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Evidence Brief

Meeting the current and future health needs of the senior population in LHIN 4

Malcolm Hartman, BHSc
John N. Lavis, MD PhD, Director, McMaster Health Forum and Professor, McMaster University

06 April 2017

Authors

Malcolm S. Hartman, BHSc

John N. Lavis, MD, PhD, Director, McMaster Health Forum, and Professor, McMaster University

Funding

No funding to declare.

Conflict of interest

No conflicts of interest to declare.

Acknowledgments

The authors wish to thank the key informants for their insights and feedback on the evidence brief.

Citation

Hartman MS, Lavis JN. Meeting the current and future need of the senior population in LHIN 4. Hamilton: McMaster University; 2017 Apr.

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KEY MESSAGES

What's the problem?

- There are many factors which contribute to the challenge of providing care to older adults in LHIN 4, including:
    - the older adult population is growing, along with their demand for health and social services;
    - existing programs and services may not be meeting the needs of older adults; and
    - existing health system arrangements (e.g., delivery, financial, and governance) are not optimally structured to meet the needs of an aging population

What do we know about three elements of a potentially comprehensive approach to address the problem?

- Element 1 – Support older adults and their caregivers to promote healthy aging at home
    - This element is focused on building capacity and providing supports to older adults and their caregivers.
    - We identified 34 reviews and four economic evaluations that focused on element 1, with the main findings suggesting that there are a range of benefits for supporting older adults and their caregivers with education and training, with a particular benefit seen in tailored and multicomponent interventions.
- Element 2 – Coordinate community resources that support healthy aging
    - This element is focused on improving community care for older adults so they can remain in their communities as they age.
    - We identified ten reviews and one economic evaluation that focused on element 2, with the main findings suggesting that case management with a disease specific focus is associated with improved health outcomes.
- Element 3 – Support healthcare institutions and other sectors in promoting healthy aging
    - This element is focused on healthcare and social services and the steps they may take to become age friendly.
    - We identified 12 reviews and three economic evaluations that focused on element 3, with the main findings suggesting that discharge planning, and geriatric training lead to a range of benefits.

What implementation considerations need to be kept in mind?

- Potential barriers can be understood at the level of patients/citizens, service providers, organizations, and systems. The largest barrier may be that various sectors (i.e., within the health system and between the health system and other sectors) will have to collaborate and coordinate to address the needs of an aging population.
- Windows of opportunity in addressing these barriers include the Patients Frist Act, which puts an emphasis on coordination between sectors within the health system (e.g., home and community care, primary care, specialty care, rehabilitation care and long-term care).

REPORT

The senior population has been identified as a priority group for future health system transformation in the Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN 4).(1) LHIN 4 currently services over 260,000 older adults and this demographic is projected to grow to 360,00 by 2025.(2) As this population increases, the financial and system strain LHIN 4 experiences will increase significantly, as older adults currently account for 20% of Emergency Department (ED) visits, 63% of total hospital days, and 83% of alternate level of care (ALC) days.(3) Addressing the health of the aging population has therefore become a pressing health and societal challenge for LHIN 4.

This challenge is not a new one and there has been a myriad of policies and programs aimed at strengthening care for older adults across Ontario. In 2007 the Ministry of Health and Long-Term Care (MoHLTC) implemented the Aging at Home Strategy, a $1.1 billion dollar program aimed at funding home care and community support services within each LHIN.(4) In 2010, an additional $143.4 million dollars were allocated to this program.(5) Building off of this strategy, Ontario set a vision to make the province the healthiest place in North America to grow up and grow old.(6) In addition, numerous high-profile reports have been published in an attempt to organize, and point the Ontario healthcare system in a unified direction with regards to the growing older adult population.(7–10) This provincial direction has lead to the development of programs within LHIN 4 with the purpose of achieving the provincial vision.

From 2008 to 2009 there were 33 projects funded through the Aging At Home Strategy in LHIN 4, including adult day programs, caregiver support programs, respite care programs, increasing access to transportation, in-home physiotherapy, and funding for more healthcare workers who focus on the needs of older adults.(11) These are just a fraction of the initiatives within LHIN 4 that aim to achieve the provincial vision.(12)

As LHIN 4 takes further steps to transform its health system, it will be necessary to reflect on all of the current and past programs, the progress made, and identify any unresolved challenges for the older adult population. This evidence brief aims to accomplish this; and will inform the organizing and provision of care for the older adult population in LHIN 4 by reviewing: 1)

Box 1: Glossary

Senior
Someone who is 65 years of age of older. This is an arbitrary definition, however the funding for many programs, such as the Ontario Drug Benefit, are based on this age.(7)

Senior/age friendly
The WHO suggests that, "an age friendly world enables people of all ages to actively participate in community activities and treats everyone with respect, regardless of their age. And it helps people stay healthy and active even at the oldest ages and provides appropriate support to those who can no longer look after themselves."(8)

Health aging
"Healthy aging is described as a lifelong process, optimizing opportunities for improving and preserving health and physical, social, and mental wellness; independence; quality of life; and enhancing successful life-course transitions."(9)

Frailty
"The clinically recognizable state of increased vulnerability resulting from aging-associated decline and function across multiple physiologic systems."(10) Fried et al. (2001) operationally defines frailty as meeting three of the following criteria: low grip strength, low energy, slowed walking speed, low physical activity, and/or unintentional weight loss. When one or two of the criteria are met this is considered a pre-frail stage.

current problems and their causes; 2) three elements of a potentially comprehensive approach for addressing the problems; and 3) key implementation considerations.

The scope of the evidence brief will include health system elements that are related to organizing and providing care for older adults in LHIN 4. This includes home and community care, primary care, specialty care, rehabilitation care and long-term care (LTC) as older adults are likely to use these different types of care. Additionally, this evidence brief will look beyond healthcare services and consider broader social services that may be used to support an aging population.

While acknowledging that the older adult population is heterogeneous, and health status can vary widely within age groups, this evidence brief gives particular attention to two groups: (1) older adults who are frail or vulnerable due to cognitive and/or physical disabilities; and (2) those with mental health and addictions challenges. The problems, the benefits, harms and costs to address these problems, and implementation considerations may vary across groups, and will be commented on when possible.

THE PROBLEM

The challenge of organizing and providing care to the older adult population in LHIN 4 can be understood by examining the following three features:

1) the older adult population is growing, along with their demand for health and social services;
2) existing programs and services may not be meeting the needs of older adults; and
3) existing health system arrangements (e.g., delivery, financial, and governance) are not optimally structured to meet the needs of an aging population

The older adult population is growing, along with the demand for health and social services

As mentioned above, LHIN 4 currently services 260,000 older adults and this is projected to grow to 360,000 by 2025.(2) Within the older adult population the largest growth will occur in those over the age of 75, with a projected 103.4% increase in this demographic by 2035 when compared to 2015 statistics.(1) Furthermore, as the older adult population grows, the population of those with select conditions, such as dementia, will increase in size. By 2020 there will be a projected 31,460 adults living with dementia in LHIN 4, a 25% increase from 2012.(18) This is particularly significant as the healthcare costs for those with dementia are five and a half times greater than for those without.(19)

As of 2014 older adults were consuming approximately 45% of all public-sector healthcare dollars in Canada, and this disproportionate use of healthcare services is also reflected in LHIN 4.(20) For example, from 2009-2010, older adults accounted for 20% of ED visits, 63% of total hospital days, and 83% of ALC days in LHIN 4.(3)

Box 2: Methodology for characterizing the problem

The dimensions of the problem were identified after reviewing:

1) published literature: Health Systems Evidence, Google Scholar and MedLine
2) grey literature: HNHB LHIN, Regional Geriatric Program, Health Quality Ontario, Ontario Ministry of Health and of Long-Term Care, Canadian Institute for Health Information and Statistics Canada websites and/or reports

Published literature that provided insight on framing the problem was sought using a qualitative hedge in MedLine. Research evidence that was published more recently, locally applicable (i.e., LHIN 4 specific), and took into consideration equity considerations was given higher priority.

