

# Evidence Brief

## Enhancing Equitable Access to Assistive Technologies in Canada

20 June 2017



**McMaster**  
**HEALTH FORUM**

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**Evidence Brief:**  
**Enhancing Equitable Access to Assistive Technologies in Canada**

8 June 2017

## McMaster Health Forum

### McMaster Health Forum

For concerned citizens and influential thinkers and doers, the McMaster Health Forum strives to be a leading hub for improving health outcomes through collective problem solving. Operating at regional/provincial levels and at national levels, the Forum harnesses information, convenes stakeholders, and prepares action-oriented leaders to meet pressing health issues creatively. The Forum acts as an agent of change by empowering stakeholders to set agendas, take well-considered actions, and communicate the rationale for actions effectively.

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**Table of Contents**

KEY MESSAGES .....5

REPORT .....7

THE PROBLEM.....12

    The many different definitions for assistive technologies can lead to confusion about what they are and what is covered..... 13

    The need for assistive technologies is increasing ..... 14

    Access to assistive technologies is inconsistent, which in some cases results in unmet needs..... 16

    System-level factors can make it complicated to access assistive technologies..... 17

    Additional equity-related observations about the problem ..... 19

    Citizens’ views about key challenges related to enhancing equitable access to assistive technologies in Canada ..... 19

THREE ELEMENTS OF A COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM.....22

    Element 1: Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them ..... 23

    Element 2: Helping citizens get the most out of government-funded programs ..... 26

    Element 3: Supporting citizens to access needed assistive technologies that are not covered by government-funded programs ..... 31

    Additional equity-related observations about the three elements ..... 35

IMPLEMENTATION CONSIDERATIONS .....36

REFERENCES..... 38

APPENDICES..... 44



## KEY MESSAGES

### What's the problem?

- The main factors that contribute to the challenges in equitable access to assistive technologies in Canada, include:
  - the many different definitions for assistive technologies can lead to confusion about what they are and what is covered;
  - the need for assistive technologies is increasing;
  - access to assistive technologies is inconsistent, which in some cases results in unmet needs; and
  - system-level factors can make it complicated to access assistive technologies.

### What do we know (from systematic reviews) about three viable options to address the problem?

- Element 1 – Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them
  - This element could include: 1) information or education provision from logical community points of contact and/or through reliable and trusted online sources; 2) questions or prompts about the need for assistive technologies in decision aids that support care planning and purchasing; and 3) providing system navigators for those with complex needs.
  - The use of decision-aids and provision of education in the delivery of care was generally found to have positive effects, including improved knowledge, reduced levels of anxiety and increased adherence to treatments, for patients and caregivers. While evidence on system navigators is limited, they were found to assist in accessing primary care as well as transitioning across care settings.
- Element 2 – Helping citizens get the most out of government-funded programs
  - This could include providing public financing based on need for different types of assistive technologies, streamlining existing government approaches that provide access to assistive technologies, and establishing transparent and flexible criteria to define what technologies are covered.
  - While there is no evidence evaluating public insurance related directly to assistive technologies, evidence on the impact of expanding insurance for prescription medicines found that it reduced the likelihood of patients paying for medications, reduced out-of-pocket payments, increased utilization of medications and services, and increased adherence to prescriptions.
- Element 3 – Supporting citizens to access needed assistive technologies that are not covered by government-funded programs
  - This could include cost-sharing mechanisms (e.g., sliding scale payments, flat-rate user fees, or full private payment), enhancing employment-based benefits programs, and streamlining regulatory approval processes for technologies to be brought to markets across the country.
  - Market-based solutions, such as cost-sharing mechanisms for prescription drugs (used as an analogue for assistive technologies), were found to reduce medication adherence, however, they provide significant opportunities to maximize health budgets by increasing a patient's co-payments.

### What implementation considerations need to be kept in mind?

- Barriers to implementation might include: 1) the expectations of individuals in need of assistive technologies and their caregivers in terms of what can be publicly financed may not align with the realities of government budgets; 2) the increased demands placed on healthcare providers in terms of supporting informed decision-making and system navigation (including determining program eligibility and coverage) may not be feasible given existing delivery mechanisms and remuneration arrangements; and 3) streamlining government approaches and regulatory frameworks requires significant involvement of and collaboration between federal- and provincial-level policymakers.
- Windows of opportunity might include: 1) demographic shifts in the population necessitating system change; 2) the alignment of provincial and territorial health-system policy priorities and strategic goals of the federal government on enhancing access to the home and community care sector; and 3) resource constraints that often support the creation of innovative approaches to healthcare problems.





## REPORT

Results from the 2016 census show that from 2011 to 2016 Canada has experienced the largest increase in the proportion of older adults (i.e., those over the age of 65) since Confederation.(1; 2) There are now more people aged 65 years and older in Canada than children under 15.(3) Projections indicate that the number of Canadians aged 65 or older is expected to double within the next two decades, and the proportion of those over the age of 80 is expected to grow from 27.5% in 2012 to 32% in 2036.(4; 5) While older adults today are healthier and participate more in society than previous generations at their age, evidence shows that as people age they are more likely to experience some form of disability.(4) Of those aged 65 to 74 years, 33% reported some form of disability, and 43% of those aged 75 and above reported a disability.(6; 7)

As the proportion of older adults in the population continues to grow in Canada, assistive technologies will play an increasingly important role in promoting active and healthy aging, independent living and aging-in-place, particularly in the home and community care sector.(4; 8; 9) The use of assistive technologies also increases with age with 85% of those aged 65 to 74 and 90% of those aged 75 and above with disabilities reporting that they use assistive technologies.(6)

However, there are a number of challenges that limit equitable access to assistive technologies in Canada's health systems, which include:

- variability within and between provinces and territories for the types of assistive technologies (and how they are defined) that are eligible for funding, the amount of funding available, and the eligibility criteria (e.g., based on age rather than functional need) mean that many who need assistive technologies are unable to access them;
- the lists of what assistive technologies are covered may not necessarily be the most suitable to meet the unique needs of individuals (e.g., magnifiers for vision loss instead of apps on a tablet); and
- despite increased supply of assistive technologies, procurement policies have lagged in responding to innovation and growing user demand.(9; 10)

### Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a comprehensive approach for addressing the problem, and key implementation considerations. The evidence brief also provides the views and experiences of citizens about the problem, and their values and preferences for addressing it, which were identified from three citizen panels convened in spring 2017 in Ontario (Hamilton), Alberta (Edmonton) and New Brunswick (Moncton).

Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The evidence brief does not contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of the evidence brief involved five steps:

- 1) convening a Steering Committee comprised of representatives from the partner organizations (Alberta Health Services, Employment and Social Development Canada, March of Dimes, McMaster University, University of Lucerne, University of Ottawa) and the McMaster Health Forum;
- 2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three viable elements for addressing it, in consultation with the Steering Committee and a number of key informants, and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
- 3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, options and implementation considerations;
- 4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
- 5) finalizing the evidence brief based on the input of several merit reviewers.

The three elements for addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue, and by those who review the dialogue summary and the video interviews with dialogue participants.

These factors can result in inequitable access to assistive technologies given that many people are often in need, but may not be eligible for the same coverage if they do not meet the criteria. Similarly, the way in which assistive technologies are defined within jurisdictions also creates barriers. For example, coverage in some jurisdictions focuses solely on providing devices that compensate or replace a bodily function that was lost,(5) and therefore provides funding for assistive technologies (e.g., a wheelchair or prosthetic) that meet the most basic needs, but exclude environmental modifications (e.g., home modifications such as a ramp or grab bars) that are important for ensuring ability to perform instrumental activities of daily living.(11)

Enhancing equitable access to assistive technologies in Canada therefore provides an opportunity to address policy priorities focused on helping older adults age in place. Assistive technologies can be used for a variety of health-related goals, including for the promotion of self-management and independence, and performing daily tasks by compensating for physical, sensory and cognitive impairments. While priorities and policies in provincial and territorial health systems in Canada focus on expanding the home and community care sector and supporting older adults at home, programs that provide access to assistive technologies vary greatly and the approach to delivery is highly fragmented.(12)

This evidence brief, and the stakeholder dialogue it was designed to inform, has been developed within this context, and focuses on approaches to creating transparent criteria for publicly-financed assistive technologies and market-based solutions for those that are not publicly covered, as well as supporting informed decision-making and system navigation for people in need of assistive technologies, caregivers and providers.

### What are assistive technologies?

As outlined in greater detail in the problem section of the brief, assistive technologies are difficult to define as there are a range of terms used in the field (e.g., assistive device, assistive product, assistive technology device, etc.). The different definitions used have some conceptual overlap, yet there is no consensus internationally or nationally on a standard set of terms. For the purposes of the brief, assistive technologies are used to maintain or improve the functioning of individuals of any age. Assistive technologies can be available commercially as ‘off-the-shelf’ products, which are readily available in stores (e.g., handrails, shower stools and electronic/smart technologies). In contrast, some assistive technologies require personalized adjustments (e.g., height-adjustable two-wheeled walkers), while others are customized and designed specifically to meet the needs of the individual (e.g., prostheses, orthoses and wheelchairs).

### Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of elements to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use “PROGRESS,” which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in “precarious work” arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The evidence brief strives to address all Canadians, but (where possible) it also gives particular attention to two groups:

- people living with a disability (includes cognitive impairments, intellectual disabilities, mental health or substance abuse problems, and vision and hearing impairment); and
- people living in rural/remote communities.

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

Categorizations for assistive technologies for the following functions includes but are not limited to those for:

- personal use in daily living and self care;
- personal indoor and outdoor mobility and transportation;
- communication (e.g., hearing, seeing, speaking, and writing);
- education;
- employment;
- culture, recreation and sport; and
- practice of religion and spirituality.(13)

Assistive technologies are closely linked with both aging and disability. Those most in need of assistive technologies are older adults, people living with a disability (including cognitive impairments and mental health issues), people with non-communicable diseases, and people with gradual functional decline (Figure 1). While the use of assistive technologies increases with both aging and disability, many older adults without disability benefit from assistive technologies to help them remain at home and participate in life. As such, assistive technologies are increasingly essential to the home and community care sector in aiding older adults to live as independently as possible in the community.(14)

Further emphasizing the importance of ensuring equitable access to assistive technologies, The United Nations' Convention of the Rights of Persons with Disabilities promotes equal rights for persons with disabilities, emphasizing the role of assistive technologies through: 1) general obligations to the research, development and promotion of assistive technologies and the provision of accessible information on assistive technologies (article 4); 2) accessibility for persons with disabilities inclusive of the physical environment, transportation, information and communications (including technologies and systems), and other facilities and services open to the public, in both urban and rural areas (article 9); 3) increasing mobility and independence for persons with disabilities (article 20); 4) supporting inclusion and full participation in all aspects of life (article 26), including participation in political and public life (article 29); and 5) international obligations to cooperate in sharing of technologies (article 32).(15)

### **Overview of contextual factors related to enhancing equitable access to assistive technologies in Canada**

In understanding the context of enhancing equitable access to assistive technologies, there is a need to clarify several key features of provincial and territorial health systems, as well as features related to how assistive technologies enter Canadian markets and how they are accessed through the home and community care sector. Below we provide an overview of the most salient factors to help with interpreting the information related to the problem, three elements of a potentially comprehensive approach for addressing the problem, and implementation considerations that are presented in this evidence brief.

#### *Key features of health systems*

- The responsibility for health systems falls primarily to the provinces and territories, with broad rules set by the federal government.(16)
- Medically necessary care provided in hospitals or by a physician is fully paid for as part of each publicly funded provincial/territorial health system.(16)
- Other healthcare providers (e.g., nurses, physiotherapists, occupational therapists) are often not paid for by provincial/territorial health systems, unless their care is provided in a hospital or long-term care setting. Public coverage outside of these settings varies by province and territory.
- Other aspects of healthcare (e.g., assistive technologies and prescription drug coverage) and community services (e.g., home care and long-term care homes) may be partly government-funded with the remaining portion of the costs paid through private insurance plans and/or out-of-pocket payment.(17)
- Healthcare is typically organized by regions within provinces and territories, which allocate responsibility for the planning and funding of healthcare to the regions.(16)

*Features of how assistive technologies enter Canadian markets*

- Some assistive technologies (e.g., prosthetics and wheelchairs) are classified as medical devices and are treated similarly to prescription drugs. To be offered for sale in Canada, assistive technologies are regulated at the federal level through the Therapeutic Products Directorate of Health Canada's Health Products and Food Branch.(18; 19)
- The Canadian Agency for Drugs and Technologies in Health (CADTH) is an independent not-for-profit organization that centralizes the review of health technologies and drugs, and provides recommendations to governments on new health technologies.(18) However at present, CADTH has a limited role in the review of assistive technologies.
- Once an assistive technology has received approval for sale in Canada and the necessary provincial/territorial approvals, the manufacturer/vendor/distributor must then apply separately to each province/territory's assistive technologies program to be included on the list of publicly financed devices.
- Other assistive technologies (e.g., grab bars and shower stools) are readily available in the marketplace and pass through the same regulatory processes as other goods (e.g., electronics and children's toys).

*Features most relevant to home and community care*

- The extent of coverage varies by province/territory for home and community care, with the coordination of services often conducted at the regional level, either by or in collaboration with the regional authorities responsible for planning and funding healthcare.
- A mix of not-for-profit, for-profit and public organizations provide home and community care to residents, and programs include: 1) professional services (e.g., nursing care and occupational therapy); 2) personal support services (e.g., daily living and self care); 3) homemaking services (e.g., housecleaning); and 4) end-of-life care (e.g., respite care).(17)

Figure 1: Who needs assistive technology? (figure reproduced with permission)(20)



## THE PROBLEM

The use of assistive technologies is becoming increasingly important as the older adult population increases and the prevalence of disability rises.(20) While assistive technologies can improve independence, well-being and community participation with older Canadians, many experience unmet needs.

The problem can be broken down into the following four themes (Figure 2):

- 1) the many different definitions for assistive technologies can lead to confusion about what they are and what is covered;
- 2) the need for assistive technologies is increasing;
- 3) access to assistive technologies is inconsistent, which in some cases results in unmet needs; and
- 4) system-level factors can make it complicated to access assistive technologies.

### Box 3: Mobilizing research evidence about the problem

The available research evidence about the problem was sought from a range of published and “grey” research literature sources. Published literature that provided a comparative dimension to an understanding of the problem was sought using three health services research “hedgies” in MedLine, namely those for appropriateness, processes and outcomes of care (which increase the chances of us identifying administrative database studies and community surveys). Published literature that provided insights into alternative ways of framing the problem was sought using a fourth hedge in MedLine, namely the one for qualitative research. Grey literature was sought by reviewing the websites of a number of Canadian and international organizations, such as Health Quality Ontario, the Public Health Agency of Canada, the Canadian Institute of Health Information, the Centre for Technology and Aging, the World Health Organization, and Statistics Canada.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

Figure 2. Factors contributing to the challenge of enhancing equitable access to assistive technologies



## **The many different definitions for assistive technologies can lead to confusion about what they are and what is covered**

There is a lack of consensus both in Canada and internationally on how to define assistive technologies, as well as consistency in the terms used to refer to them. As mentioned previously, the brief uses a broader definition for assistive technologies, which are used to maintain or improve the functioning of individuals of any age. Similarly, the brief adopts broader categorizations for functioning to extend beyond activities of daily living to include participation in all areas of life.

