

**POLICYMAKING IN ONTARIO FOR OLDER ADULTS' SELF-  
MANAGEMENT OF DISEASE AND DISABILITY USING INFORMATION  
AND COMMUNICATION TECHNOLOGIES**

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Pour mes 2 grand-mamans, Mamie Yolande et Grand-maman Margot.

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Mamie Yolande et Grand-maman Margot, je vous dédie cette dissertation.

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## **Abstract**

Policymaking on health issues has evolved since the early 2000s. Since then, there have been significant changes in society including increased aging of the population and the emergence of technology. However, the evolution of policymaking and current approaches to policymaking cross-cutting in those areas are not well documented. The purpose of this dissertation is to explore the factors that influence the development and implementation of a framework for policymaking specific to the topic of older adults' self-management of disease and disabilities using information and communication technologies (ICT). I conducted one large study with three phases, using Ontario as a case study, to document the history and portray current approaches to policymaking in this area, and finally, to develop and validate a conceptual framework for policymaking. Grounded in Walt and Gilson's model for policy analysis, we performed the following:

Phase 1, which is presented in the first manuscript entitled 'Evolution of public health policy on healthcare self-management: the case of Ontario, Canada', used archival research methods combining document review and evaluation to identify specific factors that have influenced the development of healthcare self-management policies over time in Ontario. Seventy-two documents on self-management of health were retrieved, analyzed, and evaluated using Walt and Gilson's model for policy analysis. Findings suggested that self-management of health was introduced into policies in the early 2000s with a focus on diabetes and chronic conditions. Very few policies had a specific focus on older adults, and technology was introduced as a tool to support self-management in the context of healthcare delivery and enhancing healthcare infrastructure. Additionally, the factors that have influenced the evolution of policies over time include pressures on the healthcare system, hybrid top-down and bottom-up policymaking, and the political context.

Phase 2, which is presented in the second manuscript entitled ‘Policymaker perspectives on self-management of disease and disabilities using information and communication technologies’ used a qualitative approach to identify the current environment for policymaking on the topic older adults’ self-management of disease and disability using ICTs. Ten policymakers from four different ministries in the Government of Ontario participated in semi-structured interviews. The analysis revealed that policies, in the form of programs, services, legislation and regulations, are the result of collaboration and dialogue between different actors and via a set of complex government processes. In addition, policy actions come from a plethora of sectors which all get influenced by predictable and unpredictable external pressures. The environment for policymaking was found to be mostly reactive to external pressures, while organized within a set of complex processes and collaborations.

Phase 3, which is presented in the manuscript entitled ‘Validation of a framework for policymaking on self-management of health by older adults using technologies’ used a quantitative approach to validate a provisional framework for policymaking. Nine participants answered the survey questions, and some offered unsolicited insights. The results revealed that the provisional framework adequately captured the areas that should compose a framework for policymaking for older adults’ self-management of disease and disability using ICTs in Ontario. Participants noted the need to further explore and define certain concepts of the provisional framework, and that other relevant concepts should be added to the framework. The study proposes a refined framework which offers an opportunity for policymakers to advance the policy agenda for older adults’ self-management of disease and disability using ICTs.

Policymakers working in the realm of older adults' self-management of disease and disability are faced with a rapidly evolving and changing context where technologies are becoming omnipresent. With policies often lagging the consideration and inclusion of technology, a framework that supports a coordinated and holistic approaches to policymaking can enhance proactivity and cohesive actions from governments to consider their application. This can lead to better health outcomes for older adults living in this innovative and ever-changing ecosystem.

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### **List of Abbreviations**

|       |                                                                     |
|-------|---------------------------------------------------------------------|
| ADLs  | Activities of Daily Living                                          |
| AODA  | Accessibility for Ontarians with Disabilities Act                   |
| CAS   | Complex Adaptive Systems                                            |
| CDPM  | Chronic Disease Prevention and Management                           |
| CDSPM | Stanford Chronic Disease Self-Management Program                    |
| COPD  | Chronic Obstructive Pulmonary Disease                               |
| FHTs  | Family Health Teams                                                 |
| FPT   | Federal, Provincial and Territorial                                 |
| HSE   | Health Systems Evidence                                             |
| IADLs | Instrumental Activities of Daily Living                             |
| ICF   | International Classification of Functioning, Disability, and Health |
| ICTs  | Information and communication technologies                          |
| LHIN  | Local Health Integration Network                                    |
| NCE   | Networks of Centres of Excellence                                   |
| SMDD  | Self-management of disease and disability                           |
| OTN   | Ontario Telemedicine Network                                        |
| PT    | Provincial and Territorial                                          |
| WHO   | World Health Organization                                           |

# **CHAPTER 1**

## **INTRODUCTION**



# 1. INTRODUCTION

This chapter provides the foundation for the dissertation and explains the concepts that constitute the problem being studied.

First, I supply context for the areas that compose the dissertation. Second, I give a statement of the problem to set the stage for the timeliness and relevance of the dissertation. Third, I describe the purpose of the dissertation and outline its key objectives. Fourth, I give an overview of the approach used throughout the dissertation. Fifth, I supply an in-depth review of the literature to situate the problem within existing research and scientific knowledge. Sixth, I provide readers with details about the knowledge gaps and methodological choices for the dissertation. I conclude with an overview of the organization of the dissertation and offer the readers a summary of each of the chapters.

The population health research project presented in this dissertation was inspired from my practicum in a policy and implementation environment, and volunteering activities in various levels of government. I have always been interested in finding ways to better support older adults to live long and prosper lives and see how and where the role of technologies and policies interact and come into play. To explore the topic of policymaking for older adults' self-management of disabilities using technologies, I decided to take a thesis by articles approach.

## 1.1. Context

Self-management is increasing in popularity as an effective approach for older adults to manage and care for their health conditions in daily life [1]. Many older adults turn to technologies to help them self-manage. For older adults, getting adequate access and opportunities to use technologies can lead to enhanced quality of life [2]. While information and communication technologies (ICTs) are being developed to support self-management, healthcare

policies can have a profound impact on their accessibility, affordability, and use. The policymaking environment is dynamic, fast-changing and influenced by technical, financial, social, environmental, and political factors. Policies are being developed in a context where older adults are living longer, many with chronic conditions and comorbidities, often needing to self-manage activities of daily life, and where technological innovations in this area are abundant and emerging. This dissertation explores the evolution of self-management policies and looks for the best approach to develop such policies in a highly evolving environment.

## **1.2. Statement of the Problem**

Population aging has gained significant traction in research and in the media in recent years. Life expectancy is continuously increasing [3] and individuals are living longer with chronic illnesses and disabilities [3]. Older adults are having to cope with burdens imposed by conditions such as hypertension, heart/renal failure, type II diabetes, cognitive decline (Alzheimer's disease), and cancer for longer periods of time.

There exist several approaches to dealing with difficulties caused by chronic diseases and disabilities, self-management being one of them. Through self-management, individuals are better prepared to deal with and overcome the burden and difficulties encountered in their daily lives. Currently, researchers and innovators are coming up with innovative solutions in the form of technologies to facilitate and support self-management. These technologies can take various forms including ICTs that have the potential to support self-management well beyond health and care management. ICTs are known to support individuals in various activities of daily living [4] and improve health outcomes [5]. However, self-management of chronic diseases and disability through ICTs has diverse implications for older adults due to factors such as accessibility and digital literacy.

With the myriad of advancements and innovations occurring in the technology sector, including to support self-management, we must recognize that technology alone will not produce the desired benefits. Technology that is implemented without considering the social and other systems where it is used can lead to negative and undesired impacts. Technology only gets a value statement when it is aligned with the people and processes that are using it. As such, policies that influence access and use of those technologies play a substantial role in ensuring that they reach those who need them most. As highlighted in Schreiber et al. [4], cost and availability of the technologies are significant barriers to adequate access to technologies, which raises concerns with equity. These barriers can be the result of inadequate policy actions and support in that area, which may overall impact equitable access to health services.

In the case of Ontario specifically, government actions and policies on self-management are outdated and have not evolved to meet the needs of individuals that are self-managing their disabilities. For example, the Chronic Disease Prevention and Management (CDPM) framework from 2007 [6] and further operationalized in other documentation from Health Care Quality Ontario [7] has aged and may not represent the modern reality of older Ontarians. It also lacks information on the role that technology may play in supporting self-management, which makes this framework incomplete.

There is a need to study policies on self-management from a historical perspective to understand how policies on self-management have evolved and changed overtime in terms of their composition and focus areas. It is also important to show how to shape future policies in this area to ensure they are sustainable within this fluid and evolving landscape. Additionally, this thesis research sought to develop and validate a framework for policymaking on the topic of older adults' self-management of disease and disability using ICTs in collaboration with

policymakers in the government of Ontario. The overarching objective is to better equip public servants in the development of future policies in aging, self-management, and technology.

### **1.3. Purpose of the Dissertation**

The purpose of this dissertation was to identify factors that affect the development and implementation of a framework for policymaking for older adults' self-management of disease and disability using ICTs. The objectives were the following:

1. Review and synthesize the factors that have influenced the development of healthcare self-management policies over time.
2. Examine the policymaking environment (including context, actors, and process) in the development and implementation of policies related to older adults' self-management of disease and disability using ICTs.
3. Investigate the validity of a provisional framework for policy making regarding older adults' self-management of disease and disability using ICTs.

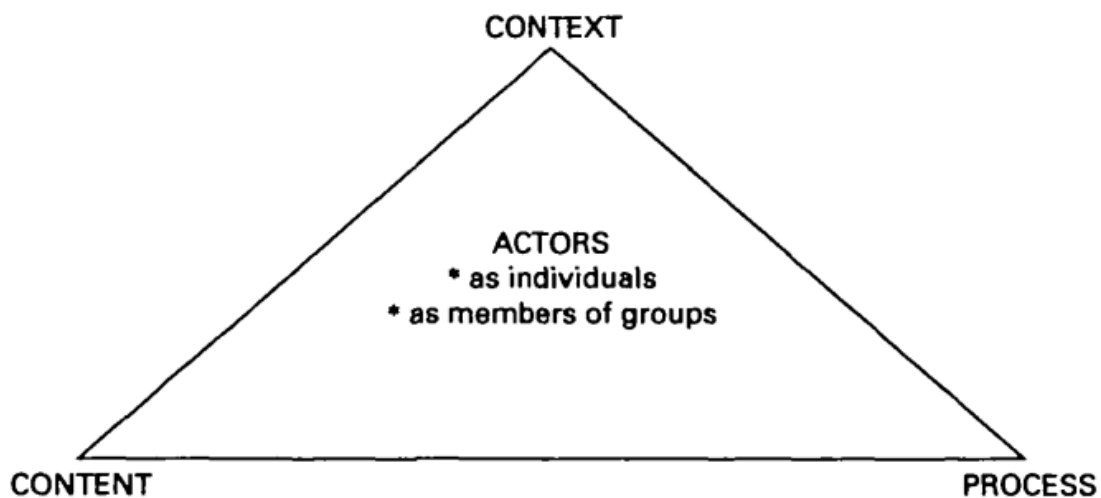
### **1.4. Guiding Conceptual Model**

This dissertation used Walt and Gilson's [8] policy analysis model (Figure 1-1). This model was built upon the realization that many policy analyses only focus on one of the components of policymaking [8]. The Walt and Gilson model underscores the importance of a holistic appraisal that considers many parts that shape policy. The model is composed of four different components that are interrelated to one another: actors, content, processes, and context [8].

- a) Actors, which are at the centre of the model, represent the individuals that would be influenced and involved, in some form or another, in the policy development, implementation or evaluation [8,9].

- b) Content refers to the policy itself, which can be presented in various forms, such as guidelines, regulations, legislation, and are the result of all the other components of the model [8,9].
- c) Process refers to the mechanisms involved in the creation, implementation, and evaluation of policies [8,9].
- d) Context refers to the external factors that have an impact and influence on the policy decisions, and in turn all components that make-up the policy analysis model [8,9].

Figure 1-1. A model for health policy analysis. From “Reforming the health sector in developing countries: The central role of policy analysis” by G. Walt and L. Gilson, 1994, *Health Policy and Planning*, 9(4), p. 354. Copyright 1994 by Oxford University Press



This model was used throughout the present dissertation and informed several components of the individual studies. For my published Article 1 [10], the policy analysis model informed the extraction, interpretation, and evaluation of policy documents. It allowed to discover the influential nature of other components of policymaking on the content of policies. For my

accepted and in press Article 2 [11], the policy analysis model was used in the conceptualization of data collection and analysis. For data collection, the model was used to develop the interview guide and organize the interview. For data analysis, the model was used to create the deductive part of the coding structure. For my submitted and in review Article 3 [12], the policy analysis model informed the creation and visual representation of the provisional framework, whose validity we investigated through a survey with policymakers.

## **1.5. Review of the Literature**

This literature review presents scientific and theoretical underpinnings for the major concepts that compose this dissertation. It includes information about aging with chronic diseases and disability, self-management of health (including the role of technology), policies for the self-management of health, and the status of policymaking at the intersection of these concepts in Ontario.

### *1.5.1. Aging with Chronic Diseases and Disability*

Population aging is continuously changing in Canada, with an increasing number of adults over the age of 65 years. As of 2022 for example, there were over 7.3 million Canadian older adults aged 65 years and older [13]. With age also comes an increase likelihood of developing chronic diseases and conditions such as arthritis, cancer, cardiovascular diseases, diabetes, among others, are known to have a higher prevalence among those aged 65 and older [14]. The demographic of individuals aged over 65 years old living with chronic diseases is very diverse. Differences in experiences of aging can diverge based on many intersecting factors such as age, race, gender, sex culture. For example, sex differences can significantly influence an individual's likelihood of developing certain conditions more than others. This is the case for arthritis, for example, where data from 2019–2020 shows that 53.6% of females compared to 38.3% of males

aged 65 and over reported that they have been diagnosed by a health professional as having arthritis [15]. Additionally, older adults that live with or without impairments and disabilities may have significantly different experiences with the process of aging. Unfortunately, for those aging with chronic diseases usually corresponds to increases in comorbidities which may lead to impairments, and in some environmental contexts, can become debilitating and lead to experiences of disability [16]. They can often limit individuals' opportunities to actively participate in society and in their own care. For example, if an older adult with arthritis has mobility difficulties which limits their ability to get out of the house, they may be incapable of actively taking part in instrumental activities of daily living (IADLs) (e.g., shopping for food, medication, and other essentials).