As this demographic increases in size it is important to realize that approximately 90% of Canadians would prefer to live independently in their communities and age at home.(13) However, the ability to independently perform activities of daily living (e.g., basic self-care such as bathing, dressing, using a toilet, transferring out of a bed or chair, and eating without assistance) decreases with age, especially after a hospitalization.(22) To enable healthy aging at home, healthcare services will have to be coupled with social services such as transportation, housing and civic engagement opportunities.

Existing programs and services may not be meeting the needs of older adults

The demand for home care services in LHIN 4 is difficult to quantify; however, it is likely that there are unmeet needs for these services. From 2010/11 to 2013/14 the number of home care clients in LHIN 4 increased 13.9%, and compared to Ontario, LHIN 4 had the

largest number of active clients in 2013/14.(23) Though the number of home care clients has increased, and is likely still increasing, the division of funding allocated to the HNHB Community Care Access Centre (CCAC) has remained constant. From 2013 to 2015 there was an absolute increase in HNHB CCAC funding (from $272,408,894 to $307,421,993), however the proportion of funding out of the total allocated funds remained at approximately ten percent.(24) In addition, Home Care Ontario estimates that private home care costs in the province are equal to two-thirds of the publicly funded counterpart.(25) Taken together, this data suggests that LHIN 4 may not meet the demand for home care services, with potentially negative health consequences for those who are not able to afford private service.

As the population in LHIN 4 ages, more unpaid caregivers will be represented in care teams. Acting in tandem with home care services, these caregivers allow older adults to remain independent in their communities and age at home. In Ontario, approximately one in five serves as a caregiver to a family member or friend, providing for up to 70% of the individual's needs.(26) Across Ontario and in LHIN 4 there are programs and services in place to support caregivers including peer support groups, education programs and respite care services.(27) However these programs and services are not meeting the needs of unpaid caregivers. For example, in 2012 the MoHLTC conducted 800 in-depth interviews with the caregivers of older Ontarians and found that more support was needed, including:

- caregiver literacy and navigation assistance (e.g., single point of access, information on government, social and community services);
- practical assistance to support aging at home (e.g., reliable home care services, transportation, housekeeping, shopping and cooking, personal care, and home modifications);
- emotional support (e.g., mental health/emotional support, and breaks from caregiving);
- legislative/professional support and recognition (e.g., flexible working hours, job sharing, and working from home); and
- healthcare system needs (e.g., more coordination, faster access and house calls)(26)

These provincial findings mirror themes that emerged from LHIN 4 citizen focus groups, highlighting the need for a patient centered system with a focus on the patient, the caregiver and access to home-based care supports.(12)

The above home and community care short-fallings also manifest themselves in the acute care setting. In LHIN 4 discharging a patient to their home accounts for the second highest proportion (23.5% compared to a provincial average of 18.3%) of total ALC days in the region (i.e., days where a physician has indicated the patient does not require the intensity of resources provided in acute care).(23) This is problematic, as 30-60% of older adults will experience functional decline (i.e., loss of independence and ability to perform ADLs) when in an acute care setting, and half will never recover to their pre-hospitalization level of health.(28,29)

Recognizing that functional decline results in longer hospital stays and worse health outcomes, LHIN 4 launched the Ontario Senior Friendly Hospital (SFH) Strategy in 2011.(30) The SFH Strategy uses evidence-based approaches in the delivery of senior care,

that takes into account planning, decision-making, and leadership.(31) Though this program is promising, some indicators for SFH care within LHIN 4 have shown negative trends, or have fallen behind provincial levels as of 2014:

- In 2011, 95% of hospitals reported using a SFH lens in their practices, however in 2014 only 67% reported doing so.
- 78% of hospitals in LHIN 4 reported having a formal geriatrics lead, compared to the provincial average of 81%.
- two of nine hospitals in LHIN 4 did not report the development of a strategy for elder abuse cases.
- the majority of delirium care and functional decline prevention practices were not implemented.(30)

Existing health system arrangements (e.g., delivery, financial, and governance) are not structured to meet the needs of an aging population

Delivery

The manner in which care is delivered in Ontario is not structured in a way which best addresses the needs of an aging population. In 1957 the government began paying for hospital-based care and then physician-provided care in 1969. The payment agreement between physicians and the provincial government is largely fee-for-service, meaning that they are treated as private practices rather than a member of an interdisciplinary team of healthcare professionals.(32) This model of care is better suited in serving the acute health needs of a younger population, which reflected the needs during its design. In many ways, the current model of care still reflects this original structure and though the demographic of Ontario has shifted, the health system has not.(7)

Though Ontario has been investing in team-based primary care, stand-alone physicians still provide the majority of this care. In 2013 LHIN 4 was home to 1,195 primary care physicians and as of November 2016, 15 Family Health Teams.(23,33) Studies have found that interdisciplinary primary healthcare teams better serve the needs of patients with chronic disease and promote whole-person care and disease prevention.(34) As the population in LHIN 4 ages these teams of providers can be leveraged to better address the older adult population health needs.

LHIN 4 has a lack of healthcare professionals with geriatric training, despite the large number of older adults who consume the majority of healthcare resources.(3) In Ontario there are 110 physicians (0.8 per 100,000) who specialize in geriatric medicine, in comparison to 1034 pediatricians (7.5 per 100,000).(35,36) This imbalance may stem from lower reimbursement rates, a perceived lack of prestige and a lack of desire to work long-term with patients who have less curable disease.(37,38)

Financial

In LHIN 4, and across most of Ontario, seniors or their families often have to pay out-of-pocket for expenses including physiotherapy, dental care, nursing care, transportation to medical appointments, rehabilitation services and home care. For example:

- Prescription medication is available to individuals 65 years of age and older through the Ontario Drug Benefit Program. However, the deductible has recently been increased to $170 from $100 with co-payments increasing $1 per prescription.(39)
- Poor dental care has been directly linked to deterioration in health, however there is no coordinated effort at the LHIN level to address this. Seniors living on a fixed income may not receive the oral healthcare they need and many will go to the ED because of extreme dental pain.(40)

Furthermore, the current remuneration structure for physicians in Ontario is not organized in a way which best serves a population with complex needs.(41) The "1 problem per visit" (i.e., limiting patients to discussing one issue per visit), which is in part driven by fee-for-service incentives, is not an optimal way to treat older adults who have interconnected, and complex conditions.(42)

Governance

There may be a lack of accountability within LHIN 4 for the implementation and uptake of the SFH strategy. This strategy, which has been endorsed by the LHIN, includes geriatric education and training within its recommendations; however, there still remains a significant need for this training.(7,30) Several hospitals within the LHIN have reported the implementation of SFH practices, though the compliance with these practices has been cited as a challenge.(30)

Additional equity-related observations about the problem

Approximately 17 to 30 percent of older adults in Ontario suffer from a mental health challenge.(43) LHIN 4 healthcare provider focus groups have indicated that focusing on people with mental health and addictions challenges should be a priority for the region.(12) Mental health challenges are under-identified in older adults even though they are at risk due to compounding social, psychological and biological factors.(44) Additionally, older adults with mental health challenges are at a greater risk for other health challenges, such as falling.(45) Another group of older adults who are vulnerable to physical, emotional and social challenges are frail older adults. Frail older adults have complex needs, and are at a greater risk of developing multiple chronic conditions.(46)

3 ELEMENTS OF A POTENTIALLY COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM

Acknowledging that there are various approaches to addressing the problem, we have grouped three elements of a potentially comprehensive approach. These three elements were developed after consulting with key informants who were interviewed during this process. The elements are:

1) support older adults and their caregivers to promote health aging at home;
2) coordinate community resources that support healthy aging; and
3) support healthcare institutions and other sectors in promoting healthy aging

This section will identify what is known regarding these elements by summarizing the available research evidence. This evidence was primarily sought from Health Systems Evidence, which is a repository of syntheses of research evidence about governance, financial and delivery arrangements for health systems.(47) To offer a comprehensive understanding of each policy option, the benefits, harms, costs, adaptations/key features, and stakeholder's views and experiences are summarized.