The main definitions used to refer to assistive technologies vary in three ways: 1) differentiating between the technology, device/product and service; 2) categories of functioning that they are designed to address; and 3) the target population (e.g., persons with disabilities). Moreover, both the World Health Organization (WHO) and the U.S.'s *Assistive Technology Act, 1998* separate assistive technologies into three distinct definitions, with assistive technology referring to the technology and knowledge that is applied to the device, assistive device/product for the product itself, and assistive technology service as the component that, for example, helps with acquiring the product. In addition, some definitions specify the role and category of functioning that they are designed to address (WHO and Health Canada), and others specify the population of focus for assistive technologies for individuals with disabilities (International Organization for Standardization (ISO) and the U.S.'s *Assistive Technology Act*).

As there is not a standard or widely agreed upon definition for assistive technologies, particularly in Canada, provinces and territories use different terms to refer to assistive technologies. As a result, publicly funded programs often have narrow definitions, which are used to be clear about what is and is not eligible for public coverage. The three provinces (Alberta, Ontario and New Brunswick) in which we convened the citizen panels that preceded the stakeholder dialogue that this brief was developed to inform, provide illustrative examples of this inter-provincial variation. The Alberta Aids to Daily Living program refers to basic equipment and supplies to support persons with long-term disability, chronic illness or terminal illness, and funds up to 75% of the costs.(21) In contrast, the Ontario Ministry of Health and Long-Term Care's Assistive Devices Program uses the term assistive devices that support residents with long-term physical disabilities. This program funds up to 75% of the cost of devices that meet basic needs.(11) In New Brunswick, a mix of Health Services programs offered through the Department of Social Development provides full coverage for assistive technologies for eligible persons with disabilities. The programs are named based on the device type covered, such as the Wheelchair/Seating program or Hearing Aid program, as well as one for Convalescent and Rehabilitation items (e.g., for walkers and grab bars).(22)

In general, the variations in the terms used to refer to assistive technologies by federal, provincial and territorial programs can be confusing for citizens, caregivers and healthcare providers. As a result, identifying what technologies are covered and what the eligibility criteria are for receiving coverage can be challenging. This can be especially difficult when one needs to access and navigate multiple programs in different health systems to receive access to assistive technologies they need.

Keeping with the example of Ontario, there are a variety of programs that offer assistive technologies, including the Assistive Devices Program, some Community Care Access Centres, the Workplace Safety and Insurance Board, private insurance, and non-profit and charitable organizations. Eligibility criteria vary by program with additional funding available for low-income individuals.(23; 24) These multiple access points for assistive technologies each have their own definitions for assistive technologies and criteria for technologies to be covered. This can make accessing and coordinating between programs challenging, particularly for older adults who may have a disability, and/or those who need technologies from multiple programs/providers.

## **The need for assistive technologies is increasing**

The need for assistive technologies is increasing and is likely to continue to grow due to at least four inter-related reasons: an aging population, increases in the prevalence of disability, increases in the burden of chronic disease, and the corresponding increased burden placed on caregivers (Figure 3). First, as noted earlier, there has been a demographic shift in the population, and for the first time in census history there are more persons aged 65 years and older in Canada than children under 15.(1; 2) In addition, the number of Canadians aged 65 or older is expected to double within the next two decades.(4; 5) As the older adult population continues to grow, assistive technologies can play an important role in promoting healthy aging and independent living.(4; 8; 9)

Second, while older adults today are living longer than previous generations, the likelihood of disability rises with age, which is driving an increase in the prevalence of disability.(4; 6; 7) The most commonly reported disabilities in 2012 relate to pain (10%), flexibility (8%) and mobility (7%), and 40% of those who report at least one of these types of limitations experienced all three at the same time.(6; 25) Of those living with a disability, 81% report using some sort of assistive technology (e.g., hearing aids, magnifiers, wheelchairs, and hand and arm supports),(25) and 30% of those aged from 45 to 74 report experiencing unmet need for assistive technologies, which increases to 44% among those reporting severe disability.(6)

Third, the combination of population growth and an aging population is also expected to result in an increase in the burden of chronic disease,(4) which further increases the need for assistive technologies. Having multiple chronic conditions also increases with age with 74% of Canadians aged 65 years and older reporting having at least one chronic condition.(4) Data also indicate that approximately:

- 38% of Canadians over the age of 20 have at least one chronic health condition;(26)
- 21% of Canadians are living with a major chronic condition (cancer, diabetes, cardiovascular disease, chronic respiratory diseases);(26)
- 15% of Canadians are living with two or more chronic health conditions;(26)
- 70% of those who are considered the sickest Canadians have two or more chronic health conditions;(27) and
- 25% of individuals over the age of 85 are frail, and the number is projected to increase from 1.1 million to over two million by 2035.(28)

Moreover, medical advances and shifts in behaviours have changed the burden of disease, with many previously life-threatening conditions now appearing as chronic disease. While medical advances that extend life can represent a positive development in population health and serve as a testament to our ability to treat disease, the system must now contend with how to effectively manage chronic care and multiple chronic conditions. Assistive technologies are increasingly looked to as a key component of approaches to manage chronic conditions, particularly those living with multiple complex conditions.

Lastly, almost a quarter of Canadians (23%) are playing a role in providing care for family and friends with a long-term illness, disability or aging needs,(29; 30) and the role of caregivers will continue to grow as the shifts in demographics and the prevalence of disability and chronic conditions described above continue. In addition, with approximately 93% of older adults in Canada living at home,(4) and with care increasingly shifted to the community, caregivers will need assistive technologies both to help them to provide needed care and to keep their role as caregivers manageable.



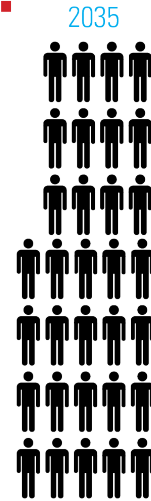
Figure 3: Demographic and social changes are increasing the need for assistive technologies

# The population is changing...

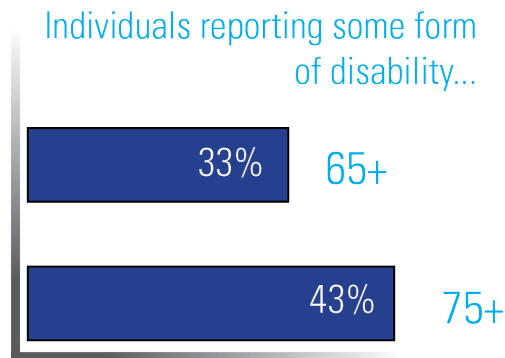
For the first time, there are more persons aged 65 years + in Canada than 0-14



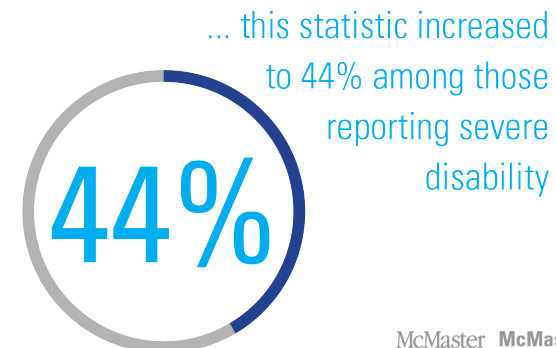
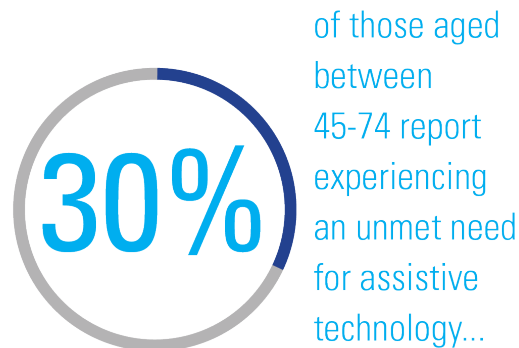
The number of Canadians aged 65+ is expected to double in the next two decades



## ...and in need of more assistive technology

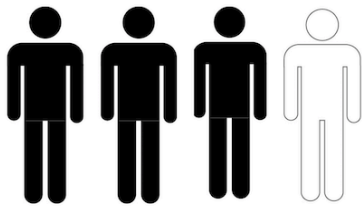


81% ...of whom report using some form of assistive technology



## An aging population may result in...

...a rise in chronic disease



74% of Canadians aged 65 + have 1 or more chronic conditions

... and an increased need for caregivers equipped with assistive technologies



93% of older adults are living at home

Sources: (4; 6; 7; 25; 31)

### Access to assistive technologies is inconsistent, which in some cases results in unmet needs

Fifty priority assistive technologies have been identified by the WHO's Global Cooperation on Assistive Technology (GATE) Initiative, and were identified because of their ability to address population-level needs and to have a large impact on an individual's life.(20) It is estimated that there are more than one billion people requiring assistive technologies, the majority of those in need are older adults or those living with a disability, and two billion people will require an assistive technology by 2050.(20; 32) Worldwide, only 10% of those in need of assistive technologies have access to them.(20) The 50 priority assistive technologies include "hearing aids, wheelchairs, communication aids, spectacles, artificial limbs, pill organizers, memory aids and other essential items for many older people and people with disabilities to be able to live a healthy, productive and dignified life."(33)

As part of an ongoing jurisdictional scan being conducted as part of the AGE-WELL NCE project that funded this brief and stakeholder dialogue, the 50 priority assistive technologies have been mapped according to those that are fully or partially publicly financed by the federal government or provincial and territorial governments in Canada (see Appendix 1 for a more detailed summary of the results of this mapping). While federal and provincial/territorial government programs offer supports to adults with disabilities, funding and services for them vary across Canada. These gaps inevitably lead to unmet needs (at least from the programs we surveyed). For example:

- none of the 50 priority assistive technologies are available across all federal, provincial and territorial programs;
- several do not receive any public funding (e.g., time management products, portable travel aids, adaptive tricycles and talking/touch-enabled watches); and
- others receive public funding, but only in a small number of provinces and territories (e.g., alarm signalers with light, sound or vibration, deaf-blind communicators, gesture-to-voice technology, global positioning system (GPS) locators, pill organizers, video communication devices).

The most commonly funded and serviced technologies are designed to address mobility issues, such as wheelchairs, orthoses and prostheses, with patchy coverage for communication, vision and hearing issues.

A closer look at the list of 50 priority technologies also reveals important gaps. Most notably, few of the listed items are designed to address cognitive or mental health concerns. There is also minimal coverage for these technologies across Canada, even though cognitive changes (e.g., related to dementia) or mental health concerns (e.g., depression, social isolation and loneliness) often occur as people age.

## System-level factors can make it complicated to access assistive technologies

A number of system-level challenges further complicate efforts to access assistive technologies. We describe several notable challenges related to health-system governance, financial and delivery arrangements.

### *Governance arrangements*

There are two main factors related to governance arrangements that create challenges to accessing assistive technologies. First, much like for the provision of prescription drug programs, there is no clear stewardship for the provision of assistive technologies across the country. This has resulted in variation in eligibility criteria (e.g., what is provided and for what purpose) across provinces and territories. In addition, each province and territory has different legislation and specifications within their respective legislation for what assistive technologies are provided and to whom. The result is a very complicated landscape for both those who need assistive technologies, and those who support them (e.g., caregivers who might help family and friends navigate the system and/or healthcare providers attempting to link their patients to services and supports they need as part of their care).

The second governance challenge relates to jurisdictional variability in approvals of assistive technologies. Specifically, key informants that we spoke to in developing this evidence brief indicated that manufacturers/vendors/distributors interested in developing and introducing new assistive technologies must apply separately to each province and territory, yet each has different approval processes. This can create barriers to the innovation of new assistive technologies, as well as for them to be made available in the market where individuals can access them.

### *Financial arrangements*

Funding and services for assistive technologies are provided through a mix of federal and provincial agencies, as well as non-profit and charitable organizations and private insurance providers. Sources of funding for assistive technologies include government programs, non-profit and charity programs, private insurance, public insurance, and out-of-pocket payments. This array of sources not only further complicates the process of accessing assistive technologies, but also can pose financial barriers to those who are in need but cannot afford the costs associated with accessing them. Indeed, many of those who are most in need (e.g., those with disabilities) are also those who lack the financial means to pay for them. For example, the self-reported median total income for those aged 15 to 64 years with disabilities is \$20,040 compared to \$31,160 in those without disabilities.<sup>(14)</sup> Similarly the self-reported median total income for those aged 65 years and older with disabilities is \$21,450 and \$24,920 in those without disabilities.<sup>(14)</sup>

To further highlight issues related to financial arrangements for assistive technologies, we provide below a high-level summary of the complicated array of publicly and privately financed programs for assistive technologies to give a sense of the complicated nature of the system. These include:

- a range of government programs that provide tax credits for assistive technologies or fund assistive technologies directly at the:
  - federal level for select groups (e.g., Veterans Affairs, Interim Federal Health Program and First Nations and Inuit Health Non-Insured Health Benefits),<sup>(34-36)</sup> and
  - provincial/territorial level (e.g., Alberta Aids to Daily Living, Assistive Devices Program in Ontario and Disability Support Program in Prince Edward Island);<sup>(21; 24; 37)</sup>
- private insurance that may be purchased by an individual or a group such as extended health insurance, disability insurance, and auto insurance that can be used for assistive technologies;
- non-profit and charity programs such as:
  - disease-specific organizations (e.g., Muscular Dystrophy Canada and Multiple Sclerosis Society of Canada), and
  - organizations that offer access to assistive technologies through programs for a range of disabilities (e.g., Red Cross Canada and March of Dimes Canada); and

- Worker's compensation boards that provide funding for work-related issues (e.g., through WorkSafeBC, Commission des normes, de l'équité, de la santé et de la sécurité du travail and Workers' Compensation Board of the Northwest Territories and Nunavut).(38)

The private sector plays an important role in providing access to assistive technologies given that private health insurance provides 11 million Canadians with disability income protection, and 24 million Canadians with extended health coverage.(39) In addition, if a disability is a result of an automobile accident, auto insurance may cover medical, disability and impairment benefits (although funds can be difficult to access if it requires litigation, and the benefits available through liability and accident benefits vary by province).(40)

#### *Delivery arrangements*

The main challenge at the delivery level stems from assistive technologies being delivered through a patchwork of programs that are highly fragmented, overlapping and poorly coordinated within provinces and territories. This complicated delivery system and the lack of central access point that can coordinate access to and delivery of needed assistive technologies is made even more challenging when considered in the context of overlapping challenges related to governance and financial arrangements. For example, no single program exists that fully funds the purchasing and provision of the full range of assistive technologies, and the eligibility criteria for publicly financed assistive technologies is highly variable. Moreover, while some provinces (e.g., Ontario and Alberta) have a coordinated approach to providing assistive devices, others span two or more government ministries (e.g., British Columbia).

