Canadian Red Cross

NATIONAL INSTITUTE ON AGEING

Closing the Gaps: Advancing Emergency Preparedness, Response and Recovery for Older Adults

29 Evidence-Informed Expert Recommendations to Improve Emergency Preparedness, Response and Recovery for Older Adults Across Canada

DECEMBER 2020

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Report Development Contributors

In January 2019, the Canadian Red Cross in partnership with the National Institute on Ageing reviewed the latest evidence and expert opinions to inform the development of recommendations for governments, organizations and individuals to improve emergency preparedness, response and recovery for older adults. Enlisted experts that contributed to the development of the report are listed below.

Co-Chairs, Canadian Red Cross/ National Institute on Ageing Emergency Preparedness for Older Adults Project

Samir K. Sinha, MD, DPhil, FRCPC, AGSF
Co-Chair and Director of Health Policy Research, National Institute on Ageing
Director of Geriatrics, Sinai Health and the University Health Network, Toronto, Ontario
Assistant Professor, Department of Medicine, Johns Hopkins University School of Medicine
Associate Professor, Departments of Medicine, Family and Community Medicine, and the Institute of Health Policy, Management and Evaluation, University of Toronto, Ontario

Sarah Sargent, MA
Vice President, Canadian Operations Programs
Canadian Red Cross
Ottawa, Ontario

Expert Contributors:

Christina Baert-Wilson
Senior Director, Community Health
Canadian Red Cross
Dartmouth, Nova Scotia

Jane Barratt, PhD
Secretary General,
International Federation on Ageing
Toronto, Ontario

Sarah Burke, MA
Acting Director, Respect Education
Canadian Red Cross
Victoria, British Columbia

Dan Carbin, MSc
Principal, Santis Health
Toronto, Ontario

Nancy Cooper, MHSA
Director of Quality & Performance
Ontario Long-Term Care Association
Toronto, Ontario

Leslie Eckel
Knowledge Exchange Associate
InterRAI Canada, University of Waterloo
Waterloo, Ontario

Sharon Goodwin, BScN, NP, MN, PhD
Senior Vice President of Home and Community Care
Victorian Order of Nurses (VON)
Ottawa, Ontario

Tyler Hague, MPA
Manager, Disaster Risk Reduction
Canadian Red Cross
London, Ontario

Irene Hobuleic
Senior Director, Practice Quality and Risk
Victorian Order of Nurses (VON)
Toronto, Ontario

Jessica Hseih, MSW, RSW
Research Coordinator
National Initiative for Care of the Elderly (NICE)
Toronto, Ontario

Andrea Iaboni, MD, DPhil, FRCPC
Assistant Professor, Department of Psychiatry, University of Toronto
Medical Lead, Geriatric Psychiatry, Toronto Rehab, University Health Network
Toronto, Ontario

Sophia Ikura, MPA
Executive Director, Population Health Solutions Lab
Sinai Health
Toronto, Ontario

Mackenzie Kiemele
Coordinator
Canadian Association of Retired Persons (CARP)
Toronto, Ontario

Michael Nicin, MA, MPP
Executive Director
National Institute on Ageing
Toronto, Ontario

Shawna Peddle, MSc
Former Director, Disaster Risk Reduction
Canadian Red Cross
Guelph, Ontario

Arianne Persaud
Communications and Public Affairs Manager
National Institute on Ageing
Toronto, Ontario

Veronica Said, MA
Consultant, Santis Health
Toronto, Ontario

Jennifer Savoy, BA
Manager, Emergency Management and Programs Branch
Public Safety Canada
Ottawa, Ontario

Dallas Seitz, MD, PhD
Associate Professor, Department of Psychiatry, Hotchkiss Brain Institute, and O'Brien Institute for Public Health
Cumming School of Medicine, University of Calgary
Calgary, Alberta

Samina Talat, MHSc
Associate Vice President, Health Innovations
Canadian Red Cross
Mississauga, Ontario

Laura Tamblyn-Watts, LLB
National Director of Law, Policy and Research
Canadian Association of Retired Persons (CARP)
Toronto, Ontario

Sandy van Solm, PhD
Manager, Emergency Management/CEMC
Region of Waterloo
Waterloo, Ontario

Melinda Wells, MPA
Director, Global Relations and Humanitarian Diplomacy
International Operations
Canadian Red Cross
Ottawa, Ontario

Ivy Wong, MPA
Policy Director
National Institute on Ageing
Toronto, Ontario

Caberry Yu, BHSc, MD(c)
Junior Research Fellow
National Institute on Ageing
Toronto, Ontario

Lina Zita, BHA
Development and Marketing Coordinator
Older Adults Centres' Association of Ontario
Caledon, Ontario

Project Staff

Nicoda Foster, MPH, PhD(c)
Project Manager
CRC/NIA Emergency Preparedness for Older Adults Project
Office of the Director of Geriatrics
Sinai Health and the University Health Network
Toronto, Ontario

Laura Romero, BSc
Research Assistant
CRC/NIA Emergency Preparedness for Older Adults Project
Office of the Director of Geriatrics
Sinai Health and the University Health Network
Toronto, Ontario

Shionne Hitchman, BScH
Research Assistant
ARC/AAN Emergency Preparedness for Older Adults Project
Office of the Director of Geriatrics
Sinai Health and the University Health Network
Toronto, Ontario

Elsa Nana Nzepa, BSc
Program Assistant
CRC/NIA Emergency Preparedness for Older Adults Project
Office of the Director of Geriatrics
Sinai Health and the University Health Network
Toronto, Ontario

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Organizational Endorsements

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International Federation on Ageing

AGE-WELL

Alzheimer Society Canada

cagp acgp
Canadian Academy of Geriatric Psychiatry | Académie canadienne de gérontopsychiatrie

CAEP | ACMU

Canadian Association for Long Term Care

CAOT · ACE
Canadian Association of Occupational Therapists
Association canadienne des ergothérapeutes

CASW ACTS

CFNU
Canadian Federation of Nurses Unions
La Fédération canadienne des syndicats d'infirmières et infirmiers

Canadian Frailty Network | Réseau canadien des soins aux personnes fragilisées

CGNA Canadian Gerontological Nursing Association

Canadian Home Care Association
canadienne de soins et services à domicile

Association médicale canadienne | Canadian Medical Association

Canadian Nurses Association

CanAge

Canadian Network for the Health and Housing of People Experiencing Homelessness

Canadian Physiotherapy Association
Association canadienne de physiothérapie

CSLTCM | Canadian Society for Long-Term Care Medicin


ACCA
ALBERTA CONTINUING CARE ASSOCIATION


Long Term & Continuing Care
Association of Manitoba
L'Association de soins continus
et à long terme du Manitoba


The New Brunswick
Association of
NURSING
HOMES
L'Association des
FOYERS
DE SOINS
du Nouveau-Brunswick


AdvantAge
Ontario
Advancing Senior Care


THE GERONTOLOGICAL
NURSING ASSOCIATION
ONTARIO


HOME CARE
ONTARIO
Bringing Health Care Home


OACAO
The Voice of Older Adult Centres
La voix des centres pour aînés


ONTARIO ASSOCIATION
OA PC
PARAMEDIC CHIEFS


THE ONTARIO
caregiver
ORGANIZATION


OCSA
Ontario Community
Support Association


ONTARIO
LONG TERM CARE
ASSOCIATION


OPSWA
ONTARIO
PERSONAL SUPPORT WORKERS
ASSOCIATION


PGLO
Provincial Geriatrics
Leadership Office


TORONTO


HEALTH
COMMONS
SOLUTIONS
LAB


Region of Waterloo


PARAMEDIC
COUNTY OF
Renfrew


VON

Abbreviations

AAN	American Academy of Nursing
ADLs	Activities of Daily Living
ADRD	Alzheimer's Disease and Related Dementias
ARC	American Red Cross
CARP	Canadian Association of Retired Persons
CDC	Centers for Disease Control and Prevention
CILs	Centers for Independent Living
CRC	Canadian Red Cross
ED	Emergency Department
EMS	Emergency Medical Services
LTC	Long-Term Care
PTSD	Post-Traumatic Stress Disorder
PDA	Personal Digital Assistant
PPE	Personal Protective Equipment
SAC	Scientific Advisory Council
SDM	Substitute Decision Maker
SMART	Simple Triage and Rapid Treatment
SWiFT	Seniors Without Families Team
US	United States of America

Executive Summary

Older adults consistently experience the greatest proportion of casualties during and after emergencies in Canada, and internationally, when compared to younger age groups (Fernandez, Byard, Lin, Benson, & Barbera, 2002; Mokdad, et al., 2005). For instance, in 1998, ice storms resulted in widespread power outages across Quebec that saw 600,000 people, that included older adults, forced from their homes and a high mortality rate among older persons due to a lack of available heating equipment, less optimal housing conditions, and poor coordination between emergency, health and social services (Plouffe, Kang, & Kalache, 2008).

Over a decade later in 2010, more than half of all deaths resulting from heat waves in Quebec were among persons aged 75 years or older (Bustinza, Lebel, Gosselin, Belanger, & Chebana, 2013). In the 2017 wildfires in British Columbia and floods in Quebec, older adults were impacted the hardest due to their greater levels of vulnerability, while poorly coordinated protocols left them more vulnerable due to delays in initiating evacuation procedures (Global News, 2017; Roslin, 2018).

More recently, 97% of Canada's first 10,000 COVID-19 deaths have occurred in older Canadians 60 years of age and older (Grant, 2020), with the greatest proportion of deaths occurring in long-term care and retirement homes (Canadian Institute for Health Information, 2020; Government of Canada, 2020).

Several research studies have demonstrated that these poor outcomes are linked to physiological age-related changes, such as impairments to sensory, cognitive and mobility disabilities; access and functional needs; social isolation and lack of access to familial and other social supports; having limited financial resources; and insufficient policies and procedures (Al-Rousan, Rubenstein, & Wallace , 2014; Fernandez, Byard, Lin, Benson, & Barbera, 2002; Killian, Moon, McNeill, Garrison, & Moxley, 2017). Furthermore, interruption to the timely provision of routine medical care is recognized as a likely contributor to mortality and morbidity associated medical complications during emergencies, especially in the immediate months following major natural disasters. The high proportion of deaths that also seem to occur in older adult congregate living settings is further indicative of fundamental issues that will need to be addressed in these settings as well.

There exists a diverse continuum of capacity for older adults, from reduced capacity due to physical and cognitive impairments, as noted above, to active, engaged members of their communities. Older adults themselves should be empowered to reach out and connect with their peers, particularly those who are more vulnerable, supporting each other in anticipating and preparing for emergencies. The critical role of older adults who act as the sole or primary caregivers of other older adults, whether they be partners, family members, or friends, must also be recognized and supported.

There is a clear need to better support emergency preparedness for older Canadians living at home in the community or in congregate settings. In order to improve preparedness and response to

emergencies, Canada needs greater consideration and adoption of evidence-informed, uniform and collaborative emergency management interventions. These efforts will require improved resources and capacity to meet the emergency needs of all older adults, regardless of the variety of circumstances and settings in which they may be living.

In 2018, to address these gaps in emergency and disaster preparedness and management, members of the American Red Cross Scientific Advisory Council (ARC SAC) and the American Academy of Nursing (AAN) Policy Expert Round Table on Emergency/Disaster Preparedness for Older Adults agreed to conduct a scientific review of the latest evidence, current available legislation, and policies, in order to develop a set of recommendations that were then further reviewed and strengthened by a broader panel of experts with specific expertise in the fields of social work, education, public health, research, health policy, emergency management, geriatrics, and nursing. Through a rigorous consensus decision-making process, a comprehensive final set of 25 evidence-informed recommendations were ultimately developed and endorsed by this group.

This report is an extension and continuation of that work with an expanded focus that includes epidemics and pandemics. The COVID-19 pandemic has had its greatest impact on older adults in Canada and globally. The challenges experienced by older Canadians has demonstrated the need for improvements in preparedness planning targeting one of the most vulnerable group in our society. This report highlights areas where there are opportunities to better support older Canadians and their caregivers and the system more broadly, to be prepared before and successfully recover after the emergency.

To adapt the recommendations for the Canadian context, the Canadian Red Cross and the National Institute on Ageing agreed to collaborate on an identical consensus-based development process employed by the ARC and AAN. The Canadian process resulted in 29 evidence-informed expert recommendations. This paper presents those recommendations, and the rationale behind them, for improving emergency preparedness, response and recovery interventions for older adults across Canada. In order to achieve a collaborative approach to improving emergency management nation-wide, the recommendations are categorized across six relevant emergency management domains:

1. Individuals and unpaid caregivers;
2. Community-based services and programs;
3. Health care professionals and emergency response personnel;
4. Care institutions and organizations;
5. Legislation and policy; and
6. Research.

The intention of these recommendations is to provide interventions that can bridge the existing gaps in emergency preparedness, response and recovery, and facilitate better outcomes for older adults across Canada.

Summary of Recommendations

1. Individuals and Unpaid Caregivers Domain

Recommendation 1.1: Older adults and their unpaid caregiver(s) should be provided with tailored, easy-to-access information and resources related to emergency preparedness and guidance on how to develop customized emergency plans that consider the functional and health needs of older adults and appropriate strategies to support infection/disease prevention. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in developing and disseminating resources and training material, to ensure their voices and perspectives are reflected.

Recommendation 1.2: Older adults who are reliant on mobility aids should remove or minimize barriers affecting their ability to evacuate, and should take steps to ensure their safety within their surroundings.

Recommendation 1.3: If registries for people with functional and other needs, including persons with disabilities, have been established by local emergency response agencies, older adults and/or their unpaid caregiver(s) should register so they can be better assisted/supported during emergencies.

Recommendation 1.4: Older adults who have a sensory impairment, such as a visual or hearing disability, should take additional precautions to prepare themselves for emergencies.

Recommendation 1.5: Older adults who live with chronic health conditions should maintain a readily accessible list of their current medical conditions, treatments (medications, durable medical equipment, supplies and other health care needs), health care providers, and emergency contacts, including substitute decision makers (SDMs).

Recommendation 1.6: Older adults who take medications should work with their Health Care professionals to ensure they have access to at least a 30-day supply of medications during an emergency.

Recommendation 1.7: Older adults who are reliant on medical devices that require electricity, should ensure they have back-up power supplies in place, especially if required while sheltering-in-place.

- Older adults and/or their unpaid caregivers should contact their electricity company in advance to discuss their needs and ensure options for alternative power sources are available, especially addressing the need for access to power to charge cell phones and other mobile devices.
- Older adults and/or their unpaid caregivers should seek assistance with obtaining and maintaining an alternative power source at home, if required, such as when being required to move heavy equipment and fuel or in accessing these resources in rural locations, and operating equipment.

Recommendation 1.8: Older adults should be encouraged to continually maintain an adequate local support network that can be called upon during impending disasters and unexpected emergencies, especially if they live alone or lack easy access to relatives.

Recommendation 1.9: Unpaid caregivers of persons with Alzheimer's disease and/or other dementias should be supported to identify signs of distress, anxiety, or confusion, and use strategies to redirect attention, and help them stay calm during emergencies. In addition, unpaid caregivers should be prepared to prevent wandering, and have plans in place to locate their care recipients if they do wander or require medical intervention(s) during an emergency.

2. Community-Based Services and Programs Domain

Recommendation 2.1: Access should be increased to tailored community-based programs that educate older adults and their unpaid caregivers about emergencies that could affect their region and how best to prepare for and respond to them. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

- Community-based programs and organizations should collaborate with regional public health authorities in developing and disseminating education resources on infection control, disease and injury prevention practices for older adults and their unpaid caregivers during emergencies.

Recommendation 2.2: Programs that provide disaster relief and/or essential community services, such as Meals on Wheels, and daily living assistance for older people (financial, medical, personal care, food and transportation) should receive emergency preparedness training and education, as well as should develop and adhere to plans and protocols related to responding adequately to the needs of their clients during emergencies. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

Recommendation 2.3: Community-based programs that provide in-home health and personal care for older adults should integrate strategies that minimize unnecessary personal contact and leverage resources (e.g. personal protective equipment such as gowns, masks, gloves, hand sanitizer etc.) in their emergency preparedness plans and protocols.

Recommendation 2.4: Local governments should leverage data sources that identify at-risk individuals to enable emergency responders to more easily prioritize their search and rescue efforts following an emergency.

3. Health Care Professionals and Emergency Response Personnel Domain

Recommendation 3.1: Health care professionals and emergency response personnel should receive training on providing geriatric care relevant to their discipline and how best to assist older adults and their unpaid caregivers before, during and after emergencies. The additional education and training should also increase their awareness of best practices and precautions to minimize the risk of infectious disease transmission or spread while responding to emergencies. Volunteer representatives of older Canadians should be recruited and

involved in training material development and implementation, to ensure their voices and perspectives are reflected.

Recommendation 3.2: Health care professionals and emergency response personnel should strive to mitigate negative outcomes among older adults during and after emergencies by adopting effective strategies designed to protect the physical and mental health of older adults they may come in contact with. Strategies can include assessing the psychological well-being of older adults for signs of distress and providing appropriate treatments or referrals as needed.

Recommendation 3.3: Health care professionals and emergency response personnel should receive cultural awareness training to provide appropriate care and support for older adults with different cultural and religious backgrounds before, during, and after an emergency. Providers should have options for providing support to older adults and their unpaid caregivers who face language or cultural barriers to accessing supports (e.g., translators, written materials in languages other than English or French, etc.). This is of particular importance for personnel that work with Indigenous populations, in diverse community-settings and during times of evacuation due to emergencies.

4. Care Institutions and Organizations Domain

Recommendation 4.1: Care institutions and organizations should include emergency preparedness and response education in their routine training courses.

- Multi-modality educational tools and practices should be used to better facilitate knowledge acquisition and behavioral change.
- Volunteer representatives of older Canadians should be recruited and involved in developing and disseminating resources and training material, to ensure their voices and perspectives are reflected.

Recommendation 4.2: Additional strategies to improve the collection and transfer of identifying information and medical histories should be adopted into current standardized patient handoff procedures to better facilitate effective tracking, relocation and care of patients during an emergency.

Recommendation 4.3: Care institutions and other organizations should strive to develop comprehensive emergency plans that include effective response strategies for protecting older adults against infectious disease outbreaks and reflect evidence-based standards supported by organizations such as Infection Prevention and Control Canada (IPAC).

- Care institutions should also regularly assess and address any barriers they identify that could affect the implementation of their emergency plans that build on their routine practices.

5. Legislation and Policy Domain

Recommendation 5.1: A national advisory committee should be created to inform emergency preparedness, response and recovery program development and strategies for older Canadians. Individuals who are representative of older Canadians and their unpaid caregivers should be involved to ensure their voices and perspectives are reflected.

