

SCANNING THE HORIZON IN A DECENTRALIZED HEALTHCARE SYSTEM: THE CANADIAN EXPERIENCE

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Canada has a highly decentralized health care system with 13 provinces and territories delivering health care within their own respective jurisdictions. Decisions regarding which innovative health technologies to adopt are often driven by the unique health care priorities of each jurisdiction's population. To understand these needs, the Canadian Agency for Drugs and Technologies in Health's (CADTH's) Early Awareness Service has expanded its activities. In addition to proactively scanning the horizon for new and emerging health technologies, the Early Awareness Service also scans the horizon for national and jurisdictional health policy issues. This paper looks at CADTH's process for identifying and monitoring policy issues at a national and jurisdictional level.

CADTH's Early Awareness Service delivers timely information on emerging health care concerns and technologies that may affect health care finances, facilities, operations, and patient care. The identification of important policy issues can help determine which new and emerging technologies will have the most significant impact on the health care system. The information that CADTH scans can also be used to help decision-makers prepare for potential developments and events that may have an impact on health care systems.

By improving its capability to identify and share policy issues across and within jurisdictions, CADTH is better situated to provide information that can be used by policy-makers to help them plan and anticipate for the introduction of new technologies and future developments affecting the unique health care needs of their jurisdictions.

Keywords: Emerging health technologies, technology assessment, diffusion of innovation

The Canadian Agency for Drugs and Technologies in Health (CADTH) is a national, not-for-profit, organization that provides Canada's federal, provincial, and territorial healthcare decision makers with evidence, analysis, advice, and recommendations that are used to help inform decisions. The Agency was created in 1989, as the Canadian Coordinating Office for Health Technology Assessment (CCOHTA), and focused exclusively on the assessment of medical devices. In 2006, the Agency changed its name to CADTH, in recognition of its expanded mandate that included the assessment of drugs, and the provision of formulary listing and optimal drug prescribing recommendations.

CADTH operates in a decentralized healthcare system where each of the 10 provinces and three territories is responsible for the delivery of health care in its jurisdiction. While health care is publicly funded and universally accessible to all Canadian residents, the decentralized system of health services delivery often results in diversity in coverage, with services being reimbursed in some jurisdictions but not in others.

The adoption of innovative healthcare technologies is often driven by the demographic composition of a jurisdiction. As well, urban health centers in jurisdictions with larger populations will likely adopt innovative health technologies sooner than urban centers in jurisdictions with small populations because the availability of financial, human, and infrastructural resources to support new technologies is more plentiful.

Canada's health technology assessment (HTA) community (e.g., those involved in the evaluation of interventions that relate

to the use of drug and non-drug technology to inform clinical and administrative policy decisions) serves a population of 34 million people. HTA is practiced at a national, provincial, regional, and hospital level (5), and is produced by government supported/operated entities, academic bodies, and hospitals (1). Table 1 (and Supplementary Table 1, which can be viewed online at www.journals.cambridge.org/thc2012037) provides a list of HTA producers in Canada.

CADTH'S EARLY AWARENESS SERVICE

In 1997, CCOHTA began a 1-year pilot project that involved the creation of a process for identifying information sources on new and emerging technologies, and a format for communicating this information to Canadian policy makers. The potential audience for this information was identified by seeking the advice of CCOHTA Board and Scientific Advisory Panel members. Four bulletins, accompanied by a survey to determine topic relevance and satisfaction with the volume of information provided, were published during that period. Feedback from survey responders confirmed that the selected topics were relevant and the quantity of information was appropriate for decision-making needs.

