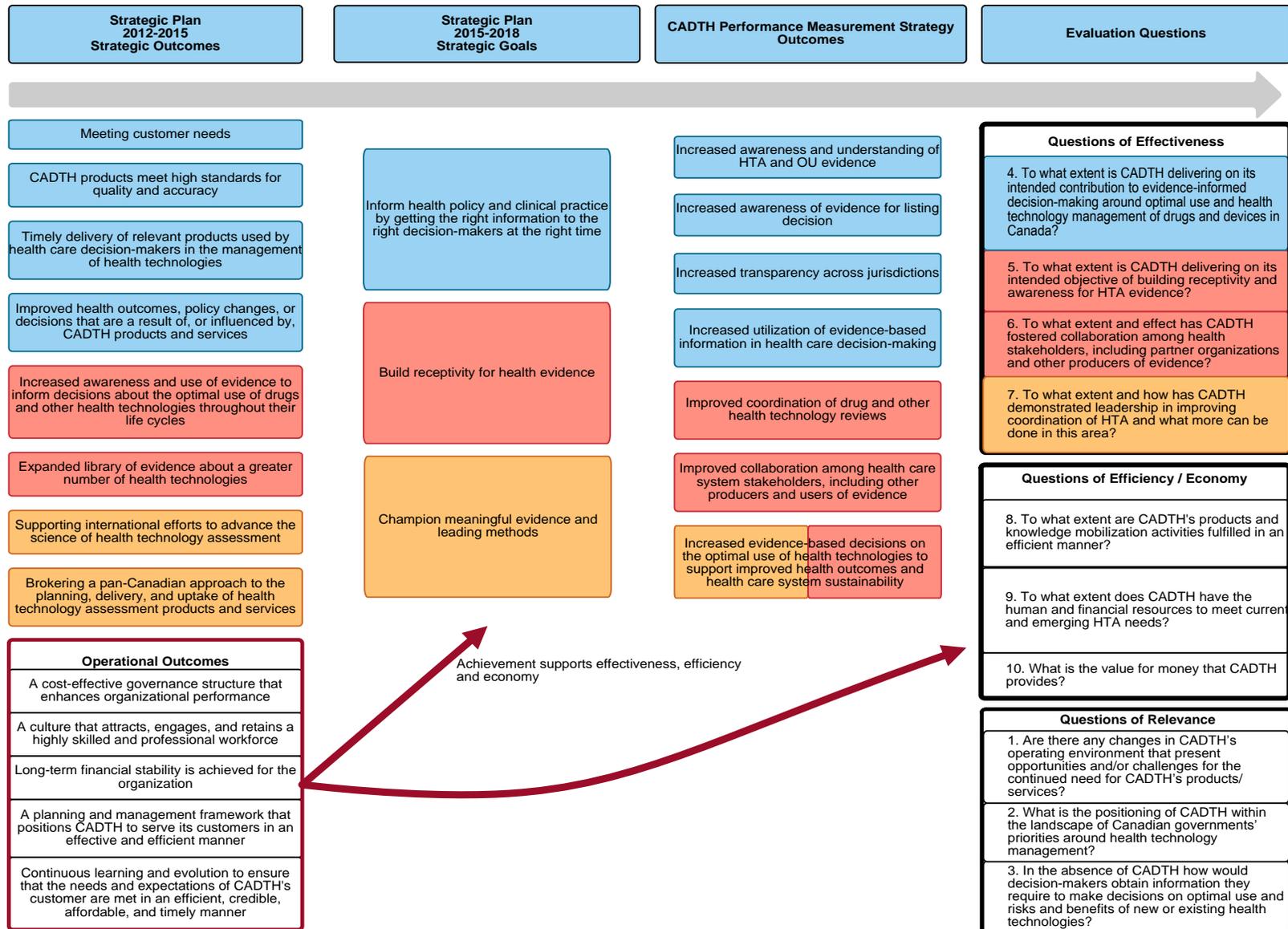
CDM = Conference of Deputy Ministers; CDR = CADTH Common Drug Review; DSEN = Drug Safety and Effectiveness Network; HQO = Health Quality Ontario; HTA = health technology assessment; HTM = health technology management; IHE = Institute of Health Economics; INESSS = L'Institut national d'excellence en santé et en services sociaux; pCODR = pan-Canadian Oncology Drug Review; pCPA = pan-Canadian Pharmaceutical Alliance.