Recommendation 5.2: All provinces and territories should support the implementation of tax-free emergency preparedness purchasing periods during specific times of the year or prior to an impending emergency. Governments should also provide targeted funding to directly support/subsidize the purchase of emergency preparedness kits for older Canadians. Items covered should include an agreed-upon list of emergency supplies (such as batteries, portable generators, rescue ladders, radios and ice packs), air conditioners, personal protective equipment (such as masks, gloves and hand sanitizer) and additional mobility aids (canes, walkers, etc.).

Recommendation 5.3: All provinces and territories should support the creation of a national licensure process or program for nurses, physicians, allied health professionals and other emergency medical service personnel to allow them to provide voluntary emergency medical support across provincial/territorial boundaries during declared states of emergency.

Recommendation 5.4: All provincial and territorial governments should support legislative requirements that mandate congregate living settings for older persons (e.g. nursing homes, assisted living facilities and retirement homes) to regularly update and report their emergency plans that outline actions and contingencies to take in case of emergencies. These plans should include:

- Back-up generators in case of extended periods of power outages, and coordinated plans with relevant community agencies (e.g. municipal fire agencies) for efficient evacuations.
- Direction on appropriate interventions (i.e. self-isolation, wearing face masks, physical distancing, etc.) to control and prevent outbreaks and spread of infectious diseases amongst the population in times of emergencies.
- Clear thresholds for temperature regulation, specifically, maximum and minimum temperatures permissible based on occupational and environmental health standards, and the steps required to regulate temperatures and minimize fluctuations.
- An outline of staffing levels that should be maintained during emergencies to minimize care and/or service interruptions.

All provinces and territories should work towards standardizing requirements for emergency plans in congregate living settings in accordance with the priorities outlined in the 2019 *Emergency Management Strategy for Canada* and ensure that their emergency plans for congregate living settings are aligned with directives outlined in their provincial/territorial pandemic and emergency plans.

Recommendation 5.5: All provinces and territories should adopt a standardized approach to promoting collaborations between local pharmaceutical prescribers and dispensers (i.e. community pharmacists), physicians and nurse practitioners, to ensure an adequate supply of prescription medications are dispensed to persons with chronic health conditions prior to and during an emergency. This approach should also outline the need for collaboration between pharmaceutical providers, hospitals and relief agencies to ensure an adequate supply of prescription medications are available at hospitals, relief and evacuation shelters.

- All persons should be able to obtain at least a 30-day supply of emergency prescription medications prior to and during an emergency.

6. Research Domain

Recommendation 6.1: There is a need to prioritize the creation and funding of research efforts to better support the development of a common framework for measuring the quality and levels of emergency preparedness among care institutions, organizations, paid providers, community organizations, and other groups that work primarily with older adults and their unpaid caregivers during and after emergencies.

Recommendation 6.2: There needs to be a more concerted effort in utilizing outcomes from existing evidence to support the planning, design, and refinement of more evidence-informed emergency preparedness interventions, policies, and regulations in support of older adults and unpaid caregivers, as well as organizations and paid care providers that will be responsible for meeting their needs during and after an emergency.

Recommendation 6.3: A network of emergency preparedness researchers, older adults, unpaid caregivers, volunteers and providers needs to be created to encourage partnerships in the ongoing unpaid evaluation of emergency preparedness interventions targeting older adults. Network members should advocate for an increased focus on emergency preparedness research among the various societies or journals that they are members of.

Recommendation 6.4: There is a need to focus on research about unpaid caregivers and emergency preparedness to better instruct unpaid caregivers on how to take care of their vulnerable family members and friends during an emergency.

Recommendation 6.5: There is a need to focus on research about emergency preparedness and response in Canadian community and congregate living settings for older adults (e.g. nursing, retirement and group homes and assisted living facilities). Research should:

- Determine the existing levels of preparedness across these environments as well as highlight the challenges they face in being prepared.
- Characterize the impact of the emergency on the older adult population and emerging best practices on how to address it as soon as it emerges.

Background and Context

The Current State of Emergency Outcomes for Older Adults in Canada

Natural disasters and infectious disease pandemics are two of the most frequent emergencies that pose great risks to public health and safety because of their ability to disrupt the day-to-day functioning of a population. As a result, emergency preparedness and response efforts include both large and small scale strategies designed to minimize harm, particularly to vulnerable groups such as older adults, defined as those aged 65 and older.

Over the last decade, several large scale emergencies have highlighted the particular vulnerabilities of older adults who were the most affected by them. For instance, in 1998, ice storms resulted in widespread power outages across Quebec that saw 600,000 people, that included older adults, forced from their homes and a high mortality rate among older persons due to a lack of available heating equipment, less optimal housing conditions, and poor coordination between emergency, health and social services (Plouffe, Kang, & Kalache, 2008; Steuter-Martin & Pindera, 2018).

Over a decade later in 2010, more than half of all deaths resulting from heat waves in Quebec were among persons aged 75 years or older (Bustinza, Lebel, Gosselin, Belanger, & Chebana, 2013). In the 2017 wildfires in British Columbia and floods in Quebec, older adults were impacted the hardest due to their greater levels of vulnerability, while poorly coordinated protocols left them more vulnerable due to delays in initiating evacuation procedures (Global News, 2017; Roslin, 2018).

More recently, 97% of Canada's first 10,000 COVID-19 deaths have occurred in older Canadians 60 years of age and older (Grant, 2020), with the greatest proportion of deaths occurring in long-term care and retirement homes (Canadian Institute for Health Information, 2020; Government of Canada, 2020). Close to 1700 outbreaks have been reported in LTC and retirement homes, accounting for approximately 80% of all COVID-19 deaths in Canada (Canadian Institute for Health Information, 2020; NIA Long-Term Care COVID-19 Tracker Open Data Working Group, 2020).

The impacts that emergencies such as natural disasters and infectious disease pandemics have on older adults rarely end once the emergency has ended. Interruptions to medical care, especially for those living with chronic conditions, can cause increased morbidity and mortality in the months during and following a large scale emergency. Despite the gaps in emergency preparedness and response efforts that have been highlighted over the past decade, older adults continue to experience a greater proportion of emergency-related mortality rates and emergency-related declines in health, while continuing to report lower rates of emergency preparedness (Al-Rousan, Rubenstein, & Wallace , 2014; Brunkard, Namulanda, & Ratard, 2008; Cherniack, Sandals, Brooks, & Mintzer, 2008; Gibson & Hayunga, 2006; Kosa, Cates, Karns, Godwin, & Coppings, 2012; Mokdad, et al., 2005; Marshall, Ryan, Robertson, Street, & Watson, 2009).

As the baby boomers continue to age, it is expected that the population of older adults aged 65 years

and older in Canada will significant increase over the next few decades. By 2030, the proportion of the total Canadian population aged 65 and over will increase to upwards of 23.4%, from 17.2% of the overall population in 2018 (Statistics Canada, 2020). This proportion is projected to increase reaching upwards of 29.5% of the overall population by 2068 (Statistics Canada, 2020). This rapid growth in our population of older Canadians will increase the demand for emergency services to meet the emergency preparedness, response, and recovery needs of those individuals at greater risk for negative outcomes. The need for more age-friendly emergency response services is further supported by the expected increase in the frequency and severity of extreme weather events that can in turn lead to infectious disease outbreaks when they result in changes to human conditions or exacerbate existing health conditions (Field, Barros, Dokken, Mach, & Mastrandrea, 2014; Kouadio, Aljunid, Kamigaki, Hammah, & Oshitani, 2012). Further, in addition to post-disaster infectious disease outbreaks, the frequency and risk of epidemics and pandemics are always imminent given the population density in metropolitan cities and the openness of country borders that facilitate travel and migration. Consequently, ensuring the safety of older adults will require greater efforts in the overall area of emergency management for this growing population, and especially for those living in congregate settings.

Studies have highlighted the socioeconomic factors that make older adults more vulnerable to experiencing adverse outcomes during and after emergencies, and the insufficiencies present among various levels of emergency management to respond to the vulnerabilities of this group (Aldrich & Benson, 2008; Banks, 2013; Bustinza, Lebel, Gosselin, Belanger, & Chebana, 2013; Tricco, Lillie, Soobiah, Perrier, & Straus, 2013). Particularly, older adults have been found to experience more adverse outcomes during an emergency compared to their younger counterparts due to their complex and individualized capabilities and challenges. As one gets older, age-related changes begin to take place, such as a natural gradual weakening of one's immune system known as immunosenesence, and an increased chance of having a chronic health condition or multi-morbidity, living in social isolation, and experiencing declines in sensory, cognitive and physical functioning (Aldrich & Benson, 2008; Kosa, Cates, Karns, Godwin, & Coppings, 2012). While these changes are often sufficiently managed in an older adult's day-to-day life, emergencies such as natural disasters and infectious disease pandemic can impose additional barriers to accessing resources and supports, and put older adults with complex needs at an increased risk of harm.

Emergency management for older adults can be further weakened by health care providers' low levels of emergency and geriatric specific education and training; limited provision of community-based emergency training programs for older adults and their unpaid caregivers; statutes and regulations that impose barriers to individual preparedness; and lack of a standardized approach to emergency

preparedness nation-wide (Pesiridis, Galanis, Sourtzi, & Kalokairinou, 2014; Scott, Carson, & Greenwell, 2010; Wyte-Lake, Claver, Griffin, & Dobalian, 2014). However, there exists a diverse continuum of capacity amongst older adults, from reduced capacity due to physical and cognitive impairments, as noted above, to others who are active, engaged members of their communities. Older adults should be empowered to reach out and connect with their peers, particularly those who are more vulnerable, to support each other in anticipating and preparing for emergencies. The critical role of older adults who act as the sole or primary caregivers of other older adults, whether they be partners, family members, or friends, must also be recognized and supported.

To address this gap in emergency preparedness members of the American Red Cross Scientific Advisory Council (ARC SAC) and the American Academy of Nursing (AAN) Policy Expert Round Table on Emergency Preparedness for Older Adults agreed to conduct a scientific review of the latest evidence, current available legislation, and policies, in order to develop a set of recommendations that were then further reviewed and strengthened by a broader panel of experts with specific expertise in the fields of social work, education, public health, research, health policy, emergency management, geriatrics, and nursing. Through a rigorous consensus decision-making process, a comprehensive final set of 25 evidence-informed recommendations were ultimately developed and endorsed by this group.

To bring this work into the Canadian context, members of the ARC Scientific Advisory Council from the Canadian Red Cross (CRC) and the National Institute on Ageing (NIA) reviewed the ARC/AAN's findings, further reviewed additionally relevant Canadian literature, policy and legislative aspects, and hosted an Expert Policy Round Table on Emergency Preparedness for Older Canadians in May, 2019, in Toronto, ON. The Canadian Round Table brought together 18 experts from a variety of fields, including social work, education, research, health policy, emergency management, geriatrics, and nursing. The Policy Expert Round Table reviewed the ARC/AAN's original 25 recommendations, particularly the legislative recommendations, which had been updated for the Canadian context, and any additional evidence applicable to older Canadians. The majority of recommendations were generally applicable to Canada and were agreed to be appropriate and supported by the Round Table. The subsequent advent of the COVID-19 pandemic invited an even broader review of the literature to include a focus on infectious disease pandemics and opportunities to address gaps in preparedness.

This report's reference panel initially put forward 26 final recommendations that aimed to implement emergency preparedness-related changes among the following relevant emergency management domains: 1) individuals and unpaid caregivers; 2) community services and programs; 3) health care professionals and emergency response personnel; 4) care institutions and organizations; 5) legislation/policy; and 6) research. The CRC/NIA's later decision to expand the report's focus to also address preparedness for

infectious disease pandemics ultimately resulted in a final total of 29 recommendations being presented in this document.

Report Recommendations Development Approach

Initial Scoping Review and Development of an Ecological Analytical Framework

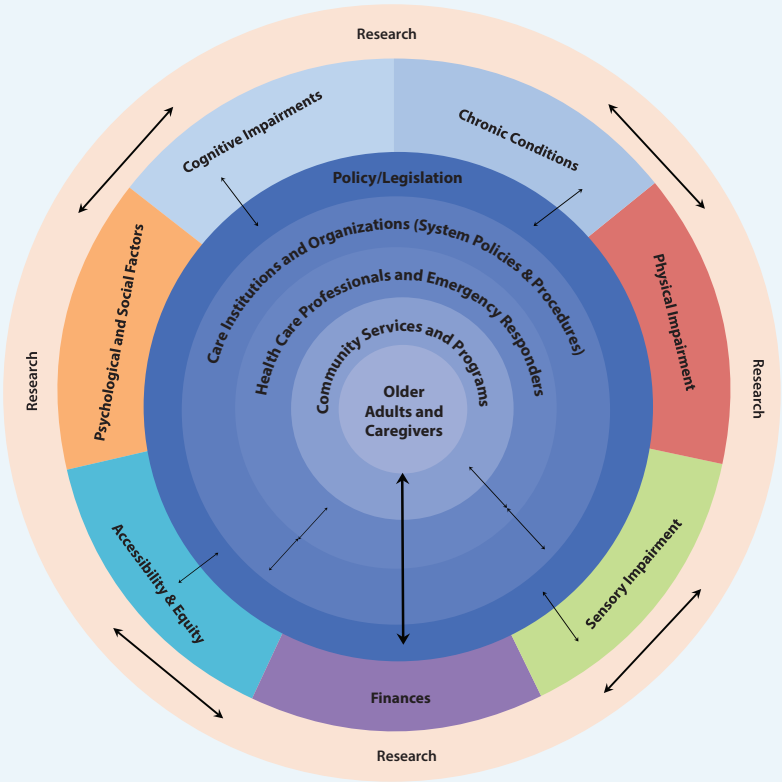
In the initiation of this project, the American Red Cross Scientific Advisory Council and the American Academy of Nursing Policy Expert Round Table on Emergency Preparedness for Older Adults began a scoping review of the age-related factors that make older adults more vulnerable to adverse outcomes during and after an emergency, with the primary focus being on large scale natural disasters. For the purpose of the scoping review, a disaster was defined as a natural or man-made phenomenon that causes interruptions or loss of life. Disasters based on this definition included the following: floods, hurricanes, tornadoes, nuclear explosions, and complex disasters. Disasters arising from malicious biological and chemical agents, and terrorism were excluded.

The impact of natural disasters is far reaching and can lead to other types of disasters that, though unintended, can be severe in nature and cause harm. Examples of such disasters include health care disasters that can be defined as a disaster that prevents access to health care in times of emergency (Swathi, Gonzalez, & Delgado, 2017). A health care disaster also happens when the destructive effects of natural disasters can overwhelm the ability of a given area or community to meet the demand for Health Care (Zibulewsky, 2001). It is important to note the clear causal link between natural disasters and health care disasters, as natural disasters can lead to a breakdown in the health system's responsiveness to the need for health services following an emergency leaving affected communities without access to Health Care. The scope and focus of this search was primarily on natural disasters, which have produced some results that have overlapping content but this was not the primary focus.

Older adults were found to be more vulnerable to adverse outcomes during and after emergencies due to seven factors: an increased prevalence of chronic health conditions, physical, cognitive and sensory disabilities, weak social networks, accessibility and equity issues, and limited financial resources. This literature review also identified older adults and unpaid caregivers, community services and programs, health care professionals and emergency response personnel, care institutions and organizations, policy/legislation, and research as the relevant domains that contribute to disaster/emergency management for older adults.

Adequate emergency preparedness was found to depend on synergy between relevant emergency management domains in order to mitigate the factors creating increased vulnerability among older adults during emergencies. Surrounding five of the six emergency management domains, and the seven factors of vulnerability, is the domain of research. It can identify and help to fill the existing gaps in knowledge and behaviour.

Figure 1. Adapted from: Bronfenbrenner, U (1977). Toward an experimental ecology of human development. American Psychologist, 32, 513- 531.



Bronfenbrenner's Ecological Framework was adapted to illustrate the interacting relationship of the seven factors of vulnerability and the six emergency management domains identified (Figure 1).

Systematic Review Process

A subsequent systematic literature review was conducted with an expanded scope for the Canadian version that included a focus on preparedness for pandemics and spread of infectious diseases in addition to the original focus on preparedness for natural disasters.

The objective of the systematic review was to examine existing gaps in emergency preparedness for pandemics among the six previously identified emergency management domains for older adults (see Figure 1) and to determine successful interventions. For the purposes of the expanded focus, a pandemic was defined as "an epidemic occurring worldwide, or over a very wide area crossing international boundaries and usually affecting a large number of people" (Kelly, 2011). Preparedness was defined as the capacity to respond to a public health threat that includes natural disasters and infectious disease outbreaks (Patel, et al., 2008).

The review was guided by the six research questions listed below (for a detailed summary of the search strategy, see Appendix A).

1. Individuals and Unpaid Caregivers Domain

Question 1: What are the factors that make older adults more vulnerable to adverse outcomes during an emergency compared to younger adults?

1.1. Are there age and/or function-related factors that make older adults more vulnerable to adverse outcomes compared to younger adults?

1.2.

- What is the incidence of psychological distress among older adults following an emergency (natural disaster or pandemic) compared to younger adults?
- Is there a difference in the incidence of psychological distress among older adults across different socio-demographic factors (that is, education, income, race, geography, etc.) following an emergency (natural disaster or pandemic)?
- Is there a difference in the incidence of psychological distress among older adults with dementia, dementia related disorders or other cognitive impairments?

1.3. Are there specific actions caregivers of older adults should pursue to minimize adverse outcomes of older adults they care for during or after an emergency (natural disaster or pandemic)?

2. Community-Based Services and Programs Domain

Question 2: What are the strategies and resources that can be leveraged at the community and program levels to improve emergency (natural disasters or pandemic) preparedness for older adults?

2.1. Is there a need for more geriatric-focused supportive care strategies to better prepare older adults and/or family caregivers for emergencies?

2.2. Are conventional emergency preparedness resources effective at facilitating knowledge acquisition and behavioral change among older adults and/or family caregivers with low-literacy skills or among those who are not fluent in English or French?

2.3. What are the most effective formats that can be used to communicate guidance on preparedness, warning messages and messages on how to access recovery resources in times of pending emergency among older adults and/or family caregivers?

- What types of community/not-for-profit led interventions can be implemented to facilitate positive recovery outcomes for older adults and/or family caregivers following an emergency (natural disaster or pandemic)?

3. Health Care Professionals and Emergency Response Personnel Domain

Question 3: What are the strategies and resources that can be leveraged to improve emergency response among health care professionals and emergency response personnel during and after an emergency (natural disaster or pandemic)?

