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**Evidence Brief:  
Strengthening Care for Frail Older Adults in Canada**

12 October 2016

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 effectively communicate the rationale for actions.

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the evidence brief. The funders played no role in the identification, selection, assessment, synthesis, or presentation of the research evidence profiled in the evidence brief.

Merit review

The evidence brief was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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## KEY MESSAGES

### What's the problem?

- Many factors contribute to the challenges of strengthening care for frail older adults in Canada, including:
  - frailty being challenging to define and 'diagnose';
  - frailty impacting some Canadians more than others;
  - frail older adults having complex needs, which often leads to care that is fragmented; and
  - frail older adults requiring considerable support from caregivers who also need support given increased demands placed on them.

### What do we know (from systematic reviews) about three elements of a potentially comprehensive approach to address the problem?

- Element 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are 'pre-frail'
  - This could include using data and screening tools to proactively identify those at risk for frailty, providing information and supports in different settings (e.g., seniors' residences, healthcare facilities) for approaches that promote healthy aging and prevent frailty (e.g., supporting a physically active lifestyle and good nutrition), using physical and occupational therapy to improve strength and functioning, and enhancing home-based care and support to help older adults living at home for as long as possible.
  - While some screening tools were good predictors of frailty and demonstrated positive patient and health outcomes, others continue to report mixed evidence about their effectiveness. Following screening, interventions which encouraged physical activity were generally found to have positive results, including lower rates of hospitalization and fewer falls.
- Element 2 – Managing the burden of frailty for older adults
  - This could include making care more integrated and person-centred, which could involve: 1) ensuring patients receive care when they need it; 2) supporting the engagement of patients and their caregivers in their care; and 3) supporting seamless transitions between settings.
  - Patient-centred models of care were found to improve patient outcomes, satisfaction and experience. A number of activities were found to contribute to these models and also result in positive outcomes, including the use of team-based models, encouraging patient decision-making and using discharge plans.
- Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of, and manage the burden of frailty
  - This could include: 1) addressing the economic security of caregivers through financial programs (e.g., flexible work arrangements); 2) engaging caregivers in decision-making about how care and support is organized; and 3) providing education and supports needed by caregivers to reduce their burden and to help them cope and build resilience.
  - While evidence on the effectiveness of respite care was mixed, providing caregivers with education and supports including support groups, communication and problem-solving training, were found to reduce caregiver burden and levels of stress.

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

- Barriers to implementing these elements might include: 1) possible lack of adherence to health-promoting interventions by older adults to help them stay healthy; 2) systems of care not being set up for addressing complex conditions; 3) clinicians lacking the resources, interest or skills to work in patient-centred models of care; and 4) hesitance of policymakers to pursue significant system-level change.
- Windows of opportunity for implementing these elements might include: 1) an aging population making it necessary to invest in new ways of doing things; 2) a growing desire within the health sector for pan-Canadian leadership and collaboration; and 3) difficult economic times forcing the creation of innovative approaches.



## REPORT

As in many other jurisdictions around the world, Canada's population is living longer than ever before. In 2015, for the first time there were more persons aged 65 years and older in Canada than children aged 0-14.(1) Also, 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.(2-3) In addition, it is estimated that a quarter of individuals over the age of 85 can be thought of as frail (see below for a more detailed description of frailty).(3)

Moreover, 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 accumulate health deficits including reduced mobility, disability and/or chronic disease.(2) As described below, accumulation of such deficits is a key feature of frailty. Therefore, as the population over 80 continues to steadily rise, the number of adults experiencing symptoms of frailty is also expected to grow from 1.1 million to more than 2 million in 2035.(4)

This has important implications for the health system, patients and their families given that:

- those who are frail are at greater risk for chronic illnesses (5-6) and disabilities in basic and instrumental activities of daily living;(5; 7)
- as more people accumulate health problems, there is increased need for in-home services, hospital-based care and long-term care;(8-9)
- chronic disease costs the Canadian economy \$100 billion annually in lost productivity and \$90 billion in treatment costs, and 67% of all direct healthcare costs are related to chronic diseases;(10) and
- caregivers spend a considerable amount of time and resources caring for others, reducing their ability to work and engage in other activities.(11)

Given this, taking on the challenge of strengthening care for frail older adults in Canada provides an opportunity to address the needs of a priority population for many provincial governments (i.e., older adults), and to consider how to strengthen care more generally across all sectors in the health system, including home and community care, primary care, specialty care, rehabilitation, long-term care and public

### Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a potentially comprehensive approach for addressing the problem, and key implementation considerations. 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 (British Columbia Ministry of Health, Institut national d'excellence en santé et services sociaux, McMaster University, Ontario Ministry of Health and Long-Term Care, and the Université de Montréal) 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, elements 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 of a potentially comprehensive approach 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.

health. As outlined in this evidence brief, this likely means considering an approach that focuses on healthy aging, as well as better managing the challenges faced by frail older adults and their caregivers. Doing so could have many benefits including:

- preventing or delaying the onset of frailty for those most at risk (and in doing so, helping to also prevent chronic disease and disability, and potentially bringing people back from the state of frailty);
- improving delivery of care and support; and
- improving the health and quality of life for individuals with complex health needs.

Indeed, there has been national, as well provincial and territorial attention on improving care for older adults at risk of deteriorating health status, with the focus in many provincial health systems being on strengthening primary care, and enhancing coordination among the sectors in the health system.(2; 12-14) The goal is to enhance patient experience, improve health outcomes and keep costs manageable.(15) This evidence brief has been developed within this context and focuses on approaches that can be used to prevent, delay the onset of and decrease the social burden of frailty.

### What is frailty?

As noted in the problem section later in this brief, frailty is difficult to define, but most consider it to be a type of vulnerability related to physical, emotional and social factors. In relation to physical factors, frailty often results from an accumulation of deficits in health (16) and is experienced as:

- having a general lack of strength;
- being more vulnerable to disease (e.g., one or more chronic diseases) or disability (e.g., lack of mobility); and
- deteriorating in health more quickly as a result of diseases and disability.(4)

Emotional and social factors can relate to many things that lead to vulnerability (and eventually greater risk of functional impairments and disease), including lack of emotional and social support, and social isolation.(17) Moreover, those who are very frail will have greater difficulty recovering from illness (either acute or chronic) and may be completely dependent on others for their care. For example, a relatively minor event (e.g., developing a minor infection or a minor fall) can lead to a series of challenges resulting in increased disability and significant declines in health.(5)

Therefore, frailty is also closely linked with both chronic disease and disability, but cannot be considered synonymous with them. For example, older adults can be frail without having a chronic disease or disability. Similarly, frailty can precede the onset of either a disease or disability, or be the result of them. Moreover, as

### 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:

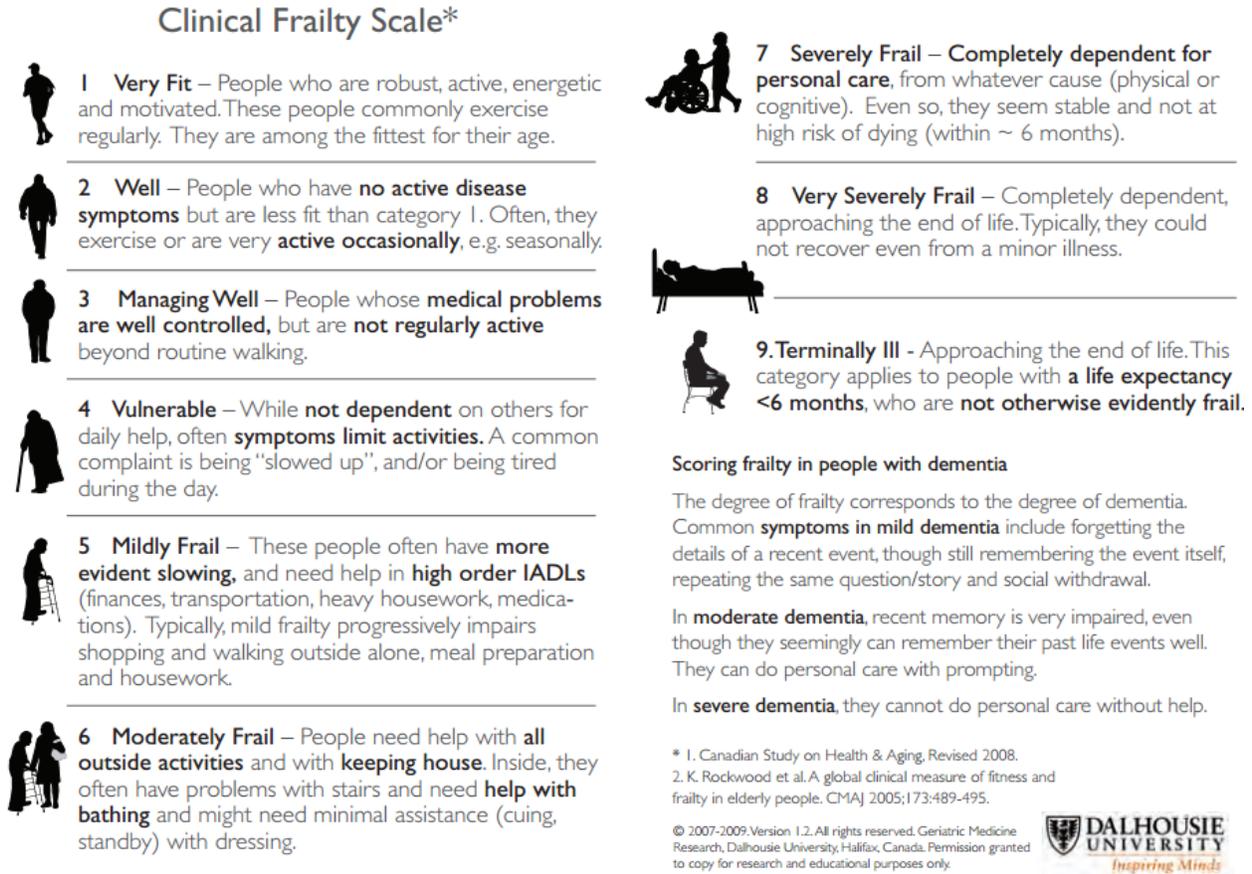
- people living in rural/remote areas of the country; and
- people with low-income or living in poverty.

Many other groups warrant serious consideration as well (e.g., those who do not speak either English or French or those who are living alone or in isolation), 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.

described in Figure 1, frailty does not exist as a single state, but rather along a continuum from being mostly healthy, to being vulnerable or at-risk for frailty (often termed pre-frail), to more severe forms whereby an individual may be dependent on others for the delivery of personal care. It is at this last stage where frailty is most challenging, often requiring complex care that involves many health professionals and often significant assistance from caregivers. Frailty, however, does not necessarily have a linear progression along this continuum, with intervention being possible at many points to prevent frailty, manage current levels and even strengthen frail individuals to a ‘pre-frail’ or non-frail state.

**Figure 1: Clinical Frailty Scale (figure reproduced with permission)(18)**



**Overview of contextual factors related to strengthening care for frail older adults**

There are several features of provincial and territorial health systems, home and community care and public health that are important to take into account in the context of strengthening care for frail older adults. We provide an overview of these factors below to assist with interpreting the information presented about the problem, three elements of a potentially comprehensive approach for addressing the problem, and implementation considerations.

*Key features of health systems*

- Medical care provided in and with hospitals and by physicians is fully paid for as part of each publicly funded provincial health system.
- Care and support provided by other healthcare providers such as nurses, physiotherapists, occupational therapists and dietitians are typically not paid for by provincial health systems unless provided in a hospital or long-term care setting. Public coverage outside of these settings varies by province.
- Other healthcare and community services such as prescription drug coverage, community support services and long-term care homes may be partly paid for, but the extent of coverage varies across provinces, and any remaining costs need to be paid by patients or their private insurance plans.
- All provinces allocate responsibility for the planning and funding of healthcare in regions within a province.
- Some provinces provide specific resources for those with complex conditions. For example, 82 Health Links (of an anticipated total of 90) in Ontario support the delivery of integrated care (e.g., coordinating between different care providers and settings) for those with complex needs (typically those living with multiple chronic diseases).(19)

*Features most relevant to home and community care*

- The extent of coverage for home and community care varies by province, and the coordination of services is 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 and for-profit community support-service agencies deliver home and community care to residents in their province. The assistance can include personal support (e.g., for household tasks, transportation, meals-on-wheels, supportive housing and adult day programs).

*Features of public health*

- At the national level, the role of the Public Health Agency of Canada is to promote health, prevent and control chronic diseases and injuries, prevent and control infectious diseases, prepare for and respond to public health emergencies, share Canada's expertise internationally, apply research, strengthen intergovernmental collaboration, and facilitate national approaches to public health policy.(20-21)
- At the local level in provinces, public health units typically provide a range of health-promotion and disease-prevention programs, including those that inform the public about healthy lifestyles, provide communicable disease control, and support healthy growth and development.(22)

## **THE PROBLEM**

The problem can be understood in relation to the following four themes:

1. frailty is challenging to define and ‘diagnose’;
2. frailty disproportionately affects some Canadians more than others;
3. frail older adults have complex needs often leading to fragmented care; and
4. frail older adults require significant support from informal caregivers.

### **Frailty is challenging to define and ‘diagnose’**

There is a lack of consensus on how to define frailty (including whether it is distinct from chronic disease and disability and the natural aging process), and this has implications for clinicians in identifying or diagnosing frailty in their patients. The debate focuses on whether it should be operationalized with criteria that can be used to make a ‘diagnosis’, or whether that type of approach reduces a complex and interrelated set of physical, emotional and social factors into a limited set of mostly physical symptoms.(23) However, as described earlier, most definitions consider it in terms of vulnerability,(24) which can be related to physical, mental, emotional and social factors.(18; 25) Common ways of describing frailty include:

- limited physical performance or physical decline;(9)
- a medical condition;(10; 12)
- an age-related syndrome;(15)
- accumulation of deficits in health;(16) and
- a model that combines many or all of these factors.(23)

The result is that frailty and approaches to screening for it have been defined with many different components. For example, a recent systematic review (23) assessed definitions and possible screening tools for frailty and found 15 different components of frailty, which broadly related to rapid weight loss, frequent exhaustion, low levels of activity, slow gait speed and poor grip strength.(26-27)

The lack of agreement about how to define frailty makes it difficult for clinicians to ‘diagnose’ and ultimately identify frailty in their patients and clients. Different criteria have produced estimates across several countries (including Canada) of the number of frail older adults, which range from a low of 4% to a high of 59%.(10; 28-31) The lack of agreement makes it difficult to identify individuals at risk of becoming frail.(7) This is important because early detection is necessary to prevent or reverse frailty through targeted education and health-promoting activities (e.g., physical activity and adopting good nutrition as part of daily routines).(32-33) This includes identifying cognitive impairment, which can change the type of preventive approach that can be taken. Lastly, the lack of clear criteria can make it difficult for care providers to monitor people who are already frail, and prevent further deterioration, hospitalization and institutionalization.

