### ORIGINAL RESEARCH

# **Enabling Healthy Aging to AVOID Frailty in Community Dwelling Older Canadians**

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#### **ABSTRACT**

The Canadian population is aging. With aging, biological and social changes occur increasing the risk of developing chronic conditions and functional loss leading to frailty. Older adults living with frailty are more vulnerable to minor stressors, take longer to recover from illness, and have difficulty participating in daily activities. The Canadian Frailty Network's (CFN) mission is to improve the lives of older adults living with frailty. In September 2019, CFN launched the Activity & Exercise, Vaccination, Optimization of medications, Interaction & Socialization, and Diet & Nutrition (AVOID) Frailty public health campaign to promote assessing and reducing risk factors leading to the development of frailty. As part of the campaign, CFN held an Enabling Healthy Aging Symposium with 36 stakeholders from across Canada. Stakeholders identified individual and community-level opportunities and challenges for the enablement of healthy aging and frailty mitigation, as part of a focused consultative process. Stakeholders ranked the three most important challenges and opportunities at the individual and community levels for implementing AVOID Frailty recommendations. Concrete actions, further research areas, policy changes, and existing resources/programs to enhance the AVOID Frailty campaign were identified. The results will help inform future priorities and behaviour change strategies for healthy aging in Canada.

**Key words:** frailty, aging, activity, vaccine, optimize medications, social, diet, nutrition

#### INTRODUCTION

Globally, population aging is on the rise, with the proportion of the population over 60 years of age projected to increase from 12% to 22% between 2015 and 2050.<sup>(1)</sup> In July 2019, Canada had 6.6 million people 65 years of age and older.<sup>(2)</sup> The increase in individual life expectancy is due to better public health, promotion of healthier lifestyles, and improved health care, including assistive and innovative medical technologies. However, living longer does not always translate to living in good health. As individuals age, they undergo biological and social changes making them at increased risk of developing multiple chronic conditions and loss of function leading to frailty. Older adults living with frailty are more vulnerable to stressors, have reduced ability to recover from minor illnesses,

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#### MUSCEDERE: CFN SYMPOSIUM PROCEEDINGS SUMMARY

and experience reduced quality of life. (3-5) Biological changes associated with aging that predispose older adults to frailty include changes in cellular and immune function, decreased skeletal muscle, and reduced bone density. (5) Social changes associated with frailty include income or housing difficulties and increased risk of social isolation. (4,6,7)

The Canadian Frailty Network (CFN) is a pan-Canadian, non-for-profit organization funded by the Government of Canada through the Networks of Centres of Excellence Program (NCE). CFN's mission is to improve the care of those living with frailty in Canada, and has responded in part to this need by developing a public health approach for the enablement of healthy aging. In September 2019, CFN launched a campaign called AVOID Frailty to promote identifying, assessing, and reducing risk factors that lead to the development of frailty. AVOID encompasses: Activity & Exercise, Vaccination, Optimization of medications, Interaction & Socialization, and Diet & Nutrition. For those who develop frailty, there is a need to improve its trajectory such that frailty does not progress, and this framework may help minimize progression.

The recommendations in AVOID Frailty are evidence-based (Table 1) and complement the World Health Organizations' 2019 Integrated Care for Older People (ICOPE) approach. (8) ICOPE helps reorient health services towards a more person-centred and coordinated model of care, emphasizing functional ability and intrinsic capacity. (8) Functional ability (defined as individuals' health-related attributes that enable them to be—and to do—what they value) relies heavily on the interaction between the environment older adults

reside in and their intrinsic capacity (defined as individuals' physical, mental, and psychological capacities). (8) Older adults with unique needs can readily participate in activities of daily living and those that they value as important when health services and social systems are better integrated. (8) Early intervention incorporating AVOID Frailty and ICOPE principles may slow or reverse biological aging and, in turn, prevent, delay, or reverse the trajectory towards frailty. (5,9,10)

To catalyze the implementation of AVOID Frailty in Canadian communities, CFN convened a meeting of stakeholders from across Canada in Toronto, Canada on February 27th, 2020 at the Enabling Healthy Aging Symposium. During this meeting, stakeholders were tasked with identifying individual and community-level opportunities and challenges to enabling healthy aging and living with frailty, as part of a focused consultative process. Herein we summarize the symposium process, plenary content, and group discussions, and suggest next steps for researchers, clinicians, decision-makers, citizen groups, and communities to consider when implementing interventions designed to enable healthy aging and mitigate frailty in older adults.