No additional research evidence was sought beyond what was included in a systematic review. For those interested in pursuing an element, more detailed evidence could be found including single studies, program description, or case studies.

Element 1 – Support older adults and their caregivers to promote healthy aging at home

This element is focused on building capacity and providing supports to older adults and their caregivers. Elements of this option might include:

- building capacity in older adults and their caregivers by providing them with the information they need to make better decisions.
    - online health information tools with evidence-informed interventions for older adults.
    - promoting existing health information tools that may be underused.
- providing education/training and support programs for caregivers.
    - increasing the availability and accessibility of respite care, homemaking services and adult day programs for unpaid caregivers.
- flexible working arrangement for caregivers.
- adapt Telehomecare (i.e., remote patient monitoring) for at-risk older adult populations (e.g., the frail elderly).
- support patient portals that allow patients to access, manage and track their health information.

Several high and medium quality reviews were found which support the use of online information tools with evidence-informed interventions, and education/training and support for caregivers.(48–62) Caregiver support is generally viewed as cost effective, however this is dependent on the specifics of the intervention and population.(63,64) A key component across both options is providing tailored and multicomponent interventions.(53,65) Several reviews were found to support the benefits of remote patient monitoring.(66–68) However, the majority of these reviews were focused on specific disease states, and the generalizability to all older adults is unclear. High and medium quality reviews found some weak evidence supporting the use of patient portals, however the majority of literature points to this option having no effect on health status.(69,70)

We did not identify any reviews with respect to the benefits or harms of flexible working arrangement for caregivers. Monitoring and evaluation would be warranted if this option were to be pursued.

A summary of the key findings is presented in Table 1. A full summary of the included systematic reviews relevant to this option is provided in Appendix 1.

Table 1: Summary of key findings from systematic reviews relevant to Element 1 – Support older adults and their caregivers to promote healthy aging at home

Category of finding	Summary of key findings
Benefits	• **Online health information tools with evidence-informed interventions:** A medium quality review (71) found limited evidence to support the use of online health information tools for supporting knowledge. However, they were found to promote information exchange and self-management. One high quality (48) and several medium quality reviews (49–53) examined internet delivered interventions and some evidence was found showing improvement in outcomes including quality of life, weight, loneliness, blood pressure, physical activity levels, and medication self-efficacy/adherence. With respect to caregivers, a medium quality review (54) found that internet-based interventions may improve confidence, depression, and self-efficacy. • **Providing education/training and support programs for caregivers:** A high quality review (55) and two medium quality reviews (56,57) found mixed results for respite care programs. These programs may reduce caregiver burden, however the quality of evidence and effect size varies by disease and program features. In three medium quality reviews (58–60), other support services including cognitive behavioral therapy and support groups for caregivers were shown to increase coping abilities. Two medium quality reviews (61,62) found that educational interventions for caregivers reduced anxiety and burden. • **Flexible working arrangement for caregivers:** None identified • **Adapt Telehomecare (i.e., remote patient monitoring) for at-risk older adult populations (e.g., the frail elderly):** A medium quality review (66) indicates that remote monitoring in the form of vital sign monitoring and personal alarms can promote independence at home for older adult populations. Two reviews, one high quality (67) and one medium quality (72) examine remote monitoring for patients after heart failure. Both reviews suggest that the intervention reduces mortality. A low quality review (68) addressing telehomecare for patients with chronic conditions found that it can positively affect health outcomes. • **Support patient portals that allow patients to access, manage and track their health information:** A high quality (69) and a medium quality (70) review both conclude that patient portals do not impact health status. There are conflicting results between reviews regarding health portals effects on healthcare efficiency.
Harms	• **Online health information tools with evidence-informed interventions:** When using computer and/or internet based interventions, patients will need reliable access to a computer.(73) • **Providing education/training and support programs for**

	caregivers: None identified • **Flexible working arrangement for caregivers:** None identified • **Adapt Telehomecare (i.e., remote patient monitoring) for at-risk older adult populations (e.g., the frail elderly):** None identified • **Support patient portals that allow patients to access, manage and track their health information:** None identified
Costs	• **Online health information tools with evidence-informed interventions:** None identified • **Providing education/training and support programs for caregivers:** An economic evaluation (63) found that adult daycare services allowed the caregiver to spend more time in work related activities. Another economic evaluation (64) of family meetings found that these were not cost effective for preventing depression and anxiety the caregivers of dementia patients. Psychological interventions that included relaxation, behavioral management, communication strategies and future planning were found to be cost effective for dementia caregivers.(74) • **Flexible working arrangement for caregivers:** A medium quality review (75) notes a tradeoff between the desire to limit health spending by relying on caregivers and having a full labour force. The review cites a study (76) that notes an employers largest cost, related to caregivers, is replacing employees who quit due to caring responsibilities ($4.9 billion USD in 1997). • **Adapt Telehomecare (i.e., remote patient monitoring) for at-risk older adult populations (e.g., the frail elderly):** An economic evaluation (77) of remote monitoring technology found no effect on quality-adjusted life-years. • **Support patient portals that allow patients to access, manage and track their health information:** A high quality review (69) suggests that patients portals will not be cost effective, however more studies are needed to fully evaluate this.
Adaptions/key components	• **Online health information tools with evidence-informed interventions:** Three medium quality reviews (53,54,73) found that web/online-based interventions should be tailored to the needs of the patient (or caregiver (54)) and have multiple components. • **Providing education/training and support programs for caregivers:** A high quality review (78) found that essential features of dementia caregiver supports include: long-term commitment, face to face contact, individualized support, multidisciplinary teams, collaborative input and ongoing follow-up. A medium quality review (65) indicates that across various types of interventions, ones with multiple components are the most effective for reducing caregiver burden. • **Flexible working arrangement for caregivers:** None identified • **Adapt Telehomecare (i.e., remote patient monitoring) for at-**

	risk older adult populations (e.g., the frail elderly): A medium quality review (79) suggests that technology aimed at older adults should be simple, reliable, and tailored to individual need. • **Support patient portals that allow patients to access, manage and track their health information:** A medium quality review (80) suggests that patients portals must be developed within an already integrated health system, as many organizations must input into the process.
Views and experiences	• **Online health information tools with evidence-informed interventions:** A medium quality review (81) found that older adults were accepting of using mobile phones for health interventions. • **Providing education/training and support programs for caregivers:** None identified • **Flexible working arrangement for caregivers:** None identified • **Adapt Telehomecare (i.e., remote patient monitoring) for at-risk older adult populations (e.g., the frail elderly):** A medium quality review (79) emphasizes that older adults want to have control over health technologies and choice, as privacy is a large concern. • **Support patient portals that allow patients to access, manage and track their health information:** A high quality review (69) indicates that healthcare providers cite administrative and human factors as barriers to implementation. A medium quality review (80) found that patient engagement may be low due to concerns about confidentiality of personal health data. This review also indicates that health care providers may be wary of using portals, as they are fearful that this will increase their workload. A low quality review (82) reported mixed feelings from both patients and providers with respect to the use of patient portals.

Element 2 – Coordinate community resources that support healthy aging

This element is focused on improving community care for older adults so they can remain in their communities as they age. Elements of this option might include:

- funding models that ensure that community resources are used efficiently (e.g., means tested home-care).
- providing case management to coordinate healthcare services and community programs.
    - creating system navigator tools and hubs that coordinate service in the community sector.
    - funding for a subset of case managers with a focus on dementia.
- supporting community/civic engagement for older adults (e.g., volunteering).

Several high and medium quality reviews support case management and its association with improved health outcomes.(83–85) Key features of successful case management may include, high-intensity, effective communication, and disease specific programs (e.g., dementia). No reviews were identified to support the benefits of community/civic engagement for older adults, however a low quality review found that social support interventions should allow for both giving and receiving support.(86)

We identified no reviews supporting funding models that ensure that community resources are used efficiently (e.g., means tested home-care). Monitoring and evaluation would be warranted if this option were to be pursued.

A summary of the key findings is presented in Table 2. A full summary of the included systematic reviews relevant to this option is provided in Appendix 2.