### **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 the Canadian Institute for Health Information, Statistics Canada, Canadian Frailty Network, and the Public Health Agency of Canada, as well as provincial and federal legislative committee reports.

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.

## **Frailty disproportionately affects some Canadians more than others**

Health-related issues typically affect some groups more than others, and with frailty those with multiple chronic conditions, those living in poverty and those living in social isolation tend to experience a disproportionate burden.(34-35) As noted earlier, frailty can be both the cause and result of chronic disease. Moreover, the combination of frailty and chronic disease (especially people living with multiple chronic diseases) greatly affects an individual's health.(36-38) For example, as outlined earlier in Figure 1, the physical decline associated with frailty can lead to chronic disease or make them more difficult to manage.(39-40) Also, the many effects of having multiple chronic conditions can make it more likely that an older adult will become frail. In relation to specific chronic diseases, frailty has been found to be closely interrelated to both hypertension and osteoarthritis, especially in women.(39) Complicating the relationship further, a number of non-disease conditions including poor nutritional state and low levels of activity are closely associated and contribute to the onset of both chronic disease and frailty.(39) These intersections clearly show how the symptoms and effects of frailty can disproportionately affect individuals with chronic diseases and the ability for a small stressor to severely change their health and well-being.(39)

Poverty has a significant impact on the health of older adults (e.g., on their ability to access needed care) and their caregivers (many of whom need to fully or partially leave paid employment to provide care).(34-35) People living in poverty tend to experience the effects of aging and the onset of frailty earlier than those with higher incomes.(34) For example, it has been found that a 40-year-old individual living in poverty is anticipated to have biological risks equal to that of a 60-year-old living in better economic conditions.(34) In addition, frail older adults living in poverty are less likely to be able to afford things they need to keep them healthy (e.g., healthy food), as well as medications, allied healthcare and home care.(35) As a result, these individuals face numerous barriers accessing services whether through out-of-pocket payments, transportation costs, or loss of earnings due to illness or time taken off to visit a health professional.(35) In terms of chronic disease, people with low incomes and those living in poverty are affected more than others. Together, the greater susceptibility combined with limited access contributes to 40% of lower-income Canadians having one or more chronic disease compared to only 27% of their high-income counterparts.(36-38)

In general, older adults who are isolated or are experiencing loneliness have higher rates of adverse health outcomes including depression, functional decline, mortality and frailty. Likewise, pre-frail and frail older adults are more likely to report experiencing loneliness than non-frail individuals.(41) While loneliness and social isolation are often used interchangeably, social isolation arises in situations where a person does not have enough people to interact with, while loneliness is the subjective experience of not having enough individuals to interact with.(42) Loneliness has been associated with frailty in community-dwelling elderly adults because of the isolation they may experience, and can have a detrimental impact on an individual's psychological and emotional well-being.(43) Those who are isolated lack access to support networks of family, friends and neighbours who frequently act as caregivers for older adults. Without these social resources, socially isolated older adults do not necessarily receive the support they need with the activities of daily living, and are left instead to care for themselves. Social isolation and loneliness may be particularly present in rural communities where the distance to social networks may be more expansive.(18)

## **Frail older adults have complex needs often leading to fragmented care**

Frail older adults are at greater risk of developing chronic illness and cognitive impairments, each of which can have an impact on basic and instrumental activities of daily living.(5; 7) Balancing these morbidities requires complex care where providers are able to balance both medical and non-medical factors, including physical and mental functioning, symptom burden, survival and life expectancy, nutrition, social networks and supports, and housing. Striking a balance across these factors requires a patient-centred approach that includes a range of supports that are coordinated across sectors.

While collaborative and coordinated care among a range of health professionals has been found to be important for improving patients' health,(35-38; 44) provincial and territorial health systems in Canada have traditionally focused on treating single diseases rather than on assessing and providing coordinated access to care and supports across the full spectrum of care needs. Indeed, most physicians recently surveyed in Canada feel they are not well prepared to manage the care of patients with complex needs.(18) This could stem from several factors, including:

- physicians and other care providers often not having the training and experience needed to work with frail older adults;(45-47)
- health professionals (e.g., physicians, nurses, social workers and pharmacists) not always working together in collaboration with a clinician who specializes in geriatrics to get people the care they need;(36)
- a shortage of geriatricians who can be available to collaborate on teams;(48) and
- a lack of interoperable electronic health records means that all the information about a patient is rarely in one place, which has resulted in frail older adults reporting poor interactions with healthcare services and service providers.(49)

This fragmentation can increase the risk of medical error and poor coordination of services (e.g., being over or mis-prescribed drugs).(50-51) It also often leaves people with complex conditions (such as frailty) and their caregivers to navigate the system on their own, where they have to see a family physician, set and attend appointments with several specialists in different settings, manage many medications, organize home-based care, and identify additional supports such as transportation that they may need.

Also, without an integrated and patient-centred approach that avoids fragmentation, patients, families and caregivers often lack the supports they need to help them to make informed decisions about their health and managing their care needs. It also means that they are not always engaged in policy development about the health system. Without such supports and engagement, it will be difficult to support integrated and patient-centred care. Also, policy developed to address health-system issues may not be based on citizens' values and preferences, or be flexible enough to accommodate those values and preferences.

### **Frail older adults require considerable support from informal caregivers**

Frail older adults have significant care needs, and often rely heavily on caregivers (e.g., an intimate partner, family member, friend or volunteer) to support them.(38). The roles of caregivers of frail older adults can be significant and may take various forms, such as:

- providing emotional support;
- transporting or accompanying patients to medical appointments;
- reporting or managing side effects;
- giving medicines;
- keeping track of interventions (e.g., for nutrition and exercise), medicines, test results and papers;
- providing physical care (e.g., feeding, dressing and bathing);
- coordinating care (including navigating the system and advocating on behalf of their loved ones);
- keeping family and friends informed; and
- making legal and financial arrangements.(9)

Caregivers, and particularly those providing care to people with complex needs, often face many health challenges given the strain placed on them through playing these many roles. This can include anxiety, depression, and poor physical and mental health.(52) As a result, in the course of caring for frail older adults, some caregivers also become at-risk for frailty.

In 2012, nearly half of Canadians aged 15 years and older (46%) provided some type of care to a family member, friend or neighbour with a chronic health condition, disability or aging needs.(53) Canadians spend a considerable amount of time and resources caring for others, with one in 10 caregivers spending over 30 hours a week (equivalent to a full-time job) providing some form of assistance.(53) As result, the economic

impacts are substantial, with early research from 2009 indicating that the economic contribution of Canadian caregivers was between \$25-\$26 billion per year.(54)

This time spent providing care reduces their ability to work and engage in other activities (see Figure 1). This heavy burden may generate stress and other health issues among caregivers, who may neglect the management of their own health in favour of caring for others.(55) This distress, if not adequately monitored or addressed, can lead to adverse health outcomes for caregivers, including feelings of being overwhelmed, withdrawal from social activities, and depression.(55)

Despite their crucial role in supporting the health of older adults, practical, social, emotional, informational and financial support for unpaid caregivers is lacking or inconsistently available.(48; 56-57) This lack of support can have a negative impact on the physical and mental health of caregivers, on their personal and professional lives, and on the quality of care that they provide.(58) As reported by a forum of cancer, mental health and caregiver groups: “Failure to recognize, acknowledge and support family caregivers heightens their risk of becoming ‘collateral casualties’ of the illness, compromises their health, reduces the efficacy of the help they can provide to their relatives, and increases costs to the health and social service systems.”(58)

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

Ensuring that individuals have access to comprehensive care as they age is important in keeping older populations healthy, and in preventing the onset or worsening of symptoms of frailty. Not only does this result in better individual health outcomes, but it can diminish the impacts of health inequities and reduce total costs of the healthcare system.(59-60) 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 of these factors: poverty or low socio-economic status and living in rural or remote area.

As previously mentioned, Canadians who live in poverty are at greater risk of developing chronic diseases and other health deficits due to limited access to nutritious foods, precarious employment or unemployment, and limited access to preventive health services.(61) Poverty can further reduce the ability for the poorest Canadians to stay healthy and independent. While there have been recent efforts to reduce poverty in many of the provinces and territories across the country, it is important to continue to recognize that differences in income and wealth can influence decisions that allow aging adults to stay healthy and remain in their own homes longer.

Additionally, Canada has a large rural population, with an average of 20% of individuals living in rural or remote areas across the country.(61) These individuals often face barriers to accessing healthcare services, including a lack of easily accessible and available providers, limited means to reach and use services such as transportation, and the ability to take time off of work. In addition, there are a number of social considerations such as lower levels of health literacy and concerns over privacy and social stigma in seeking care which compound challenges in accessing services in rural and remote communities.(14)

In focusing on older adults, the proportion of Canadians living in rural Canada increases dramatically to almost 50%, particularly in regions of Atlantic Canada.(61) These access and social barriers, in addition to a number of other competing environmental factors, mean that older adults living in rural and remote communities have a lower life expectancy, higher risk of chronic disease and increased levels of functional impairment, as compared those living in urban areas.(2)

Figure 1: Role of caregivers in supporting older adults (figure reproduced with permission from the Canadian Institute of Health Information)(11)

## Informal caregiving

Results from The Commonwealth Fund 2014 International Health Policy Survey of Older Adults (age 55+) show that Canadians generally spend more time as informal caregivers than people in other countries and don't always get the support they need.



**1 in 5** older Canadians provided care to someone with an age-related problem at least once a week. That's about the same as the international average of 11 countries.



**4 in 5** older Canadian caregivers provided care for their **family members**.



**Almost half (47%)** of older caregivers provided care for at least 10 hours a week, which is higher than the international average of 40%.



Canadian caregivers were more likely to experience **distress, anger or depression** if they provided 10 or more hours of informal care.



**Almost one-quarter** of Canadian caregivers needed help in the past year but didn't receive it.



**The main reasons** caregivers didn't get the help they needed were lack of services and not knowing where to go for help.

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## Citizens' views about key challenges related to strengthening care for frail older adults in Canada

During a citizen panel convened on 13 August 2016, 16 ethno-culturally and socio-economically diverse citizens were provided a streamlined version of this evidence brief written in lay language (details about the recruitment and approach to convening the panel are available in the panel summary, which can be downloaded from the McMaster Health Forum website).(62) During the deliberation about the problem, citizens were asked to share what they view as the key challenges related to strengthening care for frail older adults in Canada, and what they view as being needed to recognize frailty as an issue that warrants attention and effort to address. To prompt discussion, citizens were specifically asked to consider challenges related to accessing care and other supports for someone who is frail, someone who is at-risk for becoming frail, or for someone who provides care to a frail older adult. We summarize the key challenges identified by citizens in Table 1.

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

Challenge	Description
The complexity of frailty makes it challenging for all involved to understand, identify and manage	<ul style="list-style-type: none"> <li>• In describing their experiences with caring for frail older adults, many felt that clinicians did not have access to the necessary tools or competencies to identify those who are frail or at-risk for frailty.</li> <li>• Most agreed that the struggles of clinicians to identify frailty are in large part due to the fact that it cannot be 'diagnosed' like other discrete health conditions given that it's driven by a complex interplay of many contributing factors, including cognitive impairment, chronic diseases, gradual loss of strength and mobility, and the resulting loss of independence.</li> <li>• For patients and their families, participants noted that the complexity of frailty makes it difficult to know how to communicate symptoms or challenges they are facing to help development care plans.</li> <li>• Participants also mentioned that they felt discussions about frailty with older adults focused too much on the health system and did not adequately address the challenges that exist at the interface between health and other public sectors (e.g., in home and community care).</li> </ul>
Frail older adults and those at-risk for frailty are not always proactively identified and linked with services they need	<ul style="list-style-type: none"> <li>• Several participants identified that many frail individuals may not be aware that they should seek care, or may be resisting care for fear of the loss of independence, despite what one participant described as many being "one small incident away from becoming frail."</li> <li>• Other participants noted that individuals may face stigma in seeking care and may resist sharing challenges they are having for fear of being a burden on their social support systems.</li> <li>• Several agreed with the point raised by one participant that many older adults see their clinician only after significant deterioration in their health, and that because of limited proactive outreach services this deterioration is not addressed early enough, and they end up not receiving the care and support they need.</li> </ul>
Lack of centralized information for patients and providers to support coordinated care and self-management	<ul style="list-style-type: none"> <li>• Most participants expressed frustration with:               <ul style="list-style-type: none"> <li>○ a lack of publicly available information about frailty and not knowing what internet sources were reliable;</li> <li>○ not knowing the role of organizations and providers in the health system and where they can turn to seek care;</li> <li>○ physicians not having a centralized health record for patients to support coordinated care; and</li> <li>○ patients and their caregivers not having access to information in their health records along with guidance about managing care through one central access point.</li> </ul> </li> </ul>

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<p>Caregivers face many challenges and have few supports available to them</p>	<ul style="list-style-type: none"> <li>• Many of the participants had been or were previously caregivers for a frail older adult, and most expressed that they felt caregiving was largely a thankless task with very few supports available to them, and that supports that do exist require out-of-pocket payment and/or are not sufficiently flexible to their schedules.</li> <li>• Participants shared that as a caregiver they faced challenges communicating with health professionals, discussing how messages often got lost between the providers and the patient before they could get to the caregiver.</li> <li>• There was general agreement that caregivers typically do not know what to expect in terms of commitment and progression of disease when they begin providing care, and this uncertainty causes stress and difficulty with coping.</li> <li>• Similarly, many described having to be advocates or champions for the people who they were providing care for, and that this role was extremely challenging given that most were unfamiliar with navigating the health system.</li> </ul>
<p>Lack of collective governance perpetuates fragmentation in the system</p>	<ul style="list-style-type: none"> <li>• One participant expressed that they felt there is a lack of collaboration both within and between federal, provincial and municipal governments to address the needs of older adults.</li> <li>• This participant further elaborated that this lack of collaboration within and between systems has created uncertainty regarding the division of responsibilities between levels of government, and about where to turn for information and services.</li> </ul>

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

Many approaches could be selected as a starting point for deliberations about an approach for strengthening care for frail older adults 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 whom we interviewed during the development of this evidence brief. The elements are:

- 1) engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail’;
- 2) managing the burden of frailty for older adults; and
- 3) supporting caregivers in their efforts to prevent, delay the onset of, and manage the burden of frailty.

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.

The principal 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 reviews were conducted recently, which we define as the search being conducted within the last five years. 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 of a potentially comprehensive approach 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 5,300 systematic reviews and more than 2,400 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 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.