Source: Provided by CADTH project authority.

Evaluation Issues, Questions, and Data Collection Matrix

An exercise was undertaken to map the original reporting requirements of the Health Canada Contribution Agreement through the two CADTH strategic plans that fall within the scope of the evaluation. The purpose of this process was to ensure the evaluation would meet the requirements of both CADTH and Health Canada, CADTH’s primary funder. Figure 10 is the output of that exercise. The 2013-2018 Contribution Agreement between Health Canada and CADTH refers to CADTH’s 2012-2015 Strategic Plan as being the document CADTH is to evaluate against. The strategic outcomes are shown as the first column in Figure 10.

Figure 10: Alignment of Strategic Goals, Outcomes, and Evaluation Questions



The second column in Figure 10 identifies the three strategic goals of the 2015-2018 Strategic Plan. The third column lists all of the intended outcomes from the Performance Measurement (PM) Strategy.

Lastly, the final column on the right of the diagram lists the nine evaluation questions that were covered in this evaluation. Colour-coded linkages have been used throughout the diagram to show the connection between the two strategic plans, the PM Strategy, and the evaluation questions. The CADTH Evaluation Matrix is located in Appendix B.

Data Collection

This evaluation used five lines of evidence, each described below. Each line of evidence faced challenges (risks) and required solutions (mitigation strategies); these are summarized in the Challenges and Limitations section.

Literature and Document Review

The literature review was conducted to position CADTH within a broad reference with respect to

- Government of Canada and provincial or territorial priorities in health
- The health science research context
- The context of the specific field of HTA.

This contextualization was useful to examine issues of relevance primarily, as well as to identify enabling factors and barriers to performance. The bulk of the documentation included in the review was received from CADTH at different stages, including during the planning phase of this evaluation. CADTH provided an annotated document outlining the key considerations that the evaluation was expected to address as part of the analysis of the context of HTA in Canada and internationally. Finally, the evaluation conducted searches for scholarly and grey literature. While this search was bounded by the time frame for this evaluation, the evaluation also found it useful to look at a selection of older documents when these enabled a better understanding of events covered by more recent literature.

An internal and external document review was also conducted to position CADTH within a broad reference of operation, taking into account the Canadian and international context. The evaluation examined documents on CADTH's mandate, strategies, product line operations, products, and services, as well as reported results. The review included strategic plans, annual business plans, performance reports, the current Contribution Agreement between CADTH and Health Canada, and other documentation as provided by the project authority. The more purposive document review incorporated internal studies and audits, and external documents related to governance structures and processes. The re-examination of the reports and recommendations stemming from previous CADTH evaluations and associated management responses was appropriate in order to establish a baseline for the assessment of performance over the period 2012-2016. Additional reviews were conducted during the data triangulation phase in order to substantiate some emerging findings related to performance, efficiency, and economy.

The literature and documents serving as secondary data sources were inventoried and subject to content analysis using the qualitative data analysis software Atlas.ti (www.atlasti.com). All secondary data

sources, as well as primary data products, were uploaded and coded to conduct in-depth analysis by evaluation question and indicator in the data collection matrix. Relevant text from the captured stock of documents was coded using both the deductive and inductive approaches. First, a closed coding structure was developed based on the evaluation matrix. Open coding was also used when other unforeseen topics of interest were identified. The evidence base extracted from the literature review was analyzed, with data summaries and observations prepared as input for triangulation and face validation against other lines of evidence.

Administrative and Financial Data Analysis

The data review conducted as part of this evaluation included the data sets listed in Table 7, as provided by CADTH's project authority, with information covering the period April 1, 2012 to December 31, 2015. The data collection and analysis portion of the evaluation began in January 2016, prior to the conclusion of the 2015-2016 fiscal year.

Table 7: CADTH Data Sets Used in This Evaluation

Data Set	Area	File Format
EPT	CADTH core business activities: formulary reviews, HTA, Environmental Scans, Horizon Scans, other (Scientific Advice, CDEC Meeting, and custom projects)	MS Excel
CDR data	Formulary reviews	MS Excel
Archived outcomes and impact	KMLO	MS Excel
KMLO database recent data	KMLO	MS Excel
CADTH Citation Impact database – 2012-2015	Bibliometric	MS Word
Citation data 2012-2015	Bibliometric	MS Excel
Financial data	Financial performance	MS Excel

CDEC = CADTH Canadian Drug Expert Committee; CDR = CADTH Common Drug Review; EPT = Enterprise Project Type; HTA = health technology assessment; KMLO = Knowledge Mobilization and Liaison Officer team.