Theoretically, the concept of disability has evolved significantly over time. There exist two broad and contrasting perspectives on disability. They are commonly referred to as (i) 'the medical model' and (ii) 'the social model' of disability [17]. In the medical model, disabilities are viewed as a restriction to daily living due to impairment of body structure or function arising from disease or illness [18]. In this model an individual with a disability is considered a "deviation from normality" (p. 193) [19]. Similarly, the medical model views experiences of disadvantage in society as an individual's inherent functional limitation, placing fault directly on an individual's disease or impairment [20]. As research in disability has advanced, the role of society in generating experiences of disability started to become more important and take predominance over individualistic views about disability. The social model of disability was later developed from research that showed that disability was imperfectly understood as a consequence of a person's medical history or condition [18]. In this newer model, disability was no longer seen as the result of disease or impairment, but rather as a result of "designing

everything to meet the needs of the majority of people” [21]. In contrast to the medical model, the social model emphasized the role of environmental and contextual factors in limiting an individual’s ability to function and participate in society. Through the lens of the social model of disability, an individual with a mobility impairment may be in a situation of disability because of environmental barriers that they encounter (e.g., stairs and curbs; stigma and stereotypical attitudes). The World Health Organization’s international classification of functioning, disability, and health (ICF) proposed that “disability is a difficulty in functioning at the body, person, or societal levels, in one or more life domains, as experienced by an individual with a health condition interaction with contextual factors” (p. 1220) [22]. This definition puts emphasis on functioning as a determinant of health and implies that disability is created based on factors from both the individual level, such as impairments, and from the societal level, such as the built environment. From this view, disabilities experienced by older adults are seen as limitations resulting from challenges and difficulties in physical capacity, physical mobility, or in performing activities of daily living (e.g., bathing or eating) or instrumental activities of daily living (e.g., shopping or cooking) resulting from chronic diseases. By this definition of disability, both impairments in functioning and environmental barriers, such as stairs, would be acknowledged as contributing factors to a person’s experience of disability. These theoretical underpinnings reflect the position that was taken in this dissertation and position the role of policies in addressing both impairments in functioning and removing environmental barriers. For example, the government-supported programs that promote self-management initiatives could serve as a mechanism to increase physical capacity through effective symptom management, and legislation that regulate businesses’ structural environments (i.e., stairs vs. ramps) may remove existing barriers therefore limiting experiences of disability.



There exist numerous interventions to support healthy aging amidst experiences of disability: Self-management initiatives [23], or socio-structural interventions [24], more recently referred to as age-friendly cities approaches [25]. At its base, self-management promotes the interdependence between the individual and its environment whereby personal resources and intrinsic factors (i.e., attitudes and behaviours) of individuals exist in combination with external stressors [23]. Self-management initiatives can support older adults aging in their own homes as they consider the individual with their capacities and limitations among a set of systems that interact and contribute to care management. Age-friendly cities and socio-structural interventions, however, focus largely on enabling environments which remove barriers from the outside [23,25]. While each present significant benefits for older adults to be active participants of society and being free of barriers, this dissertation focuses on self-management initiatives for its focus on person-centred and autonomy-building approaches.

#### *1.5.2. Self-Management of Health*

The present dissertation focuses on the role of self-management in supporting older adults in their care management and participation in activities of daily living. Self-management encompasses a wide range of activities that allow an individual to remain an active participant in their care. At its origins, Corbin and Strauss [26] and Schulman-Green et al. [27] have proposed two models to define self-management of health. Corbin and Strauss [26] discuss self-management as the set of opportunities for individuals to act upon their difficulties because health management requires resources to enable such a process. They emphasize that the needs of individuals change over time and that there is a constant requirement to adapt to those needs [26]. In their model, they talk about self-management as the process of understanding limitations, having access to resources and being able to act accordingly and around the limitations posed by

a condition [26]. This perspective acknowledges that it is possible to successfully manage disabilities resulting from conditions (such as chronic diseases) by having access to appropriate resources and taking appropriate action. Similarly, Barlow provided a definition of self-management in the early 2000s that aligns well with Corbin and Strauss's preliminary thinking about the concept:

“Self-management refers to the individual's ability to manage the symptoms, treatment, physical and psychosocial consequences, and lifestyle changes inherent in living with a chronic condition. Efficacious self-management encompasses ability to monitor one's condition and to effect the cognitive, behavioural, and emotional responses necessary to maintain a satisfactory quality of life. Thus, a dynamic and continuous process of self-regulation is established” (p. 178) [28,as cited in 29].

The process model for self-management proposed by Schulman-Green [27] identifies the important actors involved in an individual's experience with self-management: the caregiver, the family, the individual, and the society. Under this perspective, self-management is not an individual task but rather a process undertaken in collaboration with multiple key actors to ensure that individuals experiencing difficulties and changes in capability remain autonomous and with the best quality of life possible. The main difference between both models is that Corbin and Strauss [26] refer to self-management as set of opportunities for individuals while Schulman-Green et al. [27] refer to self-management as a process involving numerous actors. Van de Velde et al. [30] proposed a definition of self-management that represents a combination between Corbin and Strauss's [26] and Schulman-Green et al.'s [27] conceptualization because both the concepts of evolving needs and wider actor involvement are portrayed:

“Self-management is the intrinsically controlled ability of an active, responsible, informed and autonomous individual to live with the medical, role and emotional consequences of his chronic condition(s) [needs] in partnership with his social network and the healthcare provider(s) [actor involvement].” (p. 10) [30]

In Canada, the importance of self-management is widely acknowledged throughout the country and within many healthcare systems. Most frequently, Canadian jurisdictions usually implement adapted versions of the Stanford Chronic Disease Self-Management Program (CDSMP) [31] as their main mechanism to promote self-management. The CDSMP “focuses on disease management skills including decision-making, problem-solving, and action planning” (para. 1) [31] for individuals living with chronic diseases specifically. This approach seems to have a directed focus toward management of the disease rather than a broader focus on disability. In an environmental scan on policies for self-management, Liddy and Mill [32] highlighted Canadian government policy documents that relate to self-management and where most of them are based on this Stanford CDSMP or are disease specific. Provinces such as Alberta, Ontario and New Brunswick were said to promote self-management by adapting the CDSMP to the needs of their populations [32]. By doing so, the provinces provided a structure to support individuals in their self-management journeys which may have, in turn, improved their overall health outcomes.

Additionally, Canadian provinces also provide other support programs that target individuals with particular diseases [32]. For example, Ontario, Saskatchewan, and Prince Edward Island have developed structures to address diabetes, which include guidelines, programs, or plans that offer some information about diabetes with some embedded notions of self-management [32]. The Health Council of Canada (<https://www.healthcouncilcanada.ca/>)

reported that most self-management initiatives in Canada are disease-specific and target only specific populations [33]. These approaches may be ineffective and even amplify inequities for certain groups of the population. For some individuals such as those who are disadvantaged and living with multiple chronic conditions, experiences of care management can be worsened from inadequate and maladapted self-management interventions [34]. Additionally, a disease-specific approach can provide benefits for addressing the target disease [35], but would be limited in reach and applicability to other diseases. Overall, existing provincial approaches and the CDSMP target diseases which affect the highest proportion of people in the population and diseases that represent high costs to the system but ignore other concerns that would affect other groups of older adults and may also present significant costs to the system.

A wide range of technologies have received attention from researchers, developers, and older adults because of the opportunities that they offer to individuals with living with chronic diseases and disabilities. Particularly, ICTs, which are widely available, can act as a type of assistive device to help perform IADLs [4]. In the case of chronic diseases, ICTs can support care management with condition-related tasks as well as IADLs. For example, older adults with breathing and pain impairments can use emails, text messages and the internet to perform health-related such as manage prescriptions or seek health information and perform personal tasks such as banking [36]. Similarly, older adults in early stages of dementia can use smartphone technology, the internet, and apps to help them with their shopping, financing, keeping connected with their communities and managing their medications [37], and patients with chronic obstructive pulmonary disease or diabetes can use a mobile application for the monitoring of their condition and, in turn, encounter positive outcomes such as increased physical activity and quality of life [38]. By being able to participate in IADLs via ICTs, older

adults can overcome challenges with their functional limitations or environmental barriers, hence, not be in situations of disability in the execution of those tasks. Several systematic reviews also support these examples and demonstrate that ICTs are viable and promising for supporting care management and daily activities for older adults with diverse needs and in diverse settings [39–43]. Regarding the amount of technology users among those aged 65 years or older, research has shown that more than 70% of them are confident to use them [44]. These opportunities for self-management of health using technologies, however, can only be possible if older adults have access to and are able to use such technologies. Policies present as one avenue for supplying the support needed to enable ICT access and use.

#### *1.5.3. Policies for Self-Management of Health*

For older adults to benefit fully from those new and emerging technologies, policies that support their access and use are critical. When reviewing the literature, nothing appeared to be done in Canada specifically in terms of policies or programs to support non-specialized equipment (e.g., ICTs) for older adults' self-management of diseases and disabilities. In a jurisdictional scan of policies by Schreiber and Wang [4], the results showed that there exist limited programs and policies for assistive technologies in the form of ICTs for older adults across all Canadian provinces. Additionally, there is limited proactive actions from governments in implementing solutions for aging in place that involve ICTs [45].

Policymaking is a complex process, involving a dynamic balancing of political knowledge, scientific (research-based) knowledge, and practical implementation knowledge [46], enabled or impaired by the political context. Currently, there exist a few frameworks and models that guide how policies are developed, reviewed, and implemented throughout the policy development cycle in Canadian healthcare systems. The frameworks that do exist are either very general and

are meant to be applied to any policy work related to health—or—are particular to the policy work done within a specific department. A review of government websites showed that none of the existing frameworks were developed specifically to guide policymaking of self-management of disease and disability with ICTs. In both Alberta and Ontario, there exists frameworks for health policymaking, but both frameworks present general approaches which may not be suited to the complex problem of self-management of health using ICTs. For example, the framework in Alberta is composed of 3 pillars which highlight the importance of considering governance structures and processes in health policymaking [47]. However, this general approach may not appropriately help develop policies for self-management of disabilities with ICTs because it would have limited considerations for the complexity of the issue and the plurality of sectors involved. In Ontario, the policymaking framework takes a similar general approach to the one in Alberta, but it is specific to public health policies, and it highlights three key phases: (i) the planning phase (ii) the implementation phase and (iii) the evaluation phase for policymaking [48]. Using a general approach to policymaking for older adults' self-management of disease and disability using ICTs could result in policymakers neglecting to consider key factors that are unique to this area. For example, pressures from all domains and levels of policymaking, as highlighted by Walt and Gilson [8], and the constant evolving innovations in ICTs would make a general policymaking approach unsuitable.

#### *1.5.4. The Case of Ontario*

The province of Ontario, via 7 successive governments, has worked to advance the health of its population for over 35 years [49]. Over these years, the province has addressed the issue of disability and chronic diseases in many ways that are worth exploring. In Ontario, the demographics of older adults are extremely diverse and growing in numbers. Data from 2016

demonstrates that older adults (65 years and older) are the fastest-growing age group [50]. For chronic diseases, such as arthritis, and with similar numbers to those of Canada, in Ontario 55% of females compared to 38% of males aged 65 years and older reported being diagnosed with arthritis [15]. For those living with chronic diseases, several areas of life can significantly be impacted due to increased depressive symptoms, fatigue, and pain that can be associated with dealing with chronic diseases daily [51]. In the last 20 years for instance, the surge of chronic diseases has led to several initiatives and developments in programming as an effort to decrease the burden imposed by such diseases on the healthcare systems across the province. From the policy side in Ontario, issues related to disabilities and chronic disease are managed by different government ministries. Chronic diseases are overseen by the Ministry of Health and the Ministry of Long-Term Care [52,53], while disabilities are overseen by the Ministry of Children, Community and Social Services [54]. This structure reveals important disconnects in how the healthcare system and the province views chronic disease and disability. In terms of self-management, Ontario has implemented many different initiatives that are either disease-specific or concern only chronic diseases generally, not disability [33]. For example, the government of Ontario provides funding for the Arthritis Rehabilitation and Education Program [55] and for diabetes programs (i.e., Diabetes and Assistive Devices Program, Diabetes and Ontario Drug Program, and many other initiatives) across the province [56]. All the different programs and initiatives that exist in Ontario are guided by a framework entitled The Chronic Disease Prevention and Management (CDPM) framework [57]. This framework is intended “To guide redesign of healthcare practises and systems to improve chronic disease prevention and management in Ontario” (p. 8) [57]. Mainly, it discusses approaches to chronic disease management which involve a complex system of healthcare organizations, individuals, and

families, all within the larger community. This approach aligns with the process model of self-management [27], but is limited in reach and impact as it revolves merely around the management of health and not around a person's ability to participate in IADLs. For disability self-management, the government of Ontario programs are scarce and are limited to funding of assistive technologies. However, the existing funding is inadequate since the government of Ontario's description of assistive technology refers mostly to specialized equipment (such as power wheelchairs or personal amplification devices) [4], which most often excludes ICTs.

## **1.6. Knowledge Gaps and General Methodology**

Through this literature review, several gaps were found in the emerging area of technology-enabled self-management of health. With population aging and a rise in life expectancy, older adults are experiencing increased difficulties resulting from chronic diseases and associated disabilities. While efforts to overcome these challenges are numerous, initiatives across the country are variable and have focused on a few diseases and omit to consider disabilities. Self-management, a promising and essential approach to care management and improving quality of life more generally, has been the focus in many jurisdictions. However, policymaking to support such an approach, especially in a time of emerging technological advancements, is scarce and often inequitable. Existing models of policymaking for health issues are not well suited to address the issue of older adults' self-management of disease and disability as it is composed of complex interactions among diverse actors and sectors. This dissertation is composed of three phases that help to better understand the landscape and gaps in policymaking for older adults' self-management of disease and disability using ICTs. The aim was to address the following research questions:



1. What factors have influenced the development of healthcare self-management policies over time?
2. What is the environment (including context, actors, and process) that policymakers must navigate through in the development and implementation of policies related to older adults' self-management of disease and disability using ICTs?
3. How well is the complex set of interactions between various components of government policymaking (context, actors, processes, and content) for older adults' self-management of chronic disease and disability using ICTs captured in a framework for policymaking?

Table 1-1. Dissertation phases and the policy triangle model

| <b>Phase</b> | <b>Objective</b>                                                                                                                                                                                               | <b>Research Question(s)</b> | <b>Design/method</b>                           | <b>Application of policy analysis model [8]</b> |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------|-------------------------------------------------|
| 1            | Review and synthesize the factors that have influenced the development of healthcare self-management policies over time.                                                                                       | 1                           | Archival research using document analysis      | Data extraction and analysis                    |
| 2            | Examine the policymaking environment (including context, actors, and process) in the development and implementation of policies related to older adults' self-management of disease and disability using ICTs. | 2                           | Qualitative method: Semi-structured interviews | Data collection and analysis                    |
| 3            | Investigate the validity of a provisional framework for policy making regarding older adults' self-management of disease and disability using ICTs.                                                            | 3                           | Quantitative method: Survey                    | Data collection and validated framework         |

## **1.7. Dissertation Organization**

The present dissertation introduces the background and context for the topic being explored, presents a series of three articles, and concludes with an integrative discussion.