**Citizens’ values and preferences related to the three elements**

To inform the citizen panel convened in April 2016, 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 jumping-off point for their deliberations. During the deliberations, we identified several values and preferences from citizens in relation to these elements, which we summarize in Table 2.

**Table 2: Citizens’ values and preferences related to the three elements**

Element	Values expressed	Preferences for how to implement the element
Engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail’	<ul style="list-style-type: none"> <li>• Access (to credible information, to regular geriatric assessments and to services and interventions that will help to delay the onset or progression of frailty)</li> <li>• Empowerment (of patients and their caregivers with information and education to manage their health)</li> <li>• Collaboration between the health system and other sectors (so that efforts to prevent the onset of frailty take into account additional social factors)</li> <li>• Equity (to ensure all older adults have access to services regardless of ability to pay)</li> </ul>	<ul style="list-style-type: none"> <li>• Provide citizens with a central access point for reliable citizen-friendly information about frailty and where to access care and support</li> <li>• Promote awareness of symptoms of frailty and address the potential stigma around frailty and aging through public-service announcements, media campaigns and taking advantage of community resources to raise awareness (e.g. community flyers, community centres, schools, and community groups)</li> <li>• Increase the extent of integration between the health sector and other public sectors such that programs designed to prevent the onset for those who are pre-frail take into consideration additional social factors (e.g. income, housing and transportation)</li> <li>• Ensure that services to prevent the onset of frailty (e.g. physical activity, good nutrition and social engagement) are equally accessible to all Ontarians regardless of where they live and their ability to pay.</li> <li>• Provide seniors and those at risk of becoming frail with full regular geriatric assessments to identify limitations and promote early intervention</li> <li>• Improve financial accessibility to home-based therapy and physical and occupational therapy services</li> </ul>
Managing the burden of frailty for older adults	<ul style="list-style-type: none"> <li>• Trusting relationship between patients, providers and organizations within the health system (to encourage frequent communication between providers and between patients and providers)</li> <li>• Competence (of providers to manage complex needs)</li> <li>• Collaboration between health system and other actors (to encourage a holistic view of patients)</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure access to providers who can engage and communicate with patients and their caregivers (in particular, providers with training in providing care for older adults) such that a trusting relationship can be developed and fostered over time</li> <li>• Provide supports and information needed to help patients access the care they need across different providers and settings</li> <li>• Equip providers with the necessary training and resources to manage complex patient needs, including interactive health records to improve coordination between providers</li> <li>• Improve the availability of team-based care (with teams including access to experts in geriatric care when needed) and ‘one-stop shopping’ for patients with complex needs</li> <li>• Provide clinicians with the necessary skills to assess patients using a holistic perspective, taking into consideration their personal resources and unique circumstances</li> </ul>

<p>Supporting caregivers in their efforts to prevent, delay the onset of, and manage the burden of frailty</p>	<ul style="list-style-type: none"><li>• Patient- and caregiver-centred care (to ensure services are designed to meet the unique needs of both the patient and the caregiver)</li><li>• Empowerment and appreciation (to ensure caregivers have the necessary information to provide care and feel appreciated for the work they do).</li></ul>	<ul style="list-style-type: none"><li>• Ensure services are designed to support both the patient and caregiver, recognizing their unique needs</li><li>• Provide education and information to caregivers to empower them to navigate the health system, assist in the care process and equip them to manage patient care</li><li>• Equip caregivers with resources they can use to help manage care, including emergency response kits, medication log-books and guides to health and social services</li><li>• Implement and advertise select tax exemptions and tax credits for caregivers and the resources they may use in the process of managing care (e.g., medical equipment and transportation-related costs)</li><li>• Develop caregiver-focused supports in communities across the country, including support groups and respite services that are flexible to meet the broad array of caregiver needs</li></ul>
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### **Element 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail’**

This element is focused on how to engage in efforts to prevent frailty or prevent the onset of frailty for those who are pre-frail. This could include:

- using data and screening tools to proactively identify those at risk for frailty;
- providing information about and supports in different settings (e.g., seniors’ residences, healthcare facilities) for approaches that promote healthy aging and prevent frailty (e.g., health-promoting activities such as supporting a physically active lifestyle and good nutrition that are embedded in daily routine);
- using physical and occupational therapy to improve strength and functioning; and
- enhancing home-based care and support (e.g., transportation) to help older adults live at home for as long as possible.

Twenty systematic reviews were identified (Table 3), relating to the four sub-elements identified above. The reviews suggest that some screening tools are good predictors of frailty with positive outcomes of reduced hospital admissions and length of stay, and improved discharge rates, and are relatively cost-effective. However, some reviews continue to indicate mixed evidence on the effectiveness of these screening tools. The reviews suggest that until screening tools are sufficiently reliable, geriatricians and other health professionals (e.g., family physicians and/or nurse practitioners) should conduct comprehensive assessments to determine the needs of frail older adults. When performed, these assessments were found to significantly reduce the risk of older adults being moved into institutional care. Further, two reviews examining the use of physical therapy found that both group-based and home-based exercise programs improved the balance, fall rates and fear of falling of older adults.

Reviews that reported on approaches to physically active lifestyles among older adults found positive results such as improved overall physical determinants and functional ability outcomes, and reduced hospitalization rates, hip fractures and incidence of falls. However, the long-term effects have been limited by poor adherence to physical activity, and reported harms include small pelvic fractures when utilizing a hip protector. Some reviews also suggest that individualized physical-activity plans with a teaching component are an effective approach to promote healthy aging and prevent frailty. For supporting home-based care, one review found positive outcomes such as reduced hospital admissions and improved physical function in older adults. The same review indicated that effective interventions to support home-based care should be tailored to the needs of older adults.

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 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Using data and screening tools to proactively identify those at risk for frailty</b> <ul style="list-style-type: none"> <li>○ A recent high-quality review found that the interRAI HC screening tool may improve development of patient care plans, and reduce hospital admissions and length of stay.(63)</li> <li>○ A recent high-quality review found that PRISMA 7 screening tool is a good predictor of frailty.(29)</li> <li>○ A high-quality review found that the Frailty Index is an easily interpretable screening tool to identify risk for frailty.(64)</li> <li>○ A high-quality review found that physical frailty indicators could predict Activities of Daily Living (ADL) and disability in community-dwelling elderly people, with slow gait speed and low physical activity as the strongest predictors.(65)</li> <li>○ A medium-quality review found that screening tools that assessed preadmission functional status, cognition and social support were beneficial to detect risk of functional decline among older hospitalized adults.(66)</li> <li>○ Some reviews were identified that addressed various aspects of comprehensive geriatric assessment (CGA) with:                             <ul style="list-style-type: none"> <li>▪ a high-quality review finding that older adults who underwent CGA had a better quality of life at follow-up compared with patients who received general medical care;(67) and</li> <li>▪ a cohort study in a literature review finding that incorporating CGA in the emergency department improved discharge rates and reduced readmissions in people aged 85 years or older.(68)</li> </ul> </li> </ul> </li> <li>• <b>Providing information about and supports for approaches that promote healthy aging and prevent frailty (e.g. supporting a physically active lifestyle)</b> <ul style="list-style-type: none"> <li>○ One older high-quality review found that resistance training has positive outcomes such as reduction in bone loss and strength loss and improved balance performance.(69)</li> <li>○ A recent high-quality review found that interventions to structure or standardize clinical practice, geriatric specialist services, and influenza vaccination resulted in positive outcomes such as reduced hospitalization rates.(70)</li> <li>○ A recent high-quality review found a reduction in hip fracture risks among individuals utilizing external hip protectors in nursing or residential care settings.(71)</li> <li>○ Some reviews were identified that addressed various aspects of exercise interventions:                             <ul style="list-style-type: none"> <li>▪ a recent medium-quality review found that multi-component physical exercise programs reported positive outcomes in community-dwelling older adults such as increased weight, strength, mobility, oxygen-uptake, physical fitness, physical activity and balance;(72) and</li> <li>▪ a recent high-quality review found that individualized exercise plans with multi-component training, long duration and more frequency had a positive impact on some physical determinants (e.g., biochemical status, muscle function, cognitive function), and functional ability outcomes (e.g., mobility, balance), and also reduced the incidence of falls.(73)</li> </ul> </li> </ul> </li> <li>• <b>Using physical and occupational therapy to improve strength and functioning</b></li> <li>• <b>Enhancing home-based care and support to help older adults live at home for as long as possible</b> <ul style="list-style-type: none"> <li>○ A high-quality review found that community-based complex interventions such as geriatric assessment, community-based care, fall prevention, and group education and counselling reduced nursing home admissions, hospital admissions and falls, and improved physical function.(74)</li> </ul> </li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>Providing information about and supports for approaches that promote healthy aging and prevent frailty (e.g., supporting a physically active lifestyle)</b> <ul style="list-style-type: none"> <li>○ A recent medium-quality review found lower levels of adherence in group exercise interventions that were longer than 20 weeks or more and two or fewer sessions per week.(75)</li> <li>○ A recent high-quality review found a small risk of pelvic fractures and rashes among individuals who utilized an external hip protector for the prevention of hip fractures.(71)</li> </ul> </li> </ul>

<p>Costs and/or cost-effectiveness in relation to the status quo</p>	<ul style="list-style-type: none"> <li>• <b>Using data and screening tools to proactively identify those at risk for frailty</b> <ul style="list-style-type: none"> <li>○ Seven studies in a high-quality review reported a reduction in hospital costs when associated with comprehensive geriatric assessment.(67)</li> </ul> </li> <li>• <b>Providing information about and supports for approaches that promote healthy aging and prevent frailty (e.g., supporting a physically active lifestyle)</b> <ul style="list-style-type: none"> <li>○ Twelve studies in a high-quality review reported that the provision of hip protectors can be cost-effective.(71)</li> </ul> </li> </ul>
<p>Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the element were pursued)</p>	<ul style="list-style-type: none"> <li>• Uncertainty because no systematic reviews were identified that related to this sub-element <ul style="list-style-type: none"> <li>○ Not applicable as reviews were found for each sub-element.</li> </ul> </li> <li>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> <li>○ Not applicable (no ‘empty’ reviews were identified)</li> </ul> </li> <li>• No clear message from studies included in a systematic review <ul style="list-style-type: none"> <li>○ <b>Using data and screening tools to proactively identify those at risk for frailty</b> <ul style="list-style-type: none"> <li>▪ One recent high-quality review found no individual risk factor or risk assessment tool was found to effectively predict the risk or adverse outcomes among older adults.(76)</li> <li>▪ One high-quality review found that there is a lack of evidence to determine the utility and responsiveness of the Frailty Index screening tool.(64)</li> <li>▪ One recent medium-quality review found that the evidence is unclear with respect to frailty definitions, gait protocols and parameters, which has an impact on assessing the screening tools.(77)</li> <li>▪ One high-quality review found that there is mixed evidence in the use of multi-factorial assessment and management interventions for the prevention of functional decline among older adults.(78)</li> <li>▪ One recent high-quality review found mixed evidence on Comprehensive Geriatric Assessment and its specificity and sensitivity for predicting vulnerability in elderly patients with cancer.(79)</li> <li>▪ One medium-quality review found mixed evidence on screening tools (e.g. Hospital Admission Risk Profile (HARP), Identification of Seniors at Risk (ISAR) and their effectiveness to identify older adults at risk of functional decline.(80)</li> <li>▪ One low-quality review found unclear evidence on the screening tools such as HARP, ISAR, and Care Complexity Prediction Instrument (COMPRI), with respect to the reliability and ease of use of the screening tools.(26)</li> </ul> </li> </ul> </li> </ul>
<p>Key components of the element if it was tried elsewhere</p>	<ul style="list-style-type: none"> <li>• <b>Using data and screening tools to proactively identify those at risk for frailty</b> <ul style="list-style-type: none"> <li>○ A high-quality review found that the following are important components of comprehensive geriatric assessment that need to be considered: treatment in discrete units with expertise in the care of older people, and control over the delivery of direct care.(67)</li> </ul> </li> <li>• <b>Providing information about and supports for approaches that promote healthy aging and prevent frailty (e.g. supporting a physically active lifestyle)</b> <ul style="list-style-type: none"> <li>○ A high-quality review found that the following are important components of interventions that prevent the onset of disability in community-dwelling frail older adults that need to be considered: individualization (e.g., supervised individual home sessions), variation in duration and intensity, and multi-component physical exercise program.(72)</li> <li>○ A review reported that the following recommendations are important for effective physical activity among older adults: individualized activity plans, progression of activities, teaching component to the physical activity, and muscle strengthening.(81)</li> </ul> </li> <li>• <b>Enhancing home-based care and support to help older adults live at home for as long as possible</b> <ul style="list-style-type: none"> <li>○ A high-quality review found that effective interventions should be tailored to the needs and preferences of the older adult.(74)</li> </ul> </li> </ul>
<p>Stakeholders’ views and experiences</p>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>

## **Element 2 – Managing the burden of frailty for older adults**

The focus of this element is on helping frail older adults manage the burden of frailty on their lives. This could include making care more integrated and ‘person-centred’, which may involve:

- ensuring patients receive care when they need it;
- supporting the engagement of patients and their caregivers in their care; and
- supporting seamless transitions between settings.