#### **METHODS**

#### Selection of Stakeholders

Researchers, clinicians, trainees, health-care administrators, policy experts, public/community association representatives, and municipal representatives were invited to be stakeholders in the symposium (Table 2). Thirty-six stakeholders from

TABLE 1. AVOID Frailty recommendations

Framework	Recommendations
Activity & Exercise	Exercise alone is effective in preventing and reversing multiple risk factors associated with frailty. (11,12) Resistance training increases muscle strength into the ninth decade of life. (13,14)
Vaccination	Older adults with frailty are advised to have up-to-date vaccinations, including herpes zoster (shingles), pneumococcal, and high-dose influenza vaccinations. (15)
Optimize Medications	Optimization of medications to ensure that they are appropriate for a person's life stage is an important component of aging. This includes efforts to reduce polypharmacy and inappropriate use of non-prescription medications. Primary care interprofessional health teams along with clinical and community pharmacists can provide the information, advice and counselling to older adults regarding medication use. <sup>(16,17)</sup>
Interact & Socialize	Social connectivity, social cohesion, and a sense of belonging can help reduce loneliness and prevent frailty in older adults. These can also influence health-related behaviours and increased adoption of health-promoting activities including participation in social activities, recognition their community as a familiar face and partner/contributing member. <sup>(18,19)</sup>
Diet & Nutrition	Adequate caloric and protein intake is important in preventing and ameliorating frailty. (20)

TABLE 2. Symposium attendee characteristics (n=36)

Perspective	Setting Represented by Participant		
Academic/Researcher/Student/Health-care Professional	26	University/Research institute/Hospital	21
Administrator/Policy/Decision-Maker	10	Government/Health ministry	6
		Professional/Advocacy/Not-for-profit organization	9

across Canada attended the one-day meeting. Travel and accommodation were provided to stakeholders to attend the meeting in Toronto, Ontario. Stakeholders represented urban and rural communities from across Canada and provided a diverse range of perspectives. However, specific demographic data on stakeholders were not collected.

#### Symposium Structure and Process

The symposium was organized into three sessions. At the beginning of each session stakeholders were presented with the current state of knowledge from a relevant expert (presentation highlights summarized below), followed by large (n=36) and small group (n=8-10) discussions about individual and community level opportunities and challenges. Stakeholder voting to identify the top three opportunities and challenges was completed via an established facilitation

method (dotmocracy; https://dotmocracy.org/), using colored dot stickers. Stakeholders could vote for their top three priorities and challenges, which meant they could use all three votes for one priority/challenge or spread the votes amongst the options.

Finally, in-depth discussions were held about concrete actions that could be taken now, and areas that required better evidence prior to adoption (Figure 1). Themes were summarized from small group discussions with input and confirmation from stakeholders and then shared to the large group during each session. Similar themes were grouped together, and duplicates removed for the dotmocracy voting exercises (Appendix A). All stakeholders had dedicated intervals between sessions one and two to vote for the top three opportunities and challenges at the individual and community levels, respectively.

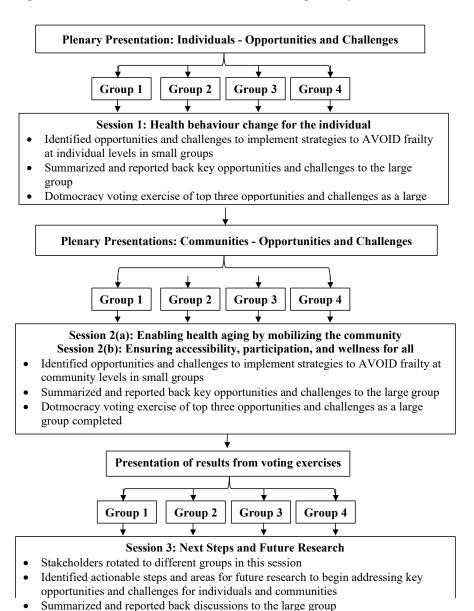


FIGURE 1. Mortality and response team deployment

### SUMMARY OF CONTENT FROM PLENARY PRESENTATIONS

### Session 1: Health Behaviour Change for the Individual

During Session 1, a plenary presentation highlighted tools and frameworks to help implement physical activity, vaccinations, medication management, healthy food intake, and social interaction within the AVOID Frailty framework. These included the Action, Actor, Context, Target, Time (AACTT) tool; the Theoretical Domains Framework (TDF); and the behaviour change technique taxonomy (BCTTv1).