The first chapter introduces the dissertation topic. It provides a detailed literature review, purpose and objectives, research questions and methodological approach for the project.

The second chapter presents phase one of the project and is the first published article of the dissertation. This archival research study retrieved policy documents from the government of Ontario on the topic of healthcare self-management and explored their evolution over time alongside influential factors.

The third chapter presents phase 2 of the project and is the second article of the dissertation, which has been accepted for publication and is in press. This qualitative study documented and analyzed the policymaking approach of the government of Ontario on the topic of older adults' self-management of disabilities using ICTs.

The fourth chapter presents phase 3 of the project and is the third and final article of the dissertation, which has been submitted for publication and is under review. This quantitative study assessed and validated a provisional framework for policymaking on older adults' self-management of disease and disability using ICTs with policymakers from the government of Ontario.

The fifth chapter gives an integrative discussion of the results from all the studies performed as part of this PhD dissertation. It also highlights limitations and offers directions for future research.

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## CHAPTER 2

### EVOLUTION OF PUBLIC HEALTH POLICY ON HEALTHCARE SELF-MANAGEMENT: THE CASE OF ONTARIO, CANADA

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**Reason for journal selection:** The BMC Health Services Research is a journal that publishes materials on health services research, with a particular focus on many related subtopics including health policy. Within their focus on health policies, the journal considers research that touches on aspects of policymaking such as decisions, plans and actions that are undertaken to achieve health goals in society. My article documents the evolution of health policies on Ontario specific to health self-management which directly relates to the goals and focus of the journal.

## Abstract

**Background:** As people live longer, they are at increased risk for chronic diseases and disability. Self-management is a strategy to improve health outcomes and quality of life of those who engage in it. This study sought to gain a better understanding of the factors, including digital technology, which affect public health policy on self-management through an analysis of government policy in the most populous and multicultural province in Canada: Ontario. The overarching question guiding the study was: What factors have influenced the development of healthcare self-management policies over time?

**Methods:** Archival research methods, combining document review and evaluation, were used to collect data from policy documents published in Ontario. The documents were analyzed using the READ approach, evaluated using a data extraction table, and synthesized into themes using the model for health policy analysis.

**Results:** Between January 1, 1985, and May 5, 2022, 72 policy documents on self-management of health were retrieved from databases, archives, and grey literature. Their contents largely focussed on self-management of general chronic conditions, while 47% ( $n = 18/72$ ) mention diabetes, and 3% ( $n = 2/72$ ) focussed solely on older adults. Digital technologies were mentioned and were viewed as tools to support self-management in the context of healthcare delivery and enhancing healthcare infrastructure (i.e., telehealth or software in healthcare settings). The actors involved in the policy document creation included mostly Ontario government agencies and departments, and sometimes expert organizations, community groups and engaged stakeholders. The results suggest that several factors including pressures on the healthcare system, hybrid top-down and bottom-up policymaking, and political context have influenced the nature and implementation timing of self-management policy in Ontario.

**Conclusions:** The policy documents on self-management of health reveal a positive evolution of the content discussed over time. The changes were shaped by an evolving context, both from a health and political perspective, within a dynamic system of interactions between actors. This research helps understand the factors that have shaped changes and suggests that a critical evidence-based approach on public health policy is needed in understanding processes involved in the development of healthcare self-management policies from the perspective of a democratic governing system.

## **2. EVOLUTION OF PUBLIC HEALTH POLICY ON HEALTHCARE SELF-MANAGEMENT: THE CASE OF ONTARIO, CANADA**

### **2.1. Background**

Life expectancy continues to increase globally, leading to an aging population that will crest in the next generation. Between 2000 and 2019, there was an increase in global life expectancy from 66.8 years to 73.4 years, respectively [1]. In Canada, the life expectancy increased to reach an 86-year-old average in either sex [2]. For many, it may afford to increase time to spend with loved ones and more time to participate in various social and physical activities. However, the increase in life expectancies also comes with an increased risk of developing chronic diseases and comorbidities that may result in disability [2]. Living with chronic diseases and disability can lead to various disabling conditions that often trigger some level of healthcare self-management. Van de Velde et al. [3] define self-management as “the intrinsically controlled ability of an active, responsible, informed, and autonomous individual to live with the medical, role and emotional consequences of his chronic condition(s) in partnership with his social network and the healthcare provider(s)” (p. 10). Chronic disease self-management is an important aspect of tertiary prevention, whose goal is to achieve a return to maximal function [4], and has only recently become part of urgent public health policy. Addressing self-management of disease promotes healthy living and well-being, which is one of the United Nations’s sustainable development goals [5], endorsed by Canada who has committed to advancing these goals [6].

Self-management can empower older adults to overcome barriers of an overwhelmed and underfinanced healthcare and social systems, and leave them better equipped to face challenges in their everyday lives. Interventions to promote self-management, by developing abilities of

patients (i.e., education, training, and support), have shown to improve health outcomes and reduce healthcare utilization [7]. Conversely, this may reduce experiences of disability that these individuals would otherwise encounter which would make them—to some degree—stronger. Similarly, self-management of disability involves learning to live amidst the disability and forcing to find solutions to increase quality of life while still having to deal with everyday challenges of the disability. By self-managing diseases and disabilities, individuals can enhance their sense of autonomy and dignity, and thereby promote their mental and physical well-being [8]. As an enabler to self-management, digital technology can support activities such as exercising, healthy eating, medication management, monitoring of signs and symptoms, and problem-solving (in cases of distress for example) [9,10,11,12].

For Canadians, opportunities to become involved in self-management are numerous and often supported via programming such as adaptations of the Stanford Chronic Disease Self-Management Program [13]. For example, several provinces integrate the Stanford Chronic Disease Self-Management Program into community-based programs or deliver it through local health authorities [14]. While self-management support programs exist, they are not fully integrated within the healthcare system because healthcare providers have limited knowledge about their availability or how to refer their patients to them [15], which limits their effectiveness and ability to meaningfully contribute to improving the quality of life for older adults. Through the years, there have been several attempts by provinces and territories (editor's note: Canada has 13 separate healthcare systems) to better integrate self-management into healthcare systems and in the lives of Canadians by developing policy actions on the issue, but research has shown that efforts are either disease specific or embedded in population-wide approaches [14]. Uneven and inequitable implementation of self-management programming and supports limits the impact

and reach of such efforts. For example, a focus placed specifically on diabetes management may have limited impact for those who need to self-manage other chronic conditions or disabilities and functional limitations that may be linked to advanced age. In addition, policies that are focussed on the general population may have limited impact for certain segments of the population, such as older adults, which may have special concerns, needs, and sets of difficulties in performing daily activities. This focus and perspective points to larger issues with the processes of policymaking regarding self-management in Canada. To address these issues, we need to undertake an in-dept scan of current and historical policies to understand how a variety of approaches to policymaking came about and to identify which factors have led to advancements (or not) in the area. As per the model for health policy analysis [16], several contextual elements (such as political regimes) and many diverse stakeholders influence how a policy is implemented into society. For example, elements of context such as increased concerns with rising cases for chronic conditions, the political or economic system in a country at a specific time, or major societal events (e.g., the period studied here, COVID-19 pandemic) can all shape the evolution of policies on health self-management. The agenda of the actors involved in the policy creation could also influence the content and way in which policies are developed and implemented.

To develop effective policies on self-management that improve the quality of life for older adults with chronic diseases, developed comorbidities and disability, there is a need to understand why and how governments have undertaken policymaking on those needs. For the purpose of this analysis, Ontario will be used as a case study because it has worked to advance health promotion and prevention initiatives for as long as 35 years [17]. This paper examines the



evolution of policies for self-management of health in Ontario to understand how the content has evolved based on context and actors involved in policy creation.

The research question for our study was: *What factors have influenced the development of healthcare self-management policies over time?*

Sub-questions:

1. How have policies and policy-related documents on self-management of health evolved over time in terms of their content and timing of major events and political timing in Ontario?
2. What elements of context have influenced policies on self-management of health in Ontario?
3. What actors were involved and how did the actors frame health self-management in the creation of policies in Ontario?

## **2.2. Methods**

### *2.2.1. Methodological Approach*

#### 2.2.1.1. Step 1: Readyng the Materials

Defining Policy Documents. In this study, archival research was used to identify and document the evolution of self-management policy in Ontario. Initially, policy documents were defined as a “formal statement that defines priorities for action, goals and strategies, as well as accountability of involved actors and allocation of resources” (p. 94) [20]. While we were able to retrieve a few policy documents as per the definition, we decided to broaden our scope to other policy-related documents that were relevant to the topic of interest. More broadly, documents were included in this study (i) if they discussed self-management (ii) if it was either a legislative document (including a policy), a strategic or action plan, a report (including environmental

scans), an evidence brief, a set of guidelines or recommendations, a memo, a news media release, a fact sheet, or a framework for action, and (iii) if it was developed and published by or with a department of the Ontario Government.

Collection of Policy Documents. The search strategy was developed with the help of an information specialist at the University of Ottawa. A diverse set of platforms were included to ensure a comprehensive identification and retrieval of relevant policy documents (Appendix 2-1). The following sources were searched to locate relevant policy documents between January 1, 1985, and May 5, 2022: 1) the Archives of Ontario and Legislative Library of Ontario platforms to get direct access to government archives; 2) the Government of Ontario webpages to identify documents that would not be indexed in the archive databases; and 3) health and policy-specific databases to identify supplemental policy-related documents that were relevant to self-management of health. The Health Systems Evidence (HSE) repository was also verified to retrieve any additional materials not found in the other platforms and databases.

For the search in the Archives of Ontario and Legislative Library of Ontario, we obtained documents that discussed self-management in the context of health and healthcare. We established a search approach with a librarian from the Archives of Ontario to ensure that we accessed all relevant available collections and gathered a comprehensive set of documents relating to self-management. The first author of this publication conducted the searches and identified the relevant documents. The documents were included if the titles and summaries discussed self-management in the context of health.

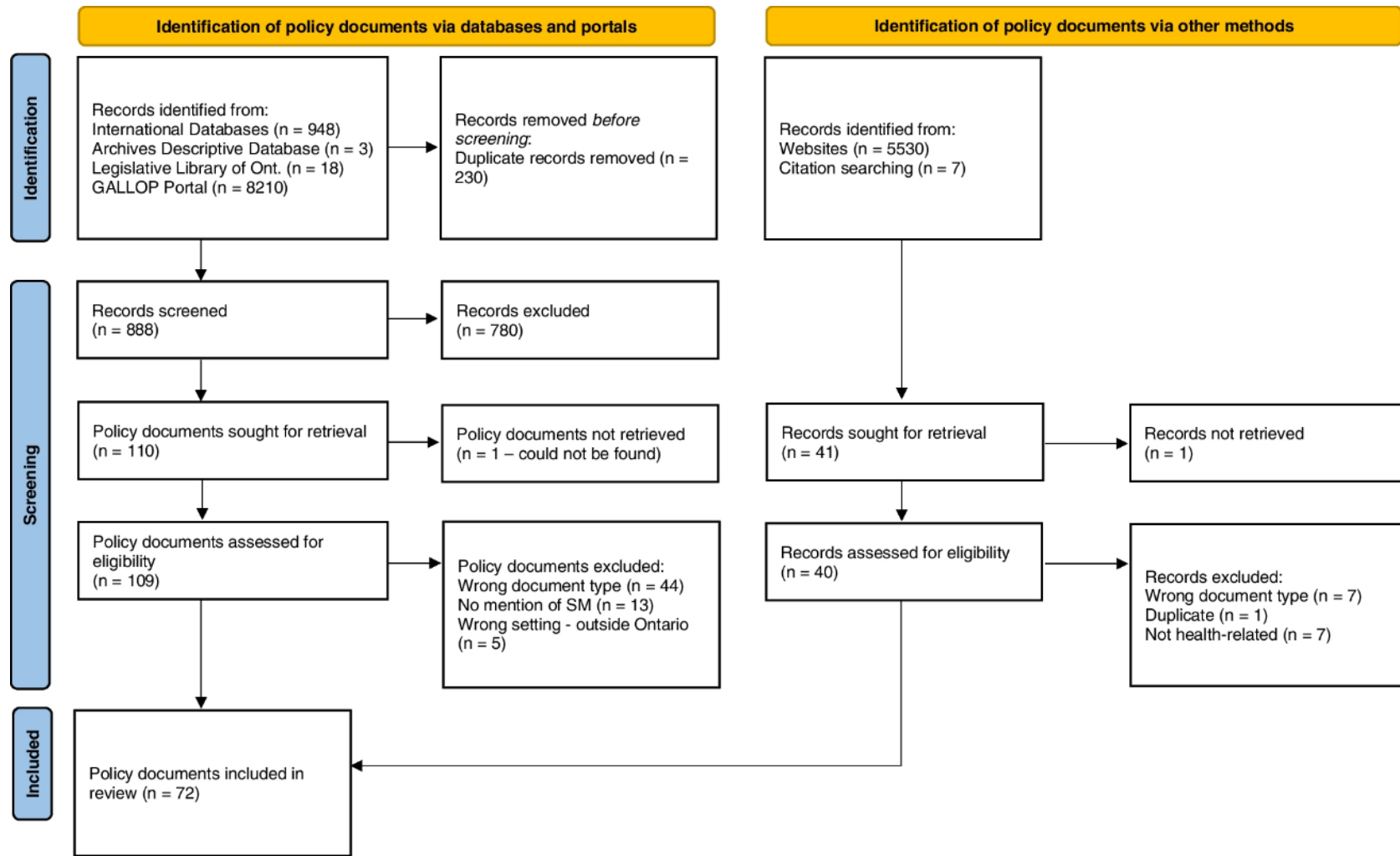
For the search in the Government of Ontario's website, we used a keyword search through various websites' search engines. The keywords included "self-management", "self-care", "self-

monitoring”, and “self-efficacy”. The search results were screened and reviewed by team members who identified results that discussed self-management in the context of health.

For the search in academic databases, 8 databases were selected based on their scope and the type of content that they include ensuring that they were likely to publish policy documents. They included CINAHL (EBSCO), EMBASE (OVID), ProQuest Politics Collection (ProQuest), Canadian Business and Current Affairs Database (ProQuest), Canadian Public Policy Collection (Scholars Portal Books, the Canadian Periodical Index (CPI.Q), Academic Search Complete (EBSCO) and the Government and Legislative Libraries Online Publications Portal (GALLOP). The search strategy included keywords and database-specific thesaurus words on self-management, disease and disability, and Ontario (Appendix 2-1).

The policy documents were screened and assessed for eligibility (Figure 2-1). They were included in the study if they were policy documents and developed by or with a department of the Ontario government.