The types of activities that could be included in each of these components of ‘person-centred’ care are described in Table 4. We identified 33 systematic reviews (among many) that we deemed to be the most relevant to these three sub-elements. The reviews suggest that the implementation of patient-centred models of care were effective at improving patient outcomes.(56; 82-86) In particular, the patient-centred Hospital at Home model was found to increase patient satisfaction and experience as well as a reduce emergency room visits among older adults.(84-85) Two reviews, however, pointed to confusion in how the patient-centred Hospital at Home model was defined in the literature, and found mixed evidence for its outcomes on the Triple Aim indicators related to improving patient experience and population health, and reducing per-capita cost of care.(87-88)

We identified a number of activities from the literature that could ensure patients receive care when they need it (Table 5). For instance, online scheduling was found to reduce patient wait-times and missed appointments,(89) while the use of team-based models of care and interprofessional collaboration was found to improve access to services, increase patient satisfaction and improve quality of care.(90-91) Though both online scheduling and the use of telehealth for consultations were thought to enhance access, mixed evidence was found for levels of patient satisfaction using either of these tools.(92)

Activities for engaging patients in their care were generally found to have positive results, with interventions such as decision aids, advance care planning and development of goals of treatment resulting in improved knowledge and understanding of risks and reduced decisional conflict,(93-97) and personalized care planning improved physical health indicators.(98) Finally, interventions to ensure seamless transitions between care settings, including discharge planning and care coordination, were found to reduce hospital length of stay and rates of readmission.(99-100) In one high-quality review, discharge plans for older adults were found to reduce mortality and increase patient satisfaction. Insufficient evidence was available to determine the impact of system navigators, however, the included studies in a review appeared to show positive trends in patient outcomes.(100)

We provide a summary of the key findings from the synthesized research evidence in Table 5. For those who want to know more about the systematic reviews contained in Table 5 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

**Table 4: Types of activities that could be included as part of ‘person-centred’ care (table adapted from Wilson et al. 2016)(101-102)**

Area of focus	Type of activities
<b>Ensure patients receive care when they need it</b>	<ul style="list-style-type: none"> <li>• Providing patient-driven scheduling to ensure timely access (i.e., access to same- or next-day appointments, with priority for those who need it most)</li> <li>• Using team-based models to provide same- or next-day access to care</li> <li>• Using secure email and telephone encounters to enhance access, and to prepare for, follow up from, or substitute for in-person visits</li> </ul>
<b>Engage patients in their care</b>	<ul style="list-style-type: none"> <li>• Developing personalized care plans where patients and clinicians collaboratively develop a care plan to address the patients’ health issues</li> <li>• Conducting regular reviews of drugs prescribed to avoid taking too many prescription drugs that can lead to potentially harmful effects</li> <li>• Providing access to and promoting the use of resources (e.g., transportation), and providing skills development to help patients and their caregivers manage certain aspects of their care</li> <li>• Supporting shared decision-making with care providers, patients and their caregivers (e.g., through decision aids that can help weigh the pros and cons of decisions about the care and support they need)</li> <li>• Engaging patients and caregivers in their care through shared use of electronic health records that allow for laboratory and radiology test results review, online medication review and refills, and provision of “after-visit summaries”</li> </ul>
<b>Support seamless transitions between settings</b>	<ul style="list-style-type: none"> <li>• Providing a single point of contact (e.g., a system navigator) for frail older adults (as well as other patients with complex conditions) who take responsibility for ensuring patients are transitioned across providers, teams and settings</li> <li>• Having a central ‘hub’ to coordinate outreach and follow-up for discharges from hospital and emergency or urgent care visits</li> <li>• Ensuring effective communication between care providers</li> </ul>

**Table 5: Summary of key findings from systematic reviews relevant to Element 2 – Managing the burden of frailty for older adults**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Implementing patient-centred models of care</b> <ul style="list-style-type: none"> <li>○ One recent report found that adopting elder-friendly models of care including case management and Hospital at Home resulted in better patient outcomes and lowered alternate levels of care.(56)</li> <li>○ One high-quality review found models that included care coordination, preventive health checks and home liaison reduced length of stay and hospital admissions.(82)</li> <li>○ One medium-quality review found the Hospital at Home model to be equivocal with inpatient care, but had higher levels of patient satisfaction.(82)</li> <li>○ One recent medium-quality review and one older high-quality review found that patient-centred medical home interventions had a small positive effect on patient experience, small to moderate effect on staff experience and reduced emergency department visits among older adults.(84-85)</li> <li>○ One recent medium-quality review found that chronic-care models have a beneficial effect on inpatient healthcare utilization and healthcare costs, reinforcing healthy behaviours in patients, perceived quality of care, and satisfaction of patients and caregivers.(86)</li> </ul> </li> <li>• <b>Ensure patients receive care when they need it</b> <ul style="list-style-type: none"> <li>○ One recent medium-quality review on advance access scheduling found that it reduced wait times and missed appointments.(89)</li> <li>○ One recent medium-quality review found interprofessional collaboration in Family Health Teams in Ontario improved access to services, led to greater patient satisfaction, and enhanced the quality of care.(90)</li> <li>○ One recent medium-quality review found that models of care which used a team-based</li> </ul> </li> </ul>

	<p>approach improved mental and physical quality of life and social role functions when delivered across mental health settings.(91)</p> <ul style="list-style-type: none"> <li>○ One recent medium-quality review found telemedicine consultations to be as effective as face-to-face consultations or telephone consultations for the treatment of chronic conditions.(92)</li> </ul> <ul style="list-style-type: none"> <li>• <b>Engage patients in their care</b> <ul style="list-style-type: none"> <li>○ One recent high-quality review found that personalized care planning improved physical health indicators for those with chronic disease including lower blood glucose levels and lower blood pressure.(98)</li> <li>○ One recent medium-quality review and one older medium-quality review found tools to promote shared-decision making such as advance care planning and goals of care communication were found to improve patient knowledge.(93-94)</li> <li>○ One older medium-quality review found an increased proportion of individuals correctly perceived their risk levels following counselling sessions, and results were more pronounced among higher-risk participants.(95)</li> <li>○ Two older medium-quality systematic reviews found that decision aids in screening significantly increased patients’ knowledge, and reduced anxiety and decisional conflict around screening decisions.(96-97)</li> </ul> </li> <li>• <b>Support seamless transitions between settings</b> <ul style="list-style-type: none"> <li>○ One recent high-quality study found that approaches used to coordinate care such as care plans and treatment goals reduced the number of hospital admissions and emergency department admissions for older adults.(99)</li> <li>○ One recent high-quality review found the creation of discharge plans for patients with chronic conditions resulted in shorter hospital stays and reduced rates of readmission, and for elderly patients a reduction in mortality. Patients reported increased satisfaction compared to treatment as usual.(100)</li> </ul> </li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>Engage patients in their care</b> <ul style="list-style-type: none"> <li>○ One review found that informed decision-making for screening of high-risk patients may be harmful if not properly explained and introduced.(103)</li> </ul> </li> </ul>
Costs and/or cost-effectiveness in relation to the status quo	<ul style="list-style-type: none"> <li>• <b>Implementing patient-centred models of care</b> <ul style="list-style-type: none"> <li>○ One recent medium quality review found no evidence that a Hospital at Home model produced cost savings as compared to treatment as usual.(84)</li> <li>○ A recent medium-quality review found evidence that comprehensive care programs reduce incremental direct healthcare costs, and studies that reported costs savings ranged from -\$204 per patient per year to -\$12,260 per patient per year.(86)</li> </ul> </li> <li>• <b>Ensure patients receive care when they need it</b> <ul style="list-style-type: none"> <li>○ One recent review found that when comparing face-to-face treatment against telephone-based treatment for osteoarthritis the mean difference in total societal costs per patient was €708 in favour of the face-to-face treatment.(103)</li> </ul> </li> <li>• <b>Support seamless transitions between settings</b> <ul style="list-style-type: none"> <li>○ A recent medium-quality review found programs that support older adults through transitions in healthcare to have positive economic outcomes.(104)</li> <li>○ An evaluation of Medicare care-coordination programs for patients with congestive heart failure, coronary artery disease and/or diabetes, found no net savings compared to treatment as usual.(88)</li> </ul> </li> </ul>
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	<ul style="list-style-type: none"> <li>• Uncertainty because no systematic reviews were identified <ul style="list-style-type: none"> <li>○ Not applicable as reviews were identified for each sub-element.</li> </ul> </li> <li>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> <li>○ Not applicable (no ‘empty’ reviews were identified)</li> </ul> </li> <li>• No clear message from studies included in a systematic review <ul style="list-style-type: none"> <li>○ <b>Implementing patient-centred models of care</b> <ul style="list-style-type: none"> <li>▪ One older medium-quality review could not determine the effects of the patient-centred medical home model due to discrepancies in how the model is defined.(87)</li> <li>▪ One older medium-quality review found inconclusive results from patient-centred medical home model on the Triple Aim outcomes.(88)</li> <li>▪ One recent medium-quality systematic review found insufficient evidence on the</li> </ul> </li> </ul> </li> </ul>

	<p>effects of chronic-care models on health-related quality of life.(86)</p> <ul style="list-style-type: none"> <li>○ <b>Ensure patients receive care when they need it</b> <ul style="list-style-type: none"> <li>▪ One recent medium-quality review found mixed evidence on patient satisfaction using advanced access scheduling.(89)</li> <li>▪ One recent medium-quality review found mixed evidence on whether patients and providers are satisfied with the use of telehealth services.(92)</li> </ul> </li> <li>○ <b>Engage patients in their care</b> <ul style="list-style-type: none"> <li>▪ One recent medium-quality review could not determine outcomes from patient participation in primary care due to substantial bias in included studies.(105)</li> <li>▪ One older medium-quality review found mixed results from interventions to improve health professionals’ adoption of shared decision-making, but found that those interventions which targeted both the health professional and the patient were most promising.(106)</li> </ul> </li> <li>○ <b>Support seamless transitions between settings</b> <ul style="list-style-type: none"> <li>▪ One recent medium-quality review found limited evidence available on the use of system navigators, however, their use for individuals with complex conditions appears positive.(104)</li> </ul> </li> </ul>
<p>Key elements of the policy option if it was tried elsewhere</p>	<p><b>Implementing patient-centred models of care</b></p> <ul style="list-style-type: none"> <li>• One recent medium-quality review found that patients and clinicians report improved healthcare access, greater satisfaction and improved quality of care in the Family Health Team model in Ontario.(90)</li> <li>• One high-quality older review found models of care that consistently used multidisciplinary care and case management, had active involvement of physicians and made use of decision tools, improved patient outcomes and clinical satisfaction.(83)</li> <li>• One high-quality older review found six key characteristics that influenced the efficiency and effectiveness of patient-centred models of care: 1) long-term care management; 2) interdisciplinary team care; 3) geriatric philosophy; 4) alignment between provider and clinical arrangements; 5) appropriate targeting of patients; and 6) pooled funding and administrative flexibility.(83)</li> </ul> <p><b>Engage patients in their care</b></p> <ul style="list-style-type: none"> <li>• One recent high-quality review found moderate positive effects of shared decision-making interventions on knowledge, participation, decisional conflict and self-efficacy on disadvantaged populations.(107)</li> </ul>
<p>Stakeholders’ views and experiences</p>	<ul style="list-style-type: none"> <li>• <b>Ensure patients receive care when they need it</b> <ul style="list-style-type: none"> <li>○ A medium-quality review found that patients and clinicians report improved healthcare access, greater satisfaction and enhanced quality of healthcare in the family health team model.(90)</li> </ul> </li> <li>• <b>Engage patients in their care</b> <ul style="list-style-type: none"> <li>○ One medium-quality review found that providers reported barriers to implementing shared decision-making in clinical practice such as time constraints, lack of applicability due to patient characteristics, and the clinical situation.(106)</li> <li>○ One medium-quality review found that facilitators for providers using shared decision-making were personal motivation, health providers’ perception that it would lead to improved clinical processes, and the perception that using shared decision-making would lead to improved patient outcomes.(106)</li> </ul> </li> </ul>

### **Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of, and manage the burden of frailty**

The focus of this element is on supporting the efforts of caregivers in the many types of activities they may provide for older adults. In general, this could include identifying what caregivers find most difficult in their role, and supporting their efforts as part of the previous two elements about preventing, delaying the onset of and managing the burden of frailty. This could include:

- addressing the economic security of caregivers through financial programs (e.g., flexible work arrangements or tax deductions for caregivers);
- engaging caregivers in decision-making about how care and support is organized to ensure it is appropriate for their needs; and
- providing education and supports to reduce caregiver burden and to help them cope and build resilience.

We identified 27 systematic reviews relating to the latter two sub-elements, but none were identified that addressed the economic security of caregivers. The reviews suggest that involving patients and caregivers in decision-making generally results in increased knowledge, as well as reduced anxiety related to treatment and managing care plans.(65-67; 70) The reviews also suggest that tailored information increases the ability of patients and their caregivers to accurately assess risks. However, some reviews found mixed evidence related to the preference for patient involvement and the ability for such involvement to reduce decisional conflict, as well as the level of detail required for decision supports to improve patient and caregivers' decision-making.(68-69) Reviews that reported on providing education and supports to reduce caregiver burden found positive outcomes such as reduced caregiver burden, high quality of life, and lower levels of stress from interventions such as internet and telephone support, multi-component interventions, individual behaviour-management techniques, education and support groups, and communication and problem-solving training. However, respite care on its own was not found to reduce caregiver burden, and the reviews provided mixed evidence about the effects of psychosocial interventions on caregivers' levels of depression and their ability to cope.

A summary of the key findings from the synthesized research evidence is provided in Table 6. For those who want to know more about the systematic reviews contained in Table 6 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

**Table 6: Summary of key findings from systematic reviews relevant to Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of, and manage the burden of frailty**

Category of finding	Summary of key findings
Benefits	<ul style="list-style-type: none"> <li>• <b>Addressing the economic security of caregivers</b> <ul style="list-style-type: none"> <li>○ One report found that supports for caregivers in Ontario are not readily available and there is little awareness on the part of employees about how to access financial benefits and tax credits.(108)</li> </ul> </li> <li>• <b>Engaging caregivers in decision-making about needed care and about how care and support is organized</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found increased self-esteem among those who participated in care-planning processes.(109)</li> <li>○ One older medium-quality review found evidence that consumer involvement improved the development of consumer information material.(110)</li> <li>○ One medium-quality review found that providing patients and caregivers with decision-making tools improved their knowledge and reduced anxiety.(94)</li> <li>○ Two older high-quality reviews found that providing individualized risk information resulted in an increase in the frequency with which decisions were based on information provided to patients, increased patient knowledge and increased levels of accurate risk assessment.(111-112)</li> <li>○ One older medium-quality review found that decision aids increased knowledge and reduced decisional conflict and anxiety on screenings.(96)</li> </ul> </li> <li>• <b>Providing education and supports to reduce caregiver burden and to help them cope and build resilience</b> <ul style="list-style-type: none"> <li>○ One medium-quality and one high-quality review found that psychosocial interventions targeting communication and education improved caregiver quality of life.(113)</li> <li>○ One older high-quality study found providing informal caregivers with breaks in care reduced depression in the short term. The review found that the intervention is more effective the earlier it is introduced into caregiving.(114)</li> <li>○ One recent medium-quality review found that internet-based interventions to reduce caregiver stress were moderately effective.(115)</li> <li>○ One recent high-quality review found that providing social support through telephone calls improved the ability of caregivers to manage anxiety and depression, and improved overall levels of stress and quality of life.(116)</li> <li>○ Two recent high-quality reviews found that multi-component interventions resulted in a reduction in depression over the long-term, with one review also reporting reductions in caregiver burden, and levels of frustration, sadness and irritation.(116-117)</li> <li>○ One non-systematic review found that individual behaviour-management techniques were effective in alleviating caregiver depression.(118)</li> <li>○ One older medium-quality review found that the provision of communications training for caregivers of individuals with dementia was effective in increasing competencies and knowledge, and reducing communication problems.(119)</li> <li>○ One older medium-quality review and one recent medium-quality review found that mutual support groups and educational groups had a moderate improvement on caregivers’ mental health and levels of depression, notably for those that lasted longer than eight weeks and included more than 16 hours of participation.(120-121)</li> <li>○ Two recent high-quality reviews found no effects on caregiver outcomes from the provision of respite care.(122)</li> </ul> </li> </ul>
Potential harms	<ul style="list-style-type: none"> <li>• <b>Engaging caregivers in decision-making about needed care and about how care and support is organized</b> <ul style="list-style-type: none"> <li>○ One older medium-quality study found that decision-making was slower when patients were involved.(109)</li> </ul> </li> <li>• <b>Providing education and supports to reduce caregiver burden and to help them cope and build resilience</b> <ul style="list-style-type: none"> <li>○ One non-systematic review found that providing caregivers with taped telephone lectures increased caregiver burden both immediately and over the longer-term.(118)</li> <li>○ One older high-quality review found that neither psychosocial interventions or telephone support or</li> </ul> </li> </ul>