3.1. Is there a need for an increase in the use of geriatric-focused triage care strategies when assessing the needs of older adults before or during an emergency (natural disaster or pandemic)?

3.2. What are the age- and function-specific training methods that health care professionals and emergency response personnel should follow when caring for and assisting older adults with varying capabilities and limitations during an emergency (natural disaster or pandemic)?

- What are the most effective methods to teach age- and function-specific education to facilitate knowledge acquisition and behavioral change?

3.3. What core competencies or skills do health care professionals and emergency response personnel need to facilitate the delivery of culturally appropriate and safe care during emergencies (natural disasters or pandemic) to older adults with different cultural and religious beliefs/preferences?

- Are there specific accommodations needed for Indigenous older adults in the event of relocation following an emergency (natural disaster or pandemic)?
- Are there differences in methods for providing support to Indigenous (on or off-reserve) and other racialized older adults who live in Canada?

4. Care Institutions and Organizations Domain

Question 4: What are the strategies and resources that can be leveraged at the organizational or institutional level to improve emergency (natural disaster or pandemic) preparedness and recovery efforts for older adults?

4.1 Is there a need for more geriatric-focused supportive care strategies or design elements to better prepare organizations or institutions (relief agencies and shelters) that may be required to provide care for older adults during or after an emergency (natural disaster or pandemic)?

5. LegislationPolicy Domain

Question 5: Are there legislations or policies have been developed or adopted at the municipal, provincial or federal level to improve emergency (natural disaster or pandemic) preparedness and recovery efforts for older adults?

5.1. Is there evidence that shows the effectiveness/positive impact of any particular piece of legislation or policy?

5.2. Is there any evidence to suggest any existing legislation or policy may contravene what existing evidence would support?

6. Research Domain

Question 6: What research or evidence gaps have been noted in the literature that could better inform efforts to improve emergency preparedness and recovery efforts for older adults?

Search Strategy
The search for academic literature was conducted in two phases. Phase one focused on natural disasters and was implemented between June 2017 and April 2019. Phase two focused on infectious disease pandemics and was implemented between March and May 2020. Searches for both phases were restricted to databases with literature relevant to the fields of medicine, public health, nursing, and health care, which included MEDLINE, HealthStar, UpToDate, Clinical Key, EBSCOhost, Cochrane, CINAHL, Scopus and Google Scholar. The reference lists of relevant articles were also manually searched.

Phase one search was restricted to articles published in English between 2008 and 2019. Phase two had no date restrictions but limited articles to only those published in English. The search parameters were focused on identifying gaps that were not addressed by existing evidence based guidelines published by established agencies and public health authorities such as Public Health Agency of Canada (PHAC), Centers for Disease Control and Prevention (CDC), Public Health Ontario (PHO), etc.

Study Selection
The screening and shortlisting process was identical in both phases. The titles and abstracts of the populated articles were screened to identify peer-reviewed articles that were eligible for a full text review. Articles were selected based on the following inclusion criteria: titles and abstracts that contained the search terms or content relevant to emergency management outcomes for one of the six identified domains. Relevant populations of older adults included those that live in assisted living facilities, nursing homes, independently at home, and those that are homebound or homeless. There were no geographic restrictions for the study population. All articles that met the inclusion criteria were saved in the reference manager Mendeley for future review and referencing. Legislative and policy documents were retrieved using Google. A search to identify established best practice guidelines for infection control was also conducted using Google.

The searches yielded a combined total of 4390 academic literature as well as 15 legislative/policy oriented documents and 19 guidelines. After screening and full-text review, 52 peer reviewed papers were selected for data extraction and inclusion in addition to the 15 legislative/policy documents and 19 guidelines.

Review of the findings led to the generation of 29 evidence-informed recommendations.

Media Scan and Content Analysis of Reports
Given the focus of Domain 5 on policy/legislation, a media scan was conducted as a parallel process to identify news reports, discussion papers and policy/legislative documents from provincial to federal levels. A content analysis of predominantly media reports was conducted to identify disasters or emergencies in Canada that had not been captured by the academic literature between 2008 and 2018. News reports were reviewed for statistics that were reported on resulting causalities or number of people impacted. The scan was conducted with a special focus on rural and remote regions, and the First Nation, Inuit and Metis populations of Canada. Key themes were identified from the content analysis that were then integrated into the white paper.

Expert Interviews

To gather information on the preparedness, response and recovery experience of Indigenous Older Adults in Canada, the Canadian Red Cross (CRC) undertook a series of interviews with provincial emergency response personnel in four provinces that highlighted key issues and good practices observed through the experience of collaborating with Indigenous communities on preparedness activities, as well as through CRC operational support in evacuation and recovery operations. The themes identified through these interviews informed the text that supports recommendation 3.3.

Consensus Decision-Making Process

In June 2018, the American Red Cross (ARC) Scientific Advisory Council (SAC) and the American Academy of Nursing (AAN) Policy Expert Round Table on Emergency/Disaster Preparedness for Older Adults hosted a Policy Expert Round Table on Emergency/Disaster Preparedness for Older Adults (Policy Expert Round Table) to evaluate the findings of our scientific review and the feasibility of the proposed recommendations.

To facilitate an evaluation of the recommendations and potential remaining gaps in emergency preparedness, a *consensus decision-making* process was adapted for the Policy Expert Round Table because it is an effective method of facilitating a collective contribution to a solution or intervention by encouraging dialogue, with the aim of considering and addressing the opinions and concerns of each of the participating experts (Seeds for Change, 2010). ***Consensus decision-making*** is a problem-solving process that aims to develop solutions that are supported by all the contributors. This is in contrast to voting processes, which generate solutions that reflect and satisfy the opinions of the majority of the contributors, but not the entire group (Seeds for Change, 2010).

Nineteen experts were invited to participate in the Policy Expert Round Table; however, only 15 participants were able to attend. The final group consisted of experts from a variety of backgrounds related to disaster preparedness for older adults, including social work, education, public health or public health research, health policy, emergency management, geriatrics, and nursing. To better facilitate engagement in the topic during group discussions, all the participants were emailed a copy of the summary of evidence tables from the American systematic literature review. This gave the participants an opportunity to become familiar with the findings that were used to formulate the initial recommendations and guide any external research of their own which could later be used in discussion and amendments to the recommendations.

In August 2018, a draft of this US report was sent to all attendees of the Policy Expert Round Table, and additional experts and organizations who were not able to attend the Policy Expert Round Table. This gave all attendees another opportunity to provide final critiques of the recommendations, and all non-attendees an opportunity to contribute feedback to the recommendations. The combined contribution of the two rounds of review ultimately generated the 25 final recommendations presented in a white paper titled “Closing the Gap: Advancing Disaster Preparedness, Response and Recovery for Older Adults.”

In May 2019, the Canadian Red Cross and the National Institute on Ageing came together to host a similar Expert Policy Round Table using an identical process to adapt the initial recommendations to a Canadian context. The Round Table brought together 18 experts from a variety of fields, including social work, education, research, health policy, emergency management, geriatrics, and nursing. The Policy Expert Round Table used a consensus-based decision-making process to review and critique the existing scientific evidence that was retrieved during the scientific review, as well as the endorsed recommendations from the American Red Cross/ American Academy of Nursing Policy Expert Round Table on Emergency/Disaster Preparedness for Older Adults. Review of the recommendations by the panel led to the generation of 26 initial evidence-informed recommendations that aim to reduce the occurrence of adverse emergency-related outcomes for older adults by increasing emergency preparedness among individuals and unpaid caregivers, and leverage appropriate emergency-related resources and strategies among the remaining emergency management domains.

To begin the decision-making process, the existing issues related to emergency preparedness, and the proposed recommendations for intervention, were introduced and explained to all the participants in one large group. This gave the participants an opportunity to briefly review the methodology, a summary of evidence tables and the recommendations for intervention. The recommendations were divided into six sections based on the emergency management domains that were determined to be responsible for adopting or enforcing a given recommendation.

After reviewing the supporting documents, three rounds of breakout sessions divided the participants into smaller groups. Breakout session one was used to review the list of recommendations for individuals and unpaid caregivers, community services and programs, and health care professionals and emergency response personnel. Breakout session two was used to review the list of recommendations for care institutions and organizations, and legislation/policy. Breakout session three was used to review the list of recommendations for research. Participants were able to select which breakout session groups they wanted to be placed in by indicating their preferences during the week prior to the Policy Expert Round Table. Since there were 18 participants and six sets of recommendations, each panellist participated in one recommendation discussion per breakout session. In their discussion groups, each participant was asked to consider the following discussion questions when reviewing the recommendations:

- What issues/topics related to this area are missing from the evidence available?
- Are the current recommendations adequate to address the issues related to this area?
- What further additions/edits do you suggest to the current recommendations and why?

The goal of the research questions was to facilitate discussion regarding the feasibility of the recommendations and whether or not the proposed recommendations sufficiently addressed the current gaps in emergency preparedness, response and recovery for older adults. The time allocated to the breakout sessions was used to provide their comments and

critiques on the initial recommendations, make amendments to the initial recommendations, or propose additional recommendations that were not included in the initial draft, as well as to discuss and reach consensus on issues related to comprehension and syntax of each of the recommendations that were delegated to a specific group. A consensus was required before new recommendations were added to the list, or omissions or amendments were made to the initial recommendations. If participants reached a point of disagreement within their group, facilitators probed participants for additional comments, clarification, justification or new approaches to problem-solving in order to reach a consensus within the group.

After the participants reviewed all the recommendations in their breakout groups, the Policy Expert Round Table concluded with a final face-to-face meeting with all 18 participants. This meeting gave each breakout group an opportunity to present the final copy of their proposed recommendations drafted from the outcomes of their discussions, and also provided the participants who were not present in the remaining two groups an opportunity to discuss the feasibility of these recommendations as well. Review of the recommendations by the panel led to the generation of the 26 evidence-informed recommendations that aim to reduce the occurrence of adverse emergency related outcomes for older adults by increasing emergency preparedness among individuals and unpaid caregivers, and leverage appropriate emergency-related resources and strategies among the remaining emergency management domains.

In May 2020, given the devastating impact that the COVID-19 pandemic was having on older adults, both the CRC and NIA agreed to expand this report's focus to also include infectious disease epidemics. This led to a second phase systematic review being conducted to inform the updating of the existing recommendations and the creation of three additional ones. The report and its now 29 recommendations were circulated among the attendees of the Policy Expert Round Table, and additional experts and organizations who were not able to attend the Policy Expert Round Table in August 2019. This gave all attendees another opportunity to provide final critiques of the recommendations, and all non-attendees an opportunity to contribute feedback to the recommendations. The combined contribution of the rounds of review ultimately generated the 29 final evidence-informed expert recommendations presented in this white paper.

Domain 1: Individuals and Unpaid Caregivers

Older adults, in particular those who are living with chronic health conditions, are low-income and/or have low literacy skills, tend to disproportionately experience adverse outcomes during emergencies. There is also an opportunity for less-vulnerable older adults to play an important role in reaching out and connecting with their peers (and their unpaid caregivers) in helping them anticipate and prepare for emergencies. Older adults can best ensure their needs and concerns are represented in the emergency management space, and should be encouraged to volunteer their time before, during and after emergencies. There is a clear opportunity to develop, implement and evaluate emergency preparedness and response activities at the individual level that can better improve knowledge and recovery outcomes for older adults and their unpaid caregiver(s).

An investigation of the vulnerabilities of older adults during emergency was guided by Research **Question 1:** ***What are the factors that make older adults more vulnerable to adverse outcomes during an emergency compared to younger adults? (see Development Approach).***

The search strategies that were used yielded a combined total of 4,390 peer-reviewed journal articles, 13 of which were used along with five guidance documents for data extraction related to this specific question. The review of these 18 resources revealed that older adults who are reliant on medications, and life-sustaining or assistive devices to support their health and well-being, have an increased risk for experiencing an adverse outcome during an emergency. Older adults are also more susceptible to infectious diseases after diseases or as a result of a pandemic that may exacerbate their pre-existing health conditions. Consequently, in response to this gap, nine evidence-informed expert recommendations were developed with the aim of increasing the levels of emergency preparedness among older adults with health- and/or function-related declines, and their unpaid caregiver(s).

Recommendation 1.1

Older adults and their unpaid caregiver(s) should be provided with tailored, easy-to-access information and resources related to emergency preparedness and guidance on how to develop customized emergency plans, that consider the functional and health needs of older adults and appropriate strategies to support infection/disease prevention. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

Recommendation 1.2

Older adults who are reliant on mobility aids should remove or minimize barriers affecting their ability to evacuate, and take steps to ensure their safety within their surroundings.

Recommendation 1.3

If registries for people with functional and other needs, including persons with disabilities, have been established by local emergency response agencies, older adults and/or their unpaid caregiver(s) should register so they can be better assisted/supported during emergencies.

Recommendation 1.4:

Older adults who have a sensory impairment, such as a visual or hearing disability, should take additional precautions to prepare themselves for emergencies.

Understanding the Unique Personal and Functional Needs of Older Adults During Emergencies

An older adult's access to the support services that they require to maintain their overall quality of life and independence, such as home care and community services, can be disrupted during emergencies, or while being evacuated or sheltering-in-place. These circumstances can be further challenged by a lack of age-friendly services, a lack of accommodations for older adults at shelters, and concerns around pet safety and evacuation. Indeed, households who own pets are less likely to evacuate than those without pets. This is likely because people are concerned that they will not be evacuated with their pets, which is often cited as one of the main contributors to why people do not evacuate during emergencies (Benson, 2017; Whitehead, et al., 2000).

One of the many strategies that can be leveraged to improve emergency preparedness among older adults is to encourage self-preparedness through the provision of easy access to emergency preparedness educational materials and planning guides that are tailored to older adults. Many organizations currently provide access to online emergency preparedness resources, such as the Government of Canada's Get Prepared Campaign and the Canadian Red Cross Be Ready Campaign, which provide resources specific to a variety of emergencies and links to additional community resources (Canadian Red Cross, 2019; Government of Canada, 2015). While many of these resources aim to encourage older adults to prepare for a variety of emergencies, they do not provide solutions to overcome the unique challenges that many older adults face when preparing for, responding to, and recovering from an emergency.

To address this current gap in emergency preparedness resources for older adults, **Recommendation 1.1** aims to encourage older adults and their unpaid caregivers to access preparedness information and resources tailored for older adults, and to be particularly mindful of their functional and health-related needs when developing an emergency plan. For those organizations developing and distributing these resources, involving older adults in preparation and delivery is critical to ensuring the needs, concerns, and perspectives of older Canadians are considered (Marshall, Ryan, Robertson, Street, & Watson, 2009; Al-Rousan, Rubenstein, & Wallace , 2014). Resources should also be tailored to meet the language needs of diverse communities to increase accessibility where needed among older adults from racialized communities. Emergencies such as pandemics affect the most vulnerable groups and particularly those who experience social adversities that are exacerbated by the intersection of factors such as age, race and income (Navaranjan, Rosella, Kwong, Campitelli, & Crowcroft, 2014; Tricco, Lillie, Soobiah, Perrier, & Straus, 2013; Blackmon, et al., 2017). By making emergency preparedness information more accessible and encouraging older adults from diverse groups and their unpaid caregivers to take the initiative in evaluating their needs and developing appropriate plans to accommodate their expected challenges, this can help older

adults be more confident in their abilities to be self-reliant when responding to an emergency or provide the additional resources needed to help emergency response personnel better assist older adults with functional limitations. Older age is often associated with a decline in motor functioning which can put older adults at risk of harm if they are unable to access their daily assistive devices, such as walkers and wheelchairs, or their unpaid caregivers during an evacuation (Bhalla, Burgess, Frey, & Hardy, 2015). Health professionals such as occupational therapists can be a valuable resource in the preparation and development of an emergency plan that factors in the functional needs of older adults reliant on assistive devices. Occupational therapists can also identify and help address environmental barriers to accommodate the needs of older adults and people with disabilities in order to facilitate effective emergency preparedness (Jeong, Law, DeMatteo, Stratford, & Kim, 2016). For example, at evacuation shelters, people with disabilities require ramps wide enough to accommodate wheelchairs (American Occupation Therapy Association, 2006). In addition to functional needs, emergency plans should also reflect strategies to prevent health emergencies resulting from either a pandemic or infections following natural disasters such as floods (Kouadio, Aljunid, Kamigaki, Hammah, & Oshitani, 2012). Consequently, emergency preparedness resources for older adults should include strategies for the primary prevention of infectious disease transmission in the home (Centers for Disease Control and Prevention, 2020; Finkelstein, Prakash, Nigmatulina, McDevitt, & Larson, 2013).

However, as outlined in **Recommendation 1.2**, by preparing to overcome barriers to preparedness, such as environmental barriers that prevent successfully and timely evacuation, older adults can independently ensure that they have developed a more effective emergency evacuation plan. Strategies to address environmental barriers include installing wheelchair ramps, evacuation chairs and/or arranging for home evacuation and transportation assistance from a family member, friend, or unpaid caregiver, (Government of Canada, 2018). Allied health professionals such as occupational therapists can help adapt living spaces in order to maximize independence, safety and security, and are therefore able to plan accordingly for safe and effective evacuations (Fagan & Sabata, 2011; Stark, Landsbaum, Palmer, Somerville, & Morris, 2009).

The Potential Role of Registries for People with Functional and Other Needs, Including Persons with Disabilities

Registries for people with functional and other needs, including persons with disabilities, who live in the community are resources and data sources that have been established in many municipalities to provide emergency response agencies with a reference of the functional needs of residents in a community to allow emergency responders to better serve them. While registries can act as a resource for quickly locating persons with functional or other needs, it is not being recommended as a primary source of assistance for older adults or emergency response agencies to prepare for and respond to emergencies. This is because governments and aid agencies cannot guarantee that their assistance will be provided due to the high demands for response assistance during emergencies, which limits the availability of these services. In addition, Round Table discussion of the limitations of registries identified

that vulnerability can be event-specific, and these registries can quickly become outdated, and have proven to be sometimes ineffective at identifying individuals in their target audience because many persons avoid registering because they do not consider themselves to be vulnerable, or out of fear of the stigmas associated with being labeled as 'vulnerable persons.' There was also concern that registries often instill the incorrect assumption that persons who have registered will be provided with priority assistance during an emergency.

In reality, severe emergencies such as natural disasters and pandemics can be so resource restricting and demanding that emergency services cannot be guaranteed regardless of the severity of an individual's condition or needs. With these limitations in mind, the Round Table participants arrived at a consensus that older adults who live in municipalities that have established registries should consider registering for this service, however, establishment of these registries should not be a requirement, as stated in **Recommendation 1.3**. Instead, it is intended that **Recommendation 1.1** through **Recommendation 1.9** will facilitate sufficient self-preparedness at the individual level by providing the guidance needed to develop an emergency plan that is customized to meet the health and functional needs of an individual older adult.