Table 2: Summary of key findings from systematic review relevant to Element 2– Coordinate community resources that support healthy aging

Category of finding	Summary of key findings
Benefits	• **Funding models that ensure that community resources are used efficiently (e.g., means tested home-care):** None identified • **Providing case management to coordinate healthcare services and community programs:** One high quality (83) and several medium quality (84,87,88) reviews found that case management, in a variety of forms, improved health outcomes and healthcare service utilization. Two reviews, one high quality (85) and one medium quality (89), examined case management for dementia patients specifically. Case management led to improved disease education, and reduced the risk of long-term care placement for up to 18 months. • **Supporting community/civic engagement for older adults (e.g., volunteering):** None identified
Harms	None identified
Costs	• **Funding models that ensure that community resources are used efficiently (e.g., means tested home-care):** None identified • **Providing case management to coordinate healthcare services and community programs:** A medium quality review (84) found that most of the included studies had reached cost neutrality. An older, low quality review (90) found insignificant costs saving in three case management interventions. An economic evaluation (91) of case management for frail older adults found that the intervention was cost neutral, though the hours of informal care required was lower for the intervention group. • **Supporting community/civic engagement for older adults (e.g., volunteering):** None identified
Adaptions/key components	• **Funding models that ensure that community resources are used efficiently (e.g., means tested home-care):** None identified • **Providing case management to coordinate healthcare services and community programs:** A high quality review (92) found that key features for dementia case management are high-intensity case management and effective communication between team members. An older, low quality review (90) found that successful interventions were disease specific and had supervision from a medical subspecialist. • **Supporting community/civic engagement for older adults (e.g., volunteering):** A low quality review (86) found that social support interventions which allow for both giving and receiving support are more effective.
Views and experiences	None identified

Element 3 – Support healthcare institutions and other sectors in promoting healthy aging

This element is focused on healthcare and social services and the steps they may take to become age friendly. Elements of this option might include:

- planning for discharge into the community or an institution.
- leveraging the Geriatrics Certificate Program to provide training to healthcare providers.
- incorporate performance measurement (e.g., SFH framework) into financial-incentive regimes.
- providing affordable transportation services to older adults to attend medical appointments.
- providing affordable and accessible housing options for seniors.

Several high quality reviews were identified to support the association between discharge planning and reduced readmission rates and/or length of stay.(93–95) Though one high quality review found discharge planning had no significant impact on any measured outcome.(96) The evidence to support discharge planning as a cost effective intervention for older adults is mixed.(96,97) A medium quality review indicates that dementia communication training leads to an improved quality of life for patients.(98) Furthermore, geriatricians (i.e., physicians with specialized training in the treatment of older adults) have been shown to be more cost effective when dealing with older adults.(99) Overall, the evidence to support the use of financial incentives for quality improvement was weak.(100,101) Healthcare leaders report that hospital funding reforms are complex, and this may detract from the utility of this option.(102)

Limited synthesized evidence was found with respect to housing options for older adults. In general, improved housing is associated with improved social outcomes.(103) We identified no reviews to support the benefits of providing affordable transportation services to older adults. Monitoring and evaluation would be warranted if this option were to be pursued.

A summary of the key findings is presented in Table 3. A full summary of the included systematic reviews relevant to this option is provided in Appendix 3.

Table 3: Summary of key findings from systematic review relevant to Element 3 Support healthcare institutions and other sectors in promoting healthy aging

Category of finding	Summary of key findings
Benefits	• **Planning for discharge into the community or an institution:** Four high quality reviews (93–96) were found with respect to discharge planning. Two (94,95) found that discharge planning reduced readmission rates and one (93) indicated it also reduces the length of stay. The remaining review (96) found that the impacts of discharge planning are uncertain on all outcomes measured. Two (94,96) report no effects on patient mortality. • **Provide geriatric training to healthcare providers:** A medium quality review (98) found that communication training for health providers lead to improved quality of life for dementia patients. A low quality review (104) reported that education and training led to improved patient safety in transitional care. • **Incorporate performance measurement (e.g., SFH framework) into financial-incentive regimes:** An overview of systematic reviews (100) found weak evidence to support results-based financing that targets individual health care professionals. A low quality review (101) found that the effects of paying providers for quality improvements are mixed, and there is little evidence to support organizational payments to promote change. • **Providing affordable transportation services to older adults:** None identified • **Providing affordable and accessible housing options for older adults:** A medium quality review (103) found that rental assistance increases the perceived neighborhood safety. In general, improved housing is associated with improved social outcomes.
Harms	None identified
Costs	• **Planning for discharge into the community or an institution:** A high quality review (96) found that discharge planning did not lead to a reduction in healthcare costs. An economic evaluation (105) of discharge planning among elderly patients found small cost savings. Another economic evaluation (97) of patient-centered coaching during and after discharge, found that $3,752 was avoided per patient. • **Provide geriatric training to healthcare providers:** An economic evaluation (99) found that patients who were cared for by a geriatrician had a shorter length of stay and lower costs per hospital admission. • **Incorporate performance measurement (e.g., SFH framework) into financial-incentive regimes:** None identified • **Providing affordable transportation services to older adults:** None identified • **Providing affordable and accessible housing options for older**

	adults: None identified
Adaptions/key components	• **Planning for discharge into the community or an institution:** Two high quality reviews (94,96) found that discharge planning interventions that were tailored and took place in the hospital or in the patient's home were the most effective. • **Provide geriatric training to healthcare providers:** None identified • **Incorporate performance measurement (e.g., SFH framework) into financial-incentive regimes:** A high quality review (102) suggests that there are three key areas when implementing financial incentives: (1) financial and human resourcing, (2) addressing unintended consequences, and (3) leader training. A medium quality review (106) identifies nine key questions to ask before using a financial incentive, such as: identifying barriers and enablers, planning the payment scheme and understanding the desired clinical outcomes. An overview of systematic reviews (100) suggests that incentives should be simple and have well-defined behavioral goals. • **Providing affordable transportation services to older adults:** None identified • **Providing affordable and accessible housing options for older adults:** None identified
Views and experiences	• **Planning for discharge into the community or an institution:** A high quality review (93) found limited evidence that discharge planning leads to improve patient satisfaction. A medium quality review (107) reported that multidisciplinary teams and information technology systems increase patient satisfaction during discharge. • **Provide geriatric training to healthcare providers:** A medium quality review (98) found that professional caregivers had a greater sense of control after completing dementia communication skills training. • **Incorporate performance measurement (e.g., SFH framework) into financial-incentive regimes:** A high quality review (102) found that hospital leaders described hospital funding reforms as complex and requiring organizational commitment, adequate infrastructure, human/financial/information technology, change champions and a personal commitment to quality. • **Providing affordable transportation services to older adults:** None identified • **Providing affordable and accessible housing options for older adults:** None identified

IMPLEMENTATION CONSIDERATIONS

When considering the challenges which may arise when trying to implement one of more of the three elements of a potentially comprehensive approach to address the problem, it is useful to look at four levels: patients/citizens, service providers, organizations, and systems. Table 4 identifies these barriers, while Table 5 identifies potential windows of opportunity. Most of the barriers and windows of opportunity were identified after consultation with key informants, as few relevant systematic reviews were found.

A number of barriers may arise when trying to implement one or more of the three elements of a potentially comprehensive approach to address the problem. The largest barrier lies in the need for coordination within the health sector and between the health sector and other sectors. There are many perspectives to be taken into account, and a successful strategy will have to engage various stakeholders and find a collective path to action.

Table 4: Potential barriers to implementing the elements

Levels	**Element 1 – Support older adults and their caregivers to promote healthy aging at home**	**Element 2 – Coordinate community resources that support healthy aging**	**Element 3 – Support healthcare institutions and other sectors in promoting healthy aging**
Patients/citizens	Older adults and their caregivers may not want to take initiative with self-management.	Patients may be resistant to initiatives that prioritize certain groups based on financial need.	Older adults may not be aware of the social services available to them.
Service providers	Providers may be hesitant to provide patients access to their electronic health information, as this may be perceived to increase their workload.	Providers may resist initiatives that change a system of funding or remuneration.	Providers may not feel the need for more specialized geriatrics training.
Organizations	Organizations may be hesitant to provide patients access to their electronic health information due to the logistical hurdles.	Organizations from various sectors (e.g., home and community care, primary care, specialty care, rehabilitations and LTC) will have to coordinate with community resources.	Hospitals may be resistant to tying funding to SFH indicators.