The way in which assistive technologies are defined by programs within jurisdictions (which forms the basis for what is covered) is at the centre of delivery-level challenges. For example, coverage for assistive technologies in some jurisdictions focuses solely on providing devices that compensate or replace a bodily function that was lost, and fund the basic model (e.g., a wheelchair or prosthetic), while excluding environmental modifications (e.g., home modifications such as a ramp or grab bars).(11) As outlined by WHO's Priority Assistive Products List, assistive technologies play an important role in promoting healthy and independent living,(20) but the benefits of assistive technologies extend beyond the individual, families and caregivers to include broader socio-economic benefits through greater workforce participation, greater likelihood of living in the community and decreased hospital admissions.(20)

System navigation for those in need of assistive technologies also becomes challenging as a result of the patchwork of programs within provinces and territories. The array of programs and services available creates difficulties for people in need of assistive technologies, as well as for caregivers trying to navigate the system. As outlined in the previous section, the financial arrangements are complex (federal and provincial agencies, non-profit and charitable organizations and private insurance providers), and as no single program fully funds assistive technologies, individuals will most likely need to apply to multiple sources in order to receive supports. Also, how the funding works (e.g., co-pay, rental, etc.) is specific to the program and they are not always easy for the individual and their families to identify or access. In addition, there are issues related to program eligibility in that people living with a disability have to meet certain criteria, and the benefits vary depending on the criteria.

Finally, equitable access to programs extends beyond the technologies themselves and includes the associated services required for them (i.e., trained personnel for fitting, user training, follow-up, and maintenance).(20) Many experience difficulties in accessing services associated with assistive technologies due to lack of funding and/or inequitable availability of services within provinces and territories. Those living in rural and remote communities often face additional barriers as program and services are not distributed equitably across geographic areas in Canada.

## **Additional equity-related observations about the problem**

Ensuring that older adults in Canada have equitable access to assistive technologies is important to promoting healthy aging as well as to aging in place, as assistive technologies can improve health outcomes and reduce total costs to the healthcare system by helping older adults remain at home.(41) Access to care, however, is influenced by a number of factors both within and external to the health system. As indicated in Box 2 earlier, for the purpose of this evidence brief focus has been placed on two groups – people living with a disability and those living in rural or remote areas – for additional equity-related considerations about supporting access to assistive technologies.

As noted earlier, people living with a disability (including cognitive impairments, intellectual disabilities, mental health or substance-use issues, and vision and hearing impairment) have an increased need for assistive technologies. The majority (81%) of those living with a disability use assistive technologies.(25) While people with disabilities require assistive technologies to maintain functioning, many (31%) experience unmet need.(6)

People living in rural or remote areas often experience difficulties accessing healthcare services, which affects a large number of people given that:

- approximately one in five (19%) Canadians live in rural areas (defined by Statistics Canada as those with a population less than 1,000 and with less than 400 persons per square kilometre);(42) and
- there are 292 remote communities in Canada with a total population of approximately 194,281 (remote communities do not have year-round access to roads or they rely on a third-party for transportation such as ferry or airplane).(43; 44)

Given that regulated health professionals, programs and services are not distributed equitably across geographic areas in Canada, individuals living in rural and remote areas often face barriers to accessing needed healthcare services. These include barriers to accessing programs offering assistive technologies as well as barriers to servicing or maintaining the technologies (e.g., due to lack of qualified personnel or availability of replacement parts in rural and remote areas).

Moreover, older adults account for a significant proportion of the rural and remote population, and 50% of those living in rural and remote areas in Atlantic Canada are older adults.(45) Older adults living in rural and remote areas experience shorter life expectancy, are at a higher risk of chronic disease and have increased levels of functional impairment, compared to those living in urban areas.(4; 45) As a result, older adults in rural and remote areas experience significant barriers to accessing assistive technologies, while having increased needs due to higher levels of disability and chronic disease.

## **Citizens' views about key challenges related to enhancing equitable access to assistive technologies in Canada**

Three citizen panels were convened in Hamilton, Ontario on 7 April 2017, Edmonton, Alberta on 21 April 2017, and Moncton, New Brunswick on 5 May 2017. A total of 37 ethnoculturally and socio-economically diverse citizens were provided an abridged version of the evidence brief, which was written in plain language.(46) Participants had experiences with a variety of programs and services offering assistive technologies, including federal programs (e.g., Veterans Affairs Canada), publicly funded provincial programs, municipal programs, charitable organizations, private insurance and employment-based benefits. During the deliberation about the problem, citizens were asked to share what they perceived to be the main challenges related to accessing assistive technologies or the services and supports needed to allow their use, based on their experiences or those of a family member or someone to whom they provide care. We also asked participants to identify any challenges encountered in accessing assistive technologies for specific populations, including older adults, someone living with a disability, and others in need of assistive technologies to improve their quality of life and/or help them to live at home or in the community. We summarize the key challenges identified by citizens in Table 1.

**Table 1. Summary of citizens' views about challenges**

Challenge	Description
<p>Assistive technologies do not seem to be fairly allocated</p>	<ul style="list-style-type: none"> <li>• Most agreed that differences in assistive technologies programs and services within and between provinces meant that Canadians are treated differently based on where they live, especially those in remote communities, which they identified as being unfair.</li> <li>• Many described the variability in publicly funded lists and that some assistive technologies are central to living but are not publicly funded or only partially funded, which results in those with limited financial means often being unable to access needed technologies.</li> <li>• Many agreed across all three panels that the focus of eligibility for assistive technologies is often only on older adults and those living with a disability, but there are many in need of assistive technologies such as those with invisible disabilities (particularly mental health conditions) who are not able to access needed assistive technologies because they are not accounted for in eligibility criteria.</li> </ul>
<p>Access to assistive technologies is complicated and often not focused on needs of the individual</p>	<ul style="list-style-type: none"> <li>• Expressing frustration with the complicated process of accessing assistive technologies, many participants agreed with the sentiment expressed by one participant that “a lot of people don’t know where to go, so they go without.”</li> <li>• Many participants also noted that:               <ul style="list-style-type: none"> <li>○ access to assistive technologies is unnecessarily complicated, and often does not focus on the needs of the individual;</li> <li>○ there is a lack of information to support navigation across this complicated landscape;</li> <li>○ there is a rigid classification of disability into ‘boxes’ and allocation does not take into account the spectrum of need within these boxes, and many people do not fit well into just one box or any box at all;</li> <li>○ the assessment for eligibility is fragmented as are access points, which makes it hard to navigate the system, particularly for those with complex and/or multiple conditions (i.e., those fitting in multiple eligibility ‘boxes’);</li> <li>○ access is often bureaucratic and many participants have to routinely ‘prove’ disability to qualify for supports, even though they had a permanent disability (e.g., congenital amputation and a permanent colostomy); and</li> <li>○ there is a lack of coordination between agencies and inconsistencies between them in terms of what and how much is covered.</li> </ul> </li> </ul>
<p>Many face challenges in paying for needed assistive technologies and/or engaging with the private sector to identify and purchase what they need</p>	<ul style="list-style-type: none"> <li>• Many participants experience high out-of-pocket costs for assistive technologies, which was identified as a barrier to access for those with limited means to pay for them.</li> <li>• Some expressed frustrations with lack of choice in vendors and challenges with approved vendors not supplying the specific technology that they required.</li> <li>• Several participants were concerned with the sustainability of charitable organizations providing assistive technologies in areas they thought should be the government’s responsibility.</li> </ul>
<p>There is a lack of an integrated approach to delivery of assistive technologies as part of larger care pathways and packages of care</p>	<ul style="list-style-type: none"> <li>• Most participants indicated that the challenges seem to extend beyond accessing assistive technologies and are embedded in broader health- and social-system challenges, such as:               <ul style="list-style-type: none"> <li>○ the role of the family physician as the gatekeeper to programs and services offering assistive technologies, which many noted as a challenge for those without a primary-care provider and/or those who cannot access one in a timely manner;</li> <li>○ lack of timely access to specialty care (with wait times for orthopedic surgeons as the main example cited) given that access to some technologies is contingent on assessments from specialists, and because it creates a lack of sensitivity in the</li> </ul> </li> </ul>

	<p>system to addressing urgent issues; and</p> <ul style="list-style-type: none"> <li>○ health-system inefficiencies (e.g., duplication of laboratory work and lack of sharing information between healthcare providers) that often results in fragmented care, which many thought could be addressed through better sharing of medical information using assistive technologies.</li> </ul>
Stigma associated with needing an assistive technology	<ul style="list-style-type: none"> <li>• Some participants discussed the stigma associated with assistive technologies, either as users or as caregivers trying to encourage someone to use assistive technologies.</li> <li>• Examples of stigmatization associated with assistive technologies included wearing hearing aids, using a continuous positive airways pressure machine (CPAP) for sleep apnea, and a range of mobility devices (e.g., walkers and wheelchairs).</li> </ul>
Caregiver burden and challenges in getting appropriate supports	<ul style="list-style-type: none"> <li>• Several participants mentioned the lack of supports available for caregivers, which mean their needs are often not addressed.</li> <li>• A few participants discussed the restrictions to their employment, either only working part-time or not able to work at all because the responsibility for caregiving was too much.</li> <li>• Some participants expressed difficulties with finding and maintaining appropriate supports in the home.</li> </ul>
The lack of integration of assistive technologies into infrastructure	<ul style="list-style-type: none"> <li>• Many participants were frustrated with the variability of accessibility standards and inaccessible public spaces (e.g., building codes and accessibility requirements) that pose challenges even when they have been able to access needed assistive technologies.</li> <li>• Some participants also identified challenges with using assistive technologies outside, citing frustration with maintenance of sidewalks and ramps, which leaves people housebound.</li> </ul>

### **THREE ELEMENTS OF A COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM**

Many approaches could be selected as a starting point for deliberations about an approach to enhancing equitable access to assistive technologies in Canada. To promote discussion about the pros and cons of potentially viable approaches, we have selected three elements of a potentially comprehensive approach. The three elements were developed and refined through consultation with the Steering Committee and key informants who we interviewed during the development of this evidence brief. The elements are:

- 1) informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them;
- 2) helping citizens get the most out of government-funded programs; and
- 3) supporting citizens to access needed assistive technologies that are not covered by government-funded programs.

The elements could be pursued separately or simultaneously, or components could be drawn from each element to create a new (fourth) element. They are presented separately to foster deliberations about their respective components, the relative importance or priority of each, their interconnectedness and potential of or need for sequencing, and their feasibility.

To inform the three citizen panels convened in April and May 2017, we included the same three elements of a potentially comprehensive approach to address the problem in the citizen brief as are included in this evidence brief. These elements were used as a starting point for their deliberations. During the deliberations, we identified values and preferences, which we summarize below in relation to each element.

In addition to citizens' values and preferences for each element, the focus in this section is on what is known about these elements based on findings from systematic reviews. We present the findings from systematic reviews along with an appraisal of whether their methodological quality (using the AMSTAR tool) (9) is high (scores of 8 or higher out of a possible 11), medium (scores of 4-7) or low (scores less than 4) (see the appendix for more details about the quality-appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. It should be noted that we did not conduct searches for evidence on specific assistive technologies, but rather focused on systematic reviews that could inform decision-making on assistive technologies as a whole. In the next section, the focus turns to the barriers to adopting and implementing these elements, and to possible implementation strategies to address the barriers.

#### **Box 4: Mobilizing research evidence about elements for addressing the problem**

The available research evidence about elements for addressing the problem was sought primarily from Health Systems Evidence ([www.healthsystemsevidence.org](http://www.healthsystemsevidence.org)), which is a continuously updated database containing more than 5,000 systematic reviews and more than 1,500 economic evaluations of delivery, financial and governance arrangements within health systems. The reviews and economic evaluations were identified by searching the database for reviews addressing features of each of the approach elements and sub-elements.

The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were "empty" reviews), while others concluded that there was substantial uncertainty about the element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability, or lack of attention to equity considerations, primary research could be commissioned, or an element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular element may want to search for a more detailed description of the element or for additional research evidence about the element.



**Element 1: Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them**

As discussed in the problem section, those in need of assistive technologies and/or those who provide care to those in need of assistive technologies, may have difficulty navigating the health system and actively participating in decision-making about their own care and the technologies they use. This element aims to leverage decision-making aids and system navigators to help those in need of assistive technologies, caregivers or providers and may include:

- information or education provision from logical community points of contact (e.g., primary-care providers, home- and community-care coordinators or providers) and/or through a reliable and trusted online source to those who could make direct use of assistive technologies (including families and caregivers);
- questions/prompts about the need for assistive technologies included in decision aids that support care planning and purchasing of assistive technologies (either through government or private sources) based on the best available evidence, and the values and preferences of those living with disabilities and their caregivers; and
- providing system navigators for those with complex needs and equipping them with the knowledge and skills needed to identify and support access to assistive technologies for those who could benefit from them.

*Key findings from the citizen panels*

Four values-related themes emerged during the discussion about element 1 across all three panels. The first value related to:

- empowerment to make evidence-informed decisions through access to reliable information on programs and services offering assistive technologies.

Preferences about access to reliable information focused on having a central point of contact to help with system navigation. Moreover, participants emphasized the need to provide information in accessible language (e.g., centralized and trusted website with prompts to guide individuals to appropriate resources or a centralized telephone service for those who are not comfortable with technology).

The remaining three values related to how to proceed with implementing components of this element:

- collaboration among patients, providers and organizations within the health system to ensure more coordinated access to needed assistive technologies (and care more generally), which could be facilitated through better information sharing (e.g., electronic health records and patient-held records) and information and educational supports for providers (e.g., to enhance their awareness of programs and services offering assistive technologies);
- the need to build trusting relationships between patients and their primary-care provider given the importance of this relationship for identifying need for technologies and facilitating access to them; and
- collaboration between the health system and other sectors in terms enhancing awareness of and access to the full range of programs that provide access to assistive technologies.

*Key findings from systematic reviews*

We identified nine systematic reviews that we deemed to be the most relevant to these sub-elements, but none were focused specifically on assistive technologies. However, by examining the effectiveness of decision aids, navigation, and patient or caregiver involvement in decision-making for health services more broadly, these reviews still offer insights about the approaches included in this element. We have chosen to exclude systematic reviews assessing decision aids and decision-making in cancer care, understanding that the context in which decision aids for cancer screening and treatment are applied is specific to that disease, and is not sufficiently comparable to decision-making around assistive technologies.