Supporting Older Adults with Sensory Impairments

Vision or hearing impairments can make it challenging for older adults to safely respond during an emergency, such as when navigating their surroundings at night or in an unfamiliar environment, or being able to effectively recognize emergency warnings (Cloyd & Dyer, 2010). While many preparedness resources already recommend that persons with sensory impairments make changes to their environment or take extra precautions that will make it easier for them to protect themselves during an emergency, **Recommendation 1.4** proposes additional considerations to better prepare older adults with sensory impairments to respond to emergencies.

Older adults with hearing impairments may find it difficult to hear emergency updates, instructions or communicate in a noisy environment (Banks, 2013; Cloyd & Dyer, 2010). To better assist older adults with a hearing impairment to communicate with emergency personnel, strategies should be adopted to help notify assisting personnel of their hearing impairment as outlined in the Government of Canada's Emergency Preparedness Guide for People with Disabilities/Special Needs (Government of Canada, 2018). Strategies include moving their lips without making a sound or pointing to their ear/hearing aid. An effective strategy for notifying others of their hearing impairment will help signal to assisting personnel that they should adjust their communication approach to better accommodate persons with a hearing impairment.

Many emergency preparedness guides urge for the installation of alert devices and emergency plans that incorporate oral communication with support network members; however, these guides often neglect to provide recommendations specific to persons who are hearing impaired, and therefore may be unable to use traditional emergency devices (Government of Canada, 2018). To tailor emergency communication plans to better meet the capabilities of persons with

hearing impairments, non-verbal communication devices, such as text messages and teletypewriters should be adopted for communication. Since these communication devices do not depend on verbal communication, they can allow persons with hearing impairments to quickly and effectively contact support network members to ask for assistance, provide updates on their status and location, and better mimic everyday communication devices used by persons who are hearing impaired. Additionally, emergency plans that encourage the installation of alert devices that use lights or vibrations in addition to sound, such as bed shaker alarm devices, may be more effective at alerting persons with hearing impairments of an emergency than conventional alert devices that solely produce loud sounds when activated. Plans should also include additional batteries to power devices in case of a long-term power outage.

Persons who are visually impaired are likely to experience challenges in navigating their surroundings during an emergency, particularly in a poorly lit shelter or in unfamiliar places, which can cause them to respond more slowly to emergencies or have difficulty following guidance outlined in emergency protocols (Lamb & O'Brien, 2010). To increase preparedness and enable older adults and their unpaid caregivers to respond effectively to emergency directives assistive devices, such as mobility aids (canes, walkers), and strategies, such as, a buddy system or guide animals, should be incorporated into emergency plans. To plan for unexpected interruptions or evacuations, it is also recommended that older adults with visual impairments and/or their unpaid caregivers include alternative evacuation routes and transportation methods into their emergency plan. By tailoring their surroundings and their emergency plans to better meet their needs, older adults with sensory impairments can create a plan that will allow them to be prepared during an emergency.

Recommendation 1.5:

Older adults who live with chronic health conditions should maintain a readily accessible list of their current medical conditions, treatments (medications, durable medical equipment, supplies and other health care needs), health care providers, and emergency contacts, including substitute decision makers (SDMs).

Recommendation 1.6

Older adults who take medications should work with their health care providers to ensure they have access to at least a 30-day supply of medications during an emergency.

Recommendation 1.7

Older adults who are reliant on medical devices that require electricity, should ensure they have back-up power supplies in place, especially if required while sheltering-in-place.

- Older adults and/or their unpaid caregivers should contact their electricity company in advance to discuss their needs and ensure options for alternative power sources are available, especially addressing the need for access to power to charge cell phones and other mobile devices.
- Older adults and/or their unpaid caregivers should seek assistance with obtaining and maintaining an alternative power source at home, if required, such as when being required to move heavy equipment and fuel or in accessing these resources in rural locations, and operating equipment.

Supporting Older Adults with Chronic Health Issues

The resource-straining effects of severe emergencies continue to threaten access to resources needed to support the complex needs of older adults with chronic health conditions during an emergency. Emergencies such as natural disasters can detrimentally affect one's health by not only disrupting health services but also by creating power outages that can interrupt medical interventions that depend on electricity, such as life-supporting devices or medications that must be refrigerated during storage. During the 1998 ice storm at least 600,000 people, including older adults in long-term care institutions, were forced from their homes into hotels or other shelter with emergency power backup (Steuter-Martin & Pindera, 2018). Lack of mobility, pre-existing medical conditions, lack of heating equipment, less optimal housing conditions, and poor coordination between emergency, health and social services contributed to the high mortality rate among older Quebec residents. Older adults were at increased risk because of increasing frailty combined with social isolation among individuals (van Solm A. , 2016).

Barriers to accessing electricity and medications can be detrimental to the health of older adults due to the high prevalence of chronic health conditions, such as hypertension, high cholesterol, and diabetes within this subpopulation (National Council on Aging, 2018). **Recommendation 1.5** aims to encourage the creation and/or incorporation of a resource for incorporating an individual's medical history into their preparedness plan by encouraging older adults to prepare an outline of their medical condition(s), medical treatment(s) and their health care provider(s) and emergency contacts for their emergency kit. Having a summary of their medical history as a part of their emergency kit will help older adults minimize disruptions to their care during emergencies (Centers for Disease Control and Prevention, 2020; Kosatky, et al., 2009). In doing so, unpaid caregivers and health care providers who may be unfamiliar with their conditions will have the medical information necessary to effectively support their health needs, or continue their care in the case of a medical emergency or after relocation to a care facility or shelter.

Improving Access to Necessary Medications During Emergencies

Shortages of essential medications can often lead to an exacerbation of a pre-existing chronic medical condition. To prevent running out of medications and subsequent surges in medication refill requests during emergencies, as was experienced at the Staten Island University Hospital ED during Hurricane Sandy and at shelters during Hurricane Katrina, **Recommendation 1.6** encourages older adults to work with their health care providers to obtain access to a supply of emergency medications for their emergency kit. It is essential that older adults explore their possible options for obtaining additional supplies of medications when preparing for emergencies (Ford, Trent, & Wickizer, 2016). Retrospective reviews of medical services provided during emergencies repeatedly cite surges in medication refill requests as a leading cause of medical services (Currier , King, Wofford , Daniel, & deShazo , 2006; Greenstein, Chacko, Ardolic, & Berwald, 2016; Jhung, et al., 2007; Kraushar & Rosenberg, 2015; Ochi, Hodgson, Landeg, Mayner, & Murray,

2014). This high demand for prescription medications suggests that evacuees may benefit from reduced barriers to accessing medications during emergencies, increased education from health care professionals on the benefits of preparation through having enough medication during an emergency, or increased access to more information on how to access emergency medication supplies prior to an emergency. It is important that older adults are provided with the resources to adequately self-prepare to support their pharmaceutical needs during an emergency.

Supporting Older Adults with Electronic Life-Supporting Devices

To prevent interruptions to the supply of power to electronic life-supporting devices, as outlined in **Recommendation 1.7**, preliminary efforts should be made to contact the user's electricity company to inquire about priority service restoration during emergencies to persons who have life-supporting devices at home, as well as alternative power sources that can be safely used at home. It should be noted that older adults may require assistance with obtaining and maintaining an alternative power source at home, such as when moving a generator and fuel, as well as accessing these resources in rural locations and operating them. During these instances, support network members may be a reliable source of assistance. By establishing plans to safely, effectively, and independently support the health of an older adult who is dependent on a life-supporting device during an emergency, scenarios that can lead to deteriorating health and hospitalizations can be prevented/avoided.

Recommendation 1.8

Older adults should be encouraged to continually maintain an adequate local support network that can be called upon during impending disasters and unexpected emergencies, especially if they live alone or lack easy access to relatives.

Developing and Maintaining a Personal Support Network

Having a support network can greatly aid older adults by providing the emotional and material resources they need to reduce the stress of preparing for and surviving an emergency. Many older adults live without a spouse or a family member, and are more susceptible to social isolation and/or dependent on unpaid caregivers for assistance (Gibson & Hayunga, 2006). Dependence on the assistance of unpaid caregivers is so prevalent among older adults that 90 per cent of adults who are 65 years or older and living with a disability who report receiving assistance are supported by unpaid caregivers, (Gibson & Hayunga, 2006) while approximately 50 per cent of adults who are 85 years or older report living alone (Fernandez, Byard, Lin, Benson, & Barbera, 2002). An emergency can leave those that rely on daily assistance stranded and unable to care for themselves if rescuers and their unpaid caregiver(s) cannot reach them.

To reduce the negative impacts of social isolation, **Recommendation 1.8** advises all older adults to establish a support network they can depend on for assistance in preparing for and responding to all emergencies relevant to their region. Support networks act as protective factors against emergency events, especially among seniors. According to a study done in Quebec, a well-established social network benefits older

adults' overall health during extreme heat events (Laverdiere, et al., 2016). For older adults with chronic health conditions, each member of their support network should be able to provide basic support for their health, such as access to their medication list, and should have the knowledge needed to identify and operate all required medical equipment. It is intended that by being able to provide basic support, support network members will be able to work together with the person they are caring for to provide the assistance needed to prevent interruptions to their medical care and avoid hospitalizations. It is also important that their support network consist of at least two people who live in close proximity to them because this will enable members to provide assistance within minutes, which will prevent prolonged periods of being incapacitated or stranded.

Recommendation 1.9

Unpaid caregivers of persons with Alzheimer's disease and/or other dementias should be supported to identify signs of distress, anxiety, or confusion, and use strategies to redirect attention and help them stay calm during emergencies. In addition, unpaid caregivers should be prepared to prevent wandering and have plans in place to locate their care recipients if they do wander or require medical intervention(s) during an emergency.

Supporting the Unique Needs of Older Adults Living with Dementia

A decline in working memory and an impaired ability to filter out irrelevant information are two changes in cognitive function associated with Alzheimer's disease and related dementias (ADRD). These changes can impede the more than 500,000 older Canadians living with Alzheimer's disease and related dementias from identifying a disaster situation, following emergency preparedness recommendations, adapting to changes in their routine and environment, or following emergency warnings and instructions (Alzheimer Society of Canada, 2019; Alzheimer Society of Canada, 2018). In addition, new behavioural problems can arise, existing behaviours can become exacerbated, or function can deteriorate rapidly, if there are interruptions to the administration of dementia-related medications (Cloyd & Dyer, 2010). Re-establishing routines and valued occupations can also help disaster survivors cope with stress and anxiety (American Occupation Therapy Association, 2006).

Dementia can also be compounded by the occurrence of delirium. Delirium is a state of confusion that comes on suddenly and is characterized by an inability to think clearly and pay attention, as well as an unawareness of one's environment (American Delirium Society, 2015). The most common causes of delirium include infection, medications, electrolyte or blood sugar disturbances, hypoxemia, and low blood pressure (Cloyd & Dyer, 2010).

Since individuals with more advanced dementias require daily assistance to help them perform their activities of daily living (ADLs) and protect them from dangers, it is necessary that their unpaid caregiver(s) be educated about the unique precautions that should be taken to reduce the occurrence of adverse behaviors and outcomes for the person they are caring for during an emergency. In particular, unpaid caregivers should receive education and support

on addressing distress, anxiety, wandering, and confusion; approaches such as validation and gentle persuasion to address moments of agitation; how to communicate with and soothe older adults living with ADRD when they are in crisis; and methods of communication that aid in orientation and memory retention. Comfort Keepers of Canada is an organization that provides home care for older adults. Due to its vast experience with seniors suffering from dementia, Comfort Keepers of Canada suggests tips on how to prevent older adults with dementia from wandering which also include maintaining a calm and stress-free environment, especially during an emergency. With the help of health care professionals, caregivers can be better equipped to provide care during an emergency. For example, nurses, therapists and social workers can all provide interventions that take the form of education, training, and support for caregivers of persons with dementia. These interventions can include behaviour management strategies, communication skills, cognitive reframing, and mindfulness techniques that have been shown to greatly increase a caregiver's ability to care for their loved ones (Etters, Goodall, & Harrison, 2008; Piersol, et al., 2017; Sorensen, Pinquart, Habil, & Duberstein, 2002). Further, emergencies such as infectious disease pandemics can present unique challenges for unpaid caregivers. It is important for unpaid caregivers of older adults with Alzheimer's or advanced dementia to stay abreast of any relevant information regarding the pandemic and use strategies that can protect themselves and the older adult (Centers for Disease Control and Prevention, 2020).

As an additional precaution, unpaid caregivers should register their care recipient for an emergency response service for persons with ADRD (Dyer, Regev, Burnett, Fest, & Cloyd, 2008), such as the *Medic Alert Safely* Home program, to provide emergency response assistance if their care recipient wanders away.

Domain 2: Community-Based Services and Programs

Community-based organizations and their staff are likely to be engaged in response and recovery efforts for older adults and their unpaid caregivers, depending on the level to which their services and programs support older adults and their unpaid caregivers. Therefore, a clear opportunity exists to develop, implement and evaluate preparedness and response activities for Community-Based Services and Programs that can better facilitate knowledge translation and exchange within the community and increase levels of preparedness, response and recovery efforts and outcomes among designated populations and those personnel that have the responsibility to support them.

An investigation of existing community-based resources that can contribute to improving emergency preparedness, response and recovery outcomes for older adults was guided by Research **Question 2:** ***What are the strategies and resources that can be leveraged at the community and progam levels to improve emgergency (natural disaster or pandemic) preparedness for older adults? (see Development Approach).***

The search strategies that were used yielded a combined total of 4,390 peer-reviewed journal articles, five of which were used along with eight guidance documents for data extraction related to this specific question. The findings from these resources identified that there is a greater need for seniors-tailored community-integrated preparedness and response services to encourage and facilitate increased levels of preparedness and support recovery. Consequently, in response to this gap, four evidence-informed expert recommendations were developed with the aim of addressing identified opportunities noted for community-based services and programs to better support emergency preparedness and response.

Recommendation 2.1

Access should be increased to tailored community-based programs that educate older adults and their unpaid caregivers about emergencies that could affect their region and how best to prepare for and respond to them. Volunteer representatives of older Canadians should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

- Community-based programs and organizations should collaborate with regional public health authorities in developing and disseminating education resources on infection control, disease and injury prevention practices for older adults and their caregivers during emergencies.

Improving Community-Based Emergency Preparedness Educational Programs

Many of the adverse outcomes that older adults face during and after an emergency can be avoided by simply being informed about the dangers associated with the emergency that could affect their region, the appropriate precautions they should take to keep themselves safe, and adopting behavioural changes that facilitate adequate self-preparedness. When interviewed about their self-perceived preparedness for emergencies, older adults have been found to report low levels of preparedness. In a study that investigated nation-wide preparedness of older adults, 23.6% of the 1,304 participants interviewed reported that they had an emergency evacuation plan, 24.8% did not have access to a car or other form of transportation in case of an emergency, and

only 4.9% reported that at least one of their health care providers had discussed what to do during an emergency with them (Al-Rousan, Rubenstein, & Wallace , 2014).

Another study was conducted by Marshall, Ryan, Robertson, Street and Watson to measure community knowledge about and attitudes toward the threat of a pandemic influenza as well as community acceptability of strategies to reduce its effect (Marshall, Ryan, Robertson, Street, & Watson, 2009). Computer-aided telephone interviews were conducted with a cross-sectional sample of rural and metropolitan residents of South Australia among 1,975 households. Of those who responded, 50% indicated that they had never heard of a pandemic influenza or were unaware of its meaning. Only 10% were extremely concerned about the threat of a pandemic influenza (Marshall, Ryan, Robertson, Street, & Watson, 2009). Despite the widespread publicity regarding influenza and advocacy to build a base level of awareness and understanding among the population, it was found that the majority of adults in the community, particularly older adults, were unaware of the possibility of a pandemic influenza strain (Marshall, Ryan, Robertson, Street, & Watson, 2009).

To increase the low levels of emergency preparedness found in the general public, community-based emergency preparedness training courses have been piloted and found to be effective tools for encouraging behavioral change. For example, in the United States, PrepWise is a disaster preparedness program designed to assist older adults in developing a tailored home-based disaster preparedness plan (Catizone, 2017). During the training sessions, the participants were guided through seven learning modules: (1) knowing types of emergencies and what to do, (2) vulnerability assessment (alerts/warnings, evacuations, transportation, communication, sheltering, personal care, and medical care and equipment), (3) developing a personal emergency support network (formal list of family/friends and local community members), (4) making an emergency plan, (5) keeping a supply of medications, (6) making an emergency supply kit, and (7) making home, school, work, and car travel safer (Ashida, Robinson, Gay, Slagel, & Ramirez, 2017). Upon follow up, it was reported that enrolment in the PrepWise program led to a greater understanding of disaster preparedness requirements, such as preparing an emergency kit and designating alternative shelters to be used in the event of an emergency (Ashida, Robinson, Gay, & Ramirez, 2016; Ashida, Robinson, Gay, Slagel, & Ramirez, 2017). The PrepWise program was also found to encourage participants to seek out additional emergency support network members to whom they could turn to for help, in addition to family members most participants had identified prior to being enrolled in PrepWise (Ashida, Robinson, Gay, Slagel, & Ramirez, 2017).

Similar successes in using community-based emergency preparedness training sessions were also found with the Ready CDC disaster preparedness education program, which was designed to increase knowledge, influence attitudes and strengthen community resiliency. Ready CDC uses the following tactics: (1) gain attention, (2) present stimulus material, (3) provide learning guidance, (4) elicit performance and provide feedback, and (5) enhance retention and transfer to facilitate behavioural change (Thomas, et al., 2018). When levels of behavioural

change through the Trans-Theoretical Model (TTM) were evaluated within a sample of 212 CDC staff and public health employees who had completed the Ready CDC disaster preparedness education program, 44 per cent of enrollees progressed to at least one stage higher or remained at the "maintenance" stage for assembling an emergency kit, and 45 per cent of participants progressed to at least one stage higher or remained at the "maintenance" stage for developing a written emergency plan (Thomas, et al., 2018). In addition, during follow up, the 25 per cent, 27 per cent, and 43 per cent of participants in the "pre-contemplation", "contemplation", and "preparation" stages at baseline for assembling an emergency kit, respectively, were identified as having progressed to the "preparation" stage (Thomas, et al., 2018).