The financial, administrative, and performance database review included an analysis of quantitative data collected by CADTH over the evaluation time frame. The scope of the administrative database review was to gain insight into the administrative processes leading to the identification and production of CADTH products and services with emphasis on production capacity, timelines, turnaround times, dissemination media and, as much as possible, the uptake of CADTH's knowledge products by intended users. Particular attention was given to the uptake of product lines, which included recommendations — in CDR, for example. The databases were also mined for data regarding outreach and partnership development efforts to enhance knowledge sharing, coordination, and collaboration. An important component of the analysis was to focus on the indicators identified in CADTH's Impact and Evaluation Framework (IEF), as generated and compiled by CADTH.

The analysis of financial data was intended to gain insights into economy and efficiency issues by examining operations and maintenance costs, overhead costs, and resource allocation across the

product line portfolios. However, changes made to CADTH's financial reporting practices during the period covered by this evaluation have affected the ability to analyze data over a sufficiently long time, as needed for a robust assessment of operational efficiency between 2012 and 2015. The data set used in the analysis was constructed by CADTH based on non-audited financial data and was intended solely for the purpose of this evaluation. A reconstructed financial data set was required to allow for year-to-year comparisons following a change in accounting practices midway through the time frame of this evaluation. The data showed a breakdown of expenditure by main program area (i.e., HTA, CDR, OU), as well as administration and corporate services. The data are to be used with caution when informing findings on CADTH's efficiency and economy.

The Knowledge Mobilization and the Liaison Officer functions at CADTH underwent a process of reorganization and consolidation in early 2014. The two are now amalgamated under the KMLO program. The consolidation involved improvements and streamlined data collection initiatives, resulting in the present KMLO impact database. For the purpose of this evaluation, two individual data sets covering two different time periods (the one with data for the period before April 2015, and the one covering the period April to December 2015) were provided by CADTH. Comparative data were compiled by the KMLO team to share information on impact for projects spanning the two database time frames.

All of the database reviews included an assessment of data accuracy and continuity over time (if there is a time series), gaps vis-à-vis performance measurement strategies, and their utility for developing a performance story based on the contribution analysis approach and assessing achievements against goals, objectives, and targets set out in CADTH's management documents, such as strategic plans and annual business plans. The database reviews provided insight into the validity and reliability of the performance measurement data in support of the evaluation function as per the Treasury Board's guidelines.¹⁵

The analysis of the databases was carried out using standard data-mining techniques with an MS Excel workbook. Each database underwent substantial cleaning with the intention of making the data consistent for the analysis. The evaluation made explicit to the project authority any decisions made in regard to the cleaning and processing of the data used in this evaluation. This was carried out in ways consistent with the definitions and structure of the data contained in the distinct databases provided by the project authority.

Bibliometric Data

Although this evaluation was not mandated to conduct a bibliometric analysis of CADTH's activities, bibliometric data compiled by CADTH were useful for informing performance indicators during the data collection phase of this evaluation. For example, the data helped in terms of gaining understanding of CADTH's work in the context of academic debates, debates in the grey literature, and discussions on online media. These activities can be interpreted as contributing to building a culture of receptivity of evidence regarding HTA and OU of health technologies. The analysis of this database was also carried out using standard data-mining techniques with an MS Excel workbook.

Key Informant Interviews

A total of 60 semi-structured interviews were conducted with internal stakeholders (e.g., CADTH officials, CADTH Liaison Officers located in provinces and territories across Canada), and external stakeholders (e.g., customers, Health Canada). Interviews with CADTH personnel and/or individuals who have played a significant role in the design and delivery of the portfolio of products and services, as well as other strategic activities, provided valuable insight into key evaluation questions related to relevance (e.g., continued need, alignment with governmental priorities), efficiency, and lessons learned. External stakeholders knowledgeable about CADTH's operations and its operational context — such as provincial and territorial health care customers — provided evidence related to the achievement of outcomes, helped gauge the continued need for CADTH's products and services, and identified external factors that influenced CADTH's performance. These interviewees were also asked to identify any unintended outcomes, either positive or negative, that could be attributed to CADTH's products and services. Table 8 presents the distribution of interviewees by group.