0The AACTT tool can be used to identify a specific behaviour that needs to change (Action); individuals doing/ could do the action that is targeted (Actor); physical location, emotional context, or social setting in which behaviours occur (Context); individuals with/whom the action is performed (Target); and time/frequency the action is performed (Time). (21) For example, the targeted behaviour change could be that health-care providers use hand sanitizer in patient rooms and hallways before and after touching patients. (21) To facilitate this behaviour change, hospital administrators have to plan for initial setup which includes identifying the individuals targeted by the proposed action, assessing the physical location to ensure ease of access, ensuring that there is constant supply of alcohol-based gel at the point of care, and ensuring this supply is maintained on a regular basis. (21) This AACTT tool can be applied to encourage behaviour change in the context of healthy aging in a similar manner, through addressing barriers and facilitating enablers to health behaviour change.

The TDF spans 14 domains, including knowledge, skills, roles, beliefs, regulation, and influence, that can help explain health-related behaviour change. (22-24) TDF domains further our understanding of enablers and barriers to behaviour change in patients, public, and health-care professionals. (22-24) The complementary BCTTv1 contains 16 categories based on international consensus, (25) and is a hierarchical taxonomy that includes a wide range of behaviours and steps to operationalize interventions. The BCCTv1 has been mainly applied to interventions for individual behaviour change, but has the potential to be effective for behaviour change at the organization/community level. (25,26) Therefore, a systematic approach using the TDF to screen for barriers and enablers to behaviour change and the BCTTv1 to guide intervention components for behaviour change is recommended. (27-29) For example, in a study aimed to encourage behaviour change in general practitioners' self-efficacy, risk perception and anticipated consequences were the psychological constructs associated with the prescription of antibiotics for upper respiratory infections, based on TDF. (30) Graded tasks and persuasive communication interventions were the behaviour change interventions found to be effective for affecting desirable decreases in the rate of antibiotic prescription, based on BCTTv1.(30)

In Session 2, two plenary presentations were provided about community-level strategies to enable healthy aging.

### **Session 2: Health Behaviour Change for the Community**

## Enabling Healthy Aging by Mobilizing the Community

In the five-tier Health Impact Pyramid framework for community mobilization, counselling and education interventions are at the apex of the pyramid, followed by clinical and long-lasting protective interventions, context changing interventions to make individuals' default decisions healthy ones, and interventions targeted toward socioeconomic factors at the base. (31) Interventions closer to the apex of the pyramid are targeted toward individuals because they rely on long-lasting behaviour changes in consideration of individual circumstances that would facilitate better uptake of these changes. (31) Interventions represented closer to the base of the pyramid have greater population impact and require less individual efforts. (31) Measures implemented at every tier can maximize success of behaviour change interventions as a whole. (31)

Community involvement, an asset-based approach, is central to these interventions in order to mobilize the residents of those communities because it is strengths-based, solution-focused, and driven by local residents. As an example, the Ontario Alliance for Healthier Communities' social prescribing intervention connects individuals within their communities to social and community supports (https://www.allianceon.org/Social-Prescribing). In this program, long-lasting protective interventions that are underway include vaccines such as influenza, pneumococcal, and shingles to maintain protection for older adults with frailty. For this program to be feasible and to better allow older adults to choose healthy options, organizers stressed the need to consult with seniors and to review the local environment/neighbourhood for barriers and co-design solutions.

## Age-Friendly Communities (AFC): Ensuring Accessibility, Participation, and Wellness for All

Ensuring accessibility, participation, and wellness for all Age-Friendly Communities (AFCs) was presented as another strategy to implement community level interventions. AFCs have three primary domains to enable healthy aging:

- 1. Environment (including housing, transportation, public buildings, and outdoor spaces);
- 2. Social (including civic participation, employment, social inclusion, social participation needs); and
- 3. Health and Wellness (including communication, information, and community support and health). (32)

In Ontario, the AFC Outreach Program was established, in conjunction with government, research, and public partners, to increase awareness in communities to of age-friendly planning principles, best-practice research and information, and connection with other AFCs, and to ensure availability of needed capacity to plan, implement, evaluate, and sustain age-friendly activities. (33) Examples of community level interventions in Ontario AFCs are provided in Table 3.