	<p>case management were found to reduce feelings of depression in family caregivers, while respite care was found to increase feelings of burden on family caregivers.(123)</p>
<p>Costs and/or cost-effectiveness in relation to the status quo</p>	<ul style="list-style-type: none"> <li>• <b>Providing education and supports to reduce caregiver burden and to help them cope and build resilience</b> <ul style="list-style-type: none"> <li>○ One older low-quality study compared adult day-care services to usual care and found day-care services to be more expensive, but to be associated with similar or slightly better outcomes for patients and caregivers.(114)</li> </ul> </li> </ul>
<p>Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the element were pursued)</p>	<ul style="list-style-type: none"> <li>• Uncertainty because no systematic reviews were identified in sub-element <ul style="list-style-type: none"> <li>○ Addressing the economic security of caregivers</li> </ul> </li> <li>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review <ul style="list-style-type: none"> <li>○ n/a</li> </ul> </li> <li>• No clear message from studies included in a systematic review <ul style="list-style-type: none"> <li>○ <b>Engaging caregivers in decision-making about needed care and about how care and support is organized</b> <ul style="list-style-type: none"> <li>▪ One older medium-quality study found mixed evidence on the impact of involving patients in the process of planning and developing care plans.(109)</li> <li>▪ One medium-quality review found mixed evidence regarding patients' preference between a collaborative or passive role in cancer treatment.(124)</li> <li>▪ One recent medium-quality review found mixed evidence as to whether decision aids reduce patient and caregiver decisional-conflict.(94)</li> <li>▪ One older high-quality review was unable to determine what level of detail is needed for decisions aids to have a positive impact.(112)</li> </ul> </li> <li>○ <b>Providing education and supports to reduce caregiver burden and to help them cope and build resilience</b> <ul style="list-style-type: none"> <li>▪ One older high-quality review found inconsistent evidence on the effect of positive or negative framing of information on patient and caregiver behaviour.(125)</li> <li>▪ One recent medium-quality review found mixed evidence on the levels of depression, coping and strain in caregivers who were provided with psychosocial interventions.</li> <li>▪ One non-systematic review found mixed evidence on the extent to which group-education sessions focused on coping activities and stress management were able to reduce levels of depression.(118)</li> </ul> </li> </ul> </li> </ul>
<p>Key components of the element if it was tried elsewhere</p>	<ul style="list-style-type: none"> <li>• <b>Engaging caregivers in decision-making about needed care and about how care and support is organized</b> <ul style="list-style-type: none"> <li>○ One older medium-quality review found that strategies to engage the public in the development of health policy need to be tailored to each issue, decision-making condition and participants involved.(110)</li> <li>○ One older high-quality review found that decision aids that provided information on probabilities increased accurate risk perception when risk was expressed in numbers rather than words.(112)</li> </ul> </li> </ul>
<p>Stakeholders views and experiences</p>	<ul style="list-style-type: none"> <li>• None identified</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 those of low socio-economic status and people living in rural or remote communities. One important consideration is access to services for both of these groups. As discussed in element 1 and element 3, there are a variety of health-promotion and disease-prevention interventions as well as caregiver supports that may not be accessible either due to costs associated with participation (e.g., direct costs, transportation, caregiver assistance in attending programs) or limited availability in all Canadian communities.

In addition, each of the three elements call for the participation and active involvement of either caregivers or care recipients. This level of involvement requires that both patients and caregivers are able to access and understand health information. Rates of health literacy have been found to be low among people with lower incomes, seniors and those living in rural and remote communities.(3; 126-127) This has implications for each of the elements in terms of participating and seeking out activities to prevent or stop the progression of symptoms of frailty (element 1), shared decision-making (element 2), and capitalizing on services available to informal caregivers (element 3). While health literacy may be lower among these particular groups, one review found that shared decision-making was beneficial among disadvantaged groups in improving knowledge, participation in their care, resolving decisional conflict and improving self-efficacy.(107) This finding reinforces the importance of engaging patients and caregivers in health literacy training, working to close the gap between these populations and the national average.

## **IMPLEMENTATION CONSIDERATIONS**

A number of barriers might hinder implementation of the three elements of a potentially comprehensive approach to strengthening care for frail older adults, each of which need to be factored into any decision about whether and how to pursue any given element (Table 7). While potential barriers exist at the levels of patients and individuals, providers, organizations and the system, perhaps the biggest barriers include: 1) possible lack of adherence to health-promoting interventions by older adults to help them stay healthy; 2) systems of care not being set up for addressing complex conditions; 3) clinicians lacking the resources, interest or skills to work in patient-centred models of care; and 4) hesitance of policymakers to pursue significant system-level change. Adapting to this context will require significant changes to provincial and territorial health systems and a willingness across political leaders, decision-makers, professionals and the public to work together towards improvement.

**Table 7: Potential barriers to implementing the elements**

<b>Levels</b>	<b>Element 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail’</b>	<b>Element 2 – Managing the burden of frailty for older adults</b>	<b>Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of and manage the burden of frailty</b>
<b>Patient/Individual</b>	Citizens may not adhere to activities that support healthy aging (e.g., health-promoting interventions such as those for living an active lifestyle and/or improving nutrition that can help to prevent frailty)	Citizens may not be equipped (e.g., due to a lack of health literacy) to be more actively engaged in making decisions about and managing their care (e.g., through supports for self-management, decision aids and shared-decision-making processes)	Caregivers may not be aware of existing or new services and supports available to them (25)
<b>Care provider</b>	Clinicians may face challenges moving from a reactive to proactive approach  Clinicians may find the completion of comprehensive geriatric assessments time consuming, especially in areas with limited health human resources	Clinicians may resist collaboration or be missing the necessary competencies to work in collaboration to provide the coordinated person-centred care, and addressing this may need significant changes to funding, regulation and professional culture.	Clinicians may be missing the necessary competencies to provide health literacy training to caregivers, or to support caregivers in decision-making
<b>Organization</b>	Organizations across all sectors (i.e., home and community care, primary care, specialty care, rehabilitation, long-term care and public health) will need to collaborate to provide an integrated approach to prevent frailty and its onset for those at risk (102)	Organizations may initially find it difficult to change how they deliver care (e.g., changing how they schedule appointments and using care coordinators) and be hesitant to invest in these changes without knowing whether their costs will be recovered	Employers may be unwilling or unable to provide flexible work conditions that some caregivers may require
<b>System</b>	Policymakers will need to undertake potentially significant changes to the health system to reorient it to successfully integrate health-promotion and disease-	Policymakers (as well as care providers and organizations) will face significant challenges for implementing clinical information systems that can be integrated for use across all care	Government ministries and a broad range of public and private stakeholders will need to collaborate in order to move forward with efforts to enhance

	prevention services	<p>settings and providers (e.g., implementing needed changes to privacy legislation)</p> <p>Policymakers will need to undertake reforms to enable systems of care to provide access to comprehensive, coordinated and continuous care for people with complex conditions such as frailty</p> <p>Provincial and territorial health-system leaders have different levels of readiness for change and collaboration</p>	<p>supports for caregivers</p> <p>Decision-makers may be unwilling to make investments in income supports for unpaid caregivers given current public-sector spending</p>
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On the other hand, a number of potential windows of opportunity could be capitalized upon (Table 8, 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) an aging population making it necessary to invest in new ways of doing things; 2) a growing desire within the health sector for pan-Canadian leadership and collaboration; and 3) difficult economic times forcing the creation of innovative approaches.

**Table 8: Potential windows of opportunity for implementing the elements**

Type	Element 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are ‘pre-frail’	Element 2 – Managing the burden of frailty for older adults	Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of and manage the burden of frailty
<b>General</b>	<p>As the realities of an aging population emerge, there will be a need to invest in new ways of providing services to meet the care needs of older adults.</p> <p>Following the election of the new federal government, collaboration among federal, provincial and territorial governments appears to have new momentum.</p> <p>The federal government has demonstrated a recent commitment to reforming the delivery of home care that could, in part, address components of each of the three elements.</p>		
<b>Element specific</b>	<p>Two of the four pillars (independent, productive and engaged citizens, and healthy and active lifestyles) in the National Seniors Strategy emphasize the type of activities in this element, which shows consideration for shifting the system in this way is being considered (128)</p>	<p>The National Seniors Strategy includes care closer to home (in particular providing “person-centred, high quality, integrated care as close to home as possible”) as one of its pillars, which aligns with many of the components of this element (128)</p> <p>Some provinces, such as Ontario with newly introduced proposed legislation to strengthen patient-centred care (including better access to and coordination with home and community care), are innovating with new ways to provide care to people with complex conditions</p>	<p>The National Seniors Strategy includes support for caregivers as one of its four pillars signalling a focus on the types of activities included in this element (128)</p>

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## APPENDICES

The following tables provide detailed information about the systematic reviews identified for each element. 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. The last column indicates the review’s issue applicability in terms of the proportion of studies focused on frail older adults. Similarly, for each economic evaluation and costing study, the last three columns note whether the country focus is Canada, if it deals explicitly with one of the prioritized groups, and if it focuses on frail older adults.

All of the information provided in the appendix tables was taken into account by the evidence brief’s authors in compiling Tables 1-3 in the main text of the brief.

**Appendix 1: Systematic reviews relevant to Element 1 – Engaging in efforts to prevent frailty or prevent the onset for those who are pre-frail**

Sub-element	Focus of systematic review	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 focused on frail older adults
Using data and screening tools to proactively identify those at risk for frailty	Examines the impact of the interRAI HC instrument on functional status and hospitalization instrument (63)	There are positive outcomes with the impact of interRAI HC instrument on functional status and hospitalization. The InterRAI HC improved the development of patient care plans and in select studies reduced hospital admissions and length of stay, thereby reducing associated costs. It was found that proper implementation of the instrument required training.	2013	5/9 (AMSTAR rating by McMaster Health Forum)	2/18	0/18	18/18
	Examines the extent to which individual risk factors and emergency department validated screening instruments were able to predict individuals at risk of experiencing short-term adverse outcomes (76)	No individual risk factor or risk assessment instrument was found to effectively predict the risk of adverse outcomes in older adults in emergency department admissions. Further, the review found that current instruments could not adequately distinguish between high- and low-risk individuals.	2014	9/11 (AMSTAR rating by McMaster Health Forum)	Not reported	2/34	Not reported
	Examines the diagnostic test accuracy of instruments for identifying frailty in community dwelling older adults (29)	The review found that the gait speed, PRISMA 7 and timed-up-and-go test demonstrated both high sensitivity and moderate specificity, both of which are good predictors of frailty. It was found that self-reported health, general practitioner clinical assessment and the Groningen Frailty Indicator were less accurate. All tests included in the study had limited specificity reducing the accuracy and potentially increasing the likelihood of false-positives.	2013	10/11 (AMSTAR rating by McMaster Health Forum)	0/3	Not reported	3/3
	Examined whether the Frailty Index is a reliable screening tool for primary care (64)	The frailty index was found to have high construct validity and to be an easily interpretable instrument. Evidence found that a high score correlated with a high or low BMI, smoking, impaired psychological well-being, psychiatric illness, impaired mobility, impaired cognition, pain, neighbourhood deprivation and low socio-economic status. It was also shown to be a predictor of biological age, which is a significant predictor of mortality. Insufficient evidence was available to determine its utility and responsiveness.	2012	8/10 (AMSTAR rating by McMaster Health Forum)	4/20	0/20	0/20
	Examines gait characteristics and their ability to predict frailty status (77)	The review examined gait characteristics and their ability to predict frailty status. The most frequently reported parameters were speed, cadence and stride length. Instruments that were commonly used included electronic walkways, camera systems or force plates. The review reported that there were inconsistencies in frailty definitions, gait protocols and parameters, which made comparisons of	2012	5/9 (AMSTAR rating by McMaster Health Forum)	Not reported	0/11	11/11

*Strengthening Care for Frail Older Adults in Canada*

Sub-element	Focus of systematic review	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 focused on frail older adults
		<p>outcomes difficult. The review found that assessment of gait speed does not provide insight into the specific gait pattern, which may limit assessments of different frailty statuses. Gait speed showed the highest effect size related to pre-frailty parameters such as reduced cadence and increased step width variability. Frailty was associated with reduced step length during habitual walking, and increased double support during fast walking.</p> <p>The authors indicated other gait protocols for the identification of frailty include a high demanding task such as walking with maximum speed, or adding a cognitive distractor as that may improve effect size and facilitate discrimination between frailty categories.</p>					
	Examining the effectiveness of screening instruments for frailty in primary healthcare setting (129)	A total of 10 instruments screening for frailty in primary healthcare were listed, analyzed and compared; however, the authors noted difficulty in determining the effectiveness of screening instruments for frailty in primary healthcare settings. The review indicated two instruments are potentially suitable: the Tilburg Frailty (e.g., ability to predict frailty after one year of follow-up) and the SHARE Frailty Index (e.g. three categories - non-frail, pre-frail and frail).	2011	8/11 (AMSTAR rating by McMaster Health Forum)	Not reported	Not reported	0/11
	Effectiveness of multi-factorial assessment and management interventions to prevent and reduce functional decline in older adults(78)	Meta-analyses for hospitalizations and institutionalizations showed no detectable effect from multifactorial assessment and management interventions (e.g., in community centres, primary care centre, or geriatric clinics). There are mixed results on the benefits of multifactorial assessment and management interventions to prevent and reduce functional decline in older adults, as some studies found a modest benefit in preventing functional decline, and a reduction in hospitalizations. There is limited evidence on the harms associated with multifactorial assessments and management interventions.	2010	7/11 (AMSTAR rating from McMaster Health Forum)	10/70	1/70	8/70
	Sensitivity and specificity for predicting impairments on Comprehensive Geriatric Assessment (CGA) in elderly patients with cancer (79)	The review aimed to determine which frailty screening methods shows the best sensitivity and specificity for predicting the presence of impairments on CGA (e.g., detects vulnerability in elderly patients with cancer so that treatment can be adjusted accordingly) in elderly patients with cancer. Geriatric 8 (G8) and Triage Risk Screening Tool (TRST) had the highest sensitivity, but both had poor specificity and negative predictive value. The authors noted	2011	8/11 (AMSTAR rating from McMaster Health Forum)	0/14	Not reported	Not reported