A year after the pilot began, the program was recognized as an essential component of CCOHTA, and the Canadian Emerging Technology Assessment Program (CETAP) was established. The formalization of CETAP was also consistent with the approval of the CCOHTA 1997 five-year strategic plan that

Table 1. HTA Producers in Canada

Organization (number)	Decision maker
National 3	Provincial/Regional/Hospital
Provincial Newfoundland and Labrador 1	Provincial/Regional
Nova Scotia 1	Provincial
New Brunswick 1	Regional
Quebec 1	Provincial
10	Hospital
Ontario 4	Provincial
1	Provincial/Regional
2	Hospital
2	United States
Manitoba 1	Provincial
Saskatchewan 1	Provincial
Alberta 5	Provincial
1	United States/Provincial
1	Hospital
British Columbia 2	Provincial
3	Regional

Note. Adapted from: Huserneau D, Cameron C. The use of health technology assessment to inform the value of provider fees: Current challenges and future opportunities. *Canadian Health Services Research Foundation*. 2011.

outlined the tracking of technologies in the early stages of their life cycle as a key organizational priority.

The mandate of CETAP was to provide a national scanning platform for the identification of upcoming health technologies likely to have a significant impact on the delivery of health care in Canada. The incorporation of new technologies into healthcare practice is known to be one of the biggest overall contributors to rising healthcare spending, consuming approximately a quarter of Canada's total healthcare budget (6). The intent of CETAP was, and still is, to help support the sustainability of Canada's publicly funded healthcare system through the practice of identifying innovative health technologies that directly relate to the country's key healthcare challenges.

Currently, CADTH is the only Canadian organization that has a systematic horizon scanning resource that is accessible to

healthcare decision makers at the federal, provincial and territorial level. No other not-for-profit organization has developed a national ongoing, dedicated horizon scanning process. It should be noted that the Patented Medicine Prices Review Board produces an occasional report, the New Drug Pipeline Monitor (9). This report outlines their process and criteria for identifying new drugs. Three issues have been published (in 2007, 2008, and 2011).

While provincial HTA producers in hospital and academic settings may respond to specific requests for information on new and emerging technologies, none of these organizations are involved in the proactive identification of innovative health technologies.

The Ontario Ministry of Health and Long-Term Care engaged the Conference Board of Canada in 2008 to write a brief on horizon scanning activities and tools for the purpose of launching a scanning team (2). At this time, the Ministry conducts modest efforts to identify emerging trends and relevant research evidence that contribute to two publications intended to raise awareness among health system policy makers of international policies and practice that support evidence-informed policy development (7;8).

In 1997, the province of Alberta piloted an early awareness and alert (EAA) system to provide advice on innovative health technologies not already available in the province. At the request of Alberta's Ministry of Health, the Alberta Heritage Foundation for Medical Research (AHFMR) piloted the 2.5-year project involving the creation of a process for identifying new technologies. During that time, AHFMR produced more than seventy one-page briefing papers on innovative health technologies that were shared with decision makers at the Ministry of Health and regional health authorities (3). In December 2000, the pilot program ended when the mandate to identify new and emerging technologies became a national one and was officially advanced by CADTH (at that time CCOHTA) (4).

Over the last 14 years, the scope of CADTH's EAA system has evolved considerably. In its first decade, the program exclusively identified new and emerging health technologies. Health technologies targeted are those that are 2 to 3 years from launch; this includes technologies that are about to be launched, technologies that have recently been launched, technologies that have been launched but are slow to diffuse or existing technologies for which there are new indications. This information is disseminated through newsletters, bulletins, and reports, with the purpose of raising awareness of new and emerging health technologies that might require future assessment. To date, CADTH's EAA system does not have a relationship with industry, other than inviting industry to comment on bulletins before they are published.