These results suggest that community-based emergency preparedness sessions are effective methods for conveying emergency preparedness information to the public and facilitating behavioural change. **Recommendation 2.1** outlines a strategy for the development of nation-wide community-based emergency preparedness education programs for older adults. The program's content should include, but not be limited to, modules about the different types of natural and man-made disasters that affect a given region, the effects and associated dangers of these disasters, as well as guidance and participatory learning on how to perform a personal vulnerability assessment, how to make an emergency plan and kit, the importance of developing and maintaining a social support network, and strategies and resources to aid recovery. For those organizations developing and distributing these materials, involving older adults and local public health authorities in the preparation and delivery is critical to ensuring the needs, concerns, and perspectives of older Canadians are considered. Engaging with local public health authorities will provide another layer of expertise and infrastructure in the development and evaluation of health interventions to mitigate negative health outcomes. In Canada, the University of Manitoba, along with the Natural Resources Institute, arranged a workshop for practitioners in risk and hazard management titled Canadian Risks and Hazards in 2004. The organizers believed that a workshop titled around disaster management or emergency management would not attract the wide range of participants that they desired because those fields may be perceived to be too narrow in focus (Public Safety and Emergency Preparedness Canada, 2004). This issue emphasizes the lack of community knowledge on the connection between hazards, risks, disasters, and preparedness in Canada.

Community-based emergency preparedness programs should aim to achieve accessibility for persons with lower literacy skills, non-English speakers and Indigenous seniors, and the incorporation of age-friendly considerations into its structure, such as appropriate visuals, and distribution of emergency kits that are easy to transport, if applicable. Community-based emergency preparedness training classes that have been adapted to address the unique needs of older adults should maximize the positive impact they have among older adults.

Recommendation 2.2

Programs that provide disaster relief and/or essential community services, such as Meals on Wheels, and daily living assistance for older

people (financial, medical, personal care, food and transportation) should receive emergency preparedness training and education as well as develop and adhere to plans and protocols related to responding adequately to the needs of their clients during emergencies. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

Better Leveraging Community Support Services to Aid in Emergency Response Efforts

Community-accessible resources have been found to be associated with facilitating higher levels of preparedness among older adults. In a 2017 study that examined the socio-demographic factors that influence levels of emergency preparedness among persons 50 years and older, participants who discussed emergency plans with their physician were more likely to be prepared than older adults who did not (Killian, Moon, McNeill, Garrison, & Moxley, 2017). Similar to physician visits, community agencies and programs that have a significant proportion of older users could act as an accessible portal for encouraging older adults to access emergency preparedness and recovery aids and services. **Recommendation 2.2** highlights need for community services and programs to receive emergency preparedness training and education to provide appropriate supports for older adults (Centers for Disease Control, 2020).

An additional benefit to incorporating emergency preparedness and recovery efforts into the scope of services provided by community agencies and programs, as well as managers of housing for older adults, is the additional social support that these resources can provide. One Canadian study suggested that leveraging interRAI assessment databases to identify at-risk and vulnerable older adults who are more likely to experience negative outcomes as the result of an emergency could benefit them in all phases of emergency management. InterRAI is a collaborative network of researchers that develops tools with common metrics for clinicians to assess patients. InterRAI tools are now used across Canada and around the world in a variety of settings, including home and community care (van Solm, Hirdes, Eckel, Heckman, & Bigelow, 2017). Leveraging this data could support community service agencies to identify and prioritize older adults who are most at risk of negative outcomes after an emergency. Similarly, to facilitate a holistic recovery, community and local government services could provide further social support, in addition to tangible resources, particularly for older adults who have been identified as having limited or no social support.

Recommendation 2.3

Community-based programs that provide in-home health and personal care for older adults should integrate strategies that minimize unnecessary personal contact and leverage resources (e.g. personal protective equipment such as gowns, masks, gloves, hand sanitizer, etc.) in their emergency preparedness plans and protocols.

Enabling community-based programs to provide safe in-home supports for older adults during emergencies

Many older adults, particularly those who reside at home, are the recipients of community-based in-home services that are medical and/

or supportive but non-medical in nature. Older adults with complex and often interrelated medical and social comorbidities often rely on these services in their day-to-day life. Emergencies as a result of a natural disaster or pandemic can lead to the disruptions in the delivery of in-home services for older adults as was seen during the COVID-19 global pandemic. The COVID-19 pandemic presented new challenges for care teams that provide in-home services for older adults as emergency protocols were needed to ensure minimal risk for the transfer and spread of the virus. Enabling community-based programs to provide safe in-home care during emergencies can minimize the risk of service interruptions and thereby any impact on older adults.

Recommendation 2.3 notes the importance of community-based programs that provide in-home supports leveraging strategies that require minimal personal contact or the use of resources such as personal protective equipment in emergency preparedness. Emergencies such as pandemics and natural disasters both present new challenges with infection control where new pathogens continually emerge. In the event of a pandemic, hygiene and the use of personal protective equipment are seen as two important lines of defense (Bloomfield, Exner, Carlo, Nath, & Scott, 2012). For instance, during the COVID-19 pandemic several best practice guidelines in the use of personal protective equipment were developed and promoted by Infection Prevention and Control Canada (IPAC) (Infection Prevention and Control, 2020), Ontario Health (Ontario Health, 2020) and the World Health Organization (World Health Organization, 2020). Evidence showed that the virus was transmitted between people through droplets and close contact. Many of the recommendations outlined were updated to support health care and other organizations decision-making around the use of PPE and PPE conservation to minimize shortages.

Where contact is required, best practice guidelines recommend the use of preventive measures such as maintaining physical distance and performing hand hygiene frequently with an alcohol based hand rub. The International Scientific Forum on Home Hygiene developed a risk-based approach to hygiene that breaks down the chain of infection transmission while addressing other risk factors. An individual's hands and other environmental sites and surfaces are all a part of the chain of transmission that, if understood, can highlight areas where hygiene based interventions can be used to stop transmission (Bloomfield, Exner, Carlo, Nath, & Scott, 2012). Promoting proper hand hygiene (Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee, 2014) and proper environmental cleaning (Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee, 2018) in-home and community care settings can minimize the risk of infectious disease transmission. Other strategies that can be used by Home and Community Care providers include screening for both provides and clients in addition to wearing the necessary protective equipment while providing in home support. The Ontario Ministry of Health provided clear guidance on steps to take (Ontario Ministry of Health, 2020; Ontario Ministry of Health, 2020).

Other strategies that emerged during the COVID-19 pandemic included an increased use

of virtual care through telehealth, telemedicine and other virtual platforms. Virtual care programs were expanded during the COVID-19 pandemic to enable care providers in acute hospital care settings to provide new consults and follow-up appointments for their patients (Stamenova, et al., 2020). Acute care physical therapy, occupational therapy, and speech-language pathology telehealth strategies can add value by mitigating COVID-19-related harm and influencing recovery (Exum, et al.).

Recommendation 2.4

Local governments should leverage data sources that identify at-risk individuals to enable emergency responders to more easily prioritize their search and rescue efforts following an emergency.

Enabling the Development of Repositories of Data Sources to Support Local Government Emergency Response Efforts

During the panel discussion, experts recognized that while many registries of people with functional needs, including persons with disabilities, exist for and are easily accessible to municipal authorities, they can be difficult for territorial and provincial authorities to access. To increase the efficiency and identification of at-risk persons by emergency response personnel, it is recommended that local governments create a repository of their data sources. The establishment of a repository of data sources will act as a singular, easy-to-access reference to facilitate a fast-integrated response from neighbouring provincial or federal emergency services. For example, it is intended that providing all national and local aid agencies with a repository of data sources, such as available registries, will help to facilitate the cooperation of different aid agencies to provide the workforce needed to assist with evacuations, distribute emergency supplies and provide medical care.

Domain 3: Health Care Professionals and Emergency Response Personnel

Response and recovery efforts for older adults can vary, depending on the level of training emergency health care professionals, emergency response personnel and other potential first responders receive. Health care professionals indeed play a critical role in emergency preparedness and response because they are often the first point of contact for health-related guidance and care.

An investigation of the levels of emergency related competency for health care providers and emergency response personnel was guided by **Research Question 3:** ***What are the strategies and resources that can be leveraged to improve emergency response among health care professionals and emergency response personnel during and after an emergency (natural disaster or pandemic)? (see Development Approach).***

The search strategies that were used yielded a combined total of 4,390 peer-reviewed journal articles, 12 of which were used along with two guidance documents for data extraction related to this specific question. The review of these 14 resources revealed that some health care professionals feel insufficiently prepared to provide appropriate care for older adults during emergencies such as natural disasters. Further, more efforts can be made to increase awareness of precautions for infectious disease spread and control during emergencies. To address the gaps, three evidence-informed expert recommendations were developed with the aim of augmenting training for health care professionals and emergency response personnel to include additional culturally-aware considerations for assisting and caring for older patients and residents during and after an emergency.

Recommendation 3.1

Health care professionals and emergency response personnel should receive training on providing geriatric care relevant to their discipline and how best to assist older adults and their unpaid caregivers before, during and after emergencies. The additional education and training should also increase their awareness of best practices and precautions to minimize the risk of infectious disease transmission or spread while responding to emergencies. Volunteer representatives of older Canadians should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.

Improving the Knowledge and Skills of Health Care Professionals in Geriatric and Emergency Health Care Principles

Obtaining training in geriatric care is essential to ensuring that health care professionals are aware of the unique needs of older adults and how best to assist them, particularly during situations when they may be required to provide care during an emergency. In a report by Karen V. Lamb (2010), An Overview: Disaster Preparedness for Gerontological Nurses, the author identifies that cognitive impairment associated with dementias can be exacerbated during an emergency and produce feelings of confusion and delirium (Lamb & O'Brien, 2010). A Canadian study on nurses' experiences with emergency management strongly recommends more extensive curricula in nurses' training on how to provide better assistance during an emergency (Kulig, et al., 2017). It is recommended that health care providers and emergency response personnel be knowledgeable about how best to assist older adults in these situations. Using a multi-modal approach to

education can be effective in improving the knowledge, confidence and skills of health care professionals to respond to emergency situations (Pesiridis, Galanis, Sourtzi, & Kalokairinou, 2014; Roush & Tyson, 2012; Scott, Carson, & Greenwell, 2010). Lamb also emphasizes the need for nurses to be aware of the risks of providing care during a disaster (Lamb & O'Brien, 2010). Treatment can become a challenge because there is a possibility that medical records or resources, such as medications, oxygen, and dialysis, may not be available (Lamb & O'Brien, 2010). When combined with stress, limits to basic supplies, medications, and extreme changes in surroundings and temperature (Lamb & O'Brien, 2010), emergency situations can greatly exacerbate medical conditions and limit access to care interventions (Ardalan, et al., 2010).

Considering that 80 per cent of older adults have at least one chronic health condition requiring medication and sometimes medical equipment, medical providers should be knowledgeable about alternative and effective methods for managing chronic conditions, and how to play an active role in emergency preparedness planning strategies at their local shelter or other temporary emergency care facilities (Bhalla, Burgess, Frey, & Hardy, 2015; Byrd, 2010). Therefore, emergency response personnel should be knowledgeable about conditions that are more likely to affect older adults, and how to effectively interact with or assist persons also living with dementia if they become agitated, confused, and anxious or wander away.

Strengthening health care professionals' and emergency response personnel's knowledge of infection control practices can also support the provision of safe care to older adults in times of emergencies. The prolonged impact of natural disasters on a community can lead to the collapse of health facilities and health care systems, or disruptions in health programs (Kouadio, Aljunid, Kamigaki, Hammah, & Oshitani, 2012). Improved training for health care providers and emergency response personnel in infection control practices and increased awareness of best practices that can be used across all settings (Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee, 2012; Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee, 2012).

Recommendation 3.2

Health care professionals and emergency response personnel should strive to mitigate negative outcomes among older adults during and after emergencies by adopting effective strategies designed to protect the physical and mental health of the older adults they may come in contact with. Strategies can include assessing the psychological well-being of older adults for signs of distress and providing appropriate treatments or referrals as needed.

Better Addressing the Mental Health Needs of Older Adults During Emergencies

While there is a preconceived notion that older adults are more emotionally fragile than younger adults, there are mixed reports about an existing difference in the incidence of psychological distress among older adults compared to younger adults following an emergency, which has indicated that older age may be a protective factor.

When investigating potential differences between older adults and younger adults in the onset of psychological disorders following natural and

man-made disasters, anxiety and depressive symptoms have been found to not have a significant difference in incidence rates among older adults compared to younger adults (Parker, et al., 2016; Siskind, et al., 2016). However, differences were found in the incidence of post-traumatic stress disorder (PTSD). In a 2016 study conducted by Parker and colleagues, PTSD was found to have a significantly greater incidence among older adults compared to younger adults. Similar results were also found by Jia and colleagues (2010), who reported a greater prevalence of PTSD symptoms among a sample of survivors of the 2008 Sichuan earthquake (Jia, et al., 2010). Conversely, Siskind and colleagues (2016) found that older adults were 2.85 times less likely to experience PTSD symptoms compared to younger adults in a meta-analysis of the mental health outcomes of older adults following human-induced disasters (Siskind, et al., 2016). However, differences in the onset of psychological distress among persons of different socio-demographic statuses have also been reported. Obtaining less than a high school education and/or a bachelor's degree, being unemployed or becoming unemployed due to a disaster, living in social isolation, or witnessing three or more events associated with a disaster were associated with a greater likelihood of developing PTSD (Blackmon, et al., 2017; Ruskin, et al., 2018; Welch, et al., 2016).

A study was conducted by Cheung, Chau and Yip (2008) to assess the impact of the 2003 SARS outbreak on suicide rates in Hong Kong. The study used suicide statistics for the period 1993-2004 and compared the profile of older adult suicide cases in the pre-SARS, peri-SARS and post-SARS periods. Results from the study showed an excess of older adults suicides in April 2003 as compared to the month of April of the other years. Results were consistent with a year over year comparison, as older adult's suicide rates in 2003 and 2004 were significantly higher than that in 2002, suggesting that the suicide rate did not return to the level before the SARS epidemic (Cheung, Chau, & Yip, 2008). Cheung, Chau and Yip speculated that the spike in older adult suicide rates could be because of loneliness and disconnectedness among the older adults in the community. As such, maintaining and enhancing mental wellbeing of the public over the period of an epidemic is arguably just as important as curbing the spread of the disease (Cheung, Chau, & Yip, 2008).

A historical gap in emergency management has been the prevention and/or treatment of psychological effects that survivors experienced during and after an emergency. During flooding in Quebec in 2017, one of the most widespread challenges among survivors was psychological distress, with 25% of individuals encountered by officials exhibiting symptoms (CBC News, 2017). Training of responders in psychological first aid could also assist in thoughtful and compassionate handling of older adults during response and into recovery (Ardalan, et al., 2010).

Overall, while findings suggest that extensive additional resources do not need to be directed towards protecting the psychological well-being of older adults during emergencies, it is still recommended that health care professionals and emergency response personnel make greater efforts to assess the psychological well-being of older adults during and after an emergency and provide appropriate treatments in order to provide early interventions for the existing proportion of older adults that do develop a psychological disorder. Greater emphasis should also be given

to assessing the psychological well-being of older adults who satisfy at least one of the many socio-demographic factors that have been linked to a greater likelihood of developing a psychological disorder during or after an emergency. An example of how to achieve this will be to increase older individuals' access to services provided by counsellors, occupational therapy and social workers post-emergency, as they can play a role in addressing the resulting psychological distress by providing education and training in coping skills using a community-based rehabilitation approach (Jeong, Law, DeMatteo, Stratford, & Kim, 2016).

Recommendation 3.3

Health care professionals and emergency response personnel should receive cultural awareness training to provide appropriate care and support for older adults with different cultural and religious backgrounds before, during, and after an emergency. Providers should have options for providing support to older adults and their unpaid caregivers who face language or cultural barriers to accessing supports (e.g., translators, written materials in languages other than English or French, etc.). This is of particular importance for personnel that work with Indigenous populations, in diverse community-settings and during times of evacuation due to emergencies.

Cultural awareness and training for health care professionals and emergency response personnel is a key tenet to ensuring older adults with different cultural and religious backgrounds receive appropriate care and support before, during and after an emergency (James, Hawkins, & Rowel, 2007). The Aboriginal Nurses Association of Canada (2009), the Canadian Agency for Drugs and Technologies in Health (2018), the Canadian Association of Occupational Therapists (2011) and the College of Nurses of Ontario (2019) have developed cultural awareness and cultural safety guidance for health providers that could be considered in this regard.

In 2012, Dr. Samir Sinha delivered a report to the Ontario Ministry of Health and Long-Term Care, Living Longer, Living Well, in which he identified that many health, social and community care providers were unaware of the cultural needs, health and social conditions and services that may or may not be available locally to support older Indigenous adults. In the province of Ontario, as the prevalence rates for having three or more chronic conditions are higher for the Indigenous population as compared to the non-Indigenous population, it is understandable why Indigenous people rely disproportionately on the need for emergency care, and are more likely to self-report having "poor" or "fair" health (Sinha, 2012). As a result, a key recommendation of the report was to promote the development of cultural competency training for all health, social and community services providers working with older Indigenous populations.

Some professional associations have taken other approaches to increase the degree of cultural awareness in care settings by building capacity in communities experiencing vulnerabilities to participate in care delivery. For instance, the Canadian Association of Schools of Nursing (CASN), the Aboriginal Nurses Association of Canada (ANAC) and the Canadian Nurses Association (CNA), in collaboration with nursing schools across Canada, actively promoted the recruitment of First Nations, Inuit and Métis people into nursing programs and enabled them

to complete these programs by removing barriers, such as finances, and building structures of support (Hart-Wasekeesikaw, 2009). Increasing the number of First Nation, Inuit and Métis nurses facilitates improved access to culturally safe and appropriate care for Indigenous people. This collaboration with the CASN, ANAC and the CNA also aimed to integrate principles of cultural competence and cultural safety into curricula for all nursing students that instill an understanding of the historical and contemporary contexts of Indigenous communities (Hart-Wasekeesikaw, 2009).

In 2018, the Canadian Association of Occupational Therapists released a position statement highlighting the role of occupational therapy in Indigenous health. Its purpose is "to enable occupational therapists to provide effective, respectful, culturally safe, and collaborative services with First Nation, Inuit, and Métis persons, families, communities, and nations". A fundamental recommendation from this report is to develop partnerships and alliances in order to best provide space for Indigenous worldviews, knowledge and self-determination, in recognizing that moving forward is a shared responsibility (Canadian Association of Occupational Therapists, 2011).