Figure 2-1. PRISMA flow diagram for archival research. *From:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>



#### 2.2.1.2. Step 2: Extracting the Data

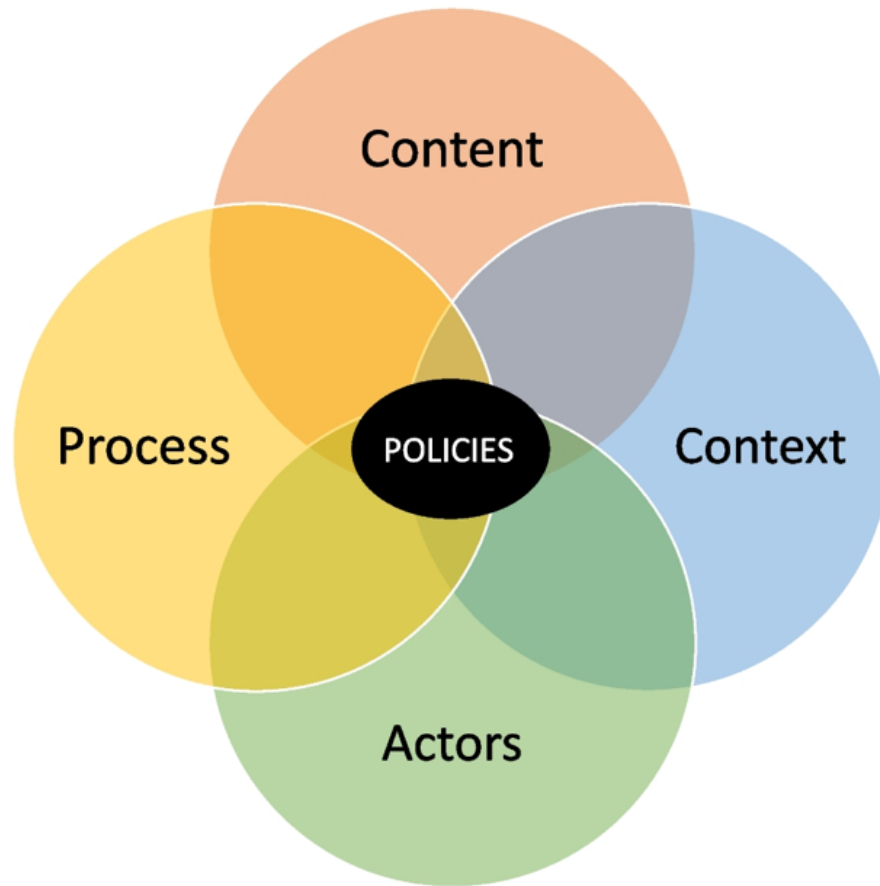
Extraction, Analysis and Evaluation of Policy Documents. Data extraction, analysis and evaluation were performed using a modified version of the data extraction spreadsheet developed in a study on the Integrated Community Case Management of Childhood Illness Policies [21], as cited in Dalglish, S. L., Khalid, H. and McMahon, S. A. [18]. We used an excel spreadsheet to record specific information about policy documents. These included descriptive information on the document authors, date of publication, type, and objective. A summary of the documents, information on the evidence cited and any relevant information on budget used in the creation of the document were also recorded. Additional details about the labels assigned are presented below.

#### 2.2.1.3. Step 3: Analyzing the Data

We used an adapted analytical model for health policy analysis (Figure 2-2) to frame our analysis and evaluation of the policy documents. Walt and Gibson [16] position and define their model for policy analysis using examples from developed countries to amplify the detriment of one-sided policy models. However, the applicability and operationalization of their model for policy analysis to developed countries is without contestation as it offers a holistic mechanism to assess various components of health policies. Walt and Gibson [16] suggested that, in the reform of health policies, too much of a focus is put on the content of the policies, ignoring that other dimensions such as context, process and actors all shape how changes in health policy occur. For example, external pressures from health advocacy/pressure groups, not-for-profits, charities, community organizations, personal experiences and interests with ideologies, cannot be ignored as they shape and create how policies are developed and implemented [22]. While the four dimensions of the model for health policy analysis are unique, they do not exist without

pressures from others and are therefore interrelated [16]. Policies are highly influenced by the context within which they are being developed without neglecting that there were, is, will ever be, a pervasion between the political and cultural factors of the moment [16]. In addition, the actors that are creating or influencing the policy shape policymaking from a variety of angles based on their own presumptions and assumptions. Pressures from actors advocating for change and those developing the policy are all influencing the end result of the policy. For this reason, we evaluated policy documents by reporting on the context, actors and content to better grasp and understand the political dimensions of policy changes. The process dimension, however, could not easily be identified solely from reading the documents since the process of policymaking is often not stated in these documents; therefore, it was omitted from the analysis. In addition, a review of documents did not allow to clearly understand and delineate the concrete influence of actors on content and context on actors as it requires a deeper understanding of the process for policy development. For this reason, actors are represented as a separate section in the results. By analyzing three dimensions of the policies (content, context, and actors) and how they are outlined in the policy document, we will be better equipped to understand how healthcare self-management has been shaped in the context of Ontario.

Figure 2-2. An adapted model for health policy analysis. This simple adapted analytical model for conducting policy analysis incorporates key concepts that need to be considered in the design of policies: Context, process, actors, and content. Adapted from “Reforming the health sector in developing countries: The central role of policy analysis” by G. Walt and L. Gilson, 1994, *Health Policy and Planning*, 9(4), p. 354. Copyright 1994 by Oxford University Press



Document analysis was used to interpret the documents for the three domains of interest. We used a deductive-inductive approach [23] where we identified preliminary codes based on the research questions and refined the codes as we were coding documents for the 3 domains until themes emerged and were defined [24]. The content of the documents was thematically analyzed by identifying key elements about self-management (frequency of mention, definition of self-management, approach to self-management [i.e., development of personal skills,

collaboration between various actors, creation of educational resources, etc.]), identifying mentions of and the role of digital technology in self-management, and identifying the chronic diseases and disabilities of interest. For the context dimension, we have assigned contextual labels by identifying the political lead during document release, major events happening around the release date of the documents (i.e., COVID-19 pandemic), and whether there were significant financial implications around document release (i.e., budget funding in support of a policy). Specifically, the labels were: political lead, major events, and health-related budget. This step involved looking at supplementary files since contextual information was usually omitted or not disclosed in the policy documents. To do so, we searched the Government of Ontario's website for any information relating to political leads and budget, and searched the media for major events at the time of the document release. Finally, the actors' dimension was thematically analyzed using the following codes: implications from groups of actors (government sectors, community organizations, experts and engaged stakeholders), target groups for measures discussed in the policy, and intended users of the policy documents. During analysis, the data was sorted using multiple filters such as year of publication, political context, and topics of interest to identify trends and emerging themes.

#### 2.2.1.4. Step 4: Distilling the Findings

As a final step, the documents were organized into a timeline based on their date of release to better visualize the historical evolution of self-management in health-related policy and what political party was governing Ontario alongside the 35 years. This was done using the program XMind. The timeline supplements the sorting action that was performed in the late stages of analysis and allowed to visually represent some of the major findings.



## 2.3. Results

A thorough search of archival policy documents on self-management in Ontario led to the retrieval of 72 documents. Documents included publicly available research and government reports ( $n = 25$ ), news media ( $n = 16$ ), information sheets ( $n = 12$ ), frameworks and policies ( $n = 6$ ), and webpages ( $n = 13$ ). Descriptive information was gathered and organized in an excel spreadsheet (as demonstrated in Table 2-1) to better represent the diversity and characteristics of documents retrieved.

Table 2-1. Example data extraction of policy documents

| Document title                                                                                                                                                   | Date of publication | Authors                                                     | Document type              | Document type and objective                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Directions from a Local Scan: Self-Management and Empowering the Person Living with Diabetes in the North Simcoe Muskoka Local Health Integration Network (LHIN) | November 2009       | North Simcoe Muskoka LHIN                                   | Report                     | Report summarizing local health status on chronic conditions and findings from a report completed by a member of the North Simcoe Muskoka Chronic Disease Prevention and Management Regional Action Group.                                                                                                                        |
| Guide to Chronic Disease Management and Prevention                                                                                                               | September 27, 2005  | Family Health Teams, Ministry of Health, and Long-Term Care | Guidelines/Recommendations | This guide has been developed to assist groups that are forming Family Health Teams to plan chronic disease management and prevention programs for their patients. The guide is intended as a companion to the Guide to Strategic and Program Planning, which provides an overview of the strategic and program planning process. |
| We're here to help you live well with diabetes.                                                                                                                  | July 2010           | Ministry of Health and Long-Term Care                       | Fact Sheet                 | Fact sheet with information about how to manage diabetes and the supports available to do so.                                                                                                                                                                                                                                     |

|                                                         |               |                                       |            |                                                                                                 |
|---------------------------------------------------------|---------------|---------------------------------------|------------|-------------------------------------------------------------------------------------------------|
| Ontario's Action Plan to Transform Healthcare in London | March 9, 2012 | Ministry of Health and Long-Term Care | News media | News release announcing the Action Plan for Health Care in Ontario specific to London, Ontario. |
|---------------------------------------------------------|---------------|---------------------------------------|------------|-------------------------------------------------------------------------------------------------|

Document analysis allowed researchers to identify several common themes for content, actors, and context. While results are reported as distinct from one another, the section on the context shows how all components of the model for health policy analysis are intertwined and influence one another.

### *2.3.1. Content*

The policy documents reveal important characteristics about focus areas and approaches to policymaking on self-management of health. Several themes identified by the researchers are described below.

#### *2.3.1.1. Singular Disease Focus*

The entirety of documents retrieved focussed on the management and care for chronic diseases. The documents focussed on sharing details about resources available in the community, promoting programs and services, providing evidence on chronic disease management, or underlining guidance, recommendations, and frameworks to support effective chronic disease management in Ontario. The scope of the policy documents varied with some focussing on a single chronic condition and others discussed chronic conditions generally. The chronic condition that was the focus for most of the policy documents was diabetes ( $n = 21$ ; 29%). In total, diabetes was mentioned in close to half of all policy documents on self-management ( $n = 34$ ; 47%). Other documents were either targeting the whole population, specific to people living with chronic diseases (group as a whole) or specific to people living with other conditions (i.e., stroke, asthma, chronic kidney disease, chronic pain, chronic obstructive pulmonary disease

(COPD) and heart failure, plaque psoriasis, hip and knee replacement) (Table 2-2). In addition to focussing on diverse chronic conditions, 11 documents were specific to people of certain age groups (children and youth ( $n = 9$ ) or older adults ( $n = 2$ )) and 11 documents were specific to certain areas of the province (i.e., people living in a Southwest Local Health Integration Network (LHIN) ( $n = 1$ )).

Table 2-2. Target population group within policy documents on self-management

| Target population group                               | Number (n) |
|-------------------------------------------------------|------------|
| All                                                   | 18         |
| People living with chronic diseases                   | 22         |
| People living with diabetes                           | 21         |
| People who have had a stroke                          | 2          |
| People living with chronic kidney disease             | 2          |
| People living with COPD or who have had heart failure | 2          |
| People who have had hip and knee replacement          | 1          |
| People living with asthma                             | 1          |
| People living with plaque psoriasis                   | 1          |
| People living with chronic pain                       | 2          |
| TOTAL                                                 | 72         |

#### 2.3.1.2. Central Role of Individuals with Chronic Diseases

The concept of self-management evoked in the policy documents was mainly related to the personal skills that people living with chronic conditions should have to be able to support their daily life, sometimes ignoring the role of families and caregivers. There was a tendency to put self-management as the responsibility of the individual with a chronic condition but with great emphasis on self-management supports (i.e., community supports and healthcare provider support). These included providing the ability for people with chronic diseases to receive adequate training, education materials, and information resources on how to effectively manage

their condition. The role of healthcare professionals (such as primary care providers) was also mentioned as being essential and favouring effective and purposeful self-management by people living with chronic conditions. The central responsibility, however, remained mostly on the individual living with a chronic condition, with the support of their family/friends/community entourage.

#### 2.3.1.3. Lack of Digital Technology Integration

Considering the increase and evolution in the use of digital technology for healthcare, we retrieved specific details on the mentions of technology within the policy documents. While sometimes mentioned, the documents that did include digital technology did not always effectively link self-management with technology. They were mentioned sporadically and mostly in the presentation of specific initiatives and programs, and in relation to its benefits for enhancing effectiveness in healthcare settings. For example, a specific technology was promoted in the showcase of innovative programming that included a technological component [25]. Such technology was also mentioned in a review of best practices as one of the best mechanisms to influence health risk behaviours [26]. It was also re-acquired by several news media outlets and other documents, such as a newsletter about Ontario Diabetes Strategy, where they mentioned that there would be support for the adoption of new information technologies [27]. Most mentions about digital technologies were in the “Preventing and Managing Chronic Diseases: Ontario’s Framework” from May 2007 [28]. In this document from the Ministry of Health and Long-Term Care, technology was mentioned for its opportunity, as a connected digital tool, to allow for telehealth in clinical settings and where providers have increased access to software to support decision-making [28].

#### 2.3.1.4. Absence of Research Evidence in Policy

Research evidence, in the form of citations of peer-reviewed scientific literature, was noticeably lacking within the policy documents. The documents that cited research evidence were in the form of guidelines ( $n = 9$ ; 13%), recommendations ( $n = 9$ ; 13%), or reports ( $n = 25$ ; 35%). The evidence cited included statistics on chronic diseases in Ontario and in specific regions of the province. Some news media did also include some research evidence. Similarly, few documents mentioned the use of theories and models to frame their narratives. Some of the well-known Canadian models and frameworks cited included the Ottawa Charter for Health Promotion [29], Ontario's Chronic Disease Prevention and Management Framework [28] and British Columbia's Expanded Care Model [30]. In addition, certain documents mentioned international models and approaches such as the Chronic Care Model [31] and the Stanford Chronic Disease Self-Management Program [13]. Some documents also referred to smaller-scale programs implemented in other countries around the world.

#### 2.3.2. *Actors*

Actors of policy documents can be viewed as two-fold: those who develop and implement the policy and those who will be the beneficiaries or end users of the policy. In both cases, document analysis revealed the diversity of actors involved or impacted by the policy documents. Key themes identified by the researchers are described below.

##### 2.3.2.1. Range of Actors Involved in Policy Development

The lead authors for the policy documents were numerous and varied between different Ontario government ministries, agencies, LHINs, and research centres. Close to three quarters of all documents retrieved were led and authored by varying structures of the Ontario government. The former Ministry of Health and Long-Term Care (now separate ministries) led one third of all

publications that were authored by the Government of Ontario. Other Government of Ontario-led policy documents were authored by Health Quality Ontario, specific LHINs, the Ministry of Children, Community and Social Services or the Government of Ontario, generally without mention of specific departments or agencies. Our review identified that in addition to the lead authors, actors from a variety of sectors were consulted during document creation and contributed to the document. They included large not-for-profit organizations, community organizations and engaged individual stakeholders (advocates or researchers). For large organizations, those involved had specific knowledge about the health issue being discussed in the policy document. For example, for policy documents on diabetes, the Canadian Diabetes Association was usually cited as a contributor in the document. For community organizations, their role in the development of the document was mainly in a consultation role where they were able to share best practices from work happening in their communities. Finally, our review of the documents also indicated that individuals, as engaged stakeholders, were involved in a consultative role where they shared their real-life opinions and dialogue with others on a specific topic of interest. However, some documents did not explicitly cite what actors were involved in the document development.