In 2008, the program expanded its focus to include the proactive identification and monitoring of significant health policy issues within and across jurisdictions. The broadening of the scope of the service to include jurisdictional policy

Table 2. Characteristics of CADTH's ESS

Factor	Notes
Early Awareness Service	Established 1997
Host organization	CADTH
Country	Canada
Funding source	Federal, provincial, and territorial health ministries (public funding)
Purpose	To identify new and emerging health technologies, policy, practice, and research issues
Main customers and other users	<ul style="list-style-type: none"> • Federal, provincial, and territorial health care decision-makers • National health organizations/expert groups
Remit	Drug and non-drug health technologies (including diagnostics, medical and surgical procedures, as well as organizational and service systems that provide health care)
Identification	<ul style="list-style-type: none"> • Scanning of media and other medical sources of information • Contact with health-related organizations • Contact with industry and review of pipeline reports • Contact with decision-makers at national, provincial, and regional levels of the health care system
Filtration	<ul style="list-style-type: none"> • 2–3 years from launch, or technologies that are launched but are slow to diffusion • Presence of innovation • Potential for impact – clinical, budgetary, economic
Reporting format	<ul style="list-style-type: none"> • Technology bulletins (5–8 pages) – factual information based on literature search and industry information • Newsletter articles (1 page per article) • Environmental scans –(3–20 pages)
Peer review	<ul style="list-style-type: none"> • In-house editorial team • Industry invited to comment on bulletins • Clinical experts

CADTH, Canadian Agency for Drugs and Technologies in Health.

issues was initiated to align innovative health technologies to the most pressing jurisdictional healthcare priorities, and to prepare policy makers for new developments in health care. The program, originally CETAP, is now the Environmental Scanning Service (ESS). Table 2 outlines the key characteristics of CADTH's ESS.

In 2009, a request-based inquiry service was established within the ESS. The purpose of this inquiry service is to provide contextualized data on policy, practice, research, and process

issues across Canadian jurisdictions and internationally, and encourage the sharing of experience and best practices between jurisdictions. Requests are accepted from decision makers at the federal, provincial, and territorial levels of Canada's healthcare system.

Between January 2008 and October 2011, CADTH published twenty-nine environmental scan (ES) reports that originated as inquiries. While each of these related to health policy issues, twenty-two related to existing health technologies or health system-related procedures and seven related to new and emerging non-drug technologies. Table 3 (Supplementary Table 2, which can be viewed online at www.journals.cambridge.org/thc2012038, is Table 3 with the associated Web links) provides a complete list of ESS products published during the period of 2008–2011.

The success of the inquiry service is reflected in the number of requests received from CADTH stakeholders. In the first year, six reports were published. In 2010, eight reports were published; and within the first 6 months of 2011, the program produced 16 reports. At this time, only the ES reports are routinely assessed under the ESS. Before undertaking an ES report, CADTH seeks assurance from requestors that the information will be used to help guide a significant health policy decision. By establishing this prerequisite framework, CADTH has a measure of confidence that all of its ESs have impact. Ascertaining the exact extent of that impact is challenging because health policy decisions are invariably based on numerous criteria and forms of evidence; the information in ESs comprises only one component. However, positive requestor feedback consistently supports the value of this service.

The focus of CADTH's ESS has shifted since the inquiry service was established. As shown in Table 3, the emphasis on the proactive identification and filtration of new and emerging technologies to inform CADTH's prioritization process has given way to the demand for information on comparisons of jurisdictional policy issues. However, with the recent expansion of ESS resources to include a second full-time staff member and the assistance of contractors, CADTH is redressing this balance and refocusing its efforts on proactive work through the production of bulletins. Bulletins are short, peer-reviewed, documents (usually four to six pages in length) that review a single drug or non-drug technology that is of interest in Canada. Between 1997, when the program was piloted, and 2010 (when the last bulletin was published), 117 bulletins were published. Of these, sixty-five bulletins related to drug technologies and fifty-two related to non-drug technologies.

A 2007 external evaluation of CADTH's HTA program showed that, according to Web-based subscriptions, bulletins were the most popular HTA product for that year (unpublished data, 2007). To ensure their continued relevance, CADTH consults with its various committees consisting of jurisdictional representatives to determine which innovative technologies identified by the ESS are of most interest to them.