#### Symposium Voting Results (Sessions 1-2)

After the two sessions (as outlined in Figure 1), stakeholders from Groups 1 to 4 generated 22 individual opportunities, 28 individual challenges, 18 community opportunities, and 18 community challenges during their small group discussions (Appendix A). Stakeholders voted for their top three opportunities and challenges from the list in Appendix A. Priorities were ranked in equal importance in some of the categories (Table 4).

#### Session 3: Next Steps and Future Research

During Session 3, questions for the groups centred around concrete actions that could be taken by CFN, areas for further research, ways to change policy, and how to direct existing resources/programs to address the top three opportunities and challenges at individual and community levels. Stakeholders agreed that raising frailty awareness, further research, knowledge translation, and policy change toward improving the quality of care for older Canadians, as well as the AVOID Frailty campaign with the public, would be useful (Figure 2). Creating a marketing campaign and using social networking tools along with public engagement methods to convey the importance of AVOID Frailty to all levels of government were suggested as concrete actions. This would be in addition to the currently developed materials, such as pamphlets, tip sheets, and posters for the AVOID Frailty campaign. Current feedback received thus far suggests that the messaging was easy to remember and the elements were perceived to be important for the prevention or the delay frailty in older adults. A further media plan for public messaging is currently being developed to enhance the spread of the AVOID Frailty campaign.

Expanding and strengthening the network of individuals/ organizations interested in frailty research and interventions were also suggested in order to improve the reach and acquisition of fiscal resources for sustainability. Some efforts underway at this time include highlighting the impact of AVOID Frailty to key stakeholders and funders, including the government. A centralized hub for information and resources to accommodate the context-dependent nature of frailty could be another way to relay information about the AVOID Frailty campaign and to engage with a diverse range of stakeholders. The expertise of additional Canadian organizations focused on aging but not necessarily solely on frailty, such as Aging Gracefully across Environments using Technology to Support Wellness, Engagement and Long Life (AGE-WELL) NCE; Canada's Technology in Aging, Canadian Consortium of Neurodegeneration in Aging (CDNA); and McMaster Institute for Research on Aging (MIRA), could be leveraged.

Areas for further research were proposed, such as community/civic engagement with the AVOID Frailty campaign, and evaluation of simplified messages to communicate scientific evidence on frailty. It was recommended that implementation science and knowledge translation methods should be used to better understand the implementation of interventions aligned with the AVOID Frailty framework. Economic analyses and feasibility studies for implementation could be used to inform scale and spread. Identifying core outcomes and indicators of frailty that are meaningful to all stakeholders will contribute to improvements in health and social care by allowing stakeholders to make better decisions about interventions. (34) Through these avenues of activity and engagement, policies that better enable healthy aging and delay frailty in individuals and communities can be developed.

One of the more pressing realities in the context of the Coronavirus (COVID-19) pandemic is the recognition that community dwelling older Canadians living with frailty are among the subset of the population who face the highest risk of adverse outcomes and death. With public health prevention strategies, such as distancing measures, travel restrictions, avoidance of non-essential services, and limitation of contact with older adults, older adults face pronounced disadvantages. The AVOID Frailty recommendations remain important (and perhaps more so) during a pandemic because

TABLE 3. Community-level interventions in Ontario AFCs

Domain	Examples of Community-level Interventions	
Environment	<ul> <li>extended crosswalk signals</li> <li>portable ramps/mats to make entrances wheelchair accessible</li> <li>more affordable, smaller, shared, secure, and well-designed housing within specified subdivisions</li> </ul>	
Social	<ul> <li>intergenerational mentoring programs</li> <li>coffee hours with educational components</li> <li>indoor walking programs</li> <li>dementia-training for municipal employees</li> <li>media campaigns to show older adults' contributions</li> <li>volunteer activities aligned with older adults' interest and abilities</li> <li>older adults' entrepreneurship events</li> </ul>	
Health and Wellness	<ul> <li>online hubs</li> <li>newspapers</li> <li>peer support programs</li> <li>nutrition workshops</li> <li>health literacy programs</li> <li>fall prevention programs</li> </ul>	