McMaster Health Forum

Sub-element	Focus of systematic review	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 focused on frail older adults
		that it might be beneficial for all elderly patients with cancer to receive a complete geriatric assessment, since current frailty screening methods are insufficient in selecting patients for further assessment.					
	Examining the effectiveness of activity of daily living indicators to predict frailty in community-dwelling older adults(65)	<p>The review examined the predictive value of physical frailty indicators on Activities of Daily Living (ADL) disability in community-dwelling elderly people. Physical frailty indicators can predict ADL disability in community-dwelling elderly people. Slow gait speed and low physical activity appear to be the strongest predictors followed by weight loss, lower extremity function, balance and muscle strength.</p> <p>Gait speed and balance predicted the development of ADL disability after follow-ups of one year and six years, whereas physical activity predicts the development of disability after follow-ups of three and 10 years.</p>	2010	7/9 (AMSTAR rating from McMaster Health Forum)	0/28	0/28	0/28
	Examine the effectiveness of comprehensive geriatric assessments for older adults admitted to emergency departments(67)	<p>The review indicated that patients who underwent comprehensive geriatric assessment were more likely to be alive and in their own homes at the end of scheduled follow-up compared with patients who received general medical care. In addition, patients were less likely to be living in residential care.</p> <p>The review also reported that subgroup interaction suggested differences between the subgroups’ “wards” (e.g., inpatient comprehensive geriatric assessment with a coordinate specialist multidisciplinary team) and “teams” (e.g., mobile or peripatetic team visits, also known as interdisciplinary geriatric consultation services), with more in favour of wards.</p> <p>Seven studies reported a reduction in hospital costs associated with comprehensive geriatric assessment.</p> <p>The key features of a successful comprehensive geriatric assessment include treatment in discrete units, with expertise in the care of older people and control over the delivery of direct care.</p>	2010	9/11 (AMSTAR rating from McMaster Health Forum)	4/22	1/22	0/22
	Comprehensive geriatric assessment to improve	Five studies were included in the review comparing geriatrician-supported comprehensive assessment and management of older	2010	9/11 (AMSTAR	Not reported in	0/5	3/5

*Strengthening Care for Frail Older Adults in Canada*

Sub-element	Focus of systematic review	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 focused on frail older adults
	outcomes in patients with rapid discharge from hospital (68)	<p>patients. The review found no significant difference between those adults receiving geriatric assessments or falls prevention interventions on mortality, levels of institutionalization, quality of life or cognition.</p> <p>One study, however, reported significant improvement in functional outcomes compared with the control group.</p> <p>No clear evidence exists for the outcomes of geriatric assessments for rapid discharge from hospital. Caution should be used in interpreting these results as very few trials have been carried out and the overall quality of primary studies was low.</p>		rating from McMaster Health Forum)	detail		
	Determine the effectiveness of instruments to detect risk of functional decline among older hospitalized adults (66)	The review identified instruments to identify older hospitalized patients at risk of functional decline after discharge, and found that preadmission functional status, cognition and social support were main components for prediction of functional evolution. The authors concluded that the utilization of these instruments to identify older hospitalized patients at risk of adverse health outcomes would be beneficial.	2007	6/11 (AMSTAR rating from McMaster Health Forum)	Not reported	0/12	0/12
	Examines screening tools to identify older adults at risk of functional decline (80)	The review identified available screening tools (e.g., hospitalier d'évaluation du risqué de perte d'autonomie, HARP, TRST, ISAR, SHERPA) to screen for elderly patients at risk of functional decline presenting to the emergency department (ED) of acute care hospitals. However, no single 'gold standard' tool was identified. Two instruments reported acceptable discriminative ability, however, one of them has not been validated. One study reported good test-retest reliability data for one instrument, the ISAR. The clinical utility of the tools were not assessed. There is evidence to suggest a common set of factors associated with functional decline, which include age, baseline, functional status, cognition and depression. The authors indicated that further research is needed to determine screening tools' accuracy and reliability.	2008	4/11 (AMSTAR rating from McMaster Health Forum)	2/6	0/6	0/6
	Examines reliability of predictors of functional decline in older adults (26)	The review identified predictors of functional decline such as age, lower functional status, cognitive impairment, and preadmission disability. The authors concluded that three instruments (Hospital Admission Risk Profile (HARP), Identification of Seniors at Risk (ISAR), and Care Complexity Prediction Instrument (COMPRI))	2005	3/11 (AMSTAR rating from McMaster Health	1/10	0/10	0/10

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Sub-element	Focus of systematic review	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 focused on frail older adults
		<p>should be further tested in a hospitalized older population. HARP includes functional decline predictors such as age and cognitive function specific to older patients at risk for functional decline. ISAR is a two-step instrument, where the first step is to identify elderly patients at risk of adverse outcomes, and the second step is a brief nursing assessment in an emergency department setting. COMPRI measured poor discharge health status and extended length of stay for all patients (not just older people) with complex care needs in a hospital setting. The reliability and ease of use of the instruments were not described. Further research is needed to compare the three instruments in the hospital setting.</p>		Forum)			
<p>Providing information about and supports for approaches that promote healthy aging and prevent frailty (e.g. supporting a physically active lifestyle)</p>	<p>Examines the effect of resistance training and creatine supplementation on aging muscle (130)</p>	<p>Resistance training was found to be an effective intervention to reduce bone and strength loss in older adults. Additionally, creatine supplementation had positive results to increase the effects of resistance training. More research is needed to determine exact effects on currently frail adults.</p>	2013	4/11 (AMSTAR rating from McMaster Health Forum)	Not reported	0/13	1/13
	<p>Interventions to reduce acute hospitalizations in people residing in nursing homes (70)</p>	<p>The review summarized the effects of interventions to reduce acute hospitalizations from nursing homes. The interventions were categorized into three groups: interventions to structure or standardize clinical practice, geriatric specialist services, and influenza vaccination</p> <p>For interventions related to structuring and standardizing clinical practice (e.g., structured programs or palliative care service delivery interventions), five low to very-low quality studies reported fewer hospitalizations than control homes.</p> <p>For interventions related to geriatric specialist services, two studies evaluated the effectiveness of providing ambulant specialist services in addition to usual care, and found fewer cases of hospitalization when compared to the control group.</p> <p>Two studies evaluated the effects of influenza vaccination among residents and found a favourable effect on hospitalization for the residents who were vaccinated.</p>	2013	9/11 (AMSTAR rating from McMaster Health Forum)	2/9	0/9	0/9

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Sub-element	Focus of systematic review	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 focused on frail older adults
		The authors indicated that further studies are needed to identify barriers and facilitators specific to these interventions.					
	Adherence to group exercise interventions for the prevention of falls (75)	The review reported on group exercise adherence and its effects on fall prevention. The review found lower levels of adherence were associated with group exercise interventions that were longer than 20 weeks or more, two or fewer sessions per week, or had a flexibility component. Six studies reported on ‘fallers’ and ‘non-fallers’ at follow-up in both the control and intervention group and found no relationship between adherence and fall-prevention efficacy.	2011	7/11 (AMSTAR rating from McMaster Health Forum)	0/18	Not reported	Not reported
	Effectiveness of external hip protectors in preventing hip fractures (71)	<p>Fourteen medium-quality studies conducted in nursing or residential care settings found a reduction in hip fracture risk following the use of external hip protectors. The studies found a small risk of pelvic fractures and little to no effect on other fractures or falls.</p> <p>Twelve economic evaluations were included in the review and found that the provision of hip protectors can be cost-effective.</p> <p>Poor acceptance of and adherence to using hip protectors by older people may be potential barriers to implementation in nursing or residential care settings.</p>	2012	10/11 (AMSTAR rating from McMaster Health Forum)	3/19	0/19	2/19
	Examines interventions to prevent the onset of disability in community dwelling frail older adults(72)	<p>No evidence was found on the effect of nutritional interventions on disability measures. The physical exercise interventions involved two single-component programs focusing on lower extremity strength and six multicomponents addressing a variety of physical parameters (e.g., long-lasting and high-intensive multi-component physical exercise programs). Three studies that focused on multi-component physical exercise programs (e.g., endurance, flexibility, balance and strength) reported positive outcomes for disability (e.g., weight gain, strength, mobility, oxygen-uptake, physical fitness, physical activity and balance). There was no evidence for the effect of single lower extremity strength training on disability.</p> <p>Components of interventions that had successful outcomes include individualization (e.g., supervised individual home sessions) and variation in duration and intensity.</p>	2007	7/10 (AMSTAR rating from McMaster Health Forum)	1/10	0/10	0/10

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Sub-element	Focus of systematic review	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 focused on frail older adults
	Examines the effectiveness of resistance training on balance in older adults (69)	A total of 29 studies reported on the effects of progressive resistance training (PRT) on balance in older adults, including older adults with comorbidities and frail elderly adults. Balance outcomes were extensive and categorized as static, dynamic, functional and computerized dynamic posturography. Fourteen of the 29 studies reported improvements significantly greater than the control group in balance performance following PRT. The authors stratified the balance tests by cohort and found that adults in the frail group showed more improved outcomes than the healthy group. However, the authors indicated that PRT as a single intervention for balance enhancement among older adults cannot be made based on the limited evidence.	2006	8/10 (AMSTAR rating from McMaster Health Forum)	1/29	3/29	3/29
	Examines the effectiveness of exercise interventions for the management of frailty (73)	The systematic review examines the effectiveness of current exercise interventions for the management of frailty. There is evidence to suggest that exercise (e.g., individualized plans for older adults and elderly adults, multi-component training interventions, long duration, more frequency) has a positive impact on some physical determinants (body composition, nutritional status, biochemical status, cardiorespiratory function, muscle function, flexibility, physical activity participation, neurological and cognitive function, psychosocial state) and on functional ability outcomes (e.g., mobility, balance, functional performance test batteries) for frail older adults. Exercise also reduced fall incidence in two of the nine studies that measured this outcome. Three studies assessed utilization of resources and found no difference in healthcare charges, social welfare costs, and admission to nursing homes.	2011	8/10 (AMSTAR rating from McMaster Health Forum)	2/47	0/47	15/47
Enhancing home-based care and support to help older adults live at home for as long as possible	Assesses the effectiveness of community-based complex interventions to retain independence in older adults (81)	A total of 89 studies assessed the effects of community-based complex interventions (e.g., geriatric assessment, community-based care, fall prevention, group education and counselling) and found reduced nursing home admissions, hospital admissions and falls. Physical function was also reported to be better in the intervention groups than in other groups. The authors indicated that effective interventions would be tailored to the needs and preferences of an individual.	2005	8/11 (AMSTAR rating from McMaster Health Forum)	0/87	0/87	24/87

**Appendix 2: Systematic reviews relevant to Element 2 – managing the burden of frailty for older adults**

Sub-element	Focus of systematic review	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 focused on frail older adults
Using patient-centred models of care	Examines models of care and interventions to reduce the use of acute hospital beds by older people (82)	<p>This review included 48 studies. Evidence was found for the effectiveness of care coordination, preventive health checks and care home liaison in preventing admission to hospital. Models of care that linked hospital and community care were found to reduce length of stay and prevent readmission to the hospital.</p> <p>Two systematic reviews examined hospital at home services and found these to be equivocal to inpatient care, though patients reported greater levels of satisfaction.</p> <p>No evidence was found to support multi-factorial falls prevention services, community based medicine reviews, day hospital services, exercise interventions in hospital and nurse-led transitional care.</p>	2013	4/10 (AMSTAR rating from McMaster Health Forum)	0/48	1/48	9/48
	Examining models and frameworks for delivery of care to older adults (83)	<p>A literature review found that some models of integrated health and social care for the elderly result in improved outcomes, client satisfaction and/or cost savings. Models of care that were found to be most successful consistently used multidisciplinary care and case management for seniors at risk of poor outcomes, had active involvement of physicians, and made use of decision tools, common assessment and case planning instruments.</p> <p>Positive results revealed the important role of physicians in integrated care models, with the strongest results coming from those that included either geriatricians or general practitioners.</p> <p>A review of two multi-site American models of integrated care found that the key characteristics of fully integrated models were a targeted selection of seniors, contractual responsibility for defined package of comprehensive health and social care, a closed network of providers with emphasis on primary care, and non-institutional services. Six key features were identified as influencing the efficiency and effectiveness of comprehensive models of care: longitudinal care management; intensive interdisciplinary team care; geriatric philosophy; organized provider and clinical arrangements to achieve alignment; appropriate targeting; and</p>	2007	5/10 (AMSTAR rating from McMaster Health Forum)	1/9	0/9	1/9

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Sub-element	Focus of systematic review	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 focused on frail older adults
		mechanisms to pool funding streams to assure administrative flexibility.  A review of 66 case management programs found that characteristics of successful programs were a comprehensive assessment of medical, functional and psychosocial needs, coordination across providers, intensive health education, and monitoring of patients' progress between visits.					
	Assessing effects of patient's medical home model on patient and staff experiences (84)	Across 19 studies of patient-centred medical home interventions there was a small positive effect on patient experiences, small to moderate positive effects on the delivery of preventive care services (moderate strength of evidence), and a small to moderate degree (low strength of evidence) for improvement to staff experience. Among older adults there was a reduction in emergency department visits, but not in hospital admissions (low strength of evidence). There was no evidence for overall cost savings.	2012	7/11 (AMSTAR rating from McMaster Health Forum)	1/19	0/19	1/19
	Assessing effects of patient-centred medical home model of patient experience(85)	The review found moderately strong evidence that the patient-centred medical home model improves patient experiences and preventive care service, and found some evidence of improvements in staff experience, but it did not have an effect on total cost.	2011	9/10 (AMSTAR rating from McMaster Health Forum)	1/27	0/27	1/27
	Review of recent research about the patient-centred medical home (87)	The review identified inconsistencies in how the patient-centred medical home model is defined and how related variables are operationalized. This created challenges for comparing across the included studies and produced mixed results. The most common outcome measured across studies was emergency department visits which proved significant in seven of 11 studies.	2010	7/10 (AMSTAR rating from McMaster Health Forum)	1/21	0/21	0/21
	Review of early evaluations of medical home models (88)	In a review of 12 interventions, six provided rigorous evidence indicating some favourable effects on all three triple aim outcomes and healthcare professional experience, but cost effects were unfavourable, and many of the results were inconclusive.	2010	5/10 (AMSTAR rating from McMaster Health Forum)	0/12	0/12	0/12
Ensure patients receive care when they	Patient and physician and/or practice outcomes resulting from implementation	Advance access scheduling which shifts away from pre-arranged schedules to an open schedule where patients are offered an appointment on the day they call or at the time of their choosing (usually within 24 hours), has been found to reduce wait times and no-	2010	6/9 (AMSTAR rating from McMaster	0/28	0/28	0/28