The use of decision aids and provision of education to involve patients and caregivers in the delivery of their care was generally found to have positive results, including improved knowledge, reduced levels of anxiety and increased adherence to treatments.(47-50)

Two medium-quality reviews and one high-quality review examined the provision of education in decision-making and found that it increased knowledge and reduced levels of uncertainty among patients, but had no effect on patients’ final decision-making.(47-49) However, one of the reviews assessed participatory models of education, including face-to-face interaction and engagement in public health interventions rather than just the provision of information (e.g., through computer programs, pamphlets or decision-making trees), and found that these models influenced health behaviours and improved patients’ levels of self-efficacy.(49) Further, the same review found that benefits of these interventions had a larger impact on disadvantaged groups as compared to those with high levels of health literacy, education and social-economic status.(49)

Despite the positive results from these reviews, other findings suggest continued uncertainty regarding levels of effectiveness between different participatory models of decision-making, between different types of decision aids, and the relationship between health literacy and the effectiveness of communication of risks for treatment decision-making.(51-53) Importantly, one medium-quality review noted that the success of these interventions is dependent on:

- the approach taken (e.g., what interventions);
- contextual factors in decision-making;
- structural factors such as government and management support for programs;
- prohibitive costs;
- organizational culture; and
- population-specific limitations.(53)

Lastly, we identified one recent medium-quality review that found limited evidence for the use of system navigators, but the review did note that using them for individuals with complex conditions appeared to have some positive outcomes for transitioning across care settings and in balancing medical and non-medical needs.(54) In addition, another recent low-quality review examined the use of system navigators for recent immigrants and ethnic minority populations, and found the intervention significantly improved the primary outcomes related to chronic-disease management and barriers to accessing primary care.(55)

We provide a summary of the key findings from the synthesized research evidence in Table 2. For those who want to know more about the systematic reviews contained in Table 2 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

**Table 2: Summary of key findings from systematic reviews relevant to Element 1 – Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Information or education provision from logical community points of contact and/or through a reliable and trusted online source</b> <ul style="list-style-type: none"> <li>○ One recent high-quality review found shared decision-making interventions had positive effects on participant knowledge, participation, decision conflict and self-efficacy, but found no significant effect on adherence levels, anxiety, treatment preferences, intentions or uptake of screening or treatment.(47)                             <ul style="list-style-type: none"> <li>▪ The same review found that these interventions tended to benefit disadvantaged groups more than those with higher levels of health literacy, education and socio-economic status.(47)</li> <li>▪ Another older high-quality review confirmed these findings, but also found that providing patients with information through decision aids resulted in patients making</li> </ul> </li> </ul> </li> </ul>

	<p>choices that are more consistent with their informed values, and that these results (as well as the other benefits) continued to improve as information became more detailed and personalized.(48)</p> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that providing education to pregnant women prior to delivery as part of decision-aid interventions resulted in improved knowledge, did not increase levels of anxiety, and reduced rates of uncertainty, but had no significant impact on patients’ final choices or final outcomes.(49)</li> <li>○ One recent medium-quality review examining community engagement in public-health interventions found interventions including education provision, advice and social support resulted in improved health behaviours, health consequences, participant self-efficacy and participant social support.(50) <ul style="list-style-type: none"> <li>▪ The same review found that interventions that used incentives or skills-development strategies tended to have higher effect sizes than other strategies, while those that relied exclusively on education were least effective.(50)</li> </ul> </li> <li>• <b>Providing system navigators for those with complex needs and equipping them with knowledge and skills to identify and support access to assistive technologies</b> <ul style="list-style-type: none"> <li>○ One recent low-quality review found that system-navigator interventions significantly improved outcomes related to chronic-disease management, and reduced barriers to accessing primary care that new immigrants or ethnic minorities often face.(55)</li> <li>○ One recent medium-quality review found limited evidence for the use of system navigators, but their use for individuals with complex conditions appears beneficial.(54)</li> </ul> </li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>None identified</b></li> </ul>
Cost and/or cost-effectiveness	<ul style="list-style-type: none"> <li>• <b>Information or education provision from logical community points of contact and/or through a reliable and trusted online source</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that facilitating community engagement can impose a financial burden on the health system, and identified budget limitations as a key barrier to the implementation of community-engagement initiatives.(51)</li> </ul> </li> <li>• <b>Providing system navigators for those with complex needs and equipping them with knowledge and skills to identify and support access to assistive technologies</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality review found mixed evidence on the potential for decision-support interventions, including health coaching and telephone outreach, to generate savings.(56)</li> <li>○ The same review however, identified a number of factors that may differ between interventions and affect the ability to generate savings, including differences in resource utilization (including human resources), workflow alterations and costs in creating the interventions, as well as short follow-up periods when evaluating the intervention.(56)</li> </ul> </li> </ul>
Uncertainty regarding benefits and potential harms (where monitoring and evaluation could be warranted if the element were pursued)	<ul style="list-style-type: none"> <li>• <b>Information or education provision from logical community points of contact and/or through a reliable and trusted online source</b> <ul style="list-style-type: none"> <li>○ Two older and one recent medium-quality review were unable to determine effectiveness of consumer engagement strategies for specific topics or settings.(51-53)</li> <li>○ One recent medium-quality review identified the need for continued research to determine the extent to which levels of health literacy affect risk communication and treatment decision-making in clinical settings, and equally its impact on decision-making across cultural and social groups.(52)</li> <li>○ One recent low-quality review found that providing education literature in different languages is not sufficient to overcome cultural and language barriers to access care or engage patients in the care process.(55)</li> </ul> </li> </ul>
Key components of the element if it was tried elsewhere	<ul style="list-style-type: none"> <li>• <b>Information or education provision from logical community points of contact and/or through a reliable and trusted online source</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that the success of patient engagement is dependent on the approach taken (e.g., what consumer-engagement strategies are used), contextual factors in decision-making and structural factors such as government and management support for consumer-engagement programs, prohibitive costs, organizational culture and population-specific limitations.(51)</li> </ul> </li> </ul>
Stakeholders’ views and experiences	<ul style="list-style-type: none"> <li>• <b>None identified</b></li> </ul>

## **Element 2: Helping citizens get the most out of government-funded programs**

A large number of assistive technologies are currently available to support people living with disabilities, with innovation in this area continuing to drive rapid changes in available technologies. As discussed in the problem section, many face challenges accessing these technologies due to gaps in coverage, and are often required to pay out-of-pocket or rely on private insurance. Improving access to assistive technologies will likely require federal and provincial/territorial government commitment to adequate and sustained financing (in addition to market-based solutions, which are discussed in element 2), including the effective procurement of appropriate technologies and delivery systems that ensure people are able to access technologies they need.<sup>(57)</sup> In thinking about how this could be implemented, decisions must be made that consider what assistive technologies will be eligible for public funding, who is eligible to receive funding, and what funding mechanisms can be used. Therefore, this element aims to define public coverage for assistive technologies, and identifies areas that should be consistently provided and paid for under public insurance programs, as well as to present the evidence related to processes for prioritizing and making decisions about which technologies will be eligible for public coverage and for what individuals. Therefore, this element might include:

- providing public financing (e.g., through needs-based allocations and/or controlled budgets by the individual that allow them to purchase the products they need) based on need for different types of assistive technologies, such as those that aim to improve physical and mental health, mobility, social connectedness, safety, leisure and activities of daily living;
- streamlining existing government approaches to publicly financing assistive technologies (e.g., tax deductions); and
- establishing transparent and flexible criteria to define what technologies will be covered.

### *Key findings from the citizen panels*

Five values-related themes emerged during the discussion about element 2 across all three panels. The most prominent value that emerged related to equity, given that participants consistently emphasized the need to ensure that all of those in need of assistive technologies have access regardless of ability to pay. Preferences for how to implement equitable access centred on:

- ensuring access to assistive technologies that help people meet basic needs for daily living, with those that support communication and mobility cited by many as examples;
- enhancing access to all of the 50 priority assistive technologies listed by the WHO; and
- addressing the persistent inequitable access to technologies (and needed care more generally) that several groups seem to consistently face, including people with disabilities, mental health conditions, and chronic disease, as well as those who are homeless or marginally housed.

The remaining four values related to how to proceed with implementing components of this element with a focus on managing per capita costs through efficiency, flexibility and collaboration between the health and other sectors. These included:

- the need to prioritize manageable per capita costs for the system, with many participants indicating that funding should be used to address the needs of those who could benefit from assistive technologies the most;
- efficiency and the role of assistive technologies in prevention of additional health issues, which was seen as saving resources for the health system in the long-term, and which included allowing people to age-in-place by enhancing access to assistive technologies and using low-cost assistive technologies (e.g., grab bars and shower stools) to prevent injuries that require much more intensive care (e.g., through hospitalization and more intensive home and community care for longer periods of time);
- ensuring flexibility and adaptability of services as a way to address how programs are often not able to address the unique needs of individuals, although most participants also agreed that selecting from a list of preapproved vendors for assistive technologies was appropriate as it serves to protect the consumer as well as the government, and some also saw this as a way of ensuring that approvals be made in a timely

fashion since assessments would only have to focus on eligibility of the individual and not the proposed vendor; and

- collaboration between the health system and other sectors was identified as being important for supporting consistency in what is provided across the country and for streamlining access to programs that provide people with needed assistive technologies, with some participants indicating that streamlining should include efficient and timely approval processes for assistive technologies, as well as a greater role for the federal government as a steward for supporting consistency and streamlined access.

*Key findings from systematic reviews*

We identified 11 systematic reviews and one economic evaluation that related to the first and third sub-element.

The effects of providing universal public-health insurance have been extensively evaluated, and the reviews are in general agreement that increased coverage leads to improvements in population health, improved self-reported health status, and increases in the utilization of health services and products.(58-60) More specifically however, one high-quality review found that increases in the comprehensiveness of public coverage results in parallel increases in the use of health services.(58) While none of the systematic reviews evaluating insurance related directly to assistive technologies, three assessed the impact of expanding health insurance to include prescription medicines. These reviews found that increasing the scope of insurance coverage resulted in a reduced likelihood of paying for medications, reduced out-of-pocket payments, increased utilization of medications and services, and increased adherence to prescriptions.(58-61) While not directly comparable to assistive technologies, based on the way in which pharmaceuticals are reviewed, procured and paid for, research on prescription medicines can be extrapolated to suggest insights into expanding public insurance to include assistive technologies (where the literature is less robust).

We found one economic evaluation that examined the use of health budgets to individualize care for those with chronic disease in the U.K.(62) The evaluation found that while no difference was seen in clinical outcomes, those who were provided with personal health budgets reported a higher quality of life at lower cost and greater psychological well-being than those in the control group.(62)

One medium-quality review examined a number of strategies that could be used to expand insurance coverage for select services (or products) and for select populations. Of these, the following strategies were found to be effective:

- modifying eligibility criteria (e.g., increasing the income threshold or expanding to specific categories of eligible populations);
- using targeted awareness campaigns to draw attention to changes in coverage, or to encourage individuals to enrol;
- offering subsidies to low-income people; and
- modifying enrolment approaches by simplifying procedures or integrating sources of enrolment.(61)

The remaining evidence for this sub-element has focused on the use of demand-side financing mechanisms, which could include approaches such as conditional cash transfers, short-term cash payments, vouchers for services or for 'merit goods' (i.e., goods and services that people may need, but under consume), and unconditional cash transfers. We identified three systematic reviews (each of which are focused on low- and middle-income countries), which found that voucher programs increased the utilization of targeted services and the quality of products and services delivered, but found mixed evidence on their ability to improve health outcomes.(63-65) Similarly, one systematic review evaluating cash-transfer schemes for health services and products in low- and middle-income countries found that the success of transfers may be mediated by the amount paid, duration of the program, gender of those receiving payments, and conditionality of the cash transfer.(66)

While it is important to understand the effects of insurance and the mechanisms through which access to assistive technologies could be expanded, decisions will still need to be made about what assistive technologies should be covered, and the criteria that should be used to inform these choices. Four systematic reviews, three of medium quality and one of low quality, were found that examine processes and criteria used to make decisions about resource allocations in the health system.<sup>(67)</sup>

One of the medium-quality systematic reviews provided a process overview of two common models for decision-making: 1) program budgeting and marginal analysis (PBMA); and 2) multi-criteria decision analysis (MCDA).<sup>(67)</sup> The PBMA approach involves listing all relevant activities and their resource requirements, evaluating the effectiveness of these activities and applying the evaluation results to the available budget. In general, the model is focused on addressing the following five questions.

- 1) What resources are available in total?
- 2) In what ways are these resources currently spent?
- 3) What are the main candidates for more resources and what would be their level of effectiveness?
- 4) Are there any areas of care, which could be provided to the same effectiveness but would require fewer resources?
- 5) Are there areas of care, which, despite being effective, should receive fewer resources because another candidate is more effective (per dollar spent)?<sup>(67)</sup>

In contrast, the MCDA model involves quantifying competing options according to explicit criteria that is developed based on values (e.g., cost-effectiveness, quality, number of individuals the technology could help) in advance.<sup>(67)</sup>

In addition to these two models, three systematic reviews examined the highest rated criteria that decision-makers use to evaluate options for resource allocation. The following eight criteria were most frequently identified:

- effectiveness of intervention;
- budgetary impact or affordability;
- equity or effect on health inequalities;
- burden of disease that the intervention is targeted towards or number of people likely to benefit;
- ability or ease of access to the intervention;
- cost-effectiveness;
- quality or uncertainty of available evidence; and
- ease with which the intervention can be implemented.

A summary of the key findings from the synthesized research evidence is provided in Table 3. For those who want to know more about the systematic reviews contained in Table 3 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 1.

**Table 3: Summary of key findings from systematic reviews relevant to Element 2 – Helping citizens get the most out of government-funded programs**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that the following strategies were effective to expand public-health insurance for select populations:                             <ul style="list-style-type: none"> <li>▪ modifying eligibility criteria by either increasing the income threshold for entering health insurance or by expanding to specific categories of eligible populations;</li> <li>▪ using targeted awareness campaigns;</li> <li>▪ offering subsidies to low-income people; and</li> <li>▪ modifying enrolment approaches by simplifying procedures or integrating sources of enrolment across social services.(61)</li> </ul> </li> <li>○ One recent medium-quality review found that cash payments, vouchers and conditional cash transfers were effective for increasing the use of targeted services.(63)</li> <li>○ One recent high-quality review found that in comparison to no insurance, insurance coverage for allied services (e.g. physical, occupational and speech therapy) increased utilization of allied health services among people with chronic diseases.(59) The same review found a significant effect of having insurance compared to insurance with lesser coverage on the use of allied health services, with the exception of physical therapy for which no difference in use was observed.(59)</li> <li>○ Similarly, one older medium-quality review confirmed findings that insurance for all services increases utilization and improves population health, in addition to having substantial effects on the use of preventive services, self-reported health status, and mortality from injury or disease.(58)</li> <li>○ One older low-quality review found that expanding insurance to include prescription medicines in low- and middle-income countries is associated with a decreased likelihood of paying for medicines, consumer spending on medicines and out-of-pocket payments, as well as increased use of medicine, percentage of prescriptions filled, utilization of chronic-disease medicines, and adherence to prescriptions.(59)</li> <li>○ One older medium-quality review found that expanding public insurance for marginalized populations increased the accessibility of care, but had little impact on the quality of care, which was often worse than the quality of care provided to the general population.(60)</li> </ul> </li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b> <ul style="list-style-type: none"> <li>○ Contrary to evidence found in reviews for voucher programs alone, one recent medium-quality review found that demand-side financing schemes are unlikely to improve the quality of care, as in many cases they place strain on services by increasing demand.(63)</li> <li>○ The same recent medium-quality review determined that it is difficult to use demand-side financing to achieve complex or multiple policy objectives.(63)</li> </ul> </li> </ul>
Cost and/or cost-effectiveness	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b> <ul style="list-style-type: none"> <li>○ One older low-quality review found that using voucher programs to incentivize the use of reproductive health services increased the cost per patient treated, but lowered the overall cost of curing infections compared to other facilities, and reduced out-of-pocket costs for women being treated.(64)</li> <li>○ One economic evaluation examined the impact of using personal health budgets to individualize care in the U.K., and found that those using personal health budgets showed greater quality of life at less cost on average than the control group.(62)                             <ul style="list-style-type: none"> <li>▪ The evaluation also suggested that those using personal health budgets reported greater psychological well-being, however, clinical outcomes (other than psychological health) appeared unaffected by the use of personal health budgets.(62)</li> </ul> </li> </ul> </li> </ul>
Uncertainty regarding benefits	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b></li> </ul>