Within Indigenous communities, providers and personnel providing preparedness, response and recovery support need to consider and acknowledge the history as well as the knowledge, beliefs and perspectives about emergency preparedness held in Indigenous communities. Within the context of preparing for an emergency, recognizing the role of Indigenous older adults as community leaders and designing inclusive preparedness education activities that acknowledges and leverages their important role within community is important to successful emergency preparedness. In addition, developing preparedness materials that address additional traditional and ceremonial items that would be taken from the home in an evacuation, such as medicine pouches, eagle feathers, and sweet grass can also help to support Indigenous older adults to prepare for an emergency.

When responding to an emergency, response personnel should develop an awareness that certain operational procedures have been observed to trigger trauma in some older Indigenous adults who survived the residential school system, the 60s Scoop and other traumatic episodes. Procedures that trigger these traumas should be replaced with culturally safe practices. In addition to how Indigenous communities are evacuated, it is equally important to recognize that many Indigenous older adults live with family members, and evacuating within the kin system is important. Separation from family and unpaid caregivers can be especially challenging.

When recovering from an emergency, personnel should create space to acknowledge and grieve the cultural losses associated with evacuation, and provide activities that maintain a connection to home communities (e.g. sweat lodge, smudging ceremony, dancing/singing/sewing activities for children).

Domain 4: Care Institutions and Organizations

Care institutions and organizations that are responsible for the livelihood of their residents or patients during an emergency must make decisions that will support the health and well-being of their residents/patients. During emergencies such institutions and organizations should, for example, know when it is appropriate to evacuate or shelter-in-place and what to do in each case.

An evaluation of the quality and levels of emergency preparedness within care institutions and organizations was guided by **Research Question 4: *What are the strategies and resources that can be leveraged at the organizational or institutional level to improve emergency (natural disaster or pandemic) preparedness and recovery efforts for older adults? (see Development Approach).***

The search strategies that were used yielded a combined total of 4,390 peer-reviewed journal articles, 17 of which were used along with nine guidance documents for data extraction related to this specific question. A review of these 26 resources revealed that greater action can be taken to prevent threats to an older patient's/resident's health that can arise when severe emergencies disrupt the operations at care institutions and organizations, as well as patient handoff procedures. Consequently, in response to this gap, three evidence-informed expert recommendations were developed with the aims of increasing the levels of emergency preparedness knowledge among health care providers and care facility staff, as well as better facilitating effective patient hand-off during an emergency.

Recommendation 4.1

Care institutions and organizations should include emergency preparedness and response education in their routine personnel training courses.

- Multi-modality educational tools and practices should be used to better facilitate knowledge acquisition and behavioral change.
- Volunteer representatives of older Canadians should be recruited and involved in developing and disseminating resources and training material, to ensure their voices and perspectives are reflected.

A 2012 study by Roush and Tyson that assessed the knowledge of emergency preparedness among nurses enrolled in a community-accessible emergency preparedness workshop, many of whom were employed at a nursing home, found that the majority of participants had no formal emergency planning and response training and many reported low or no proficiency ratings in emergency preparedness knowledge (28%). After completion of the workshop, the proficiency ratings increased to 76% and the majority of participants reported that they planned on including portions of the content from the workshop into courses for students, colleagues and/or patients (Roush & Tyson, 2012). Findings from this and other studies suggest that some health care providers working within and outside of a geriatric health care setting would benefit from additional training in their knowledge of how to respond to emergencies and care for older adults during these times (Lamb & O'Brien, 2010).

To address this gap in education and improve disaster management in hospitals, the New York City Department of Health and Mental Hygiene (NYC DOHMH) developed the Elderly Populations in Disasters: Hospital Guidelines

for Geriatric Preparedness toolkit (Ahronheim, Arquilla, & Gambale Greene, 2009). The toolkit outlines training in geriatric care for health care professionals that includes guidelines for managing geriatric patients, common age-related misdiagnoses, when to obtain a geriatric medicine consultation and appropriate dosages for common psychiatric medication for frail elderly, as well as the development of reference charts to help make appropriate medical assessments for older adults during emergencies (Ahronheim, Arquilla, & Gambale Greene, 2009). Given that this toolkit provides a focus on geriatric-specific care needs to hospitals aiming to address a variety of circumstances common among older adults during emergencies, it may be beneficial for all care institutions and organizations to develop similar emergency toolkits based on the services that their organization provides. Health care professionals can collaborate to create an interprofessional toolkit that integrates different care approaches for older adults informed by each discipline. For example, nurse professionals and therapists can apply the integrated theory of health behavior change to develop education curricula that foster knowledge and improve health outcomes among older adults (Ryan, 2009). Further, adult learning theories are at the core of the training received by physical and occupational therapists. They practice client-centeredness, which tailors responses to be primarily focused on their client needs' (Papadimitriou & Carpenter, 2013). Building resources through interprofessional and collaborative approaches can enable more efficient care and response to the needs of older adults during emergencies.

Advanced education and certification courses in emergency and disaster preparedness management in Canada are small; in 2004, there were fewer than 10 people who were both practitioners and academics in the field of emergency management (Public Safety and Emergency Preparedness Canada, 2004). The growth of emergency preparedness or management education was a gap identified by the Round Table attendees that was attributed, in part, to the absence of a lead entity that could advocate for the importance of this education across the country. Each province has adopted a different approach to education and credentialing around emergency preparedness/management, which has had an unfortunate effect of reducing cooperation and coordination. To solve this problem, Public Safety and Emergency Preparedness Canada initiated a federal/provincial/territorial working group to address the education requirements for Canadian emergency managers. Additionally, the United Nations Office for Disaster Risk Reduction has published the Global Assessment Report on Disaster Risk Reduction (DRR), which highlights the need for disaster risk reduction strategies to improve emergency and disaster preparedness, response and recovery efforts in the future, and outlines the required credentials and academic needs to foster future DRR professional expertise. **Recommendation 4.1** addresses the need for institutions to include emergency preparedness and response training delivered through a multimodal platform.

When teaching health care providers and hospital-based staff about emergency preparedness, multi-modality teaching methods have been found to be an effective tool. A 2016 study by Collander and colleagues examined the efficiency of a multi-modality disaster preparedness training course for hospital-based health care providers,

called Hospital Disaster Life Support (HDLS) (Collander, et al., 2008). The program was taught using lectures, disaster exercises (pneumonia and bomb simulations), skills sessions and tabletop sessions. Upon assessment of the participants' changes in knowledge acquisition and behaviours related to emergency preparedness, the results of a 1 to 5-point Likert scale, with 5 being the most favorable, showed that the mean response was 4.24. Comparisons of pre- and post-test scores revealed that all participants significantly improved their mean pre-test and post-test scores for emergency preparedness knowledge, the mean test score was 89.5% for the group.

Recommendation 4.2

Additional strategies to improve the collection and transfer of identifying information and medical histories should be adopted into current standardized patient handoff procedures to better facilitate effective tracking, relocation and care of patients during an emergency.

Improving Transitions of Care for Patients During Emergencies

In the US, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires all facilities to have a standardized approach to patient hand-off procedures, which adequately supports communication between providers when patients are transported for diagnostic testing or procedures (Nursing, 2006). Similarly, in Canada, health care facilities typically have policies related to patient-hand off that enables communication between providers when patients are being transported. There are other patient transport policies that are specific to certain patient populations, such as Critical Care Services Ontario's Life or Limb Policy, developed through a collaboration among Critical Care Services Ontario, CritiCall Ontario, Local Health Integration Networks, Emergency Medical Services and several Hospital Administrators (Ministry of Health and Long-Term Care, 2013). The policy ensures that life or limb threatened patients, i.e. a patient at risk of losing their life or limb, receives care within a 4 hour window and clearly outlines the procedures that are to be followed when patients are being transported. Within the implementation guide are CritiCall Ontario's five step switchboard processes that start when CritiCall Ontario calls hospital switchboards in order to process a referral for a life or limb case, and ends when hospitals implement their Critical Care Surge Capacity Management Plan to reserve a bed and allow for patient transfer. This streamlined process ensures quick communication between physicians and prompt patient transfer. Though these policies are not specifically geared towards natural disasters, it provides a framework that can be operationalized to minimize harm and errors should patients need to be transported urgently during critical periods.

However, additional tracking strategies should be incorporated into traditional patient hand-off procedures to better facilitate patient/resident transfers during emergencies. To prevent interruptions to treatment after relocation, both electronic-based and non-electronic-based methods should be used to facilitate successful delivery of patient identification and their associated medical history to the receiving organization after relocation.

Specifically, it is recommended that documents should include demographic characteristics, appearance specifications, and medical information. The inclusion of content specific to patient identification is intended to assist in

matching patients to their medical histories in the event that their medical files are misplaced or inaccessible due to disaster, or to assist in identifying patients, particularly those who are unable to successfully do so themselves. Electronic-based tracking methods identified through a systematic review of patient tracking methods used internationally included electronic triage tags such as smart tags and other sensors to determine triage level, radio-frequency identification tags, and personal digital assistants (PDAs) for triage in these situations (Smith & Macdonald, 2006). A similar approach should be adopted in Canada.

A strong correlation was further noted between the impact of evacuations on increased hospitalization, mortality, stress and trauma, particularly among nursing home residents with cognitive impairment (Brown, et al., 2013). This reiterates the critical need for care institutions to have emergency management plans, as well as robust transition of care plans in place for when patients need to be evacuated. It also emphasizes the importance of reviewing and updating these plans on a regular basis (Blanchard & Dosa, 2009; Dosa, et al., 2010; Laditka, Laditka, Cornman, Davis, & Richter, 2009; Nomura, et al., 2013; Thomas, et al., 2012; Willoughby, et al., 2017). Improved transitions can be be further supported by enhancing the integration of hospitals into community emergency preparedness planning (Braun, et al., 2006). Supporting integrated planning between hospitals and community care settings can facilitate systems for patient tracking and communication during emergencies and ease transitions post emergencies.

Recommendation 4.3

Care institutions and other organizations should strive to develop comprehensive emergency plans that include effective response strategies for protecting older adults against infectious disease outbreaks and reflect evidence-based standards supported by organizations such as Infection Prevention and Control Canada (IPAC).

- Care institutions should also regularly assess and address any barriers they identify that could affect the implementation of their emergency plans that build on their routine practices

Developing comprehensive organization-wide emergency preparedness strategies that include infectious disease prevention

Care institutions such as hospitals and long-term care and nursing homes are prone to regular infectious disease outbreaks. Outbreaks can often be localized to a given unit or section of the facility and can be contained with early identification and intervention. These care settings become more vulnerable to large scale outbreaks during emergencies such as pandemics as infectious diseases spread rapidly among patients and residents.

Recommendation 4.3 highlights the importance of care institutions and other organizations having emergency plans that include effective response strategies that address infectious disease spread and outbreaks. During the COVID-19 pandemic, Canada stood out amongst other industrialized countries in reporting the highest proportion of its deaths having occurred in long term-care and retirement homes (Canadian Institute for Health Information, 2020). The vulnerability of long-term care homes to respiratory disease outbreaks such as COVID-19, influenza and others is well recognized

(McMichael, et al., 2020). One study conducted in a skilled nursing facility in Kings County, Washington identified staff working in multiple facilities while ill and transfers of residents from one facility to another as potential challenges that introduced the virus into facilities, which was consistent with other studies (McMichael, et al., 2020; Lai, et al., 2020).

Vaccination and timely introduction of antiviral treatments among workers in care institutions and other organizations is thought to be one of the most effective strategies to minimize the risk of infectious disease outbreaks (Cheng, Chen, Chou, Huang, & Huang, 2018; Rainwater-Lovett, Chun, & Lessler, 2014). Studies that assessed vaccination among care institution staff identified skepticism towards vaccination as a barrier to uptake (Huhtinen, Quinn, Hess, Najjar, & Gupta, 2019). Institutions that had on-site immunization programs for employees as well as policies that required immunization as a stipulation for employment showed high rates of vaccination among staff (Lai, et al., 2020). Non-pharmaceutical approaches can also be effective in preventing disease spread as indicated by the supported use of PPE as a preventative measure for spread (World Health Organization, 2020; Rainwater-Lovett, Chun, & Lessler, 2014).

Closures of care institutions and facilities can also minimize the spread of infectious diseases among staff and residents alike. During the COVID-19 pandemic, many care institutions such as hospitals, long-term care homes closed their doors to non-essential visitors and restricted access to staff only. Early closures of these homes can be effective in containing disease outbreaks and shortening outbreak periods (Inns, et al., 2018). Other strategies include suspending new admissions, cohorting patients/residents by unit, active reinforcement of routine hygiene practices and use of disinfectant agents for regular cleaning of surfaces among others (Buffington, et al., 1993; Lee, Lee, Lee, & Park, 2020). Routine surveillance and regular reports are also recommended for early identification of infections (Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee, 2020). Bundled interventions have been demonstrated as the most effective approach to managing infection outbreaks in care facilities (Hayden, et al., 2015).

Infection Prevention and Control Canada (IPAC) provides a repository of evidence-based guidelines with recommendations rooted in epidemiological studies that demonstrate the effectiveness of infection control interventions such as hand hygiene, routine cleaning practices, isolation among others across different health care settings (Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee, 2014; Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee, 2018; Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee, 2012; Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee, 2012; Siegel, Rhinehart, Jackson, & Chiarello, 2007; Canadian Committee on Antibiotic Resistance, 2007). Many of these guidelines are endorsed and published by agencies such as Public Health Ontario. Canadian care settings should leverage these guidelines and education resources to support the development of their emergency plans.

Domain 5: Legislation and Policy

Federal, provincial and local governing bodies all play a regulatory role in emergency preparedness and response by outlining and enforcing how, and to what extent, relevant bodies and organizations should contribute to more effective emergency preparedness and response efforts through their policy and legislative powers.

A review of existing gaps in emergency preparedness, response and recovery policies and legislation relevant to the outcomes of older adults was conducted. The investigation was guided by **Research Question 5:** ***Are there legislation or policies that have been developed or adopted at the local, provincial or federal levels to improve emergency (natural disaster or pandemic) preparedness and recovery efforts for older adults? (see Development Approach).***

The search strategies that were used yielded a combined total of 4,390 peer-reviewed journal articles, nine of which were used along with 15 legislative and policy-oriented documents that were used for data extraction related to this specific question. A review of the documents revealed that while some provinces and territories have developed and implemented new policies/legislation in response to past experiences related to previous emergencies, there is still a gap in the application of these policies to address the needs of older adults and their unpaid caregivers. For the provinces that have not adopted legislation regarding emergency preparedness, available legislation as well as the current pandemic can serve as guides in making sure older adults are protected in times of emergencies. The gaps in legislation present a challenge in ensuring that sufficient supports are available to consistently address the needs of older adults during emergencies across Canada. Through the development of five policy/legislative evidence-informed expert recommendations, an opportunity to implement legislation that can better improve emergency outcomes for older adults is proposed.

Recommendation 5.1

A national advisory committee should be created to inform emergency preparedness, response and recovery program development and strategies for older Canadians. Individuals who are representative of older Canadians and their unpaid caregivers should be involved to ensure their voices and perspectives are reflected.

Establishing a National Advisory Committee on Emergency Preparedness for Older Adults

In 2017, the US Senate introduced Bill S. 1834 to amend title XXVIII of the Public Health Service Act to include the establishment of a National Advisory Committee on Seniors and Disasters (Protecting Seniors During Disasters Act, 2017). The Advisory Committee was intended to be established by the Secretary of the Senate, with the consultation of the Secretary of Homeland Security and the Secretary of Veterans Affairs. The duties tasked to the Advisory Committee included evaluating and providing input on activities related to the medical and public health needs of older adults during all-hazard emergencies, and providing advice and recommendations to the Secretary with respect to older adults, medical and public health grants and cooperative agreements related to preparedness and response activities authorized under the Secretary. To ensure that the committee has the expertise required to better serve its designated tasks, Bill S. 1834 outlines a list of appropriate representatives that the committee should comprise; representatives

identified on the Bill include: the Director of the Centers for Disease Control and Prevention (CDC), the Administrator of the Center for Medicare & Medicaid Services (CMS), the Administrator of the Federal Emergency Management Agency (FEMA), at least two non-federal health care providers with expertise in medical disaster planning, preparedness, response or recovery and representatives from other relevant Federal agencies, such as the Department of Energy and the Department of Homeland Security (DHS).

While the effectiveness of this committee has not yet been evaluated, the Canadian experts recognized the importance of the mandate of the committee established in the US and the potential impact it could have on emergency preparedness for older adults. To date, there has been no such committee established in Canada. Existing resources such as The Emergency Management Framework of Canada (see Summary of Relevant Frameworks and Legislations in Appendix B) could facilitate the creation of a national advisory committee that could inform decision-making and planning related to emergency preparedness and older adults. Federal groups such as Public Safety Canada may also have a role in the management and operation of this committee. Further, the engagement of older adults to participate as members of this committee would ensure that the perspectives of this population are appropriately integrated into any resulting outputs and products from the committee. Older adults have been found to play essential roles in policy development because they can provide insight on "salient barriers to active ageing and options for post-earthquake redevelopment that had not been previously considered" (Annear, Keeling, & Wilkinson, 2014). Other recommended members would include relevant private sector providers and geriatric care professionals (geriatricians, geriatric psychiatrists, gerontological nurses, social workers and pharmacists, physical and occupational therapists, and other geriatric care experts), and non-governmental organizations that work in preparedness, response and recovery for seniors, such as the Salvation Army and the Canadian Red Cross. Gerontologists can also provide insight and guidance on common geriatric syndromes, such as dementia, delirium, and psychosis, as well as common areas that older adults may require assistance with, such as taking medications, mobility, understanding emergency instructions and accessing social support, which are commonly managed by geriatric health care providers.

Recommendation 5.2

All provinces and territories should support the implementation of tax-free emergency preparedness purchasing periods during specific times of the year or prior to an impending emergency. Governments should also provide targeted funding to directly support/subsidize the purchase of emergency preparedness kits for older Canadians. Items covered should include an agreed-upon list of emergency supplies (such as batteries, portable generators, rescue ladders, radios and ice packs), air conditioners, personal protective equipment (such as masks, gloves and hand sanitizer, etc.) and additional mobility aids (canes, walkers, etc.).

Supporting Improved Self-Preparedness Activities

When faced with the financial burdens associated with emergencies, older persons repeatedly experience less robust economic recovery than

younger age groups (Fernandez, Byard, Lin, Benson, & Barbera, 2002). Younger age groups tend to be less vulnerable to property damage due to a greater likelihood of having insurance, higher credit values, greater financial savings, and their reduced likelihood of living at or near the poverty line (Fernandez, Byard, Lin, Benson, & Barbera, 2002). The qualifications for receiving financial aid may also help explain why older adults may use them less than other age groups. This is often because older adults live on a fixed income or lack employment. Furthermore, in cases where aid is received, it is often difficult to obtain money to replace uncovered losses, making older adults more dependent on support from charities and their Social Security benefits (Fernandez, Byard, Lin, Benson, & Barbera, 2002).