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Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that dealt explicitly with one of the prioritized groups	Proportion of studies that focused on frail older adults
need it	of advanced access scheduling in the primary-care setting (89)	show rates, but effects on patient satisfaction were mixed.		Health Forum)			
	Interprofessional collaboration in Ontario's Family Health Teams (90)	Patients and clinicians report improved healthcare access, greater satisfaction, and enhanced quality of healthcare in the family health team model.	2012	4/9 (AMSTAR rating from McMaster Health Forum)	0/11	0/11	0/11
	Effectiveness of collaborative chronic-care models for mental health conditions across primary, specialty, and behavioural healthcare settings (91)	Models of care that use a collaborative team-based approach for people with mental health conditions improve mental and physical quality of life and social role functions when delivered for different disorders and in different settings.	2011	6/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	0/78	1/78
	Effects of interactive telemedicine on professional practice and healthcare outcomes (92)	Telemedicine, as compared to usual face-to-face care or just consultation over the telephone, achieves similar health outcomes and can improve the management of some chronic conditions such as diabetes, but evidence about its costs and acceptability to patients and providers is uncertain.	2013	7/11 (AMSTAR rating from McMaster Health Forum)	7/93	1/93	0/93
Engage patients in their care	Personalized care planning for adults with chronic or long-term health conditions (98)	Personalized care planning has been found to improve some indicators of physical and psychological health status, as well as patients' ability to manage their conditions.	2013	10/11 (AMSTAR rating from McMaster Health Forum)	0/19	0/19	0/19
	Self-management support interventions to reduce healthcare utilization without compromising outcomes (131)	A total of 184 studies were included in the review examining self-management and found significant improvements in health outcomes, particularly among patients with diabetes, respiratory, cardiovascular and mental health conditions. A small minority of studies reported that self-management led to decrements in health.  Overall, self-management interventions can reduce health service utilization and generally were found to do so without compromising	2012	8/11 (AMSTAR rating from McMaster Health Forum)	8/184	0/184	0/184

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Sub-element	Focus of systematic review	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 focused on frail older adults
		patient health outcomes.					
	Effects of improved patient participation in primary care on health-related outcomes (105)	This systematic review evaluated the effects of interventions aiming to improve patient participation in primary-care consultations on patient outcomes. Eligible interventions included educational meetings, audit and feedback, reminders, patient-mediated interventions, and distribution of educational material. Seven trials were included, but all studies suffered from substantial bias. The results are non-conclusive.	2011	6/10 (AMSTAR rating from McMaster Health Forum)	1/7	0/7	0/7
	Patients' perceptions of sharing in decisions: A systematic review of interventions to enhance shared decision-making in routine clinical practice (106)	This systematic review evaluated the effectiveness of interventions to improve health professionals' adoption of shared decision-making in routine clinical practice, as seen by patients.  Only three of the 21 included studies found clinically significant effects for shared decision-making interventions that favoured the intervention examined. These three studies were the only ones that involved multifaceted interventions including both health professional education and a patient-mediated intervention (i.e., patient decision aid). This finding suggests that, from the perspective of patients, interventions that target both the health professional responsible for sharing a decision with the patient, and the patient him or herself, are promising options to enhance shared decision-making in routine clinical practice.	2009	7/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	0/21	0/21
	Tools to promote shared decision-making in serious illness (93)	Tools identified in this review address advance care planning, palliative care and goals of care communication, feeding options in dementia, lung transplant in cystic fibrosis, and truth telling in terminal cancer. Tools to promote shared decision-making can be used to inform future decisions through advance care planning, or to support immediate treatment decisions.  The two advance care planning tools supported by the strongest evidence are a video to assist in discussions of treatment preference with patients with advanced dementia, and an advanced directive documentation guide designed for patients with low health literacy and available for free on the internet. Both tools had effects on clinical decisions. The evidence identified in this review supports several tools geared toward shared decision-making in immediate clinical choices. The majority of these tools were shown to improve knowledge, and select tools changed actual treatment decisions.	2014	6/10 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	1/17	0/17
	Effects of interventions	Shared decision-making interventions evaluated by included studies	2012	10/11	Not	5/19	0/19

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Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that dealt explicitly with one of the prioritized groups	Proportion of studies that focused on frail older adults
	designed to support shared decision-making on health inequalities (107)	<p>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> <p>Seven studies compared the effects of interventions between high and low literacy groups. Results indicated that shared decision-making interventions appeared to benefit disadvantaged groups more than groups with higher literacy, education and socio-economic status. Interventions specifically tailored to the needs of disadvantaged groups appeared to be the most effective.</p>		(AMSTAR rating from McMaster Health Forum)	reported in detail		
	Health professionals' perceptions of the barriers and facilitators to implementing shared decision-making in clinical practice (111)	<p>The majority (89%) of participants in included studies were physicians. The most frequently reported barriers to implementing shared decision-making in clinical practice were time constraints, lack of applicability due to patient characteristics, and lack of applicability based on the clinical situation.</p> <p>The most frequently reported facilitators to implementing shared decision-making in clinical practice were healthcare provider motivation, their perception that putting shared decision-making into practice would lead to improved clinical processes, and their perception that putting shared decision-making into practice would lead to improved patient outcomes.</p>	2006	6/10 (AMSTAR rating from McMaster Health Forum)	6/38	0/38	0/38
	Interventions for improving the adoption of shared decision-	Studies that used outcome measures reported by observers to evaluate shared decision-making interventions showed that interventions targeting both patients and providers had a positive effect compared to	2009	9/10 (AMSTAR rating from	1/5	0/5	0/5

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Sub-element	Focus of systematic review	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 focused on frail older adults
	making by healthcare professionals(106)	<p>usual care and compared to interventions targeting patients alone. Studies comparing interventions targeting healthcare professionals with usual care reported that shared decision-making interventions had a positive effect.</p> <p>The low quality of evidence identified by this review makes it difficult to evaluate whether shared decision-making interventions are effective. However, the findings of this review suggest that any intervention that targets patients, providers or both, is more effective than no intervention.</p>		McMaster Health Forum)			
	Identification of ways to communicate evidence to improve patient understanding, involvement in decisions and outcomes(132)	<p>There is limited evidence available to guide how physicians can most effectively share clinical evidence with patients facing decisions.</p> <p>Based on the limited evidence available as well as expert opinion, the review recommends five components for efforts to frame and communicate clinical evidence: understanding the patient's (and family members') experience and expectations; building a partnership; providing evidence, including a balanced discussion of uncertainties; presenting recommendations informed by clinical judgment and patient preferences; and checking for understanding and agreement.</p>	2003	0/10 (AMSTAR rating from McMaster Health Forum)	0/8	0/8	0/8
	Assessing the effectiveness of decision-making tools for use by pregnant women (94)	<p>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 a decision-aid tool (DAT). 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 two of the decision aids including computer-based information and DAT, 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 DAT on final choice, but was the only decision aid to have an impact on final outcome.</p> <p>While decision aid tools showed different potential to effectively assist health professionals in day-to-day practice, all four aids were generally</p>	2009	6/9 (AMSTAR rating from McMaster Health Forum)	2/10	0/10	0/10

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Sub-element	Focus of systematic review	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 focused on frail older adults
		found to be safe for use and to vary in their level of effectiveness.					
	Evaluate the effects attributable to framing information in either a positive or negative way (125)	<p>This review that included 35 studies found that positively-framed messages led to more positive perceptions of effectiveness than negatively-framed messages, but there was little difference in persuasiveness or patient behaviour. When examining the framing of goals, framing messages in terms of loss to the patient led to more positive perceptions of effectiveness compared to gain messages, and in three studies provided a more persuasive treatment message. No difference was found in behaviour.</p> <p>Overall, framing for both attributes and goals have little consistent effect on behaviour. Some evidence was found that the framing effect may exist, but it was not sufficient to make a definitive conclusion.</p>	2007	10/11 (AMSTAR rating from McMaster Health Forum)	3/35	2/35	0/35
	Overview of the impact on risk perception accuracy of genetic counselling (95)	<p>Overall, studies found that an increased proportion of individuals correctly perceived their risk after counselling rather than before, and those who did not had smaller deviations from their objective risk than before counselling.</p> <p>The positive effects were sustained at follow-up one year later.</p> <p>Some studies observed no impact at all, or only observed an impact for low-risk participants.</p>	2007	5/9 (AMSTAR rating from McMaster Health Forum)	0/19	0/19	0/19
	Assessing the effectiveness of cancer-related decision aids in decisions around screening, prevention and treatment (96)	<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.</p> <p>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</p>	2007	4/11 (AMSTAR from McMaster Health Forum)	0/40	3/40	0/40

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Sub-element	Focus of systematic review	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 focused on frail older adults
		prevention or treatment.  Overall, cancer-related decision aids were effective in increasing patient knowledge and did not serve to increase anxiety in patients for cancer screening.					
	Effectiveness of cancer-related decision aids (97)	Thirty-four randomized controlled trials (RCTs) of decision aids were identified for use in screening or prevention and treatment of cancer.  Decision aids were found to significantly improve knowledge about screening as well as preventive/treatment options as compared to usual practice.  General anxiety was not increased in most trials and was significantly reduced in a screening context.  Decision-related conflict was reduced, but not when screening and preventive/treatment studies were analyzed separately.	2007	4/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	0/34	0/34
	Impact of electronic health records on healthcare quality (133)	Electronic health records have been found to improve the quality of healthcare by allowing providers to make more efficient use of time and adhere to guidelines, as well as to reduce medication errors and adverse drug events for patients.	2013	4/11 (AMSTAR rating from McMaster Health Forum)	Not Reported in detail	0/47	0/47
Support seamless transitions between settings	Effectiveness of quality-improvement strategies for coordination of care to reduce use of healthcare services (99)	Approaches used to improve coordination of care significantly reduce the number of people with chronic conditions (except for those with mental illness) being admitted to hospital, as well as emergency department visits for older adults.	2014	10/11 (AMSTAR rating from McMaster Health Forum)	2/50	0/50	2/50
	Navigation roles support chronically ill older adults through healthcare transitions (104)	System navigators are a relatively new approach to link people with complex conditions to the care they need, so there is a lack of evidence to determine if they are helpful for supporting transitions between different settings.	2011	5/10 (AMSTAR rating from McMaster Health Forum)	2/15	0/15	1/15
	Discharge planning from hospital to home	Thirty studies were included in this review. These studies found that discharge plans brought about a small reduction in the length of stay as	2012	9/11 (AMSTAR	4/30	0/30	0/30

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Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that dealt explicitly with one of the prioritized groups	Proportion of studies that focused on frail older adults
	(100)	well as reducing readmission rates for elderly patients admitted to hospital. Additionally, the development of discharge plans had a small effect on increasing both patient and professional satisfaction with health services.  No evidence was found as to whether discharge planning results in a reduction in costs to the health service.		rating from McMaster Health Forum)			
	Effectiveness of chronic-care models (134)	This systematic review aimed to synthesize international evidence on the effectiveness of elements of chronic-care models for improving healthcare practices and health outcomes within primary-healthcare settings. With 77 studies included, only two reported improvements to healthcare practices or health outcomes for people living with chronic disease. There were significant variations between studies regarding what combination of elements were included in the chronic-care model. Therefore, the study could not identify any optimal combination of chronic-care model elements that led to health improvements.	2013	6/10 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	3/77	1/77
	Effectiveness of comprehensive care programs for patients with multi-morbidity, and their impact on patients, informal caregivers and professional caregivers (86)	The review included programs that varied greatly in terms of target patient groups, implementation settings, number of interventions, and the number of chronic-care model components.  The review found moderate evidence of a beneficial effect of comprehensive care on inpatient healthcare utilization and healthcare costs, health behaviour of patients, perceived quality of care, and satisfaction of patients and caregivers.  The review found insufficient evidence of a beneficial effect of comprehensive care on health-related quality of life in terms of mental functioning, medication use, and outpatient healthcare utilization and healthcare costs.  The review found no evidence of a beneficial effect of comprehensive care on cognitive functioning, depressive symptoms, functional status, mortality, quality of life in terms of physical functioning, or caregiver burden.	2011	5/9 (AMSTAR rating from McMaster Health Forum)	4/33	3/33	15/33

**Appendix 3: Systematic reviews relevant to Element 3 – Supporting caregivers in their efforts to prevent, delay the onset of and manage the burden of frailty**

Sub-element	Focus of systematic review	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 focused on frail older adults
Addressing the economic security of caregivers	No systematic reviews were identified for this sub-element.						
Engaging caregivers in decision-making about needed care, and about how care and support is organized	Assessing the impact of involving patients in the process of planning and developing care plans (109)	Evidence from 42 studies examining the effects of involving patients in planning and developing their care plans found increases in self-esteem when patients participated in the planning and development of their care. Mixed results were found for professionals, with some studies reporting that professionals found the experience rewarding while other found the new relationship between patients and staff challenging. The most common change to services as a result of involving the patient was the production of new or improved sources of information for patients, and efforts to make services more accessible to patients through simplifying appointment procedures. As a result of patients being involved in their care, staff attitudes and the culture of organizations shifted such that involving patients became a norm. Overall, involving patients was found to have positive results on their care and the organization more broadly. However, some evidence was found that involving patients was done to legitimize decisions that would have been taken regardless of patient agreement, and one study found evidence that decision-making was slower when involving patients.	2000	5/9 (AMSTAR rating from the McMaster Health Forum)	2/42	Not reported in detail	Not reported in detail
	Assessing patient and caregiver preference for the level of involvement with their cancer treatment (124)	Thirty-one studies included in the systematic review found that patients clearly expressed a preference for a collaborative role in treatment decision-making, however six studies included in the review found that patients favoured a passive role in cancer treatment. Therefore patient participation levels were found to vary significantly. Evidence on the association between individual factors and preferences for involvement was inconclusive. Finally, it was not possible to confirm with certainty whether attaining the role preference (e.g., whether you are an active or passive	2004	6/9 (AMSTAR rating from McMaster Health Forum)	2/31	0/31	0/31