<p>and potential harms (where monitoring and evaluation could be warranted if the element were pursued)</p>	<ul style="list-style-type: none"> <li>○ Mixed evidence was found between one older high-quality and one older low-quality review on the impact of voucher programs in low- and middle-income countries to improve health outcomes among the targeted population.(64; 65)</li> <li>○ One older high-quality review found insufficient evidence to determine whether voucher programs deliver health goods or services more efficiently than competing health-financing strategies.(65)</li> <li>○ One older high-quality review, one recent medium-quality review and one older low-quality review were unable to determine the cost-effectiveness of voucher programs or other demand-side financing mechanisms.(63-65)</li> <li>○ Findings from one recent medium-quality review examining demand-side financing schemes in maternal health were inconclusive as to their ability to improve mortality and morbidity outcomes.(63)</li> </ul>
<p>Key components of the element if it was tried elsewhere</p>	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b> <ul style="list-style-type: none"> <li>○ One older high-quality review and one older low-quality review examining the use of voucher programs in low- and middle- income countries found that voucher programs could be used to effectively target an intervention to specific populations, increase service and health product use, and improve the quality of goods and services delivered.(64; 65)</li> <li>○ One older high-quality review found that cash transfers in low- and middle-income countries can be effective to improve nutritional status, but are mediated by the following factors: <ul style="list-style-type: none"> <li>▪ amount paid - the cash transfer must be adjusted to fit the relative income level of the environment in which it is being implemented;</li> <li>▪ program duration – programs that last more than 19.4 months were found to have a higher effect size in improving children’s height-to-weight ratio;</li> <li>▪ gender – girls were found to benefit more from cash transfers than boys; and</li> <li>▪ conditionality – unconditional programs were found to be more effective than those with conditions for performing activities.(66)</li> </ul> </li> <li>○ Qualitative findings from one recent medium-quality review suggest that success in using demand-side financing schemes (e.g., conditional cash transfers, short-term cash payments, vouchers for services or for ‘merit goods,’ and unconditional cash transfers) is highly dependent on a good understanding of what works in that context.(63)</li> <li>○ One recent high-quality review found that the utilization of allied health services, independent of an expansion to insurance, was found to differ by race, income, education and presence of comorbid conditions.(59)</li> </ul> </li> </ul>
<p>Stakeholders’ views and experiences</p>	<ul style="list-style-type: none"> <li>• <b>Providing public financing based on needs for different types of assistive technologies</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality review found a number of studies included in the review reported disrespectful treatment from healthcare staff towards women from lower socio-economic status seeking care under such schemes.(63)</li> </ul> </li> <li>• <b>Establishing transparent criteria for public funding of assistive technologies</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality systematic review identified PBMA and MCDA as two common models for decision-making.(67)</li> <li>○ Two recent medium-quality and one older-quality review identified criteria that are frequently used to evaluate options for resource allocation, which included: <ul style="list-style-type: none"> <li>▪ effectiveness of intervention;</li> <li>▪ budgetary impact or affordability;</li> <li>▪ equity or effect on health inequalities;</li> <li>▪ burden of disease that the intervention is targeted towards or number of people likely to benefit;</li> <li>▪ ability or ease of access to the intervention;</li> <li>▪ cost-effectiveness;</li> <li>▪ quality or uncertainty of available evidence; and</li> <li>▪ ease with which the intervention can be implemented.(68-70)</li> </ul> </li> </ul> </li> </ul>



### **Element 3: Supporting citizens to access needed assistive technologies that are not covered by government-funded programs**

This element focuses on using solutions from the private or voluntary sector to assist individuals in accessing assistive technologies that they need, but that do not receive public coverage. This element might include:

- cost-sharing mechanisms, which could involve one or more of:
  - sliding-scale payments with the amount paid privately (e.g., through insurance or out-of-pocket) and publicly determined by an individual's ability to pay,
  - flat-rate user fees, or
  - full private payment (either from insurance coverage or out-of-pocket payment);
- enhancing access to employment-based benefits programs by supporting workforce participation; and
- streamlining regulatory approval processes for technologies to be brought to markets across the country.

#### *Key findings from the citizen panels*

Three values-related themes emerged during the discussion about element 3 across all three panels.

- Collaboration between the health system and other sectors, with a focus on the private sector (e.g., insurance companies) and voluntary sector (e.g., charities). Specifically, information sharing across these sectors was identified as central to streamlining access to assistive technologies. Participants suggested that organizations within these sectors could undergo an approval process with approved organizations being able to access patient information and share information.
- Accountability to ensure that pricing of assistive technologies is kept affordable. For example, participants indicated that holding vendors accountable for the pricing of assistive technologies and maintaining reasonable expectations for profit would help to lower insurance premiums.
- Equity and fairness in terms of the cost sharing mechanisms used (e.g., to prevent those in need from not accessing technologies because of inability to pay).

#### *Key findings from systematic reviews*

We identified six systematic reviews related to the first sub-element and four systematic reviews related to the second element, but no review related to the third sub-element. Given this, we have included two system descriptions/analyses where one focused on approaches to financing prescription drugs in Organisation for Economic Cooperation and Development (OECD) countries and another on accelerating the pace of medicines and biologics to market. As in element 2, medicines are again used as an analogue to assistive technologies, and while not a perfect comparison, it provides some indication of how individuals may use and demand products as a result of changes to financial mechanisms.

One recent medium-quality review explored the effects of reference pricing on medication use and found that reference pricing schemes led to an increase in switching from more expensive drugs to generic drugs, or to those drugs that had dropped their prices as a result of the reference policies.<sup>(71)</sup> These policies also resulted in a significant reduction (11.5%) in the overall price of targeted drug classes.<sup>(71)</sup>

Two high-quality and one low-quality review assessed other cost-sharing mechanisms including the introduction of co-payments.<sup>(72-74)</sup> Results from these studies indicate a reduction in medication adherence, leading to potentially adverse health effects, which may require later treatment and have an impact on emergency department admissions, nursing home admissions and outpatient care.<sup>(72-74)</sup> Further, it was found that some cost-sharing mechanisms have potentially worse repercussions among select populations than for others. For example, the use of insurance caps and fixed co-payments have a compounding effect on individuals who require multiple medications or those with chronic comorbidities.<sup>(74)</sup> Despite these potential harms, the system description/analysis in OECD countries found that almost all of the health systems studied use some cost-sharing mechanism to finance pharmaceuticals.<sup>(75)</sup> The same analysis found that co-payments can provide significant opportunities to maximize a health budget, while also reporting that countries employ a number of different safeguarding mechanisms, including varying co-payments by socio-economic status, age, chronic condition, or employing a maximum dollar value on the percentage paid.<sup>(75)</sup>

One medium-quality review assessed possible roles for the private sector in the procurement and distribution of pharmaceuticals, finding that well-funded, private, disease-specific programs could improve the stock management of pharmaceuticals.(76) The review, however, noted that this structure had to be integrated into the current system; otherwise it would result in a number of inefficiencies.(76)

In addition to the cost-sharing mechanism and possible privatization of procurement and distribution, two reviews examined the use of social franchising for the delivery of services or products. In essence, social franchising aims to use the methods and theory behind franchising (i.e., where the owner of a franchise system enters into an agreement with another person or organization which grants them a licence to use its system, brand and other intellectual property) to achieve social (e.g., improved access to services, achieving greater social impact) rather than financial goals.(77) The two reviews found that social franchises were effectively able to deliver services and products to local communities and resulted in an overall increase in the utilization of services.(77; 78) However, the evidence on the quality of services delivered through social franchises is mixed, with reviews reporting varied levels of quality and satisfaction among consumers.(77; 78)

Four systematic reviews were found that assessed success factors in return-to-work interventions among individuals who had experienced injury or disease and were required to take leave from their employment. Two recent reviews (one high quality and one medium quality) identified the factors that help to successfully transition individuals to return to work following injury:

- interventions involving a workplace component;
- provision of care from an interprofessional team;
- interventions that begin within six weeks of the injury;
- integration of psychological interventions such as cognitive-behavioural therapy and problem-solving as part of a multi-component intervention; and
- actions to stimulate the employee to return to work in rehabilitative interventions.(79; 80)

Another older medium-quality systematic review suggested that the most important determinant of a successful return to work was the goodwill of both the employee and employer. The review noted that this was largely based on the culture of the work environment and whether the individual had a strong attachment to their employment.(81)

One recent high-quality review confirmed many of the findings above, but identified a number of personal factors that were found to improve the likelihood of a successful return to work, which included being younger, having high levels of education, having a higher income, and having positive social support from friends and family.(82)

Finally, no systematic reviews were found that addressed streamlining the regulatory approval processes for technologies to be brought to market across the country. However, a report from the U.S. Food and Drug Administration identifies the following approaches for accelerating the introduction of new technologies, devices or biologics:

- using surrogate endpoints to predict clinical benefit to support traditional approval processes;
- creating ‘fast-track’ designations or priority areas for technologies that meet a specific need, burden of disease, or represent breakthrough innovations; and
- continue to modernize regulatory science, harnessing technology to predict safety, effectiveness and outcomes earlier in a technology’s critical path.(83)

We provide a summary of the key findings from the synthesized research evidence in Table 4. For those who want to know more about the systematic reviews contained in Table 4 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

**Table 4: Summary of key finding from systematic reviews relevant to Element 3 – Supporting citizens to access needed assistive technologies that are not covered by government-funded programs**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Cost-sharing mechanisms</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality review found that reference pricing for pharmaceuticals demonstrated significant reductions in the price of targeted drug classes and out-of-pocket payments, but had no significant effect on hospitalizations or physician visits.(71)</li> <li>○ One older-medium quality review found that strong, privately-funded disease-specific programs improved the stock management of pharmaceuticals when incorporated into existing structures.(76)</li> </ul> </li> <li>• The same review found that privatized distribution systems increased the availability of essential medicines.(76)           <ul style="list-style-type: none"> <li>○ One medium-quality review found that social franchises in low- and middle-income countries effectively distributed health products and provided an overall higher level of choice to patients, but on a whole delivered fewer services.(77) The same review found that social franchises increased client volume and service utilization particularly for tuberculosis and malaria treatments.(77)</li> </ul> </li> <li>• <b>Enhancing supports for people with disabilities to participate in the workforce</b> <ul style="list-style-type: none"> <li>○ Two recent reviews (one high quality and the other medium quality) identified that the following factors help to successfully transition individuals to return to work following injury:               <ul style="list-style-type: none"> <li>▪ interventions involving a workplace component;</li> <li>▪ provision of care from an interprofessional team;</li> <li>▪ interventions that begin within six weeks of the injury;</li> <li>▪ integration of psychological interventions such as cognitive-behavioural therapy and problem-solving as part of a multi-component intervention; and</li> <li>▪ actions to stimulate the employee to return to work in rehabilitative interventions.(79; 80)</li> </ul> </li> <li>○ Similarly, one recent high-quality review confirmed many of the findings above, but additionally found that individuals who are younger, have a higher level of education and income, are married, and have positive social support from friends and families were more likely to return to work following diagnosis and treatment of breast cancer.(82)</li> </ul> </li> <li>• Further, the same review found that disease related factors including stage of cancer, physical fitness level, exhaustion, fatigue, tiredness and presence of other comorbidities were predictors of whether individuals returned to work.(82)</li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>Cost-sharing mechanisms</b> <ul style="list-style-type: none"> <li>○ One recent high-quality review found an 11%increase in rates of non-adherence to prescribed medications when a publicly insured population was exposed to co-payments, with high levels of non-adherence observed for medications that require daily consumption.(72)</li> <li>○ One older low-quality review found that while user fees designed to support patient choice of lower-cost alternatives did not have an impact on the number of emergency department visits, the use of cost-sharing mechanisms more generally resulted in an increase in the number of patients using the emergency department, frequency of partial hospitalization and nursing home admissions.(73)</li> <li>○ One older high-quality review examining cost-sharing mechanisms found that increasing out-of-pocket payments for medicines reduces the use of both essential and non-essential medicines to varying extents based on the increase to payments, the medicines these policies are applied to, the vulnerability of the populations affected, the availability of exemptions and the information provided to patients and providers.(74)</li> <li>○ The same review found that implementing a cap or limit on prescriptions or a fixed co-payment had a particularly negative effect on patients who require multiple prescriptions</li> </ul> </li> </ul>

	<p>and those with chronic diseases.(74) Similarly, cost ceilings with fixed co-payments or with co-insurance were found to increase emergency department visits and hospitalization. However, the effect on outpatient care was unclear.(74)</p> <ul style="list-style-type: none"> <li>• <b>Enhancing supports for people with disabilities to participate in the workforce</b> <ul style="list-style-type: none"> <li>○ One recent medium-review found the following factors were associated with negative return-to-work outcomes following injury or disease: <ul style="list-style-type: none"> <li>▪ older age;</li> <li>▪ higher pain or level of disability;</li> <li>▪ having previously taken sick leave;</li> <li>▪ limited ability to perform activities of daily living; and</li> <li>▪ being employed in a position with high physical-work demands.(79)</li> </ul> </li> </ul> </li> </ul>
<p>Cost and/or cost-effectiveness</p>	<ul style="list-style-type: none"> <li>• <b>Cost-sharing mechanisms</b> <ul style="list-style-type: none"> <li>○ An older low-quality review found that higher cost sharing reduced total prescription drug expenditure, but that percentage change varied by size of increase in user fees, type of drugs and population subject to user fees.(73)</li> <li>○ The same review found some evidence to suggest that reference pricing can be used to encourage manufacturers to lower their prices, but it is possible that this leads to one-off cost savings rather than producing continuous returns.(73)</li> </ul> </li> <li>• <b>Enhancing supports for people with disabilities to participate in the workforce</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality review found mixed evidence regarding the appropriate intensity of interventions (e.g., more or less than 10 hours) to support individuals with low-back pain to return to work.(80)</li> </ul> </li> </ul>
<p>Uncertainty regarding benefits and potential harms (where monitoring and evaluation could be warranted if the element were pursued)</p>	<ul style="list-style-type: none"> <li>• <b>Cost-sharing mechanisms</b> <ul style="list-style-type: none"> <li>○ One medium-quality review found mixed evidence about the quality of products and services delivered through social franchises, with studies included in the review reporting generally higher quality than private clinics, but lower than publicly delivered services.(77)</li> <li>○ The same review found varied levels of patient-reported quality and satisfaction, largely based on the contextual differences when the social franchises were introduced.(77)</li> </ul> </li> </ul>
<p>Key components of the element if it was tried elsewhere</p>	<ul style="list-style-type: none"> <li>• <b>Cost-sharing mechanisms</b> <ul style="list-style-type: none"> <li>○ One system description/analysis of OECD financing mechanisms for pharmaceuticals highlighted that most OECD countries employ some cost-sharing mechanisms (typically co-payments), but use a wide variety of adjustments to safeguard citizens from financial burden including varying co-payments by socio-economic status, age or chronic condition, or employing a maximum dollar value on the percentage paid.(75)</li> <li>○ The same analysis suggested that co-payments can provide significant opportunities to maximize a health budget, with one study included in the analysis concluding that doubling a patient's co-payment in a given plan reduces average annual drug spending by one-third. However, these savings come at the expense of reduced drug use by patients who are curbing their use to maintain the same overall cost.(75)</li> </ul> </li> <li>• <b>Enhancing supports for people with disabilities to participate in the workforce</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that the most important element in ensuring a successful return to work following injury or disease was the presence of goodwill to make any necessary adjustments on both the employee and employer side. The review found that the conditions for goodwill were largely dependent on the culture of the workplace, but were more likely to exist when a worker is attached to their job.(81)</li> </ul> </li> </ul>
<p>Stakeholders' views and experiences</p>	<ul style="list-style-type: none"> <li>• <b>Enhancing support for people with disabilities to participate in the workforce</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that workers who had recently experienced injury or disease and were preparing to return to work often felt scrutinized about the validity of their injury, which in many cases led to employees ignoring physical restrictions to demonstrate their veracity.(81) <ul style="list-style-type: none"> <li>▪ The same review pointed to the capacity of supervisors to enable a smooth transition back to work as they are in a position to monitor the safety of any modified working conditions as well as to execute any necessary changes.(81)</li> </ul> </li> </ul> </li> </ul>

### **Additional equity-related observations about the three elements**

Several equity-related observations can be made in relation to the three elements of a potentially comprehensive approach for enhancing access to assistive technologies for older adults living with a disability and/or for those living in rural or remote areas. One important consideration, particularly for elements 2 and 3, is the communication of any changes in funding for assistive technologies. For example, changes in visual and hearing acuity and in cognitive function that many older adults experience may make retaining high levels of financial and health literacy challenging.<sup>(84)</sup> This may be compounded by other physical or mental disabilities that may make typical methods of communicating government services (such as online services and websites, information that is only available in print, public transit ads, etc.) largely ineffective for these populations, and may leave them unable to take advantage of new programs.<sup>(84)</sup> This is particularly important when individuals need to apply to have assistive technologies covered under insurance, or if they are required to submit a claim to receive a tax credit.