#### 2.3.2.2. General Public as End Users

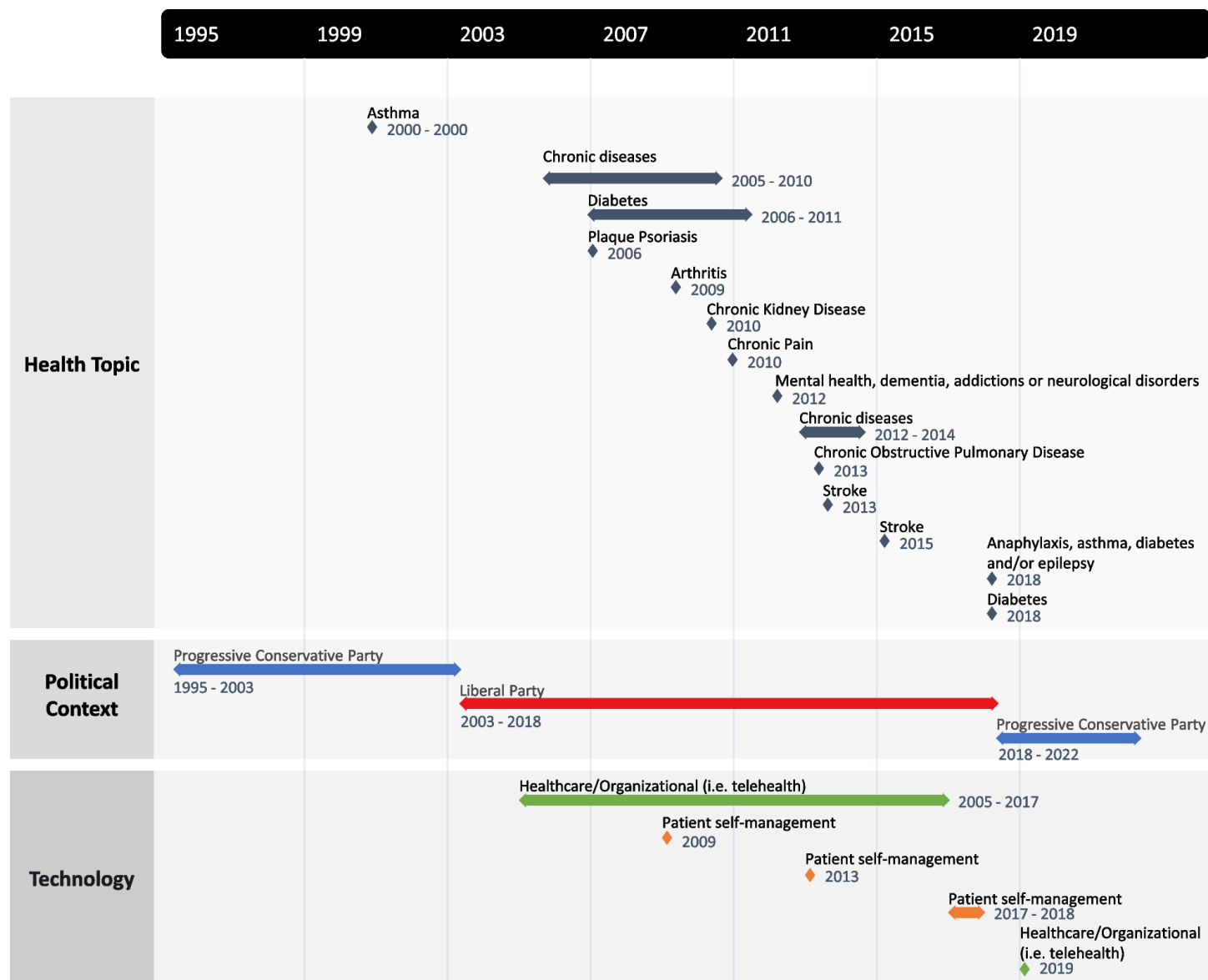
The intended users of the policy documents were numerous. Some policy documents were specifically intended for policymakers and researchers while most of them targeted the general public (people living in Ontario), with some policy documents targeting specific groups like people living with diabetes in Ontario or healthcare providers in Ontario. These policy documents were mainly for information-sharing purposes and provided information about work being done in collaboration with and by the Government of Ontario. This was the case for much

of the documents pertaining to the Ontario Diabetes Strategy where there was a significant focus on promoting good practices and new developments (i.e., programming).

### *2.3.3. Timeline and evolution over time*

While many policy documents on healthcare self-management have been published, content has changed significantly over time. Using the health policy model [16], we were able to identify some contextual factors that may have influenced the content and focus of these documents. In a timeline, major components of the model for health policy analysis were evaluated (Figure 2–3).

Figure 2–3. Timeline of policy documents per health topic, political lead, and digital technology considerations





In short, the first policy document on self-management was published in October 2000 and focussed on asthma. A change in focus occurred shortly after, where chronic diseases more generally became of greater importance. This remained constant throughout time but some specific conditions, such as diabetes, received attention at different moments in time because of how fast they were growing (i.e., 69% increase in 10 years for diabetes) and how they are associated to expensive healthcare costs [32]. Self-management, initially viewed as being the responsibility of the individual, changed through time and became the responsibility of a larger team where care and management were seen as a collaborative effort that involved several professionals, community services, and key tools such as technology. Finally, time has also presented a change in the collaborative nature of policymaking. There was a clear shift from a top-down to a hybrid between top-down and bottom-up healthcare governance approach to policymaking.

#### *2.3.4. Context*

Through an analysis of context, we have identified themes that help to explain the reforms that occurred in content and actors' dimensions of self-management policies in Ontario. As mentioned by Walt and Gilson [16], the interplay between each dimension is critical due to the influence that one dimension puts on others (i.e., influences from actors on the content; influences from context on actors and content; etc.). To do so, we have conducted an evaluation of policy documents to identify influences from context on the different aspects. The contextual factors that have influenced policy development over time are described in more detail below.

#### 2.3.4.1. Pressures on healthcare system: increasing burden of chronic diseases and shifting models of care

First, as mentioned above, October 2000 represents the date when the first policy document on self-management was published by the former Ministry of Health and Long-Term Care. This report from the chief medical officer of health focussed on illustrating the burden of asthma on Ontarians and placing asthma as an important public health concern in Ontario [33]. At that time, asthma was viewed as an important public health concern in Ontario especially for children and adults due to increased absenteeism in school and from work [33]. In that document, self-management was mentioned in one specific section and the emphasis was put on the need for individuals to have self-management plans to help them manage various aspects of their conditions such as symptoms [33]. The self-management strategies identified in this publication were specific to asthma and did not include mention of other chronic conditions with similar affects. The document creation was informed by a steering committee composed of individuals working in the Ministry of Health and Long-Term Care, in local health units, in various healthcare associations, and included academic research scientists. Since the release of this first publication, publications on self-management changed in focus significantly. The focus went from asthma to chronic disease management and prevention, at-large, when the Ministry of Health and Long-Term care published a guide on chronic disease management and prevention five years later, in September 2005 [34]. This guidance document was developed to assist groups forming the initial Family Health Teams (FHTs) to plan chronic disease management and prevention programs for patients [34]. When analyzing the self-management components in the document, it became clear that an increased emphasis was placed on the need to have supportive healthcare systems that promote patients' self-management. The policy documents even

demonstrated how self-management roles and responsibilities changed from being on the individual to becoming an interdisciplinary collaboration between various stakeholders that function in tandem to create a good functioning health management environment. For example, Ontario's Framework for preventing and Managing Chronic Disease [28] showed a shift in focus toward developing a system that was collaborative and where interdisciplinary efforts were made to promote patient empowerment and increase patient education. The increase in care personalization movements across time [35], where patients are involved in their care through participatory medicine or patient empowerment initiatives, also helped to explain this shift in policy focus. In addition, supports in the form of information technologies have also been added as relevant tools for self-management around 2005. They were being promoted in various documents as effective tools to support some components of self-management such as being connected with professionals for consultations, but mostly its benefits aimed at more effective healthcare system management. Overall, results pointed to an evolving understanding that chronic disease management required an interdisciplinary approach that involves the individual, healthcare professionals, community supports, and innovative technologies which leads to patient empowerment and effective self-management.

#### 2.3.4.2. Political context

Looking deeper at the political context, the first publication about chronic diseases self-management generally was a guide on chronic disease management and prevention published in September 2005 by a Conservative government in Ontario [34]. It was followed by several publications published under a Liberal government in Ontario until 2018. During the lead of the Liberal Party in Ontario, healthcare budgets shifted from focussing on increasing investments in healthcare facilities [36] to targeting spending on FHT, and contributing investments in medical

technologies and home care. Chronic disease management and prevention continued to be the focus in all publications under the Liberal government until the most recent one in 2019 [37]. However, diabetes specifically gained traction in many publications since 2006. Several reports, news media and information sheets have focussed largely on diabetes, its impact, its management, and promoting exemplar programming that address challenges in daily lives of people living with diabetes. This specific focus lines up with the development of the Ontario Diabetes Strategy in July 2008. In addition, other chronic diseases received attention in policy documents since 2009. They include plaque psoriasis, chronic pain, chronic kidney disease, dementia, COPD, stroke, heart failure and epilepsy. The context underlying choices of these conditions could be explained by increases in prevalence, death, and hospitalizations for some conditions (epilepsy, dementia, chronic kidney disease, cardiovascular diseases, and COPD), and spending over 10.5 billion dollars annually in direct healthcare costs [38, 39]. Contextually, these also align with funding for public health including health promotion and prevention initiatives, as outlined in budget documents from 2005 onward under the lead of the Liberal Party in Ontario.

#### 2.3.4.3. Hybrid top-down and bottom-up policymaking: collaborative policy development

Looking specifically at policy development, the actors involved in document creation have somewhat changed over time. In the initial documents from 2000 to 2007, the contributors originated mainly from within the Government of Ontario (i.e., Ministry of Health and Long-Term Care, Ministry of Health Promotion, etc.). In the following years, however, the actors involved shifted and there was an engagement of smaller government organizations including specific LHINS, academic research centres, individual health experts, and associations from the community. Such consultations with stakeholders (individuals, community organizations and diverse government agencies or departments) remained constant thereafter. This indicates a trend

toward using both bottom-up and top-down governance models and allows for better collaboration and partnership between relevant stakeholders. Some documents did not include information on who was consulted in the development of the documents while others provided detailed information.

Overall, several contextual factors impacted policies on health self-management in Ontario. There is a strong interplay between content, context and actor components of policymaking which shaped the result and how policies ultimately impacted those engaging in self-management of health. Factors that impacted policies on self-management of health in Ontario include pressures on healthcare systems, the political context, and hybrid policymaking.

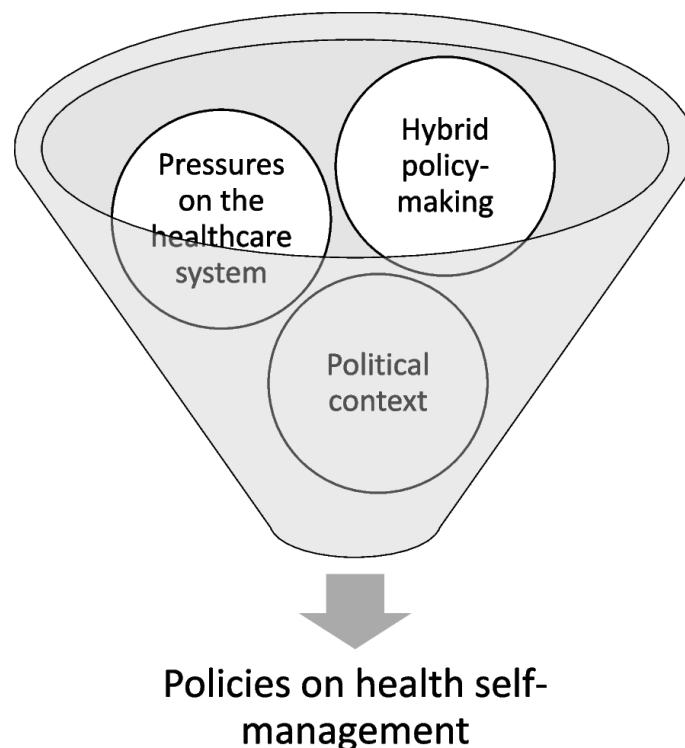
#### **2.4. Discussion**

An analysis of Ontario government policy documents about healthcare self-management from October 2000 to June 2019 identified the following key events. The first published document, led by the Government of Ontario, focussed on asthma, and proposed some tips on how individuals could better self-manage their condition. This document, which was published under the lead of a Conservative party in Ontario, placed individuals living with asthma at the forefront of self-management and as holding responsibility for doing so. In subsequent years and with a change to a Liberal government, the focus shifted to general chronic conditions. Not long after, in 2006, there was an increase in publications on self-management of diabetes more specifically. This specific focus aligned with the release of the Ontario Diabetes Strategy in 2008. From there, publications that focussed on general chronic diseases and diabetes self-management portrayed self-management as a holistic activity that involved various individuals and disciplines in the support system. In addition, leads and collaborators of the publications included people that were closer to the “ground” and from more regional and

community backgrounds. Several other publications were released, in an ad hoc manner, on other chronic diseases, and around 2005, documents were starting to include mentions of information technologies as innovative tools to support self-management.

Factors that appeared and identified to be most influential on the nature and timing of these policies were pressures on the healthcare system and healthcare transformation, hybrid top-down and bottom-up policy development, and political context (Figure 2–4).