maintaining activity, up-to-date vaccinations, appropriate medications, (36) as well as ensuring safe social interaction (e.g., through adapted technology) and maintaining a healthy diet, together enable healthy aging and reduce the deleterious impacts of these necessary measures on older adults. If these recommendations are implemented using appropriate individual behaviour change approaches while engaging with communities and mobilizing efforts to ensure that physical, social, and health resources are optimized, then these recommendations will serve as a protective mechanism to prevent and delay the progression of frailty.

#### **CONCLUSION**

The goal of the AVOID Frailty framework is to optimize healthy aging in older adults living with frailty or at risk of frailty. This symposium aimed to prioritize the opportunities and challenges for older adults and their communities when implementing AVOID Frailty. Stakeholders identified concrete actions that took into account existing networks and resources. Areas for further research should focus on implementation science, knowledge translation, and engagement methods.

TABLE 4. Top three opportunities and challenges

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<sup>&</sup>lt;sup>a</sup>N denotes total number of votes for each category.

<sup>&</sup>lt;sup>b</sup>Jointly ranked as third – individual opportunities.

<sup>&</sup>lt;sup>c</sup>Jointly ranked as second – individual challenges.

 $<sup>^{\</sup>mathrm{d}}\mathrm{Jointly}$  ranked as third – individual challenges.

<sup>&</sup>lt;sup>e</sup>Jointly ranked as first – community opportunities.

#### MARKETING CAMPAIGN

SOCIAL NETWORKING TOOLS

CIVIC/COMMUNITY/PUBLIC ENGAGEMENT METHODS

EXPAND AND STRENGTHEN COLLABORATIONS FORM A CENTRALIZED HUB FOR INFORMATION

PARTNER WITH AGING ORGANIZATIONS

**TEST SIMPLIFIED MESSAGES** 

IMPLEMENTATION SCIENCE

**KNOWLEDGE TRANSLATION METHODS** 

**ECONOMIC ANALYSESE** 

**FEASIBLITY STUDIES** 

IDENTIFIY CORE OUTCOMES OF FRAILTY
IDENTIFIY CORE INDICATORS OF FRAILTY

FIGURE 2. Concrete actions to enable healthy aging for individuals and communities

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#### CONFLICT OF INTEREST DISCLOSURES

Dr. Megan Racey was supported by a Post-Doctoral Fellowship through the Canadian Frailty Network at the time of the Enabling Healthy Aging Symposium. Dr. Emily McDonald is co-owner of MedSafer, a medication deprescribing software. All remaining authors declare no conflicts of interest exist.

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### **APPENDIX A. Dotmocracy Voting Options For Individual and Community Opportunities and Challenges**

#### **Individual Opportunities**

- Community-driven, grass roots, or bottom-up initiatives that include peers/volunteers
- Equity and diversity perspectives and cultural-specific views on health
- Shift in focus to consider aging as a lifestyle rather than focus on stereotypes and misperceptions of aging
- Doing "with" not "for" individuals; partnering with individuals to identify priorities
- Removing 'small hassles' that can be barriers to programs by ensuring the timing of programs are convenient to those attending and that individuals can readily access them
- Social prescribing interventions through Community Actions and Resources Empowering Seniors (Cares) program, such as access to a Seniors' Community Connector to better identify and connect with social resources in the community (United Way collaboration with British Columbia's Ministry of Health)
- Reframing the immediate benefits to individual AVOID frailty recommendations
- Technology to enhance and enable adoption of recommendations
- Life-course approach to aging rather than a segmented approach
- Taking advantage of pre-existing groups and communities for older adults
- Reframing messages that are more appealing and achievable for behaviour change (e.g., activity vs. exercise)
- Increase collaborations among organizations working toward achieving similar mandates
- Tailoring the implementation of the recommendations to individuals' needs; providing choices; co-developing the implementation strategies
- Prioritizing the AVOID frailty recommendations based on individuals' needs
- Highlighting the good supportive evidence that exists
- Prescribing exercise as part of social prescribing activities
- Social cohesion strategies
- Engaging primary care clinicians in designing, planning, and implementation
- Involving community associations (e.g., Alzheimer Society)
- Age-friendly communities with infrastructure implemented
- Bringing together social supports/families/caregivers
- Combining community navigation and social prescribing efforts