In-person and telephone interviews were conducted using an interview guide that was tailored for each group and that allowed for deviations, prompts, and follow-ups when appropriate. All interview transcripts were systematically coded and analyzed by indicator using Atlas.ti. Summaries of key findings by evaluation question and indicator across interviewee groups were then prepared as input into the data triangulation process.

Table 8: Distribution of Interviewees by Group

Interviewee Group	Targeted Number of Interviews	Number of Interviews Completed
Internal CADTH	8	8
Board members	9	9
Committee members	10	11
Government mid-policy	5	5
Government senior policy	10	10
Clinicians	2	1
Drug plan managers	4	4
Patient group representatives	3	3
International and Canadian health technology assessment producers	6	6
Industry	3	3
Total	60	60

E-survey

Science-Metrix designed, programmed, and administered an electronic survey of customers of the Rapid Response Service (RRS). The RRS serves a large base of customers with a diversity of customized sub-products. These sub-products vary in terms of levels of complexity, depth of analysis, and time

requirements. The survey explored customers' levels of satisfaction and the perceived value they derive from the RRS. The survey questions addressed topics such as the timeliness of the services provided, the completeness of the responses, the credibility of the information, the overall satisfaction with the service provided by CADTH, and the utility of the information disseminated. The survey also contained additional questions on the influence of this information on health policy and clinical practice decision-making.

The initial list of potential e-survey respondents comprised 441 individuals who had made at least one request through the RRS since April 1, 2012. The participant names and contact information were provided by CADTH. CADTH Liaison Officers gave advance notice to the identified survey participants that they would be contacted to respond to the survey. Prior to sending survey invitations, CADTH determined that two of these individuals would instead be interviewed and would thus not be invited to participate in this survey. Additionally, through a vetting question included in the survey, six individuals noted they had not made at least one request to the RRS since April 1, 2012, thus making them ineligible to complete the survey. The final e-survey population was determined to be N = 433 individuals.

A total of 146 respondents completed the survey over a period of four weeks, a response rate of 33.7%. The survey findings are generalizable to the entire population with 95% confidence and a margin of error of $\pm 6.6\%$, although findings cannot be generalized within each jurisdiction.

The e-survey was administered through the Fluid Surveys platform. Respondents accessed it through a unique link, which allowed Science-Metrix to track those respondents who accessed and completed the e-survey in real time to ensure reminders could be targeted. Three email reminders were sent to respondents who had not completed and submitted the e-survey.

Quantitative and qualitative data analyses were undertaken using a combination of tools, which included Fluid Surveys' reporting functions as well as Microsoft Excel. Responses were analyzed by evaluation question.

Case Studies

The case studies were selected both to illustrate a variety of outcomes and to cover a broad range of products and activities that are used to inform evidence-based policy and clinical practice decision-making. CADTH identified six topics and corresponding CADTH products and/or activities for study:

- Urine Matters and Cough Matters — lab optimization (RRS and knowledge mobilization and implementation support)
- New oral anticoagulants for atrial fibrillation — CDR and Therapeutic Review (TR) (Optimal Use [OU])
- Linagliptin/metformin (Jentaducto) for type 2 diabetes mellitus — diabetes evidence bundles (knowledge mobilization and implementation support)
- Novel drug therapies for relapsing-remitting MS — patient engagement (as part of OU project)
- Point-of-care international normalized ratio testing — outreach (OU and knowledge mobilization and implementation support)

- Reprocessing of single-use medical devices — Environmental Scanning

Each case study involved a review of literature and documents relative to the specific case, as well as a set of interviews with internal and external stakeholders. Internal interviewees were representatives of CADTH, including KMLO team members, who were involved in the delivery of CADTH products and activities for each specific case. External interviewees were CADTH customers who used CADTH's products to inform health policy or practice changes, including drug plan managers and other provincial or regional health authority representatives. Key findings and conclusions (limited to each case) stemming from the document review and interviews were identified for each case study and included in the evidence base for this evaluation.