Figure 2–4. Factors that shape health self-management in Ontario



Changes in the content within the policy documents were linked to pressures that impacted the healthcare system. With a focus on chronic diseases and projections that chronic diseases would account for millions of deaths around the world [40], Ontario was no stranger to the increased burden of chronic diseases on the healthcare system. The focus of the Government of Ontario toward self-management of general chronic diseases demonstrated a better

understanding about the magnitude and impact of chronic diseases on the healthcare system. Additionally, the increased number of publications that focussed on diabetes since 2006 related with the increase in cases of type 2 diabetes in developed countries [41]. In the early 2000s, Ontario even surpassed global rates reported by the World Health Organization (WHO) for the prevalence of diabetes [41], which amplified the need for government leaders to take action. For type 2 diabetes, where lifestyle and healthy living behaviours can fend its offset, action by public health leaders and governments were foreseeable and desirable. In 2008, the government released the “Ontario Diabetes Strategy” which aimed to prevent, manage, and treat diabetes, and provided millions of dollars in investments over four years [32]. This demonstrated that the focus of the content within the policy documents were recognized from real and existing pressures of diabetes on the healthcare system. Seventeen years after its implementation, however, diabetes care and management can still be improved by creating policies that effectively support its self-management [42]. Throughout time, the focus of the system has evolved from a medicalized system where there was a predominant focus on the diagnosis and treatment of pathological and biological issues, to one that promotes greater autonomy, health promotion and population health strategies [43]. As demonstrated in the policy documents retrieved, patient empowerment and supportive environments became integral parts of the management of chronic diseases. The reviewed literature further demonstrated how patients could and should be seen as equals in the caring for their conditions where both healthcare professionals and patients are viewed as experts in their respective areas and cannot function without one another: healthcare professionals bridge gaps in health literacy while patients are the experts on a personal level [44]. As pointed out in a report from the World Health Organisation in 2002, “optimal [health] outcomes occur when a healthcare triad [(including patients, healthcare professionals and community supports)] is

formed” (p. 7) [45]. In Ontario, these concepts of collaboration and patient empowerment were integrated in policies throughout time, which suggests a willingness of the policy system to evolve toward a more collaborative and personalized model of care. While pressures on the healthcare system (increasing burden of chronic diseases and shifting models of care) and transformation of healthcare have shaped policy development, innovation in technology seemed to have had limited effects. The early 2000s have marked significant advancements in the digital technological sphere where many devices such as smartphones, tablets, and social media were born and refined. However, policies on self-management during that time missed key developments that could have facilitated and supported self-management in a more connected way. As mentioned in a scoping review by Jacelon, Gibbs and Ridgway [46], significant work on technology to support self-management was being done all around the world. Some benefits of technology-supported self-management include enhancing the healthcare system and narrowing the distance between patients and healthcare professionals by allowing them to be connected to one another more easily and rapidly [46], and increasing competence and illness management for patients [47]. These benefits, however, may have been suppressed by limits in the technological infrastructure such as limited access to computers and the internet during that period [46]. In Ontario, barriers of access to digital technological infrastructure (due to cost of technology and its infrastructure or fluctuating digital literacy) may help to explain the delay in having technologies that support self-management included in policies. Since the start of the present decade, Ontario made significant investments in digitalization, positioning technologies for self-management as having a much clearer role within the system. In addition, the recent COVID-19 pandemic has exacerbated the need to have technologies to support individuals who are managing chronic conditions. During the pandemic, technology has proven to allow for



continued healthcare services, improve health outcomes, physical and mental health, and enhance social connectedness of many individuals who are managing their chronic conditions, including older adults [48,49,50,51]. Therefore, digital technology has now become an integral and ineluctable part in every policy on self-management.

The results of this study portray important changes in how policy was developed through time. First, when policies on health self-management were first developed in 2000, policy documents seemed to have taken more of a top-down approach where policymakers were the sole drivers of policy development. However, the shift toward a hybrid approach to policymaking that includes both a top-down complemented by bottom-up approach demonstrated a willingness to consider field experts and lived experience in policy development. As stated in work by Sabatier [52], bottom-up approaches involve a network of actors that are actually involved in the execution of policies and programs. Through ongoing consultations with lower levels of decisions-making (bottom-up), involving community organizations and expert stakeholders, novel policies become more adapted to the context of communities. A hybrid healthcare governance model can provide significant benefits and improvement to healthcare [53]. This hybrid model is demonstrated well in the Ontario Diabetes Strategy, where it is driven by the Ontario government but with working-level policymakers and external organizations are involved throughout. The documents demonstrated that much of the hands-on work of the Government of Ontario for the Ontario Diabetes Strategy was developed and ran by regional and community-level organizations. Second, ways by which policies are developed are not only the reflection of who is consulted and involved, but also influenced by the political context. For most of the years during which self-management publications were released, the Government of Ontario was under the lead of a Liberal party. The in-depth analysis of the budgets from the

Liberal government between 2003 and 2018 revealed that there were significant investments in health promotion and prevention programs. Funding in these areas demonstrated a willingness for a Liberal government to support prevention and management initiatives which include self-management. In 2005, the Liberal government even established the "Ministry of Health Promotion" as a way to promote healthy choices and healthy lifestyles for Ontarians [54]. This political willingness to promote healthy lifestyles corroborated with increased policies on self-management of chronic diseases.

Finally, our analysis revealed extensive foci for self-management of chronic diseases generally. It became evident that while not all chronic diseases had received attention in policies in Ontario, the general concept of chronic diseases was an area of great interest. This has implications in that not all individuals would adequately benefit from supports in self-managing daily difficulties because policies and related services would take a more generic approach. Furthermore, self-management is never discussed in terms of disabilities or functional limitations related to aging. While disabilities and functional limitations related to aging may have different implications for individuals, similar strategies as the ones used in chronic disease self-management could support older adults living with disabilities or functional limitations to have an improved quality of life. Finally, limited discussions on the role of technologies in supporting self-management reveals that uptake of innovation to support self-management has been slow. This leaves room for the Ontario government to exploit new and effective avenues to improve self-management supports for Ontarians.

## **2.5. Limitations**

The study has several limitations that rely merely on the nature of the data retrieved. The data collected were policy documents published in online archival repositories, websites, or databases. While the documents retrieved offer a comprehensive overview of the policies on self-management and their evolution over time, they may not adequately portray the full picture for policymaking on the issue. Retrieval of such documents also came as a challenge which could have led to documents being missed. In certain cases, documents may have been in other formats and not available via online repositories.

Regarding the framework of analysis for this study, we have selected the approach which we believe would allow for a more comprehensive analysis of the documents. While many frameworks for analysis focus on evaluating the content of policies, they would omit critical components such as actors and context which all contribute to shaping policy development [16]. Unfortunately, the process with which policies have been implemented could not be analyzed in this study due to the nature of the data collected but other critical components of policy development (content, context, and actors) were analyzed in detail. For actors and context components, our analytical approach included the retrieval of supplementary documentation (i.e., budget documents) and identifying critical authorship and consultation mechanisms which offers a limited view of the full historical policymaking approach. These limits will be addressed in future steps of the project which include consultations with current policymakers working in the field of self-management. For these reasons, Walt and Gilson's [16] model for health policy analysis was selected for the analysis and evaluation of the data, and was the best suited to answer the research question.

## **2.6. Future research**

Future research should continue to document the evolution of self-management policy in Ontario and evaluate the effects of the factors explored in this study (shown in Figure 2–4). In addition, future research could focus on evaluating the process for developing and implementing policies on self-management as this component could not be assessed from the retrieval of documents alone. This would require that other means of data (i.e., interview data) to complement the results found from documents. Finally, research that investigates present approaches for developing, implementing, and evaluating self-management policies could help to better understand current practices for supporting self-management from the perspective of the system more broadly, and offer a more updated and accurate picture of policymaking in the current context.

## **2.7. Take-home messages**

- Healthcare self-management is a concept that first appeared in Ontario policy documents in 2000.
- Healthcare self-management policies in Ontario have focussed largely on chronic diseases and diabetes, without consideration for people living with disabilities and functional limitations that come with age.
- Digital technology has received limited attention in policy documents for its potential to support self-management of chronic diseases while significant technological advancements have been made in this area.
- Several factors have been influential the evolution of self-management policies in Ontario including changes in pressures on the healthcare system and healthcare transformation, hybrid top-down and bottom-up policymaking, and the political context.

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## CHAPTER 3

# POLICYMAKER PERSPECTIVES ON SELF-MANAGEMENT OF DISEASE AND DISABILITY USING INFORMATION AND COMMUNICATION TECHNOLOGIES

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**Reason for journal selection:** Health Research Policy and Systems publishes research that discusses evidence-based health policy and health research systems. The journal has a particular interest in articles that describe approaches to using health research in health policy and discussing the variety of people involved in health can work together to improve health. My article specifically involved policymakers to discuss the policymaking environment, including how they consider evidence and innovation in the creation of health self-management policies. Additionally, my article portrays the importance of multi-sectoral collaborations in the development of health self-management policies which directly relate to the aims of the journal.

## Abstract

**Background :** Policies that support health self-management are malleable and highly dependent on various factors that influence governments. Within a world that is shifting toward digitalization due to pressures such as the COVID-19 pandemic and labour shortages, policymaking on older adults' self-management of chronic diseases and disability using information and communication technologies (ICTs) needs to be better understood. Using the province of Ontario, in Canada, as a case study, the research question was *What is the environment that policymakers must navigate through in development and implementation of policies related to older adults' self-management of disease and disability using information and communication technologies (ICTs)?*

**Methods :** This study used a qualitative approach where public servants from four ministries within the government of Ontario were invited to participate in a one-hour, one-on-one, semi-structured interview. The audio-recorded interviews were based on an adapted model of the policy triangle, where the researcher asked questions about the influences from the different sources identified in the model. The interviews were later transcribed and analyzed using a deductive-inductive coding approach.

**Results:** Ten participants across four different ministries participated in the interviews. Participants shared insights on various aspects of context, process and actors that help shape the current content of policies. The analysis revealed that policies, in the form of programs, services, legislation and regulations, are the result of collaborations and dialogue between different actors and via a set of complex government processes. In addition, policy actions come from a plethora of sectors which all get influenced by several predictable and unpredictable external pressures.

**Conclusions:** The environment for policymaking in the government of Ontario for older adults' self-management of disease and disability using ICTs is one that is mostly reactive to external pressures, while organized within a set of complex processes and multi-sectoral collaborations. The present research helped us to understand the complexity of policymaking on the use of ICTs and highlights the need for increased foresight and proactive policymaking, regardless of which governments are in-place for periodic cycles.

### **3. POLICYMAKER PERSPECTIVES ON SELF-MANAGEMENT OF DISEASE AND DISABILITY USING INFORMATION AND COMMUNICATION TECHNOLOGIES**

#### **3.1. Background**

Since the start of the COVID-19 pandemic, policymaking environments around the world have been challenged and had to adapt to keep populations safe from infectious threats [1]. In their rapid responses, governments made several critical decisions on ways to deliver programs and services to the population. In some countries, such as Belgium, France and Canada, governments digitalized processes and increased the use of technological tools for healthcare delivery to ensure safety of populations [2]. For Canada, this included using digital solutions for contact tracing [2]. At a provincial level, the government of the province of Ontario in Canada recognized the benefits of digital technology such as information and communication technologies (ICTs) in meeting the needs of Ontarians on a variety of levels including healthcare [3]. The digitalization shift during the COVID-19 pandemic led to major changes in programs and services impacting several segments of the population, such as those living with chronic health conditions and disabilities [4]. While these shifts had some positive impacts, they also disrupted several aspects of care management [5]. For instance, COVID-19-related public health restrictions had detrimental effects on health conditions and mental health of individuals [6,7] and caused disruptions in healthcare delivery in health systems globally [8]. For this reason, there is a need to ensure that policymakers are well equipped to adapt and respond to emergencies in a way that considers the needs of people living with chronic diseases and disabilities. While COVID-19 remains a major influencing factor in policy decisions, other

contextual factors such as political regimes, the number and type of actors involved, and policy development and implementation processes all play a role in the formulation of policies [9].

In this study, we conducted a comprehensive analysis of current policymaking related to older adults' self-management of disease and disability using ICTs by identifying factors that shape policy development and implementation. While COVID-19 increased pressure on governments to consider digital supports in the delivery of programs and services [3], ICTs were already being used for—and by—older adults to support self-management [10]. In fact, the role of ICTs in supporting self-management by improving health decision-making and behaviours is now well known across the world [11]. For older adults specifically, self-management using ICTs presents opportunities for increasing physical and social well-being, improving health outcomes [12–14], and reducing growing demands on health services [15]. However, implementation of such technologies has been slow and inconsistent in many countries.

For the Canadian context specifically, there is limited knowledge on policymaking related to older adults' self-management of disease and disability using ICTs, and more specifically, which factors shape policy decisions on this issue. Prior research identified that chronic disease self-management, as a concept, is included in most Canadian provincial policies (editor's note: healthcare is of provincial jurisdiction in Canada) [16], but when coupled with technology, the number of policies is scarce [17]. Using the province of Ontario, Canada as a case study, this work aimed to get a better understanding of policymaking and the influences that shape such policies. The study is based on an adapted model of policy analysis by Walt and Gilson [9] where we critically analyzed factors of the content, actors, process, and context to better understand the government of Ontario's policymaking on older adults' self-management of disease and disability using ICTs.



### 3.1.1. Aim of the study

The aim of this study is to describe the environment for policymaking in Ontario related to older adults' self-management of disease and disability using ICTs. This includes the analysis of factors that influence policy development and implementation within a federated system.

Perspectives and experiences of policymakers were gathered on various aspects of policymaking (context, actors, and process) to identify influences on policy decisions. More specifically, the research question for this study was: *What is the environment (including context, actors, and process) that policymakers must navigate through in development and implementation of policies related to older adults' self-management of disease and disability using information and communication technologies (ICTs)?*

Research sub-questions include:

1. What are current policies and policy actions for older adults' self-management of disease and disability using ICTs?
2. Who is involved in the creation, implementation, and evaluation of these policies?
3. How are these policies developed, implemented, and evaluated?
4. What contextual factors impact these policies?
5. How is the current policy environment responding to innovation and advancements ICTs that support self-management?

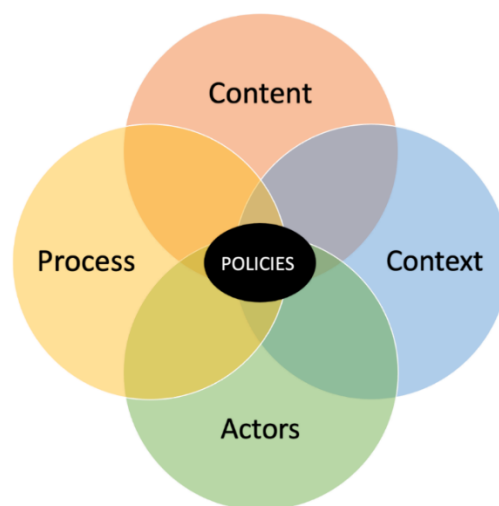
## 3.2. Methods

### 3.2.1. Study Design

This qualitative study is based on an adaptation of Walt and Gilson's [9] policy analysis model called the policy triangle (Figure 3-1). In this model, the authors emphasize the interrelationship between concepts of content, actors, process, and context, and propose that they

allow for a comprehensive analysis of policies [9]. Figure 3-1 visually represents an adaptation of this model to demonstrate how each of the concepts cannot exist without the other and must all be considered in the conduct a comprehensive analysis of policies [9]. For this study, the topic of interest was the policy actions from the government of Ontario on older adults' self-management of disease and disability using ICTs from the perspective of public servants. This study used semi-structured interviews to gather information about each of the concepts of the policy triangle and analyzed particularities about processes, actors, and context that shape current approaches to policymaking.