Table 3. Titles and Types of ESS Products Published Since 2008

2011
Environmental Scans
Levetiracetam for Epilepsy
Role of Regional Health Authority Bylaws in the Expanded Authority of Health Care Practitioners
Reprocessing of Single-Use Medical Devices A 2011 Update
Virtual Wards to Reduce Hospital Readmissions
Newborn Screening
Cochlear Implants in the Pediatric Population
Shared Services in Health Care
Hospital-based Pharmacy and Therapeutics Committees
PET in Canada
Pediatric Intravenous Administration of Drugs and Fluids
Update on CCV for MS
Funding of Laboratory Testing
Drug Supply Disruptions
Initiatives for Healthy Aging in Canada
Future Alternatives to Molybdenum-99
Global Impact of Technetium-99m Shortages
2010
Environmental Scans
Dedicated Cardiac CT in Canada
CCVI for MS
IVF in Canada and Internationally
Support Services for Cardiac Rehabilitation in Canada
Vitamin D Supplements for Elderly Patients
Endovascular Repair for Abdominal Aortic Aneurysm
Reprocessing Single-Use Medical Devices
Next-generation fecal DNA tests
Issues in Emerging Health Technologies Bulletin
New Anticoagulants for Stroke Prevention
Health Technology Update Newsletter
Issue 13
2009
Environmental Scans
H1N1 and Seasonal Influenza Vaccine
Patient Management Software
High-Intensity Focused Ultrasound Facilities in Canada
Carbon Ion Radiation Therapy
Future Alternatives to Molybdenum-99
PET in Canada
Issues in Emerging Health Technologies Bulletin
Laparoscopic Diaphragm Pacing for Tetraplegia
Health Technology Update Newsletter
Issue 12
Issue 11
Issue 10

Table 3. Continued

2008
Issues in Emerging Health Technologies Bulletin
Erythropoietin Receptor Activator for Renal Anemia
Milnacipran for Fibromyalgia
Rotigotine Patches for Parkinson's
Implantable Hemodynamic Monitoring for Patients with Heart Failure
Health Technology Update Newsletter
Issue 9
Issue 8

Through the traditional practice of proactively scanning Canadian medical information, CADTH's ESS keeps abreast of health policy issues that are reported in publicly available, literature-based sources. These sources include, but are not limited to: the *Canadian Medical Association Journal*, *Canada's Health Edition* newsletter, and the *Canadian Healthcare Network*; jurisdictional health ministry Web sites, strategic plans, and annual reports; as well as the work of health-related organizations, societies, and advocacy groups. While information from these sources is pivotal to understanding policy issues, CADTH's ESS has various internal mechanisms in place that help identify jurisdictional health priorities at the grassroots level. Information—at the local, regional, provincial, and federal levels—from these internal sources are routinely monitored to identify potential developments that may impact healthcare finances, facilities, operations, and patient care. These mechanisms are outlined in Table 4.

CANADIAN NETWORK FOR ENVIRONMENTAL SCANNING IN HEALTH

In May 2011, Canada launched its first collaboration dedicated to identifying new and emerging health technologies: the Canadian Network for Environmental Scanning in Health (CNESH). CNESH brings together academics, researchers, clinical experts, and healthcare decision makers who are interested in identifying and sharing information on innovative health technologies. The goal is to have at least one representative from each province. Current members are from Alberta, Manitoba, Ontario, Quebec, New Brunswick and Newfoundland, and Labrador. While many of CNESH's members are Canadian HTA producers, membership also includes representatives from federal and provincial health ministries.