In Canada, Emergency Preparedness Week is a national awareness initiative that has taken place annually since 1996 during the month of May. It is a collaborative event undertaken by federal, provincial and territorial emergency management organizations that support emergency preparedness activities at the local level. Emergency preparedness week encourages Canadians to take three simple steps to become better prepared to face an emergency: 1) know the risks, 2) make a plan, and 3) get an emergency kit (Government of Canada, 2015).

Tax-free emergency supplies can act as an incentive for older adults to purchase resources for their emergency kit or provide the price reductions needed to help older adults with limited resources access these essential supplies. Currently, 16 states in the United States have implemented tax-free weekends, however, only three have included 'weather related' preparedness or 'severe weather' preparedness supplies as part of the selected items that are eligible for a tax break or tax exemption. To provide all older adults with access to reduced costs for emergency supplies, it is recommended that all provinces and territories adopt tax-free emergency supplies and/or provide funding to support low-income seniors to purchase emergency kits. Supplies should include, but not be limited to, batteries, portable generators, mobility aids (canes and walkers), air conditioners, rescue ladders, radios, and ice packs. Furthermore, evidence shows that having a basic home kit comprised of non-pharmaceutical interventions such as hand hygiene and masks in addition to adequate ventilation, temperature control measures among other things greatly reduces the spread of illness and indirectly contributes to avoidable hospitalizations (Finkelstein, Prakash, Nigmatulina, McDevitt, & Larson, 2013). Thus, subsidizing these emergency essentials for older adults will improve emergency preparedness efforts.

Recommendation 5.3

All provinces and territories should support the creation of a national licensure process or program for nurses, physicians, allied health professionals and other emergency medical service personnel to allow them to provide voluntary emergency medical support across provincial/territorial boundaries during declared states of emergency.

Enhancing the Portability of Health Care Professional Expertise During Emergencies

It is apparent that access to medical services must be provided as part of all emergency responses to support emergent medical needs. It is recommended that steps be taken to support the preliminary recruitment of health care providers

to facilitate a faster and standardized assembly of emergent medical teams during emergencies. In the United States, the Medical Reserves Corps (MRC) acts as a database of medical and non-medical volunteers who can provide medical support in their community during emergencies, and this has been demonstrated to be very effective. It is recommended that similar resources be created and made available in Canada. To increase the availability of medically trained volunteers during an emergency, actions should be taken to adopt inter-provincial licensing across all provinces and territories. All relevant health care providers should work with their respective professional provincial or territorial boards and legislators to pass the required legislation in their respective province or territory.

In Canada, licensing is provincially regulated. During emergencies, provinces utilize their own resources first; however, in cases where there is a need for specialists, Canada has the mechanisms to call on extra resources. For instance, the Public Health Agency of Canada (PHAC) has the mechanisms to clear health care providers in a relatively short amount of time. Creating a national licensure program in Canada would facilitate shorter response timelines and ensure help is available when needed. For instance, the Atlantic Colleges of Physicians and Surgeons are working together to harmonize a number of processes and procedures as well as working on common Atlantic Colleges' approaches to certain licences for physicians. The US has adopted a similar model whereby 31 states are licensure compact states for nursing (Nurse Licensure Compact, n.d.), 14 states and one territory are licensure compact states for emergency management services (EMS) personnel, (National Registry of Emergency Medical Technicians, n.d.), and 24 states are licensure compact states for physicians (Interstate Medical Licensure Compact, n.d.). A potential option for Canada is to allow health care providers to practice in different provinces or territories by pre-applying through PHAC for inter-provincial work during an emergency.

Recommendation 5.4

All provincial and territorial governments should support legislative requirements that mandate congregate living settings for older persons (e.g. nursing homes, assisted living facilities and retirement homes) to regularly update and report their emergency plans that outline actions and contingencies to take in case of emergencies. These plans should include:

- Back-up generators in case of extended periods of power outages, and coordinated plans with relevant community agencies (e.g. municipal fire agencies) for efficient evacuations.
- Direction on appropriate interventions (i.e. self-isolation, wearing face masks, physical distancing, etc.) to control and prevent outbreaks and spread of infectious diseases amongst the population in times of emergencies.
- Clear thresholds for temperature regulation, specifically, maximum and minimum temperatures permissible based on occupational and environmental health standards, and the steps required to regulate temperatures and minimize fluctuations.
- An outline of staffing levels that should be maintained during emergencies to minimize care and/or service interruptions.

All provinces and territories should work towards standardizing requirements for emergency plans in congregate living settings in accordance with the priorities outlined in the 2019 Emergency Management Strategy for Canada and ensure that their emergency plans for congregate living settings are aligned with directives outlined in their provincial/territorial pandemic and emergency plans.

Improving Environmental Control Efforts in Nursing Homes and Assisted Living Facilities

In Ontario, the *Long-term Care Homes Act (2007)* states that all nursing homes must have air conditioning and back-up generators to provide power for all support and life-supporting equipment in the case of an emergency. If central air conditioning is not available in the facility, there should be a designated cooling area for every 40 residents. However, this is not the case for all provinces and territories. For instance, in British Columbia, the legislation does not include requiring homes to have additional contingencies in their emergency plans to ensure that, in the event of a power outage, temperatures are kept at reasonable levels to avoid the exacerbation of existing health issues among nursing homes and assisted living plans in long-term care facilities.

The panel recommends calling on all provinces and territories to standardize their requirements and ensure that the appropriate measures are in place to restore power within a reasonable timeframe, and mandate that facilities have additional contingencies to ensure that temperatures are maintained at appropriate levels.

In addition to maintaining favorable in-house temperatures and ensuring constant power supply, emergency plans for congregate living settings should include contingencies to maintain appropriate staffing levels during emergencies. The COVID-19 pandemic highlighted significant challenges with maintaining appropriate staffing levels in settings such as group and retirement homes for older adults.

Participation House, a group home in Markham, Ontario experienced high rates of staff resignations during the pandemic where staffing levels were described as “critical” (Rocca, 2020). The group home experienced a severe outbreak of the virus during the pandemic with 95% of its residents (40 of 42) and 38 of its staff members becoming infected (Riedner, 2020). Studies have shown that, among other things, staffing levels and patterns can have significant impact on outcomes in congregate living settings (Trivedi, et al., 2012; Li, Birkhead, Strogatz, & Coles, 1996; Lin, et al., 2011; Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000; Horn, Buerhaus, Bergstrom, & Smout, 2005; Kim, Kovner, Harrington, Greene, & Mezey, 2009). Consequently, effective emergency planning will require actions to maintain appropriate staffing levels to minimize the risk of widespread and prolonged outbreaks in these settings.

Ensuring that staff are adequately trained and prepared for an emergency will also improve outbreak efforts in nursing homes and assisted living facilities. In a study conducted by Bucy, Smith, Carder, Winfree and Thomas to determine how States required residential care and assisted living facilities to mitigate, prepare and respond to infections among their residents, found that 31 states had defined infection control policies some

of which require staff to be trained in infection control) (Bucy, Smith, Carder, Winfree, & Thomas, 2020). Ten states include language surrounding epidemics, primarily regarding reportable disease and requirements for reporting to local Public Health departments, and two describe pandemic emergency preparedness. Only six States referenced resident isolation practices as an effective way to combat the spread of infections (Bucy, Smith, Carder, Winfree, & Thomas, 2020).

Similarly, in Canada, the 2007 Emergency Management Act (Government of Canada, 2007) requires the federal Minister of Health to develop, test and maintain mandate-specific emergency plans for the federal Health Portfolio. Health emergency management in provinces and territories are governed by specific legislation specific to each jurisdiction that requires provincial and territorial governments to have comprehensive emergency plans. Each province and territory, in accordance with the legislation, has outlined emergency plans, some of which are specific to influenza and/or pandemics. Some provinces, such as Alberta, have stipulated actions for vulnerable groups (i.e. seniors) and health care workers and services in their Pandemic Influenza Plans (Alberta Government, 2014). The COVID-19 pandemic resulted in provincial governments issuing more specific guidance for community and health care settings to support evidence-informed decision making and actions in these settings.

Lastly, legislation should take into account emergency plans for situations where a lack of infrastructure poses itself as an obstacle to physical distancing or self-isolation. Isolation is a recommended strategy to control disease outbreak in congregate living environments however many facilities have reported infrastructure challenges has a barrier to implementing isolation protocols among their residents (Huhtinen, Quinn, Hess, Najjar, & Gupta, 2019; McMichael, et al., 2020). Not being able to physically separate during an emergency can serve as a barrier to managing and controlling a disease outbreak.

Recommendation 5.5

All provinces and territories should adopt a standardized approach to promoting collaborations between local pharmaceutical prescribers and dispensers (i.e. community pharmacists), physicians and nurse practitioners, to ensure an adequate supply of prescription medications are dispensed to persons with chronic health conditions prior to and during an emergency. This approach should also outline the need for collaboration between pharmaceutical providers, hospitals and relief agencies to ensure an adequate supply of prescription medications are available at hospitals, relief and evacuation shelters.

- All persons should be able to obtain at least a 30-day supply of emergency prescription medications prior to and during an emergency.

Ensuring Access to Medically Necessary Medications During Emergencies

Older adults often live with multiple chronic health conditions that require ongoing management, which can include the help of prescription medicine. In Canada, prescription length policies are set largely by the regulatory bodies for physicians and pharmacists at the provincial level. Though there were no studies found related to access to medication during times of emergencies in Canada, there were many reports

that emerged from the US and other jurisdictions regarding the challenges that were experienced accessing prescription medications for people who were evacuated to shelters. For instance, in the aftermath of Hurricane Katrina, many older adults were relocated to public shelters miles away from their homes. Reflective discussions of the medical care provided in the Astrodome in Houston, TX, and the Mississippi Coliseum and the Mississippi Trade Mart in Jackson, MS, have exposed the impact that existing barriers to accessing at least a 30-day supply of emergency prescription medications can have on one's health. In Jackson, MS, the Department of Medicine, in partnership with local medical facilities deployed a pop-up Katrina clinic in the Mississippi Coliseum and Mississippi Trade Mart shelters (Currier , King, Wofford , Daniel, & deShazo , 2006). Though many of the 2,394 evacuees left their homes with the conventionally recommended three-day supply of medications, most people required access to additional supplies of their medications to manage chronic health conditions (Aldrich & Benson, 2008; Currier , King, Wofford , Daniel, & deShazo , 2006). It was reported that the most common medical needs at the clinic were for prescription refills, particularly for cardiovascular, antihistamine/decongestant, psychotropic, analgesic and diabetic medications (Currier , King, Wofford , Daniel, & deShazo , 2006).

A review of several pharmaceutical and drug prescribing policies in Canada has highlighted that emergency refill policies are not uniform across provinces and territories, and the issue was rarely addressed specifically. One province, British Columbia, allows physicians to provide prescriptions with renewals for up to a one-year period (two years for birth control). Additionally, pharmacists can independently renew most medications for a period of up to six months. During severe emergencies, where persons can be displaced for extended periods of time, ranging from a few days to a few months, it is critical that persons who are dependent on medications are able to evacuate their homes with a pharmaceutical supply that can support their health and well-being, particularly if they must evacuate to an isolated area or stay at a relief shelter where pharmaceutical supplies can be limited at warehouses and coordinating centres for emergency response (Currier , King, Wofford , Daniel, & deShazo , 2006). Consequently, it is recommended that all provinces and territories adopt a standardized approach to collaboration between local pharmaceutical prescribers and dispensers, specifically community pharmacists, physicians and nurse practitioners. To further facilitate access to prescription medications during emergencies, particularly in relief shelters, this approach should emphasize the need for inter-organizational collaboration between pharmaceutical providers and relief agencies to ensure that an adequate supply of prescription medications are available.

Domain 6: Research

A holistic review of the identified literature revealed that research in the field of emergency preparedness, response, and recovery for older adults is highly underdeveloped. The unpredictability of both the timing and types of emergencies make traditional research designs and methodologies difficult. Nevertheless, there is a clear opportunity to develop and evaluate preparedness initiatives and their potential impact during response and recovery efforts, as well as the outcomes for designated populations and those personnel and organizations with a responsibility for supporting them.

Recommendation 6.1

There is a need to prioritize the creation and funding of research efforts to better support the development of a common framework for measuring the quality and levels of emergency preparedness among care institutions, organizations, paid providers, community organizations, and other groups that work primarily with older adults and their unpaid caregivers during and after emergencies.

Recommendation 6.2

There needs to be a more concerted effort in utilizing outcomes from existing evidence to support the planning, design, and refinement of more evidence-informed emergency preparedness interventions, policies, and regulations in support of older adults and unpaid caregivers, as well as organizations and paid care providers that will be responsible for meeting their needs during and after an emergency.

Prioritizing Emergency Preparedness and Response Research

A review of the existing literature relevant to emergency preparedness, response, and recovery for older adults has highlighted a gap in this research field. Current research efforts have highlighted that older adults experience a disproportionately greater vulnerability to adverse outcomes during and after emergencies compared to younger adults; however, there is limited available research that evaluates interventions that can be implemented to induce more positive outcomes for older adults. Specifically, there are insufficient studies that evaluate best practices for assisting and caring for older adults with health and functional declines, and the most effective methods for delivering services and resources to them. Regarding system operations, there is research that documents the effects of surge capacity operations in the ED and patient tracking methods that are used internationally, but a lack of available research on the most effective policies and procedures to ensure a favorable outcome during surge capacity operations or patient hand-offs during emergencies. The development of a research agenda related to emergency preparedness, response and recovery for older adults is essential to facilitating greater experimental exploration of emergency-related interventions for older adults.

Researchers should also develop a common framework for measuring the quality and levels of emergency preparedness among various institutions and organizations. A common evaluation framework can reduce the variability and biases that can be associated with comparing systems that have been evaluated using different frameworks, which can differ based on their chosen metrics and domains of measurement.

In a 2004 research report done by Public Safety and Emergency Preparedness Canada, participants acknowledged that there is little research related to emergency management in Canada. This highlights the need to encourage more graduate students to pursue research projects in emergency management. Furthermore, the outcomes of those projects needs to be translated to practitioners to bridge the gap between knowledge and practice (Public Safety and Emergency Preparedness Canada, 2004).

There has been some work done to measure general preparedness among Canadians published in the 2014 report titled Emergency Preparedness in Canada. The report used data from the Survey of Emergency Preparedness and Resilience (SEPR), a cross sectional survey conducted by Statistics Canada for the first time in 2014, to investigate emergency preparedness activities and risk awareness among Canadians aged 15 and over from across the 10 provinces. Based on the survey, emergencies involving the outbreak of serious disease were named as a likely hazard by about half of those in each province, with the exception of Newfoundland and Labrador (37%), Prince Edward Island (40%) and New Brunswick (44%), where the proportion was about four in ten for each (Emergency Preparedness in Canada, 2014). Canadians believe a number of natural and human-induced disasters are events that their community is likely to face. Winter storms (86%) and extended power outages (76%), followed by outbreaks of serious or life-threatening disease (51%) and industrial or transportation accidents (50%) were the most frequently named events (Emergency Preparedness in Canada, 2014). Further, older adults aged 65 and older were highlighted as being less likely to have a large social network to turn to in an emergency (Emergency Preparedness in Canada, 2014). Though the SEPR provides a baseline to support understanding of preparedness across Canada, responses were collected from Canadians living in only the 10 provinces, excluding the territories. It also excluded Canadians living in institutions such as nursing and long-term care homes, which includes older adults who would be in greater need of support in emergency or disaster situations.

Applying Relevant Research Findings to Real-Life Emergency Health Practices

Recommendation 6.2 further supports the utilization of research in policy making by proposing that published studies related to emergency preparedness and recovery be made open access. Providing open access to emergency preparedness and recovery research can help facilitate greater experimental investigation in the field of emergency preparedness and response.

Recommendation 6.3

A network of emergency preparedness researchers, older adults, unpaid caregivers, volunteers and providers needs to be created to encourage partnerships in the ongoing unpaid evaluation of emergency preparedness interventions targeting older adults. Network members should advocate for an increased focus on emergency preparedness research among the various societies or journals that they are members of.

Establishing a Network of Emergency Health Researchers

Unfortunately, emergency management research in Canada has not been identified as a priority. As a result, **Recommendation 6.3** suggests creation of a national network for emergency

management and emergency preparedness comprised of providers, older adults and volunteers. The network could be leveraged for information sharing but would primarily advocate for an increased focus on emergency preparedness research. It was also suggested by Round Table participants that the network could be supported by an organization connected to all universities offering emergency management programs and conducting emergency management research, as well as by the federal and provincial authorities responsible for emergency management.

The panel further recommends that this current network of emergency preparedness researchers be continued to support the progression of research efforts related to emergency preparedness for older adults. The tasks of the research group should include evaluating the efficiency of existing policies and procedures within care institutions/organizations and government, identifying gaps in knowledge and knowledge delivery, and delegating priorities for research. It is intended that this group of researchers will fill the current gap in emergency preparedness, response and recovery research to support the development of evidence-based policies.

Recommendation 6.4

There is a need to focus on research about unpaid caregivers and emergency preparedness to better instruct unpaid caregivers on how to take care of their vulnerable family members and friends during an emergency.

Conducting Research on Emergency Preparedness Among Unpaid Caregivers

Being an unpaid caregiver can at times be demanding. Dealing with an emergency, in addition to caregiving responsibilities, can quickly become overwhelming, with potentially devastating consequences. Consequently, it is essential for unpaid caregivers to be appropriately supported whereby they can identify potential challenges and take the steps necessary so that they and the older adult they are caring for can be prepared. The Round Table attendees recognized the vital role that unpaid caregivers play in emergency preparedness and reduction of casualties following a major event among older adults. The literature reviewed has highlighted the different levels of responsibilities and roles in reducing negative outcomes following an emergency. Research literature has consistently noted a need for evidence-informed strategies to address challenges to emergency preparedness, particularly among households with frail older adults and their unpaid caregivers (Levac, Toal-Sullivan, & O'Sullivan, 2012). **Recommendation 6.4** notes the importance of conducting additional research with a particular focus on unpaid caregivers, which can further bridge this gap and provide an evidence base to develop strategies that can mitigate negative outcomes among older adults following an emergency.

Recommendation 6.5

There is a need to focus on research about emergency preparedness and response in Canadian community and congregate living settings for older adults (e.g. nursing, retirement and group homes, and assisted living facilities). Research should:

- Determine the existing levels of preparedness across these environments as well as highlight the challenges they face in being prepared.