These challenges in health literacy also apply to element 1, which calls for the participation and active involvement of individuals or their caregivers. This level of involvement requires that individuals are able to access and easily understand health information. While health literacy may be lower among these population groups, one review found that shared decision-making and involvement in care is beneficial among disadvantaged groups in improving knowledge, resolving decisional conflict and improving self-efficacy.<sup>(5; 47; 85)</sup> Ensuring that any information provided to these individuals is tailored to their needs and appropriately presented is critical to reduce disparities between these groups.

Finally, though mentioned previously in the brief, financial access is another important consideration for element 2 or element 3. While both insurance and market-based approaches to financing may improve access to those technologies where no financing was previously available, those living with disabilities have on average lower socio-economic status than those living without disabilities. Therefore, depending on what criteria are used to determine what technologies will be covered under public insurance or the extent of cost-sharing for market-based financing, assistive technologies may continue to be unaffordable for those who need them most.

## **IMPLEMENTATION CONSIDERATIONS**

A number of barriers might hinder implementation of the three elements of a potentially comprehensive approach to enhancing equitable access to assistive technologies in Canada, each of which needs to be factored into any decision about whether and how to pursue any given element (Table 5). While potential barriers exist at the levels of patients/caregivers/citizens, providers, organizations and systems, perhaps the biggest include: 1) the expectations of individuals in need of assistive technologies and their caregivers in terms of what can be publicly financed may not align with the realities of government budgets; 2) the increased demands placed on healthcare providers in terms of supporting informed decision-making and system navigation (including determining program eligibility and coverage) may not be feasible given existing delivery mechanisms and remuneration arrangements; and 3) streamlining government approaches and regulatory frameworks requires significant involvement of and collaboration between federal- and provincial-level policymakers

**Table 5: Potential barriers to implementing the options**

<b>Levels</b>	<b>Element 1 – Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them</b>	<b>Element 2 – Helping citizens get the most out of government-funded programs</b>	<b>Element 3 – Supporting citizens to access needed assistive technologies that are not covered by government-funded programs</b>
<b>Patient/caregiver/individual</b>	Individuals in need of assistive technologies and their caregivers may not be aware of existing or new supports available to them	The expectations of individuals in need of assistive technologies and their caregivers in terms of what can be publicly financed may not align with the realities of government budgets	Low-income citizens may not be able to afford any out-of-pocket payment associated with cost-sharing mechanisms, and those in middle-income tax brackets may not qualify for supports yet may still experience financial hardship in paying for needed assistive technologies
<b>Care provider</b>	The increased demands placed on healthcare providers in terms of supporting informed decision-making and system navigation (including program eligibility and coverage) may not be feasible given existing delivery mechanisms and remuneration arrangements	Healthcare providers may not be equipped to be responsible for keeping up with which assistive technologies are eligible for public funding as well as who is eligible to receive them	Healthcare providers may face challenges in coordinating with many sectors to support additional efforts to help their patients acquire needed assistive technologies, as well as return to work
<b>Organization</b>	Organizations that offer assistive technology programs may find it difficult to coordinate and also lack infrastructure needed to support system navigation	The many organizations that provide or could provide access to assistive technologies may not be willing to collaborate to create a streamlined approach to providing publicly financed assistive technologies	Organizations could view this element as one that requires substantial investment, but may be difficult to attain in terms of streamlining regulatory approval processes in all provinces and territories
<b>System</b>	Achieving the significant collaboration required from a broad range of stakeholders (e.g., federal and provincial government ministries, private insurers, non-profit and charitable organizations, and manufacturers/vendors/distributors) involved in supporting informed decision-making and system navigation may be challenging	Continuous innovation means that technologies are always changing, and criteria for publicly financed technologies will need to be flexible to account for rapid change  Policymakers will need to commit to adequate and sustained financing for the publicly financed assistive technologies, and provincial and territorial health system leaders may have differing priorities	Streamlining approval processes will require collaboration from federal- and provincial-level policymakers

A number of potential windows of opportunity could be capitalized upon (Table 6), which also need to be factored into any decision about whether and how to pursue one or more of the approach elements). These potential windows of opportunity include: 1) demographic shifts in the population necessitating system change; 2) the alignment of provincial and territorial health-system policy priorities and strategic goals of the federal government on enhancing access to the home and community care sector; and 3) resource constraints often support the creation of innovative approaches to healthcare problems.

**Table 6: Potential windows of opportunity for implementing the elements**

Type	Element 1 – Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them	Element 2 – Helping citizens get the most out of government-funded programs	Element 3 – Supporting citizens to access needed assistive technologies that are not covered by government-funded programs
<b>General</b>	<p>Provincial and territorial health systems in Canada are focusing on expanding the home and community care sector in order to help older adults age-in-place, which could include a focus on enhancing equitable access to assistive technologies.</p> <p>The national infrastructure is already partially in place for expanding the role of CADTH in the review of assistive technologies.</p>		
<b>Element specific</b>	<p>The National Seniors Strategy supports older adults and their caregivers through informed decision-making (pillars 2 and 4)(86)</p>	<p>Federal infrastructure supports outlined in the National Seniors Strategy include affordable housing and transportation as well as creating age-friendly physical environments (pillar 1), which links to the role of assistive technologies in creating accessible environments (this includes safe access for individuals with any form of physical limitations)(86)</p> <p>Other provincial examples related to publicly financed assistive technologies covered in the strategy that could be used as examples for how to move forward with this element include occupational therapy home assessments (e.g., Ontario Occupational Therapy In-Home Senior Safety Assessment Program) and accessible home renovation tax credit programs (e.g., Ontario’s Healthy Homes Renovation Tax Credit and Prince Edward Island’s Seniors Safe@Home Program)</p>	<p>The National Seniors Strategy supports older adults to participate in the workplace (pillar 4)(86)</p>

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## APPENDICES

The following tables provide detailed information about coverage of the World Health Organization's list of 50 priority assistive technologies by province and territory (Appendix 1), as well as the results of the systematic reviews identified for each element (Appendices 2-4). For appendices 2-4, each row in a table corresponds to a particular systematic review and the reviews are organized by sub-element (first column). The focus of the review is described in the second column. Key findings from the review that relate to the element are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column shows the proportion of studies included in the review that deal explicitly with one of the prioritized groups (individuals living with a disability or individuals living in rural or remote areas). The last column indicates the review's issue applicability in terms of the proportion of studies focused on assistive technologies.

All of the information provided in the appendix tables was taken into account by the evidence brief's authors in compiling Tables 2-4 in the main text of the brief.

**Appendix 1: Coverage of the World Health Organization’s list of 50 priority assistive technologies by federal, provincial and territorial governments (20)**

50 priority assistive technologies (20)	Fed*	BC	AB	SK*	MB	ON	QC*	NB*	NS*	PEI*	NFLD*	NWT*	NT	YK*
Alarm signallers with light/sound/vibration			Y			Y								
Audioplayers with DAISY capability	?		Y			?	?	?	?		?	?		
Braille displays (note takers)	?		Y	Y	Y	Y	?	Y	?	?	Y	?		
Braille writing equipment/braille	?		Y	Y	Y	Y	?	Y	?	?	Y	?		
Canes/sticks	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chairs for shower/bath/toilet	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Closed captioning displays			Y		Y	Y	?	?				?		
Club foot braces	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Communication boards/books/cards			Y	Y	Y	Y	Y	Y		Y		?		
Communication software			Y	Y	Y	Y	Y	Y	?	?	Y	Y		
Crutches, axillary/elbow	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Deafblind communicators			Y			Y	?	?	?	?	?	?		
Fall detectors														
Gesture to voice technology				?	?	Y	?	?		?		?		
Global positioning system (GPS) locators			Y				Y	?						
Hand rails/grab bars	Y	?	Y	?	?	?	?	Y	Y	?	Y	Y	?	Y
Hearing aids (digital) and batteries	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hearing loops/FM systems	?	?	Y			Y	?	?		?	Y	?	?	
Incontinence products, absorbent														
Keyboard and mouse emulation software		?		Y		Y	Y	?						
Magnifiers, digital hand-held	Y		Y	Y		Y	?	?	?	Y	?	?	Y	

Enhancing Equitable Access to Assistive Technologies in Canada

50 priority assistive technologies (20)	Fed*	BC	AB	SK*	MB	ON	QC*	NB*	NS*	PEI*	NFLD*	NWT*	NT	YK*
Magnifiers, optical	Y		Y	Y	Y	Y	?	?	?	Y	?	?	Y	
Orthoses, lower limb	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Orthoses, spinal	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Orthoses, upper limb	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Personal digital assistant (PDA)				Y	Y	Y	?	?			?	?		
Personal emergency alarm systems			Y			Y		Y	Y					
Pill organizers	?				?		?		Y	?				
Pressure relief cushions	Y	Y	Y	Y	Y	Y	?	Y	Y		Y	Y		
Pressure relief mattresses	Y	Y	Y	Y	Y	Y	?	Y	Y		?			
Prostheses, lower limb	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ramps, portable														
Recorders			Y	Y	Y	Y	?	?	?		?	?		
Rollators	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Screen readers	?		Y	Y	?	Y	?	?	?	?	?	?		
Simplified mobile phones				Y	Y	Y	?			?				
Spectacles; low vision, short distance, long distance, filters and protection	?													
Standing frames, adjustable														
Therapeutic footwear; diabetic, neuropathic, orthopedic		Y	Y					Y				Y	Y	
Time management products														
Travel aids, portable														
Tricycles														
Video communication devices				Y		Y	?	?	?	?		?		
Walking frames/walkers	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Watches, talking/touching														
Wheelchairs, manual	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y



McMaster Health Forum

50 priority assistive technologies (20)	Fed*	BC	AB	SK*	MB	ON	QC*	NB*	NS*	PEI*	NFLD*	NWT*	NT	YK*
for active use														
Wheelchairs, manual assistant-controlled	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Wheelchairs, manual with postural support	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Wheelchairs, electrically powered	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
White canes			Y	Y									Y	

Y Yes, it is covered

Y? There is mention of similar items being covered, but it is not explicitly stated that it is covered

\* Jurisdictions where programs provide undefined products (e.g., workplace safety boards, where coverage varies depending on claim)

Notes on the data used to create the table:

- focuses on government programs and does not include charitable organization programs;
- the federal government programs column includes care for specific populations (e.g., Indigenous peoples, Canadian Armed Forces, eligible veterans, etc.)
- items indicated as covered are based on our assessment of the programs’ descriptions, but these descriptions vary in their terminology, categories and groupings of products used across jurisdictions, and therefore some assessments are less certain than others (some boxes are left blank because it was not possible to be certain if coverage exists);
- in boxes that are left blank, it is possible that the products are covered by a charitable organization;
- communication aids under the WHO list have been included as communication aids with or without DAISY (communication aids - as termed in the programs - are generally vague in terms of what they include);
- the jurisdictional program scan did not include glasses or incontinence products and are not captured in this list (e.g., as spectacles in the WHO list);
- grab bars are assumed to be included as either mobility aids or bathroom aids; and
- it was not clear if ramps are included as mobility aids under the programs and we have not included them (modifications were also not included in the program scan).

**Appendix 2: Systematic reviews and economic evaluations relevant to Element 1 – Informing citizens, caregivers and healthcare providers to help them make decisions about which assistive technologies they need and how to access them**

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
Information or education provision from logical community points of contact and/or through a reliable and trusted online source to those who could make direct use of assistive technologies (including families and caregivers)	Effects of interventions designed to support shared decision-making on health inequalities (91)	<p>Shared decision-making interventions evaluated by included studies include communication-skills workshops or education sessions, coaching sessions targeted at patients or health professionals, computerized decision aids, video-based interventions to improve informed decision-making and shared decision-making, counselling sessions, booklet or DVD decision aids, and paper-based hand-outs promoting informed decision-making. Ten of 21 interventions studied were specifically targeted at disadvantaged groups. These interventions focused on issues such as cultural differences and literacy levels.</p> <p>The shared decision-making interventions studied had no significant effect on disadvantaged patients' adherence levels, anxiety, screening/treatment preferences, intentions or uptake. Pooling of study results found moderate positive effects of shared decision-making interventions on knowledge, participation, decisional conflict and self-efficacy of disadvantaged populations.</p>	2012	10/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	19/19	0/19
	Assessing the effectiveness of cancer-related decision aids in decisions around screening, prevention and treatment (49)	<p>This review included 34 studies examining the effectiveness of cancer-related decision aids in screening, prevention and treatment. The review found that decision aids significantly increased the screening knowledge of individual patients compared to control groups. Further, they were found to reduce anxiety and decisional conflict around screening compared to usual care. Prevention and treatment decision aids were found to result in significant improvements in knowledge, however, no significant difference was found for either anxiety or decisional conflict between decision aids and control groups.</p> <p>Across decision aids, no significant difference was found in increasing patient knowledge related to screening, however, insufficient evidence was present to conclude results related to decision aids for either prevention or treatment.</p> <p>Overall, cancer-related decision aids were effective in increasing patient knowledge and did not serve to increase anxiety in patients for cancer screening.</p>	2007	4/11 (AMSTAR from McMaster Health Forum)	0/40	Not reported in detail	0/40
	Effectiveness of cancer-related decision aids (47)	<p>Thirty-four randomized controlled trials (RCTs) of decision aids use in screening or prevention and treatment of cancer were identified. Decision aids were found to significantly improve knowledge about screening as well as preventive/treatment options as compared to usual practice.</p> <p>General anxiety was not increased in most trials and was significantly reduced in a screening context.</p>	2013	4/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	0/47	0/47