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Sub-element	Focus of systematic review	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 focused on frail older adults
		participant) influences patient care outcomes.					
	Evaluating strategies for public engagement in the development of health policy (110)	<p>A total of 34 studies found some evidence to support consumer involvement in the development of patient information material, and some low-quality evidence to support that engagement conducted through the telephone or face-to-face is superior to mailed surveys. Effectiveness of these strategies is improved when designs are tailored to different types of issues, decision-making conditions and groups of participants. Studies included in the review found that participants in well-designed interactive public engagement processes tended to report high levels of satisfaction with communication of objectives, information provided and the logistics of deliberation. Insufficient evidence was included to draw conclusions regarding health impact assessments.</p> <p>In examining public engagement strategies for rural communities, strategies were more effective when an understanding of rural place was incorporated.</p>	2009	7/11 (AMSTAR rating from McMaster Health Forum)	18/34	2/34	1/34
	Assessing the effectiveness of decision making tools for use by pregnant women (94)	<p>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 - the computer-based information and DAT. 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 DATS, 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 DAT on final choice, but was the only decision aid to have an impact on final outcome.</p> <p>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.</p>	2009	6/9 (AMSTAR rating from McMaster Health Forum)	2/10	0/10	0/10
	Assessing the effects of	Thirty-four studies found that individuals who were provided with	2012	10/11	1/34	0/34	0/34

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	personalized information for decision-making with regards to screening and diagnostic tests (111)	<p>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.</p> <p>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.</p>		(AMSTAR from McMaster Health Forum)			
	Assessing the effectiveness of cancer-related decision aids in decisions around screening, prevention and treatment (96)	<p>Thirty-four studies were included in this review, 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.</p> <p>Decision aids related to prevention and treatment 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)	5/34	0/34	0/34
	To evaluate the effectiveness of decision	This review included 115 studies and generally found that the inclusion of decision aids performed better than usual care by	2009	11/11 (AMSTAR	22/115	0/115	0/115

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	aids for people facing treatment or screening decisions (112)	<p>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. Decision 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.</p> <p>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 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>		rating from McMaster Health Forum)			
Providing education and supports to reduce caregiver burden and to help them cope and build resilience	Evaluate the effects attributable to framing information in either a positive or negative way (125)	<p>This review included 35 studies and found that positively-framed messages led to more positive perceptions of effectiveness than negatively-framed messages, but there was little difference in persuasiveness or patient behaviour. When examining the framing of goals, framing messages in terms of loss to the patient led to more positive perceptions of effectiveness compared to gain messages, and three studies provided a more persuasive treatment message. No difference was found in behaviour.</p> <p>Overall, framing for both attributes and goals have little consistent effect on behaviour. Some evidence found the framing effect may exist, but it was not sufficient to make a definitive conclusion.</p>	2007	10/11 (AMSTAR rating from McMaster Health Forum)	3/35	2/35	0/35
	Assessing the effect of psychosocial interventions on improving the quality of life of cancer caregivers	Six studies were included in this review. Two of the studies found statistically significant improvement in the quality of life of caregivers. Of the remaining four studies, two found no effect two others found positive but non-significant effects on quality of life.	2011	4/9 (AMSTAR rating from	Not reported in detail	0/6	0/6

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	(113)	Mixed evidence was found in studies assessing other outcomes including depression, coping and caregiver strain.  Overall, interventions targeting communication and education have an impact on improving caregiver quality of life.		McMaster Health Forum)			
	Determine which service models provide effective and cost-effective breaks for caregivers of frail older people (135)	Eight studies included in this review found no significant effect on caregivers' stress from the provision of respite care for caregivers of stroke survivors, making it not possible to determine what services would be best for informal caregivers of stroke survivors.	2011	10/10 (AMSTAR rating from McMaster Health Forum)	0/8	0/8	0/8
	Examining the effectiveness of respite care for adult caregivers of frail older adults (114)	Mixed evidence was found for the extent to which adult day care benefited caregivers, finding that generally respite neither benefits nor harmed care receivers. Two RCTs found lower stress levels for caregivers who participated in the intervention than for usual care.  Results from quasi-experimental studies found that Family Support Units prolonged individuals' lives at home and that caregivers using substantial amounts of services benefited significantly more than those using none.  Economic studies that examined day care compared to usual care typically found day care to be more expensive, but that day care tended to be associated with similar or slightly better benefits than usual care.  RCTs examining respite packages found few benefits for caregivers over the control group. Quasi-experimental studies, however, reported positive findings for caregiver outcomes, finding a significant reduction in caregiver stress, but no effect upon entry to long-term or institutional care.	2005	2/11 (AMSTAR rating from McMaster Health Forum)	2/27	Not reported in detail	27/27
	Assessing the effectiveness and cost-effectiveness of providing informal caregivers with breaks in	A total of 104 studies were included in this review that found providing informal caregivers with breaks in care reduced depression in the short term and for home care. No reduction in depression was observed for the provision of day care.	2008	8/10 (AMSTAR rating)	9/104	4/104	104/104

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	care (136)	Overall there was a trend for longer interventions to have more positive effects than shorter interventions. No effect was found on anxiety from the provision of respite care, but positive effects were seen on caregivers' morale, hostility and anger. Single group studies suggested that quality of life was worse after respite use. Observational and qualitative studies reported that active information should be provided about the support, and that supports should be offered early in the caregiving career for efforts to have the most effect on caregivers' mental well-being.		from McMaster Health Forum)			
	Assessing the effectiveness of internet-based interventions at reducing caregiver stress (115)	<p>Twenty-four studies were included in this review, including eight open label trials and 16 randomized control trials. Included studies found a moderate benefit with nine of the trials reporting reductions in overall caregiver stress.</p> <p>Five of the 16 RCTs reported positive or mostly positive results with some outcome measures showing improvements. No evidence was found on what intervention approach and what modality of technology might be most effective. Overall, results of the studies tended to show that internet-based interventions can improve aspects of well-being and reduce levels of stress among caregivers.</p>	2013	7/11 (AMSTAR rating from the McMaster Health Forum)	/24	0/24	1/24
	Assess effective interventions which improve the quality of life for people with dementia and their caregivers living at home (116)	<p>Twenty-three studies were included in this review assessing the effectiveness of interventions to improve caregiver quality of life. The provision of psychoeducation to caregivers caring for individuals with dementia was found to improve well-being and have a small effect on improving their quality of life, but did not improve their level of depression in comparison with the control group. Studies examining the use of telephone calls to increase social support among caregivers found improvement in managing anxiety and depression as well as improving levels of stress and overall quality of life. Multi-component interventions including the provision of family counselling and specific education resulted in a reduction in depression levels that was sustained over the following three years.</p> <p>Multi-component interventions that focused on providing care to</p>	2010	8/10 (AMSTAR rating from the McMaster Health Forum)	0/23	0/23	0/23

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		<p>informal caregivers living with someone with dementia did not reduce the number of individuals who went into nursing homes compared to typical services. Respite care for these individuals, however, reduced depression scores and increased the use of other healthcare services supports such as support groups, compared to a control group.</p> <p>Overall, multi-component interventions which included combined education programs and support were found to result in the most significant improvement in patients and level of caregiving burden.</p>					
	Assessing the effectiveness of psychological interventions on family caregivers of people with dementia (118)	<p>Sixty-two studies were included in this review examining the effect of psychological interventions on family caregivers of people with dementia. The studies found that taped telephone lectures had an effect on caregiver burden, showing largely negative results either immediately or over the upcoming months.</p> <p>Mixed evidence was found about the extent to which group education sessions which focus on coping activities and stress management were able to alter the levels of depression. Larger studies found a positive short-term effect at one-month follow-up.</p> <p>Mixed evidence was found for the effectiveness of individual coping strategies, with some studies showing significant lasting effects, and others showing no improvement in caregiver burden.</p> <p>Neither group nor individual (under six sessions) behavioural management techniques were found to have significant impact on levels of depression, anxiety or burden among caregivers. Individual behavioural management including multi-component interventions was found to result in significantly less depression at four, eight and 32 months. Smaller studies that focused on individual behavioural-management treatment found no significant effect on depression.</p> <p>Studies examining supportive therapy found positive effects on depression for services provided over the computer, and that had anytime access for participants. Telephone supportive therapy, an</p>	2003	Not a systematic review	Not reported in detail	0/62	0/62

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		<p>in-person support program, and peer telephone network found no improvements in levels of depression among caregivers.</p> <p>Overall, the review found that individual behaviour-management techniques were the most effective both immediately and in the longer term at alleviating caregiver depression, and there was some evidence that individual and group coping strategies assisted in reducing caregiver depression.</p>					
	<p>Effect of communication interventions for professional and non-professional caregivers (119)</p>	<p>Twelve studies were included in the review, with seven RCTs, two clinical control trials and three before and after studies. Studies examined the effects of communications training, including verbal and non-verbal skills, attitudes towards dementia and behavioural-management skills in both residential and at-home settings for caregivers of individuals with dementia.</p> <p>Almost all trials in institutional care settings found an increase in professional caregivers' knowledge, skills and attitudes. This included a significant increase in emotional tone and a substantial increase in positive statements by staff directed at residents. One RCT reported a mean decrease in depression and challenging behaviour, and a reduction of physically aggressive behaviour. Three studies showed no effect on resident agitation during care routines.</p> <p>Institutional studies using ongoing feedback and gratification systems found that newly learned communication skills were significantly better maintained in the intervention group than in the control group at six month follow-up. Staff reported high levels of satisfaction with communication skills training, noting a deeper understanding of problems faced by their patients.</p> <p>Two RCTs and one CCT demonstrated significant effects on family caregivers' knowledge and competencies. Reports of problems with communication significantly decreased following training. Two studies found increased quality of life for people with dementia who are cared for at home. Included studies found no improvements in family caregiver burden. Caregivers reported</p>	<p>2010</p>	<p>6/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>0/12</p>	<p>0/12</p>	<p>0/12</p>

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		<p>an almost 100% satisfaction rate with the provision of communication training.</p>					
	<p>Examines the effectiveness of caregiver support groups for caregivers of people with dementia (120)</p>	<p>Thirty studies were included in the review assessing the effectiveness of mutual support groups, educational psychology groups and educational training groups.</p> <p>Support groups were found to have a moderate improvement on caregivers' mental health and levels of depression. There was also a small effect on levels of caregiver burden, however, this effect was found to increase at the four to six month follow-up.</p> <p>Across support groups, those that used theoretical models, lasted more than eight weeks, and included more than 16 hours of participation, were found to improve psychological well-being and depression significantly more than others.</p>	<p>2009</p>		<p>Not reported in detail</p>	<p>Not reported in detail</p>	<p>Not reported in detail</p>
	<p>Effectiveness of telephone counselling in reducing symptoms of depression and other stressors for people caring for people with dementia (117)</p>	<p>Six studies, nine RCTs and two qualitative studies were included in the review, assessing telephone counselling alone, telephone counselling combined with video sessions, and telephone counselling combined with video and a workbook.</p> <p>Meta-analysis of the RCTs found a moderate reduction in depressive symptoms and a non-significant reduction in levels of caregiver burden from telephone counselling alone. A non-significant difference was found for distress, quality of life and social support, and mixed results were reported for self-efficacy outcomes among caregivers.</p> <p>For telephone counselling in combination with video sessions a reduction was reported in depression over time for the intervention group. The study also found low-quality evidence of reduced anxiety levels and a significant increase in caregiver satisfaction.</p> <p>For telephone counselling combined with both video sessions and a work book a reduction in depressive symptoms was reported for the intervention group. A reduction was found in caregiver burden for upset and annoyance after three months, as well as in caregiver</p>	<p>2013</p>	<p>10/10 (AMSTAR rating from McMaster Health Forum)</p>	<p>1/6</p>	<p>1/6</p>	<p>0/6</p>

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		stress as it related to upset, sadness, frustration and irritation. Finally, in measures of self-efficacy, increases in obtaining respite, capacity for dealing with problematic behaviour, and caregivers' ability to control negative thoughts were found for both the placebo group and the intervention group.					
	Examines the effects of respite care on individuals caring for people with dementia (122)	Four studies were included in this review comparing outcomes of interventions providing respite care for primary caregivers.  None of the studies reported on the rate of institutionalization, which was the main outcome of the review. No significant effects were found on caregiver outcomes when respite care was compared with no care. In comparing respite care and respite care with combined polarity therapy, significant differences were found in favour of polarity therapy for caregiver psychological stress.	2013	9/10 (AMSTAR rating from McMaster Health Forum)	1/4	1/4	0/4
	Effectiveness of educational and support programs for the caregivers of elderly individuals with dementia (121)	Seven studies were included in this review and found evidence to support the use of educational interventions for caregivers supporting patients with dementia. A meta-analysis was conducted and found a reduction in the burden of caregivers following the intervention when compared to a control group.	2011	6/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	Not reported in detail	Not reported in detail
	Assess whether dementia adviser services confer significant benefit with respect to quality of life and neuropsychiatric symptoms in people with dementia, and the level of burden experienced by their caregiver (137)	Thirteen studies were included in the review. Three studies reported on effects on quality of life, with two of them finding significant improvements for the individual receiving care, and one study finding improvements for the caregiver. No sustained impact was found for institutionalization from either of the two studies that examined it. Seven of nine studies reported significant benefits from the intervention group as compared with control for levels of caregiver burden and stress. A meta-analysis. However, of three of these studies reported no significant result. Studies that resulted in significant benefits included either skills training, telephone support or direct help to people with dementia in navigating services.	2009	7/10 (AMSTAR rating from McMaster Health Forum)	0/13	0/13	0/13
	Assess the impact of dementia home-care interventions on depression and burden in	Twenty-two studies were included in a meta-analysis examining interventions including psychosocial counselling, respite care, telephone and internet-based support, case management, physical exercise and communication skills.	2007	8/11 (AMSTAR rating)	Not reported in detail	0/22	0/22

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	family caregivers (123)	<p>None of the psychosocial interventions, telephone support or case management were found to significantly reduce feelings of depression in family caregivers when compared to controls. Respite care was found to significantly increase burden in family carers compared to controls while psychosocial interventions did not alter feelings of burden compared to controls. Overall, evidence relating to interventions for family caregivers of dementia is mixed, however, there was some evidence showing that it may provide short-term depression relief.</p>		from McMaster Health Forum)			
	Assessing the effectiveness of information and/or support interventions for caregivers of people with dementia (138)	<p>Forty-four studies were included in the review, which examined interventions to support caregivers in dementia. These included technology-based, individual and group-based interventions.</p> <p>One of the four technology-based interventions found significant effects, improving caregiver information, social support and support satisfaction. The remaining three found no significant difference between treatment and control groups.</p> <p>Eight of 13 trials for group-based interventions found significant benefits compared to controls. A meta-analysis of five psychoeducation studies reported a significant improvement in caregiver depression. Five other studies found no significant difference on levels of caregiver burden.</p> <p>Twenty-seven studies examined individual interventions, 10 of which found no difference between treatment and control groups.</p>	2005	6/11 (AMSTAR rating from McMaster Health Forum)	Not reported in detail	Not reported in detail	Not reported in detail



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