Systems	Policymakers may be unwilling to make investments in caregivers given current budgetary constraints.	Policymakers may be hesitant to support programs that prioritize certain groups based on financial need.	Implementation will require coordination between various sectors (e.g., healthcare, housing and transportation).

The above barriers to implementing the elements may be mitigated by capitalizing on potential windows of opportunity. There is a general movement towards coordination between sectors within the health system (e.g., home, primary and hospital care), as evident by the Patients First Act. Furthermore, funding has been committed to areas that one or more of the three elements overlap with.

Table 5: Potential windows of opportunity for implementing the elements

Type	**Element 1 – Support older adults and their caregivers to promote healthy aging at home**	**Element 2 Coordinate community resources that support healthy aging**	**Element 3 – Support healthcare institutions and other sectors in promoting healthy aging**
General	Bill 210, the Patients First Act, puts an emphasis on coordination between home, primary and hospital care; the three proposed policy options could address this to a certain extent.(108) As the population of LHIN 4 continues to age there will be mounting pressures to meet the needs of this population.		
Element specific	A $100 million dollar commitment from the Ontario government has been given to those who receive healthcare services at home and their caregivers.(109)	In response to the Brining Care Home report (2015), Ontario has committed to fund health care organizations that develop new payment models that focus on enhancing coordination of care (e.g., Integrated Comprehensive Care model).(110)	Ontario's Action Plan for Seniors identifies senior-friendly communities as one its three overarching goals, displaying support for this option.(111)

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APPENDICES

The following tables provide detailed information regarding the systematic reviews cited for each option element. The tables are organized by option element, with the key findings summarized.

The AMSTAR (A MeaSurement Tool to Assess Reviews) rating describes 11 components of a systemic review and assigns a score based on these components. The score ranges from 0 to 11, with 11/11 being the highest quality review.(112) If a criterion is not relevant for a specific review, then the denominator will be lower. Since the rating was developed for clinical interventions, reviews on health system arrangements may not reflect all of the 11 components. Therefore, an 8/8 is considered as high of quality as an 11/11 score. The scores have been ranked as "high" (scores of 8 or higher out of a possible 11), "medium" (scores of 4-7) or "low" (scores less than 4). A high score indicates that the evidence can be taken with a high level of confidence, while a low score indicates that the reader should be less confident in the findings.(113)

Appendix 1: Systematic reviews relevant to Element 1 – Support older adults and their caregivers to promote healthy aging at home

Option 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 had a focus on older adults
Building capacity: online health information tools	Preventing readmissions (114)	The review examines the features of interventions aimed at reducing hospital readmissions. 42 RCTs were included with the most common interventions being case management, patient education, home visits, and self-management support. Interventions that had multiple components and involved many in the care circle were the mot effective.	2013	11/11	2/44	22/44
	Internet interventions for the prevention of coronary heart disease (48)	The review examines the effectiveness of internet-based interventions that target lifestyle changes and medication management. 18 studies were included, however the quality of the included studies was low. There may be a small beneficial effect on quality of life.	2015	9/10	2/19	11/19
	Information provision to those with dementia or caregivers (115)	The review examines whether information services improve quality of life, neuropsychiatric symptoms or caregiver burden. 13 RCTs were included, and nine of the RCTs were judged to be at a high risk for bias. There was limited support for information services in improving QoL,	2009	7/10	0/13	13/13

		neuropsychiatric symptoms and caregiver burden. The specific features of each intervention that lead to these benefits were not identified.				
	eHealth interventions for the prevention of obesity in adults (49)	The review examines the effectiveness of eHealth interventions for the prevention and treatment of obesity in adults. 84 studies were included, with 76% including an eHealth intervention component. The interventions were most often delivered via the internet. The interventions were found to be effective in reducing weight, but not in the prevention of obesity.	2014	7/10	Not reported	0/84
	Interventions targeting older adults in isolation (50)	The review examines the effectiveness of various interventions that target social isolation and loneliness in older people. 32 studies were included in the review, and the included studies had a medium to high risk of bias. 25% of the included interventions were internet based. Two studies used internet training in group settings and did not report any effect on outcomes. One study (high risk of bias) reported a reduction in loneliness, when using one-to-one internet interventions.	2009	7/10	3/34	11/34
	Computer and internet interventions to reduce loneliness and depressing in older adults (51)	The review and meta-analysis examines the effectiveness of interventions involving a computer or internet use and levels of loneliness and depression. Six studies were included and the interventions were found to decrease loneliness but not depression.	2012	6/11	0/6	0/6

		Using computers may help older adults communicate and obtain useful health information. The small number of studies included may limit the generalizability of the results.				
	Online health information tools for older patients (71)	The review examines the effectiveness of online health information tools (OHITs) for older patients through two lenses: (1) providing information, enhancing information exchange, and promoting self-management, and (2) outcomes. 25 publications were included in the review, 13 RCTs and 12 with quasi-experimental design. There was limited evidence to support OHITs effectiveness in supporting knowledge and health service utilization. OHITs were found to enhance information exchange and promote self-management.	2013	6/10	0/25	25/25
	Internet-based interventions for dementia caregivers (54)	The review examines the effectiveness, feasibility and quality of internet-based interventions for the informal caregivers of those with dementia. 12 studies were included, with an overall low quality of evidence. Though, the review indicates that internet-based interventions improve caregiver confidence, depression, and self-efficacy. Key features included multiple intervention components and tailored intervention.	2013	6/10	2/12	7/12
	Web-based educational	The review examines the features of web-based interventions that are associated with	Not reported	6/11	3/18	Not reported

	interventions (73)	behavioral changes. 19 studies were included. About a quarter of the study participants did not have access to a computer and/or internet. This should be considered during discharge if web-based interventions are to be used. Key features included those which were interactive and allowed patients to navigate on their own.				
	Online interventions to change lifestyle in older adults (53)	The review examines online interventions, specifically focusing on physical activity, weight loss, nutrition, and diabetes. Complex interventions were found to be more effective than single-component interventions. Of the five studies that reported online goal setting, two reported continued use at the last follow-up. If the intervention was tailored the attrition rate per month was lower compared to a generic intervention. Both self-monitoring and goal setting were shown to increase physical activity levels.	2010	5/10	0/12	12/12
	Empowering older adults to make informed health decisions (116)	The review examines how empowerment in older adults may be tied to interventions as well as the health outcomes for these interventions. All interventions included a health education component to increase empowerment. The effect of health outcomes varied between studies, though self-care management, and self-efficacy improved to some level across studies.	2008	4/9	1/11	11/11
	eHealth literacy	The review examines intervention strategies	2013	4/10	0/23	23/23

	interventions for older adults (52)	to improve older adults' eHealth literacy and the effectiveness of these strategies. Interventions could be grouped into collaborative learning (i.e., joint commitment to a shared goal) or tailored interventions (i.e., individual specific). Collaborative learning strategies improved participants' computer knowledge and eHealth literacy. Tailored learning interventions also improved participants' computer knowledge and furthermore, improved participants' blood pressure control, medication self-efficacy, and medication adherence.				
	Use of mobile phones for health interventions with older adults (81)	The review examines mobile health technology interventions targeting older adults. Rule-based alerts to notify the provider or require the provider to review data may be effective. Several of the studies showed high user acceptance of the technology. Most of the 21 included studies were pilot or feasibility studies, limiting the generalizability.	2012	5/10	0/21	19/21
Education/training and support programs for caregivers	Respite care for dementia caregivers (55)	The review examines the benefits and harms of respite care for those with dementia and their caregivers. Four trials were included in the review, totaling 753 patients. The quality of the evidence was rated as low. No effects (benefits or harms) were found on any caregiver variable. The authors suggest that more trials are needed,	2003	9/10	1/4	4/4