McMaster Health Forum

	Decision-related conflict was reduced, but not when screening and preventive/treatment studies were analyzed separately.					
Assessing the effectiveness of decision-making tools for use by pregnant women (94)	Ten studies found that providing decision-making tools to individuals was generally found to improve knowledge with the exception of the decision tree. Two of the decision-making tools were found to significantly reduce patient anxiety - computer-based information and decision-aid trees. Group and individual counselling presented a lesser but still significant reduction in anxiety, while the decision tree provided no significant effect. A reduction in decisional conflict was only reported for computer-based information and decision-aid trees, while the decision tree and group counselling presented no evidence of any significant reduction in a decisional conflict. Pooled results to examine impact of decision aids on final choice and final outcome showed no significant influence of the decision-aid tree on final choice, but it was the only decision aid to have an impact on final outcome. While decision aid tools showed different potential to effectively assist health professionals in day-to-day practice, all four aids were generally found to be safe for use, and vary in their level of effectiveness.	2009	6/9 (AMSTAR rating from McMaster Health Forum)	2/10	0/10	0/10
Assessing the effects of personalized information for decision-making with regards to screening and diagnostic tests (87)	Thirty-four studies found that individuals who were provided with personalised risk information made informed choices more often (45.2% versus 20.2%) than participants who received generic information. Studies included in the review that examined the outcome on patient knowledge found that providing personalized risk information increased individuals' knowledge, and in three of the studies showed a trend towards more accurate risk perception. A non-significant change in anxiety was found from the delivery of personalized information.  Overall, strong evidence was found that personalized risk estimates result in greater informed choice, with weak evidence that, when provided with a risk score, individuals were more likely to uptake screening. These results, however, are dominated by findings in mammography and colorectal cancer screening.	2012	10/11 (AMSTAR from McMaster Health Forum)	1/34	0/34	0/34
To evaluate the effectiveness of decision aids for people facing treatment or screening decisions (48)	This review included 115 studies and generally found that the inclusion of decision aids performed better than usual care by increasing patients' knowledge. Further analysis found that as decision aids became more detailed, the relative improvement in knowledge continued to increase. Decision aids that provided information on probabilities increased accurate risk perceptions, however, results were better for those that expressed risk in numbers rather than words. Decisions aids, when compared to usual care, lowered decisional conflict about feeling uninformed and unclear about personal values. Further, they were found to reduce the proportion of people who remained undecided following their use, and had a positive effect on patient-practitioner communication.  The use of decision aids was found to reduce the uptake of discretionary surgery, but had no adverse effects on health. There was insufficient evidence	2009	11/11 (AMSTAR rating from McMaster Health Forum)	22/115	115/115	0/115

		<p>available to determine the optimal level of detail needed for decision aids to have a positive impact.</p> <p>Overall, decision aids resulted in improved knowledge of options, helped patients to have a more accurate expectation of possible benefits and harms, and assisted patients to reach choices that are more consistent with their informed values.</p>					
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**Appendix 3: Systematic reviews and economic evaluations relevant to Element 2 – Helping citizens get the most out of government-funded programs**

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
<p>Providing public financing (e.g., through needs-based allocations and/or controlled budgets by the individual that allow them to purchase the products they need) based on need for different types of assistive technologies such as those that aim to improve physical and mental health, mobility, social connectedness, safety, leisure, and activities of daily living</p>	<p>Examining the options for expanding health insurance coverage for vulnerable populations (61)</p>	<p>The review identified six strategies for expanding health insurance coverage: modifying eligibility criteria (through increasing the income threshold for entering health insurance or by expanding the categories of eligible populations); increasing awareness of schemes and benefits (through mass media campaigns or mass media at targeted locations such as where parents and children tend to visit); making the premium affordable (by increasing the subsidy available by either paying the premium for defined populations, providing a tax credit, or donations of premiums such as in low-and-middle income countries (LMIC), or, alternatively using a sliding scale of premiums that is defined based on income levels); modifying enrolment (by simplifying the enrolment procedure, integrating sources for enrolment, changing the unit of enrolment, such as from one individual to a family, or improving the premium collection approaches); improving service delivery (by improving the package of care, controlling the price of services, or improving the quality of services to attract more of the eligible population); and improving the management and organization (by improving the information system, improving staff training in management, and creating a transparent management by ensuring the insured population engage in the design of insurance schemes).</p> <p>The literature review found examples of all of these strategies in practice, but found that their use varied by geographic region. Examples of each of the six strategies were found in the U.S. and across a number of LMICs. The most common strategies in LMICs were making the premium affordable by subsidy, improving healthcare delivery to attract populations, and improving management and organization.</p> <p>The review also identified 25 evaluation studies that examined strategies for expanding health insurance coverage. For the most part, these strategies focused on changing the population groups for health-insurance coverage by increasing the income threshold for entering health-insurance schemes. Additional strategies that were evaluated and found to be effective included using awareness campaigns, offering subsidies to low-income people and modifying enrolment approaches.</p> <p>In terms of outcomes, the main indicators include changes in coverage of the</p>	<p>Not reported in detail.</p>	<p>4/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/54</p>	<p>54/54</p>	<p>0/54</p>

*Enhancing Equitable Access to Assistive Technologies in Canada*

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
	Assessing whether voucher programs are effective as a mechanism to improve access to health products and reproductive services in low- and middle-income countries (65)	<p>health-insurance schemes or in probability of the study sample being insured by the interventions. All of the studies found that the interventions studied expanded the coverage of the health plans.</p> <p>The review identified 24 studies that evaluated 16 different health-voucher programs aimed at improving access to insecticide treated nets and reproductive services, including maternity services and family planning.</p> <p>Six of seven studies evaluating outcomes of targeting voucher programs found modest evidence that voucher programs were able to effectively target specific populations (e.g. low-income women, pregnant women, and infants and children). There was insufficient evidence on the efficiency of voucher schemes in delivering health goods and/or services, with only one study reporting outcomes.</p> <p>Robust evidence was found in 16 of 17 studies supporting the use of voucher programs to increase the utilization of insecticide treated nets and of reproductive services. There was modest evidence that voucher schemes improved the quality of goods or services delivered, but the evaluation found no overall effect on health. Authors noted that the effect on health was the only outcome found to be unstable (e.g., where small changes in the outcome data could substantially sway the conclusions), indicating insufficient evaluation data to find a health effect.</p> <p>Overall, voucher programs achieved the intermediate outcomes of targeting specific populations, and increasing utilization and quality, but did not find sufficient evidence to determine the effect on health.</p>	2010	8/10 (AMSTAR rating from McMaster Health Forum)	0/24	24/24	0/24
	Assess the effectiveness of cash-transfer programs at improving child nutritional status and identifying the variables that mediate the relationship (66)	<p>The review examined the effects of cash-transfer programs on improving nutritional status.</p> <p>The review found that programs which supplied nutritional supplements had no impact among children at improving either age-weight or age-height variables. The review found that there were higher marginal effects from transfer payment sizes between \$10 and \$20, however, critical to this finding was that the cash transfer fit the relative income level of their environment.</p> <p>The duration of programs was found to have a positive relationship with the estimated impact, with programs that lasted more than 19.4 months resulting in an improvement in participants' height-to-weight ratios. The review also found that girls benefit more than boys in terms of height-for-age measures from cash</p>	2010	10/11 (AMSTAR rating from McMaster Health Forum's Impact Lab)	0/24	24/24	0/24

McMaster Health Forum

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		transfers. Programs that were conditional on activities other than health and education resulted in poorer child nutritional status, whereas those that were unconditional had better results.					
	Assess the current evaluations and effectiveness of reproductive health voucher programs (64)	<p>The review examined the effects of the use of 13 voucher programs for reproductive health services. Voucher programs were each assessed for their impact on targeting select populations, costs of program, knowledge of the program among the population, utilization of reproductive services, quality of services and the health impact.</p> <p>Overall the review reports positive results for reproductive health voucher programs in terms of utilization, quality and health impact, but more research with stronger study design is needed to better examine its effectiveness.</p> <p>Only two studies examined targeting and costs. The review found that vouchers could be used to successfully target low-income and high-risk populations. In terms of costs, the review found that while there was a higher cost per patient treated for sexually transmitted infection (STI) and costs were lower per STI effectively cured compared to costs in public sector facilities. In addition, the provision of vouchers was found to reduce out-of-pocket costs spent on service delivery for the treatment of STIs as compared to women in areas where no voucher program had been implemented. The authors reported that more research is needed to come to a definitive conclusion on the cost-effectiveness of the programs.</p>	2010	3/9 (AMSTAR rating from McMaster Health Forum)	0/24	24/24	0/24
	Examining how cost-sharing affects patient medication adherence and health outcomes (88)	<p>The review identified 160 studies, which sought to assess the relationship between patient cost-sharing, medication adherence, clinical utilization and economic outcomes.</p> <p>Of 66 studies assessing medication adherence, 56 showed a statistically significant relationship between increased patient cost-sharing and decreased medication adherence. The review found that, on average, for each dollar increase in co-pays, adherence to medication would be expected to decrease by 0.4%. In addition, 49 of 57 studies found a positive relationship between increased adherence to medication and improved health outcomes, with similar trends being observed when examining the relationship between adherence and utilization or economic outcomes.</p> <p>From these results, authors concluded that increasing patient cost-sharing was strongly associated with declines in medication adherence. In addition, when investigating the relationship between adherence and outcomes, there was a</p>	2008	3/9 (AMSTAR rating from McMaster Health Forum)	13/160	Not reported in detail	0/160

*Enhancing Equitable Access to Assistive Technologies in Canada*

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>strong correlation between increased adherence and improvements in various clinical and non-clinical outcomes (e.g. medical costs, adverse events, self-reported health status and symptoms, emergency department visits, outpatient visits, hospitalizations and nursing-home admissions).</p>					
	<p>Assess whether voucher programs implemented thus far have been successful in achieving desired outcomes (89)</p>	<p>The review aimed to assess whether voucher programs have been successful in achieving desired outcomes (e.g., increase utilization, improve quality, enhance efficiency, and improve health of populations).</p> <p>A total of 24 studies evaluating 16 different health voucher programs were identified in this review. From these studies, the review found modest evidence from four voucher programs indicating that these programs effectively target vouchers for health goods/services to specific populations, but found insufficient evidence to determine whether voucher programs deliver health goods/services more efficiently than competing health financing strategies based on one program. Further, the review found robust evidence supporting the use of voucher programs to increase utilization of health goods/services and that they may be used to improve the quality of health services. The review, however, found no evidence that voucher programs improved the overall health of the population, but cautioned the interpretation of this finding due to limits in statistical analysis.</p>	<p>2011</p>	<p>9/10 (AMSTAR rating from McMaster Health Forum's Impact Lab)</p>	<p>0/24</p>	<p>24/24</p>	<p>0/24</p>
	<p>Examining the effects of demand-side financing on use and outcomes of maternity care (63)</p>	<p>The review aimed to assess the effectiveness of demand-side financing on the utilization of maternity services and maternal health outcomes in LMICs.</p> <p>The following modes of demand-side financing were analyzed: conditional cash transfers targeted at poor households which meet various conditions to receive payments; short-term cash payments to offset costs of accessing maternity services; vouchers exchanged for maternity services, for which providers are reimbursed; vouchers for 'merit' goods (e.g. insecticide-treated beds) that promote maternal/infant health; and unconditional cash transfers (maternity benefits or allowances).</p> <p>The review was interested in looking at outcomes that were quantitative (e.g., maternal and infant mortality and morbidity, and utilization of maternity services), qualitative (e.g., barriers to and preconditions for successful implementation, experiences of providers, ethical issues and social meaning for women), and economic (cost and cost-effectiveness).</p> <p>The review reported that evidence on mortality and morbidity outcomes was sparse and inconclusive. However, for utilization of services, cash payments,</p>	<p>2012</p>	<p>7/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/72</p>	<p>72/72</p>	<p>0/72</p>



McMaster Health Forum

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>vouchers and conditional cash transfers were found to increase the use of priority maternity services including births in healthcare facilities. There is some evidence that attempts to utilize demand-side financing to simultaneously address complex and multiple policy objectives are unlikely to be achieved, and may be counter-productive. Finally, there is little evidence that demand-side financing mechanisms alone can be used to improve quality of care in maternal health provision</p> <p>Qualitative findings suggest that success in initiating, sustaining and scaling-up schemes is highly dependent on a good understanding of what works in that context. As well, insufficient attention has been given to beneficiaries and gender issues in most demand-side financing schemes (i.e., various studies indicated disrespectful treatment from healthcare staff was common for women from lower socio-economic status seeking assistance from such schemes).</p> <p>The costs across countries and schemes were hard to compare and more evidence is required to generate conclusions on cost-effectiveness.</p>					
	Assessing policy interventions to address health inequalities in European regions (60)	<p>The Addressing Inequalities in Regions (AIR) project was developed to contribute to the reduction of health inequalities through primary healthcare, by identifying illustrative examples of interventions and reviewing strategies and policies developed in the European regions to reduce health inequalities.</p> <p>The review conducted within this study aimed to provide evidence on interventions that reduce health inequalities through primary healthcare. There were 108 articles included in the review that identified three main actions to reduce health inequalities: providing health promotion in the community; improving financial access to healthcare; and modifying healthcare provision. The health-promotion interventions identified in the reviews included disease screening or secondary prevention and promotion of favourable health behaviour (nutrition, exercise, not smoking, etc.), through knowledge transfer or behaviour modification and focused on ethnic minorities. The interventions on financial access to healthcare included improvements of insurance coverage and delivery of select services for free (e.g., public-health interventions).</p> <p>Most interventions reported in the literature focused on the group targeted by the intervention, and the outcomes of these interventions were only reported for this group. Consequently, reports seldom provided comparative results, making it difficult to judge the actual impact on health inequalities.</p>	2010	4/9 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	Not reported in detail	Not reported in detail

*Enhancing Equitable Access to Assistive Technologies in Canada*

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>In the review’s formal evaluation of interventions, the authors confirmed the need for health-promotion interventions focusing on health inequalities to involve the targeted community so that interventions are culturally adapted and mediated by those from the community itself. Financial interventions to facilitate access to health care had no impact on risk factors. That is, they appeared to reduce inequalities in access, but the quality of care was sometimes not as good for targeted populations as that provided to the general population.</p>					
	<p>Effect of health insurance on the utilization of allied health services by people with chronic diseases (59)</p>	<p>This review included seven articles for quantitative synthesis. In the meta-analysis conducted, studies were categorized into: insurance versus no insurance; insurance versus alternate insurance of lesser coverage; and insurance versus mixed insurance. The studies that investigated insurance versus no insurance found a significant effect of insurance compared to no insurance on the utilization of allied health services among people with chronic diseases.</p> <p>Studies placed into the second category - insurance versus alternate insurance of lesser coverage - included a comparison of private insurance versus public insurance on physiotherapy utilization among people with osteoarthritis, as well as a comparison of comprehensive insurance versus inadequate insurance (no insurance, Medicare (U.S.) or Medicaid (U.S.) without supplement) on physical-occupational- and speech-therapy utilization among people who have experienced a stroke and were recently discharged from hospital. These studies were separated into physiotherapy and non-physiotherapy services for the pooling of results. There was a significant effect of having insurance compared with insurance of lesser coverage on the utilization of non-physiotherapy services among people with chronic diseases, but this significant effect was not seen in physiotherapy utilization.</p> <p>A sub-analysis found that race influenced utilization independently of insurance, however, the relationship varied across different clinical populations. Income was also inconsistently associated with the utilization of allied health services. Higher-income respondents were generally more likely to receive services. However, one study found that socio-economic status was not associated with utilization of allied health services in people who suffered from a stroke one month after hospital discharge. Higher education increased physiotherapy utilization by people with osteoarthritis and rheumatoid arthritis, and people with intermediate education were more frequent users of</p>	<p>2011</p>	<p>8/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/7</p>	<p>Not reported in detail</p>	<p>Not reported in detail</p>