Figure 3-1. An adapted model for health policy analysis. Adapted from “Reforming the health sector in developing countries: The central role of policy analysis” by G. Walt and L. Gilson, 1994, *Health Policy and Planning*, 9(4), p. 354. Copyright 1994 by Oxford University Press and from “Evolution of public health policy on healthcare self-management: the case of Ontario, Canada” by A. Gauthier-Beaupré et al, 2023, *BMC Health Services Research*, 248 (2023), p. 5. Copyright © 2023, A. Gauthier-Beaupré et al. Creative Commons Attribution 4.0 International License : <http://creativecommons.org/licenses/by/4.0/>



### *3.2.2. Participants*

This study invited participation of public servants working in the government of Ontario, Canada. We targeted specific divisions and branches within multiple ministries of the government of Ontario if they performed work related to policies, programs or services for older adults, people with disabilities, health technologies, or collaborated with units that conduct work in these areas. The eligibility criteria were the following:

- Employed by the Ontario government
- Working in the (i) Ministry of Health (ii) Ministry of Children, Community and Social Services (iii) Ministry for Seniors and Accessibility or (iv) Ministry of Economic Development, Job Creation and Trade.
- Occupied current position for at least one year
- Able to understand and speak English
- Policymaking experience on files that concern older adults and technology or disability and technology

### *3.2.3. Recruitment*

Potential participants were invited to participate in the study through a phased approach. In the first phase, we invited public servants working at the highest levels such as deputy minister, assistant deputy minister, director, manager, and executive lead. At the onset, the research team read the ministries' mandates to select ministries that would conduct work with the target population group. As a result, we included three ministries (Ministry of Health, Ministry of Children, Community and Social Services, and Ministry for Seniors and Accessibility). To further identify participants, we retrieved contact information of potential participants via the online [Government of Ontario employees and organization directory \(INFO-GO\)](#). Invitation

emails were then sent to all the individuals identified in preliminary screening (Appendix 3-1). In phase 2, we invited public servants working at lower levels such as senior program or policy advisors and senior program coordinators, all of whom worked under the lead of previously invited individuals. In phase 3, we used snowball sampling to identify additional participants. Existing participants shared the information of the study with additional potential participants and shared the names of other key informants with the researchers. As a result, a fourth ministry was added in the eligibility criteria, the Ministry of Economic Development, Job Creation and Trade.

#### *3.2.4. Data collection*

Data was collected during one-hour semi-structured interviews (See Appendix 3-2) between public servants working in the government of Ontario and the principal investigator. This was achieved through a videoconferencing platform to comply with the public health measures in place during the time of data collection.

At the beginning of the interviews, the interviewer allocated enough time to establish rapport with the interviewee and go through the consent form to remind participants of the goals of the interview (Appendix 3-3). The researchers obtained verbal consent from participants and documented it using audio-recording. During the interviews, the researchers asked question about participants' policymaking activities using questions in the four domains of the policy triangle.

Between October 1, 2021, and January 31, 2022, we conducted a total of 10 semi-structured interviews virtually, via Microsoft Teams, with policymakers from the above-cited ministries of the government of Ontario. Two participants worked for the Ministry of Health and performed tasks related to programs, five participants worked for the Ministry for Seniors and

Accessibility and worked either on policy or program-type activities, one participant worked for the Ministry of Children, Community and Social Services in service delivery, and two participants worked for the Ministry of Economic Development, Job Creation and Trade in policy, program, and service delivery.

### 3.2.5. Data analysis

Prior to data analysis, the audio-recordings were transcribed verbatim and organized into the qualitative data analysis software NVivo (released in March 2020). Data were coded using a directed content analysis approach [18] which uses a hybrid deductive and inductive coding modality. As per this coding approach, we identified a preliminary coding structure to guide data analysis. The predefined coding structure was composed of the policy triangle concepts [9] to permit coding for actors, content, context, and processes of policymaking components. Subsequently, codes were added to the coding structure using an inductive approach. Content analysis allowed for further interpretation and organization of codes into themes (Table 3-1).

Table 3-1. Selected codes, categories, and themes for data analysis.

| <b>Codes<br/>(deductive)</b> | <b>Categories<br/>(inductive)</b>                                    | <b>Themes<br/>(inductive)</b>                                         |
|------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|
| Content                      | Policy                                                               | Diversified foci and form                                             |
|                              | Program                                                              |                                                                       |
|                              | Service delivery                                                     |                                                                       |
| Context                      | Provincial political agenda                                          | Organisation of the Canadian system                                   |
|                              | Constitutional (Federal, Provincial and Territorial [FPT] relations) |                                                                       |
|                              | Knowledge exchange activities and events                             |                                                                       |
|                              | Emergencies (i.e., COVID-19)                                         | Influences from unpredictable external pressures                      |
| Process                      | Idea generation                                                      | Hybrid and malleable information exchange via a collaborative process |
|                              | Policy development                                                   |                                                                       |
|                              | Implementation                                                       | Cautious and adapted implementation                                   |

|        |                   |                                                                                                  |
|--------|-------------------|--------------------------------------------------------------------------------------------------|
|        | Evaluation        | Performance measurement via various tools and techniques, and quality improvement via innovation |
| Actors | External partners | Multi-sectoral collaboration with a set of relevant and knowledgeable actors.                    |
|        | Internal partners |                                                                                                  |

In this study, we used a set of techniques to ensure rigour and trustworthiness of the results. As per Korstjens and Moser (2018), we used quality criteria to ensure credibility, transferability, dependability, confirmability, and reflexivity [19]. To ensure credibility, we performed data triangulation by collecting experiences from public servants of various levels, areas, and expertise. To ensure transferability, we provided detailed descriptions about the context for the study, including the sampling strategy, the timeframe for data collection, and demographic information of participants. For dependability, we engaged with an external evaluator who reviewed and approved the proposed approach for data collection and analysis. Finally, we ensured reflexivity by supplementing interview transcripts with field notes which include reflexive accounts from the interviewer.

### *3.2.6. Ethics*

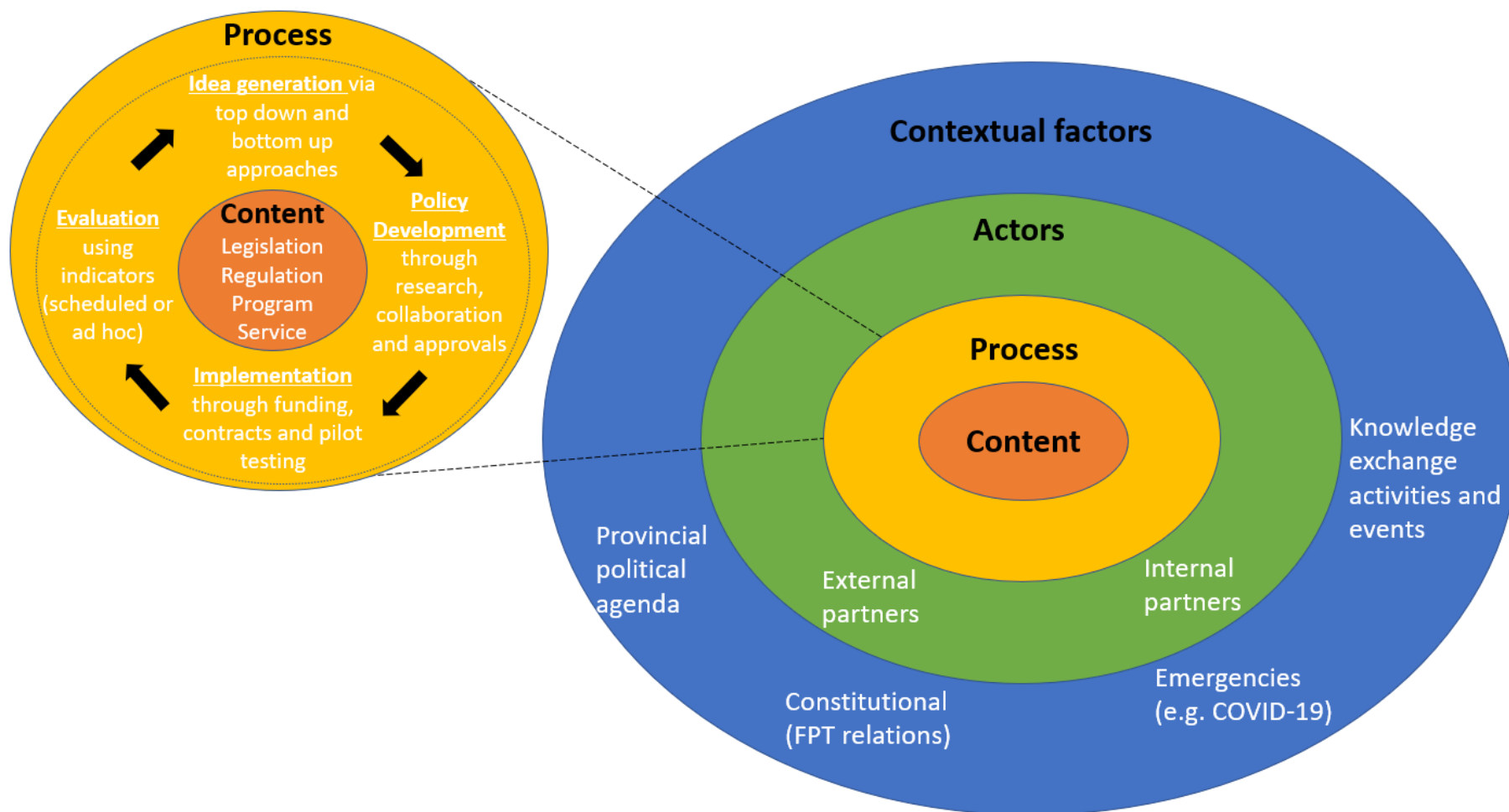
This study received ethical approval from the University of Ottawa's Health Sciences and Sciences Research Ethics Board (Ethics File Number H-07-20-5555) (Appendix 3–4 and Appendix 3–5). All semi-structured interviews were conducted via a secure videoconferencing platform with participants who agreed to participate and received approval from senior management (as needed). The researchers provided participants with consent forms that highlighted details about the study, the risks and benefits of participating, the measures to ensure confidentiality and anonymity, the conservation of the data, and the voluntary nature of the participation. All participants provided verbal consent which was audio-recorded for documentation purposes.

### **3.3. Results**

In the government of Ontario, a variety of policy work relating to older adults' self-management of disease and disability using ICTs is underway. These include (i) implementation and oversight of legislation and regulations (ii) program development, implementation, and delivery, and (iii) the provision of services to communities and businesses in Ontario.

Based on the policy triangle by Walt and Gilson [9], some key characteristics of this policy work stand out. All work from the government on self-management policy is a result of the intersection between contextual factors, actors involved in the policy, and choices in the process of policymaking. As a result, we organized key components that influence policymaking in the area of older adults' health self-management of disease and disability using ICTs in a multilayered framework (Figure 3-2).

Figure 3-2. Framework for policymaking on older adults' self-management of disease and disability using ICTs





The results of this study are presented using each of the circles of the figure 3-2, and further defined using the emerging themes for each category. This approach aligns with data collection and analysis whereby the policy triangle domains guided discussions and coding strategies. While the results are presented into separate sections, the findings point to the strong intersection and interrelation between each of the components of the policy triangle, as shown in figure 3-2.

### *3.3.1. Content*

The centre of the figure 3-2 presents the content of policies on older adults' self-management of disease and disability using ICTs in Ontario. The main characteristic of the policies is that they are extremely diversified in form and foci. During the interviews, participants reflected on the many ways in which they engage in policymaking which includes the creation and oversight of legislation and regulations, and the delivery of programs and services (through direct funding or service to communities and businesses).

#### *3.3.1.1. Diversified foci and form*

In Ontario, legislation and regulations are overseen by different ministries and impact health self-management in various ways. Participants mentioned the following Acts: 1) the Retirement Homes Act (2010) for its relation to care and care management within the retirement home setting, 2) the Seniors Active Living Centres Act (2017) and its link to aging in place and caring for oneself within this environment, 3) the Accessibility for Ontarians with Disabilities Act (AODA) (2005) and the requirements it sets out to enable Ontarians with disabilities to participate in society free of barriers, and 4) the Information and Communication Standards within the AODA (2012) for the criteria it sets out for accessibility within technology, such as websites. The legislation and regulations identified by participants are operationalized through a

series of programs and services that take either a disease-specific approach or support chronic disease management more generally, with a focus that has broadened over time.

One major program of the Government of Ontario is the former tele-homecare program coordinated by the Ontario Telemedicine Network (OTN) [20,21]. This program equipped individuals with advanced communications and information technology, such as tablets, enabling them to participate in care monitoring alongside healthcare professionals [20,21]. The program evolved to be less restrictive, include more clinical domains and where funding is delivered through Ontario Health Teams (OHT), a group of providers and organizations that “provide a new way of organizing and delivering care that is more connected to patients in their local communities” [22] and support the implementation of technologies in different clinical settings. In one of the interviews, a participant mentioned that the newer version of the program was less restrictive than the previous to the age of participants, but remained specific to people living with a chronic disease and that have a certain degree of ability with technology. Participants also pointed to another program of interest through OHT that allows lending technologies to patients who may not have access to it (i.e., due to prices of technologies). Additionally, participants mentioned home care services, where partner organizations deliver home and community care supports as an indirect service from the government of Ontario in support of self-management activities, which includes improving use of digital technologies with the goal of increasing access to care.

The legislation and regulations mentioned above help to profile the government of Ontario’s actions toward supporting older adults self-manage their conditions using ICTs. In addition, participants noted that their support role for other areas of government also increased their effort in that direction. They mentioned that they are sometimes asked to provide an ‘older

adult lens' in the development of policies for other sectors. This was the case in an example from the Ministry for Seniors and Accessibility in response to a request by the Ministry of

Transportation:

We are in a sort of stewardship role; we work with various ministries on their own initiatives. [...] The Ministry of Transportation is working right now around an action plan to prepare for connected vehicles and automated vehicles and that sort of technology, and so we're working very closely with them to understand both the impacts for seniors, for older adults, as well as people with disabilities. (P7)

Finally, certain participants mentioned the government's work with businesses (within the private sector) for its relation to the topic of interest. They indicated that this work lies at the interface between health, life sciences and technology companies. As such, the government of Ontario supports businesses in ways that indirectly influence accessibility and availability of technologies that support self-management within the context of Ontario.

Overall, policies for older adults' self-management of disease and disability using ICTs in Ontario are enacted as legislation, regulations, programs, and services, and may have direct or indirect impact this segment of the population. The existence of such policies alone, however, does not suffice. As demonstrated in figure 3-2, each of the domains of the framework intersects to form the full breadth of policy actions on the topic. The following sections will point to the permeability of each domain with the others.