		given the popularity of respite care policies.				
	Workers to support people with dementia and caregivers. (78)	The review examines the key elements in worker roles, which can be used to support community-dwelling people with dementia and their caregivers. 36 studies were included, and in general, there was a high risk of bias found. Essential features of worker roles included: long-term intervention, face to face contact, individualized support, multidisciplinary teams, collaborative input, health/clinical background, and ongoing follow-up.	2014	8/10	1/36	Not reported
	Cognitive behavioral therapy interventions for dementia caregivers (58)	The review examines the effectiveness of technology-based formats of cognitive behavioral therapy (TB-CBT) for informal dementia caregivers. Four articles were included, two RCTs and two waitlist control trials. Quality assessment was difficult due to a lack of reporting. The meta-analysis showed that TB-CBT improved caregiver depression to the same level of face-to-face interventions. There was no evidence to support the long-term effectiveness of TB-CBT.	Not reported	7/10	0/4	Not reported
	Support groups for the caregivers of individuals with mental health challenges. (59)	The review examines the effectiveness of mutual support groups for family caregivers of people with mental health challenges. 12 studies were included. Benefits included increased knowledge about the illness and enhanced coping abilities. There was little evidence to	2008	6/9	0/12	Not reported

		support the long-term effects.				
	Effective services to support people with dementia and caregivers (117)	The review examines the effectiveness of services to support people with dementia and their caregivers. 131 publications were included in the review, 56 of 'high' quality, 62 of 'medium' quality and 13 of 'low' quality. Non-pharmacological interventions such as information and communication technology to compensate for disability have mixed results. The review highlighted the international push to support caregivers, ranging from homecare programs to assisted vacation for patients and caregiving spouses. Furthermore, support for caregivers was a prevalent theme in the literature. One study indicated that home care was most effective when it is flexible in design and responsive in its delivery. The prevalent themes in the literature include: early interventions and post diagnostic services, community-based services supporting people with dementia living in their homes, hospital-related interventions, informal/unpaid care, and workforce and service delivery.	2012	6/9	4/131	Not reported
	Interventions to reduce caregiver burden (65)	The review examines interventions used to support dementia caregivers. 24 studies were included, which tested 27 interventions. After meta-analysis, the interventions were shown to have no effect on caregiver burden. Multicomponent	1999	7/11	Not reported	Not reported

		interventions were the only category that had a significant effect on reducing caregiver burden.				
	Interventions for dementia caregivers (56)	The review examines the effectiveness of various interventions for reducing dementia caregiver burden. Meta-analysis pooled the results of 127 interventions, including 5,930 participants. Psychoeducational interventions, CBT, and respite care were associated with reduced caregiver burden. Multicomponent interventions were the only category of intervention that delayed institutionalization. The authors conclude that the interventions have a small, yet meaningful effect on dementia caregivers.	2005	7/11	10/127	Not reported
	Respite care for dementia caregivers (57)	The review examines the effectiveness of respite care in supporting the caregivers of those with dementia. 17 papers were included, with 12 showing a positive impact on the caregiver. Day care services were shown to be effective in reducing caregiver burden and behavioral problems for the care recipient. There is a lack of high-quality evidence for community-based respite care services, though qualitative evidence shows positive results.	2015	5/9	2/17	17/17
	Computer-mediated interventions for dementia caregivers (61)	The review examines the effectiveness of computer-mediated interventions for dementia caregivers. 14 studies were included, measuring caregiver burden and depression. Two of the high quality studies	2012	4/9	3/14	Not reported

		found that the intervention reduced anxiety.				
	Educational programs to reduce caregiver burden (62)	The review examines the effectiveness of educational programs used to alleviate caregiver burden. Seven RCTs were included, and four were grouped for a meta-analysis. These four studies showed a significant reduction in caregiver burden among the interventions groups.	2011	5/11	2/7	Not reported
	Caregiver support groups (60)	The review examines the effectiveness of support groups for dementia caregivers and the features of these groups. 30 quasi-experimental trials were included, with outcomes including psychological well-being, depression, burden, and social outcomes. Support groups showed a positive impact on all outcomes. The ratio of female participation and average age had significant impacts on the effectiveness of groups.	2009	5/11	Not reported	Not reported
	Cost-effectiveness of family meetings for depression prevention in family caregivers (64)	The economic evaluation examines the cost-effectiveness of a family meeting for caregivers of dementia patients. Outcomes included QALY for the caregivers and the incidence of depressions and anxiety. There was no significant difference found between the costs of family meetings and usual care. The authors conclude that family meetings cannot be considered a cost-effective intervention compared to usual care.	2013	n/a	n/a	n/a

	Cost-effectiveness of psychological intervention for dementia caregivers (74)	The economic evaluation examines the cost-effectiveness of a psychological intervention for caregivers of dementia patients. 260 participants were included and 173 were randomly assigned to the intervention. The intervention was found to be cost-effective for both the caregivers and patients. Some elements of the intervention included: relaxation, behavioral management, communication strategies, identification and changing of unhelpful thought, and future planning.	2014	n/a	n/a	n/a
	Cost implications for adult day services (63)	The economic evaluation examines adult day care and the cost implications. Caregivers were recruited from 45 adult day programs prior to service use and broken into 3-month (n=367) and 1-year (n=201) groups. Long-term adult day care usage allowed the caregiver to spend more time in other work related activities. The care was more effective for the caregiver than the patient. The authors suggest that this implies adult day care program policy must support long-term utilization.	2003	n/a	n/a	n/a
Flexible work arrangements for caregivers	Employment and unpaid caregivers (75)	The review examines the international research on unpaid caregivers and their labour market participation. 35 studies were included in the review, with two-thirds of the studies focusing on the caregivers of elderly patients. The authors conclude that: (1) caregivers are less likely to be in the	2006	5/11	1/35	22/35

		labor market, (2) caregivers are likely to work less hours, and (3) only those heavily involved in caregiving are likely to withdraw from the labour market. It is suggested that workplace policy to support caregivers would help to alleviate some of this strain. The authors cite a study (76) that shows an employer's largest cost related to caregiving was replacing employees who quit ($4.9 billion in 1997, United States).				
Remote patient monitoring for at-risk older adults	Remote monitoring for rural residents (66)	The review examines the impact of e-health on rural communities. 19 articles were included, 16 peer-reviewed and 3 grey literature. There is evidence that e-health in the form of remote monitoring can increase assess to services. Services including vital sign monitoring and personal alarms have been used in older populations to promote independence at-home.	2013	6/10	2/19	Not reported
	Telehomecare for older adults with chronic conditions (68)	The review examines the effects of telehomecare for older adult patients with chronic conditions. Seven studies report that older adults were more satisfied with telehealth consultation than an in-person consultation. The majority of published studies show that telehomecare can positively affect health outcomes (e.g., rehospitalization, self-management, adherence and general health). Research	2005	2/11	0/26	8/26

		also suggests that telehomecare is accepted by providers.				
	Telemonitoring after discharge for patient with heart failure (67)	The review examines the effectiveness and cost-effectiveness of home telemonitoring for patients who have been recently discharged after heart failure. 21 RTCs were included in the view, and the reporting in studies was generally poor. Remote monitoring was beneficial in reducing mortality. Telemonitoring during normal clinic office hours was found to be the most cost-effective (as opposed to 24/7).	2012	10/11	2/21	Not reported
	Home telehealth remote monitoring for elderly with heart failure (72)	The review examines the effectiveness of automated monitoring (not telephone monitoring), in elderly patients with congestive heart failure. Nine RCTs were included, with varied interventions. Overall, automated monitoring was shown to be an effective strategy for reducing admissions, mortality and healthcare utilization costs. The authors suggest that more research is needed to determine the specific intervention parameters and ideal patient populations.	2009	7/10	1/11	11/11
	Cost-effectiveness of telecare for people with social care needs (77)	The economic evaluation examines the cost-effectiveness of telecare (i.e., remote monitoring technology) to support independent living. The technology included: monitoring functional status (e.g., chair occupancy sensors), home security	2014	n/a	n/a	n/a