McMaster Health Forum

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>physiotherapy for back pain. Furthermore, the presence of comorbid conditions and activity limitations while simultaneously receiving a disability support payment, and functional impairment positively influenced utilization of physiotherapy among those with osteoarthritis and rheumatoid osteoarthritis.</p>					
	<p>Review effect of strategies used by health-insurance systems targeting low- and middle-income countries in influencing cost-effective use of medicines (90)</p>	<p>This review identified 63 publications investigating the effects of pharmaceutical strategies by insurance systems on the cost-effective use of medicines in LMICs.</p> <p>There was evidence from several studies that health insurance may reduce financial barriers to accessing care in LMICs. These studies reported that insurance is associated with a decreased likelihood of paying for medicines, decreased consumer spending on medicines, and decreased out-of-pocket (OOP) spending on medicines as a percentage of total health expenditure.</p> <p>Similarly, many studies have shown that being insured was associated with increased use of medicine, increased percentage of prescriptions being filled, increased utilization of chronic-disease medicines, and increased adherence to prescriptions.</p> <p>Evidence is limited for the use of formularies and cost-sharing. A few studies included in the review suggested that formulary changes may decrease medicine expenditures and improve utilization of cost-effective medicines. Policies developed in Shanghai, China that reimbursed patients only for medicines listed on the formulary, capped hospital revenue from medicines sales, and raised provider service fees, decreased the rate of growth for total medical and medicines expenditures, and decreased the use of imported medicines and expensive antibiotics.</p> <p>The review found evidence that the type of provider payment affects use of medicines. In fee-for-service (FFS) insurance systems, prescribers are more likely to prescribe any medicines, more medicines per visit, and newer and expensive medicines. There is evidence that patients with FFS insurance have higher expenditure on prescription medicines and total medical costs. In contrast, a study from China found that capitation was associated with a reduced growth in expenditures for expensive medicines, and further evidence suggests that members of capitated insurance programs were prescribed fewer medicines overall, and were less likely to be prescribed newer medicines.</p> <p>There was also limited evidence on the impact of consumer education by</p>	<p>2009</p>	<p>3/9 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/56</p>	<p>Not reported in detail</p>	<p>0/56</p>

*Enhancing Equitable Access to Assistive Technologies in Canada*

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>insurance programs in LMICs. Educational programs implemented in Mexico by The Mexican Social Security Institute, which combined clinical guideline dissemination, interactive group education, prescribing audits, and peer review to improve treatment of prevalent acute and chronic issues, improved prescribing and compliance with treatment guidelines.</p> <p>Overall, the review found reasonable evidence supporting the use of insurance as a strategy to improve access to pharmaceuticals in LMICs. However, there is still a lack of evidence about the impact of pharmaceuticals policy strategies in LMICs, and the limited evidence should be interpreted with caution due to various research design problems in the studies.</p>					
	Assessing the effect of health insurance on utilization and health outcomes (58)	<p>The review identified 14 studies that provided evidence on estimated causal effects of health insurance on healthcare utilization and/or health outcomes among adults (18-65) in the United States. The utilization measures included outpatient physician visits, hospital use, emergency department use, specialty care use and preventive care.</p> <p>The review reported that evidence consistently showed that health insurance increases the utilization of health services and improves overall health. For example, five of the 14 studies found that health insurance led to an increased use of outpatient physician services by 8-40%.</p> <p>In addition, health insurance had substantial effects on the use of preventive services, self-reported health status, and mortality conditional on injury and disease.</p>	2008	4/10 (AMSTAR rating from McMaster Health Forum)	0/14	0/14	0/14
	Evaluating the impact of personal health budgets on outcomes and costs (62)	<p>This economic evaluation examined the use of personal health budgets through England's National Health Service. The program evaluation compared the outcomes and costs of patients selected to receive personal health budgets and individuals who used conventional support arrangements.</p> <p>The study reported no significant difference in mortality or clinical outcomes when comparing personal health budgets to conventional service delivery. The study did find a statistical difference in care-related quality of life and psychological well-being for those receiving personal health budgets compared with those in the control group. This relationship was not sustained with respect to the health-related quality of life and subjective well-being measurements.</p> <p>In terms of cost, the net quality of life monetary benefit for users of personal</p>	n/a	n/a	n/a	n/a	n/a

McMaster Health Forum

Element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>health budgets was between \$2,411 and \$4,267 (converted from British Pound Sterling based on the average conversion rate in 2011) greater when compared to the control group, after controlling for baseline differences. Authors noted that using personal health budgets also carried a largely neutral impact on recurrent costs.</p> <p>The authors acknowledge variability in the extent to which personal health budgets were implemented as the overall structure and processes developed in the intervention model changed over the duration of the study.</p>					

**Appendix 4: Systematic reviews and economic evaluations relevant to Element 3 – Supporting citizens to access needed assistive technologies that are not covered by government-funded programs**

Sub-element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
Cost-sharing mechanisms such as sliding scale payments; flat rate user fees, or full private payment	Examining government purchases of health services from the private sector to address gaps on service provision (78)	<p>The review identified 15 systematic reviews that assessed the effectiveness of financial mechanisms in delivering primary healthcare services to underserved populations.</p> <p>The review found some evidence that contracting the delivery of services to the private sector can improve the availability and utilization of services in underserved populations. The public sector delivered care of better quality at an overall lower cost. Also, by contracting out services, overall out-of-pocket expenditure at the household level was reduced.</p> <p>Studies included in the review that examined the use of voucher programs for well-defined services (e.g., reproductive health), found largely positive results, including decreased out-of-pocket expenditure, increased knowledge among patients and physicians, increased utilization of services, and increased patient satisfaction.</p> <p>The review cautioned the reliability of the findings for both contracting out and voucher schemes, noting that outcomes were strongly influenced by contextual factors, the type of delivered services and community demand, design of the intervention, and governance capacity and provision of stewardship.</p>	2015	5/9 (AMSTAR rating from McMaster Health Forum's Impact Lab)	0/15	15/15	0/15
	Explore the effects of reference pricing on medication use, payer and patient spending, and resource consumption (71)	<p>The review identified 16 studies describing nine reference-pricing policies from six countries. Four of the nine policies used generic reference pricing, which involves only off-patent drugs within a certain therapeutic class, and the other five related to therapeutic reference pricing, which includes all eligible products (on- and off- patent) within a therapeutic class.</p> <p>Four of the nine reference pricing policies demonstrated significant reductions in the price of the targeted drug classes, with a mean reduction of 11.5%. The reference policies had mixed effects on the utilization of certain drug classes, but led to an increase in patients switching from more expensive drugs to those that dropped in price as a result of reference pricing, and a reduction in switching from reference drugs to more expensive drugs. The policies were also associated with significant improvements in medication adherence.</p>	2012	7/10 (AMSTAR rating from McMaster Health Forum)	8/15	0/15	0/15

McMaster Health Forum

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		Reference price policies were found to significantly reduce both patient and payer expenditures. The three studies that investigated patient expenditures found out-of-pocket savings ranging from 12% to 18%. Four studies that explored the impact on payer expenditures found reductions of 14% to 52% on targeted drug classes (antidepressants, anti-ulcerants, antihistamines, ACE inhibitors and statins). Despite this, three studies reported that reference pricing had no significant impact on hospitalizations and physician visits. Thus, the policies seem to achieve cost savings without increases in resource consumption.					
	Examining the effect of co-payments on adherence to prescription medicines (72)	<p>The review was interested in quantifying the risk of non-adherence to prescribed medicines in publicly insured populations exposed to co-payments. The review included seven studies in a meta-analysis, which found a summary odds ratio for non-adherence of 1.11, which is equal to 11% increased odds of non-adherence when publicly insured patients are required to co-pay for their prescription medicines.</p> <p>In particular, medication classes that appeared more than once in the meta-analysis included those for hypertension, hyperlipidemia and diabetes, medicine which requires daily consumption and whose non-adherence can be clinically important. Many of these consumers have been traditionally found to be poor adherers to medications for chronic conditions with reported levels at around 50%. Therefore additional barriers to adhering to prescribed medicines can have a detrimental clinical and economic impact.</p>	2012	9/11 (AMSTAR rating from McMaster Health Forum)	0/7	0/7	0/7
	Assessing the effects of value-based insurance design on patient-centred outcomes with diabetes-related medications and supplies (91)	<p>This economic evaluation was interested in assessing the effects of value-based insurance design (restructuring pharmacy benefits to reduce financial barriers to medications with proven value, such as eliminating co-payments) on patient-centred outcomes with diabetes-related medications and supplies.</p> <p>The review found that patients reported a significant reduction in monthly out-of-pocket costs, which reduced cost-related non-adherence. Overall, the patients reported that the insurance program allowed them to take better care of their diabetes, with high levels of satisfaction.</p>	2013	n/a	n/a	n/a	n/a
	Reviewing the utilization of cost-sharing strategies and physician-directed prescribing regulation in reducing	<p>The review identified 41 studies that addressed cost-sharing mechanisms in publicly funded healthcare systems. There were 34 countries that were identified in these studies, including both high- and low-income countries.</p> <p>The use of cost-sharing mechanisms varied significantly between the studies. Certain countries had reduced or no co-payments for those with certain conditions, most often chronic conditions, though this varied between</p>	2012	4/10 (AMSTAR rating from McMaster Health Forum)	7/41	0/41	0/41

Sub-element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
	inappropriate drug prescribing (75)	<p>countries.</p> <p>Within these studies, only the United States-Part D Medicare employed a premium as a mechanism to fund prescription drug insurance plans. Switzerland allowed reduced co-payments for brand name drugs and four systems (Denmark, Netherlands, Sweden, and United States) used a deductible.</p> <p>Some systems attempted to mitigate the potential clinical impact of co-payments by differentially lowering co-payments for patients with specific chronic conditions or for certain medication classes. This strategy has little evidence to support or refute its utility.</p> <p>Another strategy involves targeting prescribing practices of physicians to reduce excessive prescribing. For example, France had an overall reduction in drug expenditure with the implementation of mandatory practice guidelines, though the sanctions have since been removed. Since the sanctions have been removed, compliance is low and effectiveness of this policy is uncertain. A careful analysis of this strategy on its impact on clinical outcomes is needed.</p> <p>As well, another cost-sharing strategy was to place caps on the amount of benefit a patient can receive during a given time period. The evidence for this was limited and the impact on clinical outcomes and overall costs is uncertain. However, one study found that among the chronically ill, patients who had reached their benefit cap are more likely to stop taking their medications than those who have not.</p>					
	Examining what impact prescription drug charges have on efficiency and equity (73)	<p>The review aims to examine the association between cost-sharing for prescription drugs and efficiency and equity. There were 173 reviews identified that look at both direct (i.e., co-payment, co-insurance, and deductibles), and indirect forms (i.e., reference pricing), and differential charges (i.e., multi-tier formularies) of prescription drug charges.</p> <p>There were 63 studies that examined the impact of cost-sharing on total or out-of-pocket prescription drug expenditure. Most studies found that higher cost-sharing lowered total prescription drug expenditure. Variation in the magnitude of expenditure reductions was influenced by contextual factors such as the size of the increase in user fees, the type of drugs associated with</p>	2006	2/10 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	Not reported in detail	Not reported in detail



McMaster Health Forum

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		<p>user fees, and the population groups subject to user fees. In general, the literature also found that having any form of insurance coverage (as opposed to none) increased total prescription drug expenditure.</p> <p>In terms of equity, international evidence consistently demonstrates that user fees place a burden on those individuals from lower socio-economic status, as well as lower equity in the use of healthcare.</p> <p>There were few studies examining health outcomes, but of those that did it was found that prescription drug charges increased the likelihood of needing more intensive care and of dying.</p>					
Enhancing supports for people with disabilities to participate in the workforce, including enhancing the scope of coverage for assistive technologies through employment-based insurance, non-profits and charity programs	Examining characteristics of interventions that facilitate the timely return to work after sickness (80)	<p>The review aims to identify characteristics of return-to-work (RTW) interventions that facilitate the RTW in multiple target populations and across interventions. There were a total of 23 studies included in the review.</p> <p>The following taxonomy was created to describe RTW interventions: timing of intervention, care professionals involved, planning of activities to support RTW, target population, character of activities to support RTW, intensity, and employee or employer role.</p> <p>The review found the following characteristics were facilitators of RTW: early timing of intervention (i.e. initiated within the first six weeks of sickness/absence), multidisciplinary care professionals' involvement, and interventions that include explicit actions to stimulate the employee to return to work. The conclusion that early administration of intervention supports RTW was supported by only two interventions included in the review.</p>	2010	5/10 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	Not reported in detail	Not reported in detail
	Examining process-oriented dimensions that lead to a full recovery and return to work (81)	<p>This review included 13 studies that explored the experiences of stakeholders involved in workplace-based return-to-work interventions, with a focus on work-related musculoskeletal and pain-related injuries.</p> <p>Eight key concepts were identified in the review that lead to successful RTW. There was strong evidence that showed goodwill and local culture as important factors for the RTW process to occur. Goodwill is a function of workplace ideas involving the attribution of injury and the magnitude of resources allocated for RTW.</p> <p>The review found evidence to support that the relation between the worker and the 'system' is important, since workers do not often understand the rules about worker's compensation or the language used by providers, which</p>	2003	6/9 (AMSTAR rating from McMaster Health Forum)	6/13	Not reported in detail	Not reported in detail

*Enhancing Equitable Access to Assistive Technologies in Canada*

Sub-element	Focus of systematic review or economic evaluation	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with one of the prioritized groups	Proportion of studies that focus on access to assistive technologies
		<p>can lead to failures in RTW. Workers who are advised about processes and procedures still may find it difficult to document events for the compensation board while balancing their physical rehabilitation with their personal lives.</p> <p>Another factor found to influence RTW is having contact with workers between injury and the RTW period, although early contact may be perceived by workers and employers as an unwelcome obligation rather than a care-oriented gesture.</p> <p>Other factors that affect RTW procedures is the availability of physicians to meet with injured workers, modified work arrangements that need to be flexible and tailored to a worker's particular needs, the economic context of the business (whether they are expanding or downsizing), and the involvement of work supervisors and the injured personnel.</p>					
	<p>Examining factors that are associated with, and assessing the return to, work interventions among breast-cancer survivors (82)</p>	<p>The review included 19 studies examining the facilitators and barriers to RTW, specifically in breast-cancer survivors.</p> <p>The review found the prevalence of RTW to vary from 43% to 93% within one year of diagnosis, but could be as low as 27% without a time limitation. Important factors that facilitate breast-cancer survivors' RTW include: white collar job, early tumour stage, self-motivation, normalcy and acceptance to maintain a normal life, support from friends, family and workplace, and employment-related health insurance coverage.</p> <p>The review also reports on barriers to RTW, which include: low income, ongoing chemotherapy, fatigue and exhaustion, psychological constrain, high job demand, and poor support from colleagues and employers.</p> <p>Meta-analysis was not possible because of the variability of definitions used to describe RTW.</p>	2013	6/10 (AMSTAR rating from McMaster Health Forum)	3/19	Not reported in detail	Not reported in detail





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