#### **Individual Challenges**

 Social isolation which will impact individuals' abilities to follow the AVOID frailty recommendations that necessitates behaviour change

- Inconsistent messaging from healthcare providers/ institutions about recommendations to follow
- Prioritization of the medical model
- Use of top-down solutions that impose recommendations on individuals versus bottom-up solutions that invite codesign of solutions that best meets individuals' needs
- Sustainability of well-established, effective, and efficient recommendations rather than re-inventing the wheel
- Unhealthy environments that predispose individuals to make poor choices
- Internal ageism and external/societal ageism that is pervasive and require a cultural shift
- Need for more community programs
- · Health literacy
- Access to information
- Personal beliefs may not fit with recommendations
- Need to tailor interventions/supports because frailty is dynamic
- Pressure to change behaviours can have a countereffect and dissuade individuals to make changes as they become overwhelmed
- Challenges with leaving home including transportation needs and costs
- Lack of time allotted for clinicians to have these conversations as part of the appointment
- Lack of motivation to make changes
- Liability issues associated with behaviour change
- · Lack of role models to ascribe to
- · Lack of immediate gratification
- "Hassles" of implementation (e.g., additional equipment, time, forms to fill out)
- Translating messages for the individual
- Reactive measures not proactive measures
- Funding is less available to community organizations for grassroots initiatives for their residents
- Lack of support plus personal resources
- Lack of resources to implement changes
- Misinformation about recommendations
- · Lack of trust at different levels of the system
- Criteria for programs can be limiting to implement pragmatic changes

#### **Community Opportunities**

- Developmental and inclusive evaluation with appropriate mixed methods of the implementation of AVOID recommendations to determine collective impact on and outcomes for communities with partnerships from key agencies
- Leverage existing networks and build strategic partnerships with key organizations including industry partners
- Engage with older adults as they are a huge resource and comprise a large percentage of voters who we must partner with

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- Select variable communication modes with their respective tools a, such as television or social media outlets that have continuous messaging to the masses or segmented sessions that invite dialogue from people
- Multiple stakeholders can collaborate, co-create, and create buy-in with each other for age-friendly communities
- Technology as an enabler to mobilize communities
- Harness local and residence expertise from a grassroots level as a resource
- Improve best practice sharing; harness collective thought; share KT materials; connect stakeholders with respective community interests
- Focus on geographic arrangements of older adults within communities
- Minimal impact perspective—consider the whole community rather than only the high-risk subsets
- Early identification for early interventions that enables the community to generate data to inform populationbased outcomes
- Motivate communities through big visions
- · Adoption of a 'decade of healthy aging'
- · Strength of inter/multi-generational communities
- "Demographic crunch"—people are getting older, so there is a captive audience who will want to implement these recommendations in communities
- · Lifestyle approach to aging in communities
- Identify common value-based systems within communities

#### **Community Challenges**

 Competing priorities or demands for funding; fixed capacity of funding that is granted rather than being renewable

- Engagement with key stakeholders to discuss:
  - Policies related to housing, transportation, and infrastructure
  - Competing priorities for, demands of, and fixed capacity in funding
  - Sustainability of AVOID frailty initiatives
  - Scale and spread of AVOID frailty initiatives
  - Risk aversion with implementation of AVOID frailty initiatives
  - Pragmatic approaches that are evidence-based such as implementation science Uncoordinated efforts
- Uncoordinated efforts across not-for-profit, industry, research, health care, and citizen agencies
- Individualistic and not paternalistic; priorities for some are not a priority for others
- Ageism (including by older people)
- Unclear about "how" to implement recommendations because of many frameworks/models to choose from
- Resource/time intensive for community level change
- · Sustainability uncertain
- Lack of trust with municipalities/other levels of government; tokenism
- Redundancy
- Scaling up
- Balancing evidence/pragmatic approaches
- Awareness of frailty by target population and health professionals
- · Risk aversion
- Disconnect about priorities among stakeholders (i.e. academia, community, industry)
- Evaluation of process, impact, and outcomesChange to a new model is not easy to propose because of attachment/ investment with existing models