		(e.g., property exit sensors) and home environment (e.g., heat sensors). The trial had 2,600 participants, with 1,276 randomized to telecare. There was no significant different between groups for mean adjusted QALY at 12-months. The authors concluded that at the moment, "policy-makers should avoid characterizing this technology as a magic bullet".				
	Older adults' perceptions of falls technologies (79)	The review examines older adults' perception of falls technology. 12 qualitative, three quantitative and six mixed methods studies were included. Most studies emphasized the importance of older adults having control over the technology. Furthermore, personalized technology, usability and improved safety were important for users.	2013	7/10	2/21	21/21
Patient portals that allow patients/caregivers to access, manage and rack their health information	Patient portal development (80)	The review examines patient portal development to inform future efforts. 109 articles were included, 61 were primary research on portals, 27 were primary research not specific to a portal, and 21 were secondary research including reviews, commentaries and conceptual articles. Patient engagement was noted to be lower in 71 articles. The authors recommend developing portals through multiple iterations. Patient engagement may be low due to concerns about confidentiality of personal health data. This review also	2010	4/10	3/31	Not reported

		indicates that health care providers may be wary of using portals, as they are fearful that this will increase their workload.				
	Effect of patient portals on health outcomes, satisfaction, efficiency, and attitudes (69)	The review examines how patient portals may affect health outcomes, satisfaction, healthcare utilization and efficiency, and adherence. 46 studies were included, 14 RCTs, 21 observational, five descriptive quantitative studies, and six qualitative. Results for health outcomes, satisfaction and adherence were mixed. The evidence for reducing healthcare use and improving efficiency was also mixed. Younger populations may view patient portals more favorably, or those who have a trust in the internet, or are more computer literate. Administrative and human factors were cited as barriers to implementation. Overall, the authors conclude that there is no evidence to support the use of patient portals to improve health outcomes, cost or use.	2013	8/10	0/46	Not reported
	Impact of patient portals on care (70)	The review examines the impact of electronic patient portals on patient care. 5 papers (4 distinct studies) were included, three being RCTs and one being an observational study. There were no significant changes in health status for users of patient portals. Significant changes were observed for portal users included: decrease in office visit rates, slower	n/a	6/10	0/5	0/5

		increase in phone contacts, increase in the number of messages sent, changes to medication regimens, and better adherence to treatment.				
	Patient and provider perceptions of patient portals (82)	The review examines the essential features of patient portals that receive favorable responses from patients and providers. 27 articles were included, with the most prevalent positive feature being patient-provider communication. The most prevalent negative feature was security and user-friendliness. 41% of articles reported an improvement in patient-provider communication after patient portal use. The secure messaging features of portals were viewed as both a benefit and a security risk.	2014	3/9	2/27	Not reported

Appendix 2: Systematic reviews relevant to Element 2 – Coordinate community resources that support healthy aging

Option 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 had a focus on older adults
Funding models that ensure that community resources are used efficiently (e.g., means tested home-care)	None identified	n/a	n/a	n/a	n/a	n/a
Providing case management to coordinate healthcare and community programs	Hospital and community interface for older people (83)	The review examines the effectiveness of managing the hospital/community interface for older adults. 39 papers were included with all participants having complex comorbidities, or at risk of functional decline. Case management in a variety of forms (e.g., short-term by advanced practice nurse, home care case manager) generally showed a benefit in the outcomes assessed.	2003	8/11	4/39	39/39
	Case management in community care for older adults (84)	The review examines the effectiveness of case management in community care interventions. 21 studies were included, 16 RCTs and five observational studies. All of the studies focused on frail elderly people. The core interventions included: assessment, care planning, implementation,	2011	5/10	1/21	21/21

		care coordination, monitoring, and reassessment. Eight of the studies showed that case management improved the patients' use of community care services. The majority of the studies achieved cost neutrality.				
	Family physician and case manager collaboration with dementia patients (85)	The review examines the needs of the dementia patients/caregivers and the effect of case management. 54 studies were included, 46 on the needs of patients and caregivers, and 8 on case management. The largest needs are education or counseling on the disease and early diagnosis. Case management was able to address these needs and most other needs. It led to better education about the disease and provision of information regarding community resources.	2014	6/10	2/54	46/54
	Dementia case management and long-term care placement (89)	The review examines the effectiveness of dementia case management on reducing long-term care placement. 17 studies were included, totaling 10,166 participants. When follow-up was less than 18 months there was a reduction in the risk of long-term care placement. This effect was lost when dementia case management was compared at greater than 18 months.	2011	8/11	2/17	17/17
	Geriatric interventions to reduce emergency department visits	The review examines the effects of geriatric interventions on emergency department visits. 26 studies were included, 17 RCTs, three non-randomized trials, one	2004	6/11	6/28	28/28

	(87)	quasi-experimental study, four before-and-after studies and one cross-sectional study. Many interventions including case management reduced ED visits.				
	Case management in community care and patient/caregiver outcomes (88)	The review examines the effects of case management for older people in a community setting. Ten RCTs and five observational studies were included. Patient psychological health or well-being and unmet service needs were improved with case management. In one study a 10-month nurse case-management intervention increased ED use, though this increase was only observed in the first month.	2011	6/10	0/15	15/15
	Cost-utility of case management for frail older adults (91)	The economic evaluation examines the costs and utility of case management for frail older adults. 153 frail older adults living at home participated in the trial. There was no significant difference between the intervention group and control for the total cost or quality of life at 1-year. The intervention group had lower levels of informal care and needed less help with activities of daily living. The authors suggest that case manager provides relief to informal caregivers.	2015	n/a	n/a	n/a
	Barriers to implementing case management for dementia	The review examines the barriers to implementing case management for patients with dementia. 43 studies were included, 31 quantitative and 12 qualitative.	2012	8/10	1/45	Not reported

	patients (92)	High-intensity case management was needed to produce positive clinical outcomes. Effective communication between team members was necessary for positive outcomes for caregivers. The authors suggest that when implementing there should be: small caseload, regular proactive patient follow-up and regular communication between case managers and family physicians.				
	Case management in primary care (90)	The review examines the impact of case management on healthcare resource use, patient satisfaction, quality of life, and costs. Nine RCTs were included. Two of seven studies that examined the impact on health resource use found a positive effect. Both of the successful programs were disease specific and had supervision from a medical subspecialist. None of the interventions supervised by a generalist had a positive effect. Three studies reported on costs, and all found insignificant cost savings.	1997	3/10	Not reported	Not reported
	Integrating funds for health and social care (118)	The review examines the potential for integrating health and social care funding. 38 funding schemes from eight countries were included. Most of the funding schemes did not have an impact on health. Three schemes reported lower secondary care use and costs. Barriers to integrating funding were different performance	Not reported	4/9	1/38	Not reported

		frameworks, priorities and governance. Integrating funding may increase access to care overall.				
Supporting community/civic engagement	Social support interventions (86)	The review examines how social support can be translated into effective interventions. 95 studies, totaling 26,436 participants were included. Support from friends and/or family members were beneficial for participants There was not enough information to differentiate between which interventions worked best for specific challenges. Interventions which promoted both giving and receiving support where more effective than simply receiving support.	2000	3/10	Not reported	Not reported

Appendix 3: Systematic reviews relevant to Element 3 – Support healthcare institutions and other sectors in promoting healthy aging