CNESH will play a pivotal role in developing a national harmonized process for the systematic identification of these health technologies. As well, CNESH will help facilitate important cross-jurisdictional linkages and information-sharing opportunities that are currently lacking in this field in Canada. The characteristics of CADTH's ESS as outlined in Table 1 are

Table 4. CADTH's Internal Processes for Identifying Potential Health Policy Issues

Structure	Detail
Committees	<p>Three advisory bodies consisting of federal, provincial, and territorial members inform CADTH on local matters that relate to the mandate of their specific committees and help prioritize new and emerging technology topics:</p> <ul style="list-style-type: none"> • The Drug Policy Advisory Committee (DPAC): provides CADTH with strategic advice on drug policy issues and drug topics. • The Health Technology Analysis Exchange: coordinates the gathering of evidence and policy advice regarding health technologies. • The Policy Forum: shares information and collaborates on health technology policy initiatives related to non-drug health technologies.
Liaison Program	<p>CADTH's liaison outreach program facilitates the exchange, uptake, and use of CADTH information in participating Canadian jurisdictions. Liaison officers (LOs) support local health information needs and increase local awareness of CADTH programs, products, and services. LOs engage with health care decision-makers to keep abreast of local issues and priorities. This information is shared with the Early Awareness Service via two main avenues:</p> <ul style="list-style-type: none"> • Bi-weekly teleconferences: Early Awareness Service staff meet with Liaison Officers to discuss program issues and jurisdictional policy interests and concerns. • Monthly Reports: Liaison Officers disseminate a monthly report on key events, priorities, and initiatives in their respective jurisdictions.
Media Monitoring Service	<p>A daily media monitoring service that addresses health care trends, relationships, issues, events, and developments is disseminated via email to all CADTH staff.</p>
Rapid Response Service	<p>A rapid review service provides federal, provincial, and jurisdictional stakeholder with evidence to support clinical decision-making. Monthly summaries of requests are reviewed to identify potential trends and developments.</p>

also applicable to CNESH (other than the last two points that relate to reporting and peer review).

While the pan-Canadian network is new and will continue to evolve, it has a clear commitment to facilitating the introduction of promising new and emerging health technologies through effective identification, collection, and information-sharing practices. At the inaugural meeting in May 2011, CNESH members focused on developing and reaching agreement on the network's purpose and scope.

CNESH members are expected to identify innovative technologies that are of interest to their jurisdictions and submit

these to a CADTH hosted database. This database will reside on CADTH's Web site and will be publicly available. CADTH will continue to provide its national ESS, which will feed into CNESH. CNESH, like CADTH's ESS, has not developed a relationship with industry.

At this time, the role of CNESH is only to identify innovative technologies that are 2 to 3 years from launch or technologies that are launched but slow to diffusion, and have potential for clinical, budgetary, or economic impact. CNESH is not currently involved in filtering, prioritizing or assessing technologies. However, it is anticipated that the technologies captured in CNESH's publicly accessible database will be used by other HTA producers to inform their filtration and prioritization processes. As CNESH matures it will consider its capacity for undertaking these activities. CNESH is currently undertaking a survey of EuroScan members to determine best practices in identification and filtration processes.

Because each province has its own health priorities, one of the difficulties of horizon scanning across jurisdictions is that what is new in one province may not be an issue in another for several years—or ever. It is hoped that CNESH's publicly accessible database will help reflect the spectrum of pan-Canadian health priorities precisely because provincial members will be soliciting them.

It is expected that by capturing innovative technologies that have recently been publicly funded in one or more jurisdictions, CNESH can alert decision makers in provinces that have not funded these technologies that there will be public pressure to do so, or to, at least, provide justification for their decision not to fund them.

CONCLUSION

By expanding the scope of horizon scanning activities to include the identification of priority health policy issues at the jurisdictional level, CADTH's ESS better serves the needs of its stakeholders. The ESS supports the sustainability of Canada's publicly funded healthcare system through the practice of identifying innovative health technologies that directly relate to Canada's key health challenges. Through the sharing of information on different healthcare conventions across Canada's provinces and territories, the ESS helps facilitate the harmonization of health processes through encouraging the sharing of experience and best practices.

SUPPLEMENTARY MATERIAL

Supplementary Table 1
www.journals.cambridge.org/thc2012037
 Supplementary Table 2
www.journals.cambridge.org/thc2012038

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CONFLICTS OF INTEREST

The author reports she has no potential conflicts of interest.

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