Challenges and Limitations

The following challenges and limitations were experienced throughout the course of the evaluation:

1. While CADTH collects and provided performance data for the indicators contained in its performance measurement strategy (e.g., decision congruence with recommendations, customer satisfaction and utilization), a key challenge for assessing the data collected for this evaluation was that the variety of performance data is not centralized in a single repository but rather is gathered and stored in different program areas across the organization. The evaluation was careful to follow guidance on the use of CADTH data sets, and was provided with the original sources of data for transparency and verification where CADTH provided tables and figures. Some performance data, such as congruence of recommendations with jurisdictional decision-making, do not fairly reflect CADTH's performance, as numerous factors affecting decisions that are outside the control of the organization.
2. The selection of stakeholders for interviews favoured a strategic perspective — that is, a significant proportion of interviewees were senior officials in governments and other organizations across Canada (Table 8) — but led to limited information on the effectiveness of some types of CADTH products and services. Taking this approach was a conscious decision on the part of CADTH, as the anticipation was that the evaluation could provide information on strategic direction and priority-setting for the organization. The consequence of this approach is that there is a smaller evidence base from which to draw findings on CADTH's operational effectiveness.
3. Because of the varied nature of the topics selected for the case studies, the type of documentation received from one case study to another was quite different, and the level of familiarity of the individual interviewees with the processes and outcomes of each case varied considerably depending on their role in the decision-making process. Generally, sufficient evidence was collected on the level of awareness and uptake of CADTH products. In all cases, there were challenges identifying the extent of impact, post-uptake.
4. The evaluation acknowledges that the topics addressed as part of the literature and document review constitute only a sample of the different aspects that can be related to the functioning of health care systems in Canada, and the nature of HTA activities carried out by CADTH. However,

the evaluation made all possible effort to address and even augment the key considerations proposed by the CADTH Evaluation Steering Committee.

Multiple lines of evidence and the triangulation of the indicator data mitigated some of the effects that these constraints had on the evaluation. The findings remain robust on all issues except financial performance and the extent of the impact of CADTH's products and services on long-term health system outcomes.

Appendix E: Advisory Bodies That Play a Role in the Work of CADTH

Drug Policy Advisory Committee (DPAC): DPAC comprises representatives from the federal, provincial, and territorial (F/P/T) publicly funded drug plans, and other related health organizations. DPAC provides strategic advice on drug policy issues and drug topics to CADTH and its Board. Committee members also facilitate effective jurisdictional sharing of drug policy information.

DPAC Formulary Working Group (FWG): The DPAC FWG includes representatives from the F/P/T publicly funded drug plans and other related health organizations. The DPAC FWG provides advice to CADTH on issues related to the CADTH Common Drug Review (CDR) process. FWG members also facilitate effective jurisdictional sharing of pharmaceutical information.

DPAC Optimal Use (OU) Working Group: The DPAC OU Working Group includes representatives from the F/P/T health ministries, and related health organizations. The DPAC Optimal Use Working Group provides advice on CADTH OU drug projects. Working group members also facilitate effective jurisdictional sharing of OU information.

CADTH Canadian Drug Expert Committee (CDEC): CDEC is a pan-Canadian advisory body to CADTH composed of individuals with expertise in drug therapy, drug evaluation, and drug utilization, and includes public members who provide a lay perspective. CDEC makes recommendations to each of the participating F/P/T publicly funded drug plans regarding the listings on their formularies. It also makes recommendations related to the identification, evaluation, and promotion of optimal drug prescribing and use in Canada.

CADTH pan-Canadian Oncology Drug Review (pCODR) Provincial Advisory Group (PAG): A PAG is in place to provide advice to the pCODR Advisory Committee about operational issues, as well as to inform strategic and policy direction.

pCODR Advisory Committee (PAC): The PAC provides strategic advice for pCODR's ongoing development and management, and provides advice on cancer-specific issues to ensure the pCODR program meets the needs of the provincial and territorial (and, as of 2016, federal) governments and cancer agencies.

pCODR Expert Review Committee (pERC): The role of pERC is to assess the clinical evidence and cost-effectiveness of cancer drugs in order to make recommendations to the provinces and territories and their respective cancer agencies (also includes the federal government, as of 2016) to help guide their drug funding decisions. pERC includes patient members.