Option 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 had a focus on older adults
Planning for discharge into the community or an institution	Discharge planning (93)	The review examines the effectiveness of planning the discharge of patients moving from the hospital. 30 RCTs, including 11,964 participants were included. 21 of the trials recruited older patients with a medical condition. Both the length of stay in hospital and the readmission rate was reduced with discharge planning. It was not clear whether discharge planning reduced readmissions after a fall. There was low quality evidence that discharge planning leads to patient satisfaction.	2015	10/11	3/30	21/30
	Discharge arrangements for older adults (94)	The review examines the interventions to improve discharge arrangements for older people. 71 RCTs were included with no evidence of publication bias. Four studies used complex educational programs and found that costs were higher for patients in this intervention. Five studies included geriatric assessments and found that the total acute in-patient stay costs were lower in the intervention group than the control. Overall, the evidence shows that having	n/a	10/11	5/71	71/71

		arrangements for discharge does not affect mortality or length of stay. Though, it does reduce readmission rates. The interventions that took place in hospital or in the patients' home had the largest benefit.				
	Discharge planning from hospital to home (96)	The review examines the effectiveness of planning for discharge for individuals moving from hospital. 11 RCTs, totaling 2,368 patients were included in the review. The lengths of stay and readmission rates were not significantly reduced after discharge planning. For elderly patients, there was no difference shown for mortality. The author suggests that the discharge planning should be tailored to the individual patient. There was no evidence for a reduction in overall healthcare costs.	2012	9/11	2/11	11/11
	Supporting discharge planning from hospital to home for older people (95)	The review examines the effectiveness for supportive discharge for older people. Nine studies were included, three were RCTs and four were quasi-RCTs. Assessment of the studies showed that there was bias present. The author stated with relative certainty that the proportion of those at home after 6-12 months after admission was greater with discharge planning.	1997	8/11	0/9	9/9
	Cost implications for care transition	The economic evaluation examines the costs associated with care transition	2014	n/a	n/a	n/a

	interventions (97)	interventions. A quasi-experimental cohort study was used in six Rhode Island hospitals. The intervention included patient-centered coaching to empower individuals to manage their health proactively. The coaching began in hospital and continued for 30 days, with one home visit and one or two phone calls. Compared to matched controls, the intervention group had lower healthcare utilization in the 6 months following discharge. They also incurred lower costs over the period ($14,729 vs. $18,779). The cost avoided per patient was $3,752.				
	Effectiveness and cost-benefit analysis of a discharge program for elderly Medicare recipients (105)	The economic evaluation examines the effectiveness of post discharge care transition planning among elderly Medicare beneficiaries. A RCT was used, with an intervention consisting of: development of a patient-centered health record, a structured discharge preparation checklist of critical activities, delivery of patient self-activation and management sessions, follow-up appointments, and coordination of data flow. After 1 year, the intervention group was less likely to be readmitted. For every $1 spent on the program, $1.09 was saved.	2012	n/a	n/a	n/a
	Communication between health and social care	The review examines the communication between health and social care professionals, specifically enabling factors	Not reported	4/9	1/15	15/15

	professional within transitional care for older adults (107)	and constraints. Compared with standard hospital discharge, multi-professional care coordination teams and information technology systems provide better patient satisfaction. In addition, readmission rates and length of stay for older adults is decreased. To facilitate communication, systems of care should promote information exchange, education and negotiation between stakeholders. Barriers to communication include, poor role understanding and time constraints, lack of involvement of ward nurses, poor quality information and lack of feedback.				
Providing geriatric training to healthcare providers	Communication skills training for dementia care (98)	The review examines the interventions used to enhance communication in dementia care. 12 trials were included, totaling 831 persons with dementia, 519 professional caregivers, and 162 family caregivers. Communication skills training significantly improve the quality of life and wellbeing of the people with dementia. Furthermore professional caregivers report a greater feeling of control. There were several aspects of the communication training that were identified: verbal skills, non-verbal and emotional skills, attitudes towards people with dementia, behavioral management skills, usage of tools, self-individual experiences and theoretical knowledge.	2010	6/10	0/12	12/12

	Interventions to improve patient safety in transitional care (104)	The review examines the effectiveness of interventions designed to improve patient safety during transitions in care for elderly people. 37 papers were included, 12 reviews, 11 RCTs, and 10 descriptive studies. Professional-oriented interventions, including education and training had a positive effect on outcomes measured. For example, after transitional care curriculum was implemented for medical students, they showed an increased skill level in this topic. After the intervention 56% (compared to 14.9% per intervention) identified a medication error.	2010	2/10	0/37	37/37
	Efficiency of geriatricians compared to other physicians at managing inpatient care for elderly patients (99)	The economic evaluation examines the outcomes of hospitalized elderly adults managed by geriatricians compared to those managed by other physicians. 701 patients with a geriatrician and 11,549 patients with a non-geriatrician were recruited from two hospitals in Pittsburg, Pennsylvania. Geriatrician patients had a shorter length of stay, and lower costs per admission. The authors concluded that geriatricians are more efficient in managing elderly adults in hospital.	2012	n/a	n/a	n/a
Incorporate performance measurement (e.g., SFH framework) into	Leaders' experiences and perceptions of activity-based funding (102)	The review examines the experiences of healthcare leaders implementing hospital-funding reforms. 14 studies were included, two mixed methods, and 12 qualitative studies. Five common themes emerged	2013	8/9	0/14	0/14

financial-incentive regimes)		from the analysis including: pre-requisites for success (e.g., organizational and leadership factors that impact success), perceived benefits (e.g., productivity, efficiency, mutual collaboration, or improved work), barriers/challenges (e.g., lack of resources, data collection, and commitment factors), unintended consequences (e.g., opportunistic behavior or 'cherry picking'), and leader recommendations (e.g., directed at the organization and program level). Leaders describe reforms as complex and requiring organizational commitment, adequate infrastructure, human/financial/information technology, change champions and a personal commitment to quality. The authors suggest that three areas should be paid attention to when implementing a financial incentive: (1) financial and human resourcing, (2) addressing unintended consequences, and (3) leader training. Education and training are needed to understand what quality outcomes are to be achieved, how they can be achieved, what will be measured, and how it will be measured.				
	Effects of results-based financing (100)	The review examines the effects of results-based financing (RBF). RBF can be targeted at different levels: recipients of	2007	n/a	Not reported	0/10

		healthcare, individual providers of healthcare, healthcare facilities, private sector organizations public sector organizations, sub-national governments, and national governments. Ten reviews and four evaluations of RBF in low and middle-income countries were included. The overall quality of evidence was weak. Incentives that target the recipients of healthcare and individual healthcare professions are effective in the short run, provided they have simple and well-defined behavioral goals. There is insubstantial evidence to support RBF for long-term change. The mechanisms for improving government or organizational change through RBF are less clear. For any RBF scheme to be effective, technical capacity and support must be made available.				
	Quality and safety and hospital pricing systems (106)	The review examines the mechanisms in operation that aim to integrate quality and safety into pricing or funding arrangements for healthcare. Nine key questions to ask before implementing an incentive scheme are identified: (1) does the desired clinical action improve patient outcomes? (2) will undesirable clinical behavior persist without the intervention? (3) are there valid, reliable and practical measures for the desired clinical behavior? (4) have the	Not reported	6/10	Not reported	Not reported

		barriers and enablers to improving clinical behavior been assessed? (5) will financial incentives work and better than other interventions to change behavior? (6) will benefits clearly outweigh any unintended harmful effects, and at an acceptable cost? (7) are systems and structures needed for the change in place? (8) how much should be paid to whom, and for how long? and (9) how will the incentives be delivered? These questions should also be applied at the systems level. The review indicates that there is currently little evidence regarding the outcomes of financial incentives for quality improvement.				
	Financial incentives and quality improvements (101)	The review examines the effect of financial incentives on the behavior of healthcare organizations and providers. 36 articles were included examining pay-for performance programs mainly in the United Stated and United Kingdom. There is little data available regarding paying hospitals directly to improve performance. The effects of paying providers for quality improvements are mixed, and overall relatively few impacts are reported.	2006	3/9	Not reported	Not reported
Providing affordable	None identified	n/a	n/a	n/a	n/a	n/a

transportation services to older adults to attend medical appointments						
Providing affordable and accessible housing options for seniors	Social determinants of health and health inequalities (103)	The review examines the interventions designed to address social determinants of health. 30 systematic reviews were included, with nine focusing on housing and health. Rental assistance (e.g., rent subsidies) has shown to increase the perceived neighborhood safety, and there is some evidence to support improved health. In general, improved housing is associated with improved social outcomes such as decreased crime and increased social participation.	2007	4/9	Not reported	Not reported