- Characterize the impact of the emergency on the older adult population and emerging best practices on how to address it as soon as it emerges.

Preparing Congregate Living Settings for an Emergency

Canada's recent experience with the COVID-19 pandemic and the high number of deaths it has experienced to date in its long-term care homes (Canadian Institute for Health Information, 2020) has shown that there are gaps in the system which have rendered congregate living settings vulnerable in the midst of an emergency. **Recommendations 6.5** highlights the need for more research to understand the existing levels of emergency preparedness in congregate living settings for older adults. Comprehensive emergency plans should reflect contingencies for a multitude of emergencies ranging in scale and nature, including pandemics. Emergency plans in congregate living settings for older adults should include clear protocols for pandemics.

In a study conducted by Lum, Mody, Lona and Ginde (2014), a national survey to identify characteristics of residential care settings associated with having a pandemic plan in the US found that a majority of the residential care settings that lacked a pandemic influenza plan were smaller, for-profit, and non-chain-affiliated and also had lower staff vaccination rates (Lum, Mody, Levy, & Ginde, 2014). Understanding these characteristics may help target settings that need to develop plans to handle a pandemic, or other emergencies.

Having a robust program of research on emergency preparedness in congregate living settings for older adults can facilitate the development of a body of evidence for best practices to address emergencies as soon as it emerges. Research should target all levels of emergency management including the resident/patient, providers/staff, programs and institutions. Surveillance data, such as data from the COVID-19 pandemic, can provide the basis for new and ongoing studies.

Glossary

Alzheimer's Disease: a form of dementia that causes problems with memory, thinking, behavior and independent functioning; it is the most common cause of dementia (https://www.alz.org/alzheimers- dementia/what-is-alzheimers).

Care Institution: an organization that provides health care and related services to the provision of inpatient and outpatient care, such as diagnostic or therapeutic services, laboratory services, medicinal drugs and other health services.

Congregate Living Settings: refers to a range of congregate living environments (nursing and retirement homes, assisted living facilities, etc.) where older adults live or stay overnight and use shared spaces (https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/respiratory-diseases/novel-coronavirus/congregate-living-settings-resources#:~:text=Congregate%20living%20settings%20refer%20to,Correctional%20facilities).

Dementia: a general term used to categorize a group of diseases associated with progressive declines in cognitive abilities, including memory, communication, language, attention, reasoning, judgement and visual perception that negatively impact independent functioning (https://www.alz.org/alzheimers-dementia/what-is-dementia).

Epidemic: the occurrence of disease cases in excess of normal expectancy (https://www.who.int/environmental_health_emergencies/disease_outbreaks/en/).

Emergency: a state whereby a territory is facing an event with public health consequences; here used to encompass a natural disaster or pandemic (https://www.who.int/emergencies/crises/en/).

Emergency Response Personnel: personnel responsible for providing assistive services during an emergency, including firefighters, police, civil defense/emergency management officials, sheriffs, military and manufacturing and transportation personnel.

Geriatric Care Professionals: practitioners that specialize in treating the physical, mental, emotional and/or social problems among older adults, including nurses, dentists, social workers, occupational and physical therapists, and pharmacists.

Health Care Disaster: these happen when the destructive effects of a natural disaster can overwhelm the ability of a given area or community to meet the demand for healthcare (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1291330/).

Healthcare Professionals: an individual that has been certified and authorized to provide preventable, curable, rehabilitative, and promotional health services (http://www.who.int/hrh/statistics/Health_workers_classification.pdf).

Incident Command System: a standardized tool for enabling an effective command, control, and coordination of an emergency response, allowing agencies to work together to facilitate a consistent response (https://ops.fhwa.dot.gov/publications/ics_guide/glossary.htm).

Natural disaster: an act of nature of such magnitude as to create a catastrophic situation in which the day-to-day patterns of life are suddenly disrupted and people are plunged into helplessness and suffering, and, as a result, need food, clothing, shelter, medical and nursing care and other necessities of life, and protection against unfavourable environmental factors and conditions (https://www.who.int/environmental_health_emergencies/natural_events/en/)

Pandemic: an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people (https://www.who.int/bulletin/volumes/89/7/11-088815/en/#:~:text=A%20pandemic%20is%20defined%20as,are%20not%20considered%20pandemics.)

Personal Protective Equipment (PPE): items worn or used to provide barrier to help prevent potential exposure to an infectious disease.

Shelter-in-place: a precaution taken when hazardous materials (chemical, biological or radiological) are released in the air. This requires seeking a small, interior room with no or minimal windows within the building one already occupies.

State of Emergency: a circumstance declared by a government when a disaster has occurred and is severe or is imminent and expected to require state aid to supplement local resources to prevent or alleviate damage, loss and hardship within a region (http://ready.nj.gov/about-us/state-of-emergency.shtml).

Unpaid Caregivers: individuals who provide help and care to members of their household and to people who reside in other households.

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Appendices

Appendix A: Index of Recommendations and Enabling Bodies

The index below provides an outline of the 29 recommendations presented in this whitepaper and an identification of the emergency management domains that have been determined to be responsible for adopting or enforcing a given recommendation.

Recommendations	Relevant Federal Agencies	Provincial & Local Governments	Care Institutions & Organizations	Health Care Professionals & Emergency Response Personnel	Community-Based Services & Programs	Individuals & Unpaid Caregivers
Domain 1: Individuals and Unpaid Caregivers						
Recommendation 1.1: Older adults and their unpaid caregiver(s) should be provided with tailored, easy-to-access information and resources related to emergency preparedness and guidance on how to develop customized emergency plans that consider the functional and health needs of older adults and appropriate strategies to support infection/disease prevention. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in developing and disseminating resources and training material, to ensure their voices and perspectives are reflected.	X	X	X	X	X	X
Recommendation 1.2: Older adults who are reliant on mobility aids should remove or minimize barriers affecting their ability to evacuate, and take steps to ensure their safety within their surroundings.				X		X
Recommendation 1.3: If registries for people with functional and other needs, including persons with disabilities, have been established by local emergency response agencies, older adults and/or their unpaid caregiver(s) should register so they can be better assisted/supported during emergencies.			X	X	X	X
Recommendation 1.4: Older adults who have a sensory impairment, such as a visual or hearing disability, should take additional precautions to prepare themselves for emergencies.				X	X	X
Recommendation 1.5: Older adults who live with chronic health conditions should maintain a readily accessible list of their current medical conditions, treatments (medications, durable medical equipment, supplies and other health care needs), health care providers, and emergency contacts, including substitute decision makers (SDMs).				X		X
Recommendation 1.6: Older adults who take medications should work with their health care providers to ensure they have access to at least a 30-day supply of medications during an emergency.				X		X
Recommendation 1.7: Older adults, and their unpaid caregivers, who are reliant on medical devices that require electricity, should ensure they have back-up power supplies in place, especially if required while sheltering-in-place. • Older adults and/or their unpaid caregivers should contact their electricity company in advance to discuss their needs and ensure options for alternative power sources are available, especially addressing the need for access to power to charge cell phones and other mobile devices. • Older adults and/or their unpaid caregivers should seek assistance with obtaining and maintaining an alternative power source at home, if required, such as when being required to move heavy equipment and fuel or in accessing these resources in rural locations, and operating equipment.				X	X	X
Recommendation 1.8: Older adults should be encouraged to continually maintain an adequate local support network that can be called upon during impending disasters and unexpected emergencies, especially if they live alone or lack easy access to relatives.				X	X	X
Recommendation 1.9: Unpaid caregivers of persons with Alzheimer's disease and/or other dementias should to supported to identify signs of distress, anxiety, or confusion, and use strategies to redirect attention and help them stay calm during emergencies. In addition, unpaid caregivers should be prepared to prevent wandering, and have plans in place to locate their care recipients if they do wander or require medical intervention(s) during an emergency.				X	X	X
Domain 2: Community-Based Services and Program						
Recommendation 2.1: Access should be increased to tailored community-based programs that educate older adults and their unpaid caregivers about emergencies that could affect their region and how best to prepare for and respond to them. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected. • Community-based programs and organizations should collaborate with regional public health authorities in developing and disseminating education resources on infection control, disease and injury prevention practices for older adults and their unpaid caregivers during emergencies.		X	X		X	
Recommendation 2.2: Programs that provide disaster relief and/or essential community services, such as Meals on Wheels, and daily living assistance for older people (financial, medical, personal care, food and transportation), should receive emergency preparedness training and education, as well as develop and adhere to plans and protocols related to responding adequately to the needs of their clients during emergencies. Volunteer representatives of older Canadians and their unpaid caregivers should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.					X	

Recommendations	Relevant Federal Agencies	Provincial & Local Governments	Care Institutions & Organizations	Health Care Professionals & Emergency Response Personnel	Community-Based Services & Programs	Individuals & Unpaid Caregivers
Recommendation 2.3: Community based programs that provide in-home health and personal care for older adults should integrate strategies that minimize unnecessary personal contact and leverage resources (e.g. personal protective equipment such as gowns, masks, gloves, hand sanitizer etc.) in their emergency preparedness plans and protocols.					X	
Recommendation 2.4: Local governments should leverage data sources that identify at-risk individuals to enable emergency responders to more easily prioritize their search and rescue efforts following an emergency.		X				
Domain 3: Health Care Professionals and Emergency Response Personnel						
Recommendation 3.1: Health care professionals and emergency response personnel should receive training on providing geriatric care relevant to their discipline and how best to assist older adults and their unpaid caregivers before, during and after emergencies. The additional education and training should also increase their awareness of best practices and precautions to minimize the risk of infectious disease transmission or spread while responding to emergencies. Volunteer representatives of older Canadians should be recruited and involved in training material development and implementation, to ensure their voices and perspectives are reflected.			X	X	X	
Recommendation 3.2: Health care professionals and emergency response personnel should strive to mitigate psychological distress among older persons during and after emergency by making an effort to assess the psychological well-being of older adults and provide appropriate treatments as needed.			X	X		
Recommendation 3.3: Health care professionals and emergency response personnel should receive cultural awareness training to provide appropriate care and support for older adults with different cultural and religious backgrounds before, during, and after an emergency. Providers should have options for providing support to older adults and their unpaid caregivers who face language or cultural barriers to accessing supports (e.g., translators, written materials in languages other than English or French, etc.). This is of particular importance for personnel that work with Indigenous populations, in diverse community-settings, and during times of evacuation due to emergencies.			X	X		

Recommendations	Relevant Federal Agencies	Provincial & Local Governments	Care Institutions & Organizations	Health Care Professionals & Emergency Response Personnel	Community-Based Services & Programs	Individuals & Unpaid Caregivers
Domain 4: Care Institutions and Organizations						
Recommendation 4.1: Care institutions and organizations should include emergency preparedness and response education in their routine personnel training courses. • Multi-modality educational tools and practices should be used to better facilitate knowledge acquisition and behavioral change. • Volunteer representatives of older Canadians should be recruited and involved in developing and disseminating resources and training material, to ensure their voices and perspectives are reflected	X	X	X			
Recommendation 4.2: Additional strategies to improve the collection and transfer of identifying information and medical histories should be adopted into current standardized patient handoff procedures to better facilitate effective tracking, relocation and care of patients during an emergency.			X			
Recommendation 4.3: Care institutions and other organizations should strive to develop comprehensive emergency plans that include effective response strategies for protecting older adults against infectious disease outbreaks and reflect evidence-based standards supported by organizations such as Infection Prevention and Control Canada. • Care institutions should also regularly assess and address any barriers they identify that could affect the implementation of their emergency plans that build on their routine practices.			X			
Domain 5: Legislation and Policy						
Recommendation 5.1: A national advisory committee should be created to inform emergency preparedness, response and recovery program development and strategies for older Canadians. Individuals who are representative of older Canadians and their unpaid caregivers should be involved to ensure their voices and perspectives are reflected.	X		X	X	X	X
Recommendation 5.2: All provinces and territories should support the implementation of tax-free emergency preparedness purchasing periods during specific times of the year or prior to an impending emergency. Governments should also provide targeted funding to directly support/ subsidize the purchase of emergency preparedness kits for older Canadians. Items covered should include an agreed-upon list of emergency supplies (such as batteries, portable generators, rescue ladders, radios and ice packs), air conditioners, personal protective equipment (such as masks, gloves and hand sanitizer) and additional mobility aids (canes, walkers, etc.).	X					

Recommendations	Relevant Federal Agencies	Provincial & Local Governments	Care Institutions & Organizations	Health Care Professionals & Emergency Response Personnel	Community-Based Services & Programs	Individuals & Unpaid Caregivers
Recommendation 5.3: All provinces and territories should support the creation of a national licensure process or program for nurses, physicians, allied health professionals and other emergency medical service personnel to allow them to provide voluntary emergency medical support across provincial/territorial boundaries during declared states of emergency.		X				
Recommendation 5.4: All provincial and territorial governments should support legislative requirements that mandate congregate living settings for older persons (e.g. nursing homes, assisted living facilities and retirement homes) to regularly update and report their emergency plans that outline actions and contingencies to take in case of emergencies. These plans should include: • Back-up generators in case of extended periods of power outages, and coordinated plans with relevant community agencies (e.g. municipal fire agencies) for efficient evacuations. • Directions on appropriate interventions (i.e. self-isolation, wearing face masks, physical distancing, etc.) to control and prevent outbreaks and spread of infectious diseases amongst the population in times of emergencies. • Clear thresholds for temperature regulation, specifically, maximum and minimum temperatures permissible based on occupational and environment health standards, and the steps required to regulate temperatures and minimize fluctuations. • An outline of staffing levels that should be maintained during emergencies to minimize care and/or service interruptions. All provinces and territories should work towards standardizing requirements for emergency plans in congregate living settings in accordance with the priorities outlined in the 2019 Emergency Management Strategy for Canada and ensure that their emergency plans for congregate living settings are aligned with directives outlined in their provincial/territorial emergency plans.		X			X	
Recommendation 5.5: All provinces and territories should adopt a standardized approach to promoting collaborations between local pharmaceutical prescribers and dispensers (i.e. community pharmacists), physicians and nurse practitioners, to ensure an adequate supply of prescription medications are dispensed to persons with chronic health conditions prior to and during an emergency. This approach should also outline the need for collaboration between pharmaceutical providers, hospitals and relief agencies to ensure an adequate supply of prescription medications are available at hospitals, relief and evacuation shelters. • All persons should be able to obtain at least a 30-day supply of emergency prescription medications prior to and during an emergency.	X	X		X	X	

Recommendations	Relevant Federal Agencies	Provincial & Local Governments	Care Institutions & Organizations	Health Care Professionals & Emergency Response Personnel	Community-Based Services & Programs	Individuals & Unpaid Caregivers
Domain 6: Research						
Recommendation 6.1: There is a need to prioritize the creation and funding of research efforts to better support the development of a common framework for measuring the quality and levels of emergency preparedness among care institutions, organizations, paid providers, community organizations, and other groups that work primarily with older adults and their unpaid caregivers during and after emergencies.	X					
Recommendation 6.2: There needs to be a more concerted effort in utilizing outcomes from existing evidence to support the planning, design, and refinement of more evidence-informed emergency preparedness interventions, policies, and regulations in support of older adults and their unpaid caregivers, as well as organizations and paid care providers that will be responsible for meeting their needs during and after an emergency.	X					
Recommendation 6.3: A network of emergency preparedness researchers, older adults, unpaid caregivers, volunteers and providers needs to be created to encourage partnerships in the ongoing unpaid evaluation of emergency preparedness interventions targeting older adults. Network members should advocate for an increased focus on emergency preparedness research among the various societies or journals that they are members of.	X					
Recommendation 6.4: There is a need to focus on research about unpaid caregivers and emergency preparedness to better instruct unpaid caregivers on how to take care of their vulnerable family members and friends during an emergency.	X	X				
Recommendation 6.5: There is a need to focus on research about emergency preparedness and response in Canadian community and congregate living settings for older adults (e.g. nursing, retirement and group homes and assisted living facilities). Research should: • Determine the existing levels of preparedness across these environments as well as highlight the challenges they face in being prepared. • Characterize the impact of the emergency on the older adult population and identify best practices on how to address future emergencies.	X				X	

Appendix B: Emergency Preparedness for Older Adults Summary of Relevant Legislation and Framework

Policy/ Legislation	Province/ National	Link
Alberta's Pandemic Influenza Plan by the Government of Alberta	Alberta	https://open.alberta.ca/publications/alberta-s-pandemic-influenza-plan
Community Care and Assisted Living Act	British Columbia	https://www.bclaws.ca/civix/document/id/complete/statreg/02075_01
Pharmacy Disaster Preparedness (2009) a professional practice policy statement	British Columbia	http://library.bcpharmacists.org/6_Resources/6-2_PPP/5003-PGP-PPP25.pdf
Preparing for Pandemic Influenza in Manitoba (Public Health Emergency Preparedness and Response)	Manitoba	https://www.gov.mb.ca/health/publichealth/pandemic.html
Long-Term Care Homes Act	Ontario	https://www.ontario.ca/laws/statute/07l08
Ontario Health Plan for an Influenza Pandemic (2013)	Ontario	http://www.health.gov.on.ca/en/pro/programs/emb/pan_flu/pan_flu_plan.aspx
Quebec Pandemic Influenza Plan-Health Mission (2006)	Quebec	https://publications.msss.gouv.qc.ca/msss/en/document-001259/
An Emergency Management Framework for Canada (2017) by Public Safety Canada	National	https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2017-mrgnc-mngmnt-frmwrk/index-en.aspx
Canadian Pandemic Influenza Preparedness by Pan-Canadian public Health Network	National	https://www.canada.ca/en/public-health/services/flu-influenza/canadian-pandemic-influenza-preparedness-planning-guidance-health-sector.html
Department of Public Safety and Emergency Preparedness Act	National	https://laws.justice.gc.ca/eng/acts/P-31.55/
Emergency Management Act (S.C. 2007, c.15)	National	https://laws-lois.justice.gc.ca/eng/acts/E-4.56/
Emergency Preparedness in Canada (refer to the highlights on Page 3)	National	https://www.getprepared.gc.ca/cnt/rsrcs/pblctns/yprprdnssgd/index-en.aspx
Federal/Provincial/Territorial Public Health Response Plan for Biological Events by Pan-Canadian Public Health Network (refer to Appendix L for the Response Plan)	National	https://www.canada.ca/en/public-health/services/emergency-preparedness/public-health-response-plan-biological-events.html
North American Plan for Animal and Pandemic Influenza (by Public Safety Canada)	National	https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/nml-pndmc-nflnz/index-en.aspx
Quarantine Act (2005)	National	https://laws-lois.justice.gc.ca/eng/acts/q-1.1/page-1.html

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