Health Technology Expert Review Panel (HTERP): HTERP is an advisory body to CADTH convened to develop recommendations on medical device health technologies to inform a range of stakeholders within the Canadian health care system.

Pharmaceutical Directors Forum: The members of the Pharmaceutical Directors Forum are representatives of the publicly funded drug plans. The role of this group is to share information on pharmaceutical policy and strategic initiatives; conduct intergovernmental dialogue regarding the delivery of drug benefit plans; collaborate on efforts to align pharmaceutical strategies and policies

across Canada; and interact with other groups on pharmaceutical issues of common interest. CADTH provides secretariat support to the Pharmaceutical Directors Forum.

Policy Forum: The Policy Forum was created in response to the *Health Technology Strategy 1.0*, and the subsequent *Implementation Strategy*, approved by the Conference of Deputy Ministers (CDM) in May 2004 and April 2005, respectively. The mandate of the Policy Forum is to provide F/P/T jurisdictions with opportunities to share information and collaborate on health technology policy initiatives, where it is beneficial to its members. Presently, the focus of Policy Forum activities is on issues related to the implementation, management, and decommissioning of medical device health technologies. CADTH provides secretariat support to the Policy Forum.

The Health Technology Analysis Exchange: The Exchange is a network of health technology assessment (HTA) producers established in accordance with the *Health Technology Strategy 1.0* and the subsequent *Implementation Strategy*, approved by the CDM in May 2004 and April 2005, respectively. The mandate of the Exchange is to provide a forum for HTA producers to share knowledge, information, and experience and to facilitate continuous quality improvement in the production and use of evidence-based information on health technologies. CADTH provides secretariat support to the Exchange.

Pan-Canadian Health Technology Assessment Collaborative: The Collaborative is a network of Canadian HTA producers and health decision-makers with a focus on strategic alignment and joint initiatives. CADTH is a member of the Collaborative and also provides secretariat support.

Appendix F: CADTH Customers' Perceived Alternative Sources of Health Technology Assessment Information for Formulary Decisions

Products and services offered by organizations	<ul style="list-style-type: none"> ▪ Atlantic Common Drug Review ▪ Canadian Association of Wound Care ▪ Canadian Foundation for Health Improvement ▪ Canadian Society of Hospital Pharmacists' Pharmacy Specialty ▪ College of Physicians and Surgeons of British Columbia ▪ Drug Effectiveness Review Project ▪ ECRI Institute (US) ▪ Human Drug Advisory Panel drug categories ▪ Institut national d'excellence en santé et en services sociaux (INESSS) ▪ Institute for Clinical Systems Improvement ▪ Institute of Health Economics of Alberta ▪ Interior Health ▪ International Pharmaceutical Abstracts ▪ Manitoba Centre for Health Policy ▪ Manufacturer and User Facility Device Experience ▪ National Institute for Health and Care Excellence (NICE, UK) ▪ Networks (PSN) ▪ Newfoundland and Labrador Centre for Applied Health Research ▪ Nova Scotia Health Research Foundation ▪ Ontario Pharmacists Association ▪ Ottawa Valley Regional Drug Information Service ▪ Patented Medicine Prices Review Board ▪ Regina Qu'Appelle Health Region ▪ Registered Nurses' Association of Ontario ▪ The Advisory Board Company ▪ University of Alberta ▪ University of Calgary ▪ University of Montréal Centre of Health Innovation
External databases and online resources	<ul style="list-style-type: none"> ▪ AHFS Consumer Medication Information (EBSCO) ▪ Micromedex, Lexicomp ▪ PubMed, MEDLINE, Ovid, Embase, Cochrane Reviews ▪ UpToDate, RxFiles, medSask

Others	<ul style="list-style-type: none">■ Clinical practice guidelines■ Expert opinion (local and across Canada) and best practices■ Internal databases and searches■ Listings and reimbursement restrictions for a drug in other countries■ Listserv discussions■ Local, regional health authority■ Manufacturer's data■ Other RHA, DHA, and hospital formularies■ Public drug plan formularies■ Reviews conducted at other hospitals■ Special interest groups (e.g., Canadian Cancer Society)■ Regulatory websites (e.g., FDA, Health Canada, European Medicines Agency, and the Australia Therapeutic Goods Administration)
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Source: Survey data and literature review.

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