### *3.3.2. Process*

As identified by the participants, the process for policymaking used by the government of Ontario is divided into 4 steps: 1) idea generation, 2) policy development, 3) implementation,

and 4) evaluation. Each of which can be thematically categorized. During the interviews, participants often presented steps 1 and 2 as intertwined in the policymaking process, so we will present these 2 steps together.

#### 3.3.2.1. Idea generation and 2) Policy development: Hybrid and malleable information exchange via a collaborative process

Before policies are formulated and implemented, there is an idea generation phase. This phase is characterized by a series of information exchange and brainstorming mixed with some policy development components. It is hybrid because ideas come both from the bottom-up (working-level) and from the top-down (management level). Participants emphasized that policy ideas were the result of lessons learned, where new and better ways to conduct work were prioritized. The interplay between bottom-up work (generated from lessons learned or pressured via advocacy from external bodies) and direction from broader government strategic priorities were the main drivers for idea generation and policy development.

In the idea generation and policy development phases, participants mentioned the creation of expert committees to explore certain issues of importance. The expert committees were said to make recommendations on policy options to support the policy development phase after a series of consultations and meetings. Participants mentioned that the exchange of ideas between various levels of policymakers or experts had significant impacts on the development of policy. Consistently, participants mentioned that the process of idea generation and policy development involved consultations with higher levels of management to obtain buy-in and ensure alignment with the broader mandate of the ministry. When asked about how innovative ideas are explored by government officials, participants shared the importance of the hierarchy. They described the

process as one that requires refinement and navigation within the hierarchical layers of government until it reaches the higher levels of decision makers.

#### 3.3.2.2. Implementation: Cautious and adapted implementation

The implementation of policies varies significantly across the different sectors. For programs or services, the main implementation method is through contracts with delivery partners where external organizations or delivery partners offer services to citizens.

For legislation and regulations, implementation is in the form of consultation services or liaison from the Ministry. Participants mentioned their role in supporting companies or businesses in interpreting legislation and regulations or giving advice to support company development and growth. For example, the private business sector was described as an important ‘solution provider’, while the government entity is an enabler to achieving the desired outcomes and solutions. In addition, participants mentioned their role as navigators to support companies and businesses access appropriate programs to support their growth.

Another emerging characteristic of policy implementation is pilot testing. Many participants discussed the use of pilot projects to test the feasibility and assess the benefits of new programs or services before scaling up to larger programming. When asked about innovating in policies, participants mainly described the need to pilot test and prototype the new ideas. This would allow for better risk management in the case of programs that fail to provide the expected outcomes.

#### 3.3.2.3. Evaluation: Performance measurement via various tools and techniques, and quality improvement via innovation

Finally, programs or services of the government of Ontario have an evaluation component in the form of performance measurement. These are conducted using a series of tools and

techniques which lead to quality improvement and innovation. They are usually built into the programs and services and serve as an accountability mechanism with external delivery partners. In other instances, participants talked about using indicators and metrics to measure the success of programs. This data was said to further support funding requests made to Treasury Board and provided a clear demonstration of the impacts of the programs in reaching its planned outcomes and objectives.

As for the timing of evaluation activities, there seem to be some variation across ministries. Participants mentioned that older programs had not been evaluated often, but recent efforts increased the number of assessments, especially for newer programs. For some programs, the collection of indicators was done as often as on a monthly basis. Besides this recent effort, participants shared that it was common for programs to only get evaluated every several years due to the high number of programs that need to be assessed.

Finally, several mechanisms support the conduct the evaluations. Participants mentioned that, previously, the norm was to contract external consultants to perform the evaluations, but that there was a recent shift toward conducting internal examinations and evaluations. The rationale explaining this shift is that work from external consulting companies were found to be of low quality which increased workload for public servants, often requiring that they rewrite the reports. It remained common, however, to see evaluations getting conducted externally by the organizations or partners implementing the programs, but still getting reviewed by the government of Ontario employees. Ultimately, the goal with the internal reviews was to ensure that the delivery of programs followed a predetermined direction.

As mentioned previously, evaluations are often used to support requests for increased funding and provide a mechanism to improve and innovate. This was discussed significantly by P4 who talked about monitoring and the need to improve services by innovating:

Our days are spent, sort of, problem solving. Doing a lot of what we call service design, so analyzing existing services that are in place and looking for opportunities for improvement. [...] So basically, just now that we're sort of "post COVID", how do we recover from that period of time? And how do we look at what's next for us, how do we continue? You know, COVID wasn't all bad, right? It increased our digital uptake at lots of things. So how do we now continue on this trend of moving towards digital services, but also making sure that we're supporting? (P4)

In this previous example, the participants also point to the role of the external pressures, such as the COVID-19 pandemic and their impact policymaking processes. This will be discussed in a later section on context.

### *3.3.3. Actors*

An analysis of the actors involved in policymaking revealed that there is a strong collaboration between various relevant stakeholders. In all interviews, participants shared insight about their partnerships and consultations with a large diversity of stakeholders both internal and external to the government of Ontario.

#### *3.3.3.1. External partners*

External collaboration and consultations drive a lot of the work and decisions in the government of Ontario. For example, it is frequent for public servants to obtain expertise from research bodies, such as universities and research centres, outside of government to support their

decision-making process. When working on files related to older adults and people living with disabilities, key concerns such as lack of data and privacy concerns with gathering sensitive data were the driver for external collaborations with agencies that have the data. In addition, external bodies such as research groups, not-for-profit organizations, advocacy organizations, healthcare professionals' associations and their individual members, and people with lived experiences are often asked to participate in advisory roles to reflect on issues and provide recommendations. The main mechanism to engage with those groups is through the creation of permanent advisory bodies. These bodies are composed of a wide range of actors that give advice on issues of interest.

While collaborations with key groups via advisory bodies may be frequent, pan-Canadian collaborations with other provinces or territories seem to be less frequent and unstructured. They seem limited, at best, to knowledge exchange and sharing of best practices. P4 shared some examples of the informal information exchanges that would occur between them and other provinces:

Uhm and then provincial [...]. I wouldn't say it impacts our work, but there is an opportunity for collaboration and understanding lessons learned. Ontario being the biggest province, sometimes folks come to us, you know, for what you are doing, but also alternatively, some of the smaller provinces have some really great ideas and the capacity to implement those so it does very much go both ways, doesn't impact our day-to-day work, but there's definitely value in the partnership. (P4)

#### 3.3.3.2. Internal partners

Internally, collaboration with diverse groups was portrayed as critical. Intradepartmental collaboration was frequent when expertise in a specific area was found in a different group of the



government. For policy issues that concern older adults, internal collaboration among diverse sectors was noted throughout interviews. P7 indicated the necessity to keep internal channels open for communication and collaboration for policy issues concerning older adults specifically:

We as a division, as the ministry, collaborate with all internal partner ministries, just given our stewardship. [We hold a] consultation role because most of the other ministries hold the levers of change, especially on the accessibility side. [...] We have to make sure that we work with them to ensure that people with disabilities and seniors are considered in the policies, programs, initiatives that are being developed on a day-to-day basis. (P7)

Most frequently, participants mentioned that internal partners included individuals in policy areas where there was an obvious link (i.e., health and aging). They also confirmed the presence of multi-sectoral collaborations with other, more distant areas, but talked about those as being more ad hoc and less integrative.

#### *3.3.4. Contextual factors*

Our study revealed that external pressures shape decisions and policy actions, and are derived from two main sources: the organization and structure of the Canadian healthcare system, and influences from unpredictable external pressures.

##### *3.3.4.1. Organization and structure of the Canadian healthcare system*

The Canadian system is organized using a federated system composed of 13 provincial and territorial (PT) governments and a Federal Government. In terms of health-related issues, the work (i.e., policies, program implementation and service delivery) falls in the jurisdiction of PT governments. However, the Federal Government has some strings attached with PT governments, usually because of funding-related mechanisms. In addition, the Federal

Government usually convenes PT governments around FPT Tables. For older adults' self-management of disease and disability using ICTs, the Federal Government's role varies. For example, home and community care is not an entitlement under Medicare which means that any policies related to self-management that fall under home and community care would not be mandated or involve the Federal Government. However, some recent indirect investments from the Federal Government for home and community care to provinces have forced linkages between the two levels of government. The investments came with some expectations where the Provincial Government had to meet the commitments outlined in an agreement with the Federal Government.

Federal-led forums have been pointed out by participants as a good avenue to get direction and collaborate across Canadian jurisdictions. For example, federal investments into home and community care have led to the creation of a pan-Canadian forum where provinces receive federal direction to make ensure alignment of their provincial initiatives. In addition, this forum has also allowed for the government of Ontario to share best practices with and gather lessons learned from other jurisdictions across Canada.

When specifically talking about technology, participants shared insights on the roles of the Federal Government in comparison to that of the PT. Participants viewed the Federal Government as having a role to play in strategizing on technology needs to support the population and regulating the facilities (private sector enterprise) where the technologies are created, while the provincial role is on the company's business development from a market and growth perspective.

Furthermore, participants discussed the importance of provincial political agendas and their influence on the non-partisan work that they do. When a provincial government is elected, the

goals and mandates set forward by the elected government officials have a huge impact on the outcomes and activities that happen within the public service. Participants shared that the political pressure serves as the guidance for the work that they do as public servants.

Participants also pointed to the impact of government ideologies on investments in specific sectors. For example, the economic development priorities of the government in place during the conduct of interviews were heavily focussed on life sciences and job creation, especially in the medical technology field called MedTech. This focus was viewed by participants as an indirect support to health of the population and to older adults' self-management of disease and disability using ICTs.

#### 3.3.4.2. Influences from unpredictable external pressures

In all interviews, participants emphasized the impacts of unpredictable external pressures on policymaking. The main discussion point during all interviews was the influence of the COVID-19 pandemic on policy actions influencing older adults. For home care specifically, there was a push toward increasing and expanding virtual care supports due to the increased risk for in-person consultations during the COVID-19 pandemic. P2 shared their experience in adapting current models of care because of the COVID-19 pandemic:

So we really, during COVID, expanded the use of virtual care in home and community care including friendly visits and that kind of thing. But beyond sort of permitting and facilitating the use of digital virtual visits, we have not done, from my division, we have not done more than that. [...] During COVID, one of the expansions of the monitoring initiative was related to COVID at home program [...]. It was the primary care initiative where they used the oxygen stat monitors and then had monitored or oversight linkage

with primary care for people who were sort of managing through or recovering from COVID at home. (P2)

The COVID-19 pandemic also led to many reflections about programming and about diverse groups of Ontarians. Participants mentioned specific challenges in ensuring continuity in programming for individuals living in northern areas for example, which often resulted in increased isolation. While participants enumerated challenges and difficulties, they also talked about the potential to act on them and find proper solutions moving forward.

One positive outcome that stemmed from the COVID-19 pandemic is an increase in the efficiency of processes. Participants mentioned that many government platforms were becoming electronic as a result of the digital push during the pandemic. For example, social assistance changed to an electronic document management system as a result of pressures from the COVID-19 pandemic. This finding specifically suggests the intersection between contextual factors and other factors of policymaking, such as processes.

#### *3.3.5. Summary*

In summary, interviews with public servants from various ministries revealed that the development and deployment of ICTs targeting the self-management of disease and disabilities in older adults exists in various areas of policymaking. Legislation, regulations, programs, and services are affected by unpredictable circumstances, while being developed, implemented, and evaluated through defined government processes and collaborations among various key actors.

### **3.4. Discussion**

The analysis of policies on older adults' self-management of disease and disability using ICTs in Ontario revealed influences that shape the government's approach to policymaking. The

interviews with policymakers suggest that efforts be targeted toward (1) diverse groups including older adults, (2) people living with disabilities and (3) businesses. In addition, policymakers engage with policies through various mechanisms including funding programs or service delivery, and through legislation and regulation oversight.

Findings revealed that processes for developing these policies are based on four steps: 1) idea generation, 2) policy development (often intertwined with the idea generation), 3) implementation, and 4) evaluation. These steps were expected as they align with the well-known policy cycle process [23]. As expected, the importance given for each of the steps, varied depending on the nature of the policy, where in the legislative and regulatory sphere, a larger emphasis is given to idea generation and policy development, while in the programming and service delivery sphere, a larger emphasis is placed on implementation and evaluation. Government of Ontario's policies are developed by a diversified group of actors that collaborate in the process. There are strong partnerships between internal and external stakeholders that are involved in different steps, but usually increasingly in the idea generation and policy development steps of the process. This level of collaboration was expected and confirmed by the interviews.

Finally, context has been demonstrated as having a large impact on policy decisions. The federated organization of the Canadian healthcare system (e.g., funding with “strings-attached” and knowledge exchange through FPT tables) and unpredictable external events (e.g., COVID-9 pandemic) all shape policy decisions on older adults' self-management of disease and disability using ICTs. While we expected some external pressures to influence policy decision-making, the colossal impact of a global pandemic on forcing digitalization into policies was surprising.

As summarized above, the policy triangle [9] helped to discover the complexity of interactions between different components of policies on older adults' self-management of disease and disability using ICTs. One major strength of the government of Ontario's approach is the integration of dialogue among multiple levels and stakeholders to inform policymaking. As a health-dominated topic, the government of Ontario's policies on self-management of disease and disability using ICTs also span across distant fields such as accessibility, economy, business, and transportation. For example, participants from unintended domains such as the Ministry of Economic Development, Job Creation and Trade requested to participate as they felt their areas of work were related to the issue. However, participants from these quite different areas did not seem to work very closely with one another. The limited crossing between different policy areas portrays policy efforts that are mostly additive rather than integrative, rendering the implementation to be lengthier. The different ministries advance individual files and projects that have an impact on older adults with chronic diseases and disability using ICTs without much cross-fertilization and integration. This could have some consequences for duplicating efforts toward a common goal, and therefore reduce efficiency in policymaking and efforts to achieve strategic orientations. Cross-sectoral policymaking poses some increased challenges, such as increased difficulties in coordination or increased risk of conflict between sectors, but the benefits it presents outweigh the difficulties [24]. When participants presented examples of cross-sectoral collaboration, the disciplinary overlap was more obvious, such as collaboration in sharing information and data between the Ministry of Health and the Ministry for Seniors and Accessibility. For example, home care and older adults are topics that should not be addressed independently from each other and work on those issues was said to be more collaborative and integrative by interviewees. Policymaking that use collaborative approaches align with previous

research that stipulates that addressing chronic diseases require this outlook that allows to see the bigger picture of the issue at stake [25]. Moving forward, policymaking on the topic of self-management should continue to use collaborative approaches that span across sectors including those with more distant boundary overlaps. There could be increased efforts to move toward more collaborative dialogue in policymaking [26] where the multiple sectors of the provincial government interact with one another by establishing new networks and co-create solutions that ponder on the various areas involved. Co-creation is one tool that could be explored and offers promising benefits for policymaking [27]. In the co-creation of policies, explicit intersectoral involvement, between ministries for example, may lead to innovation and unique ways of designing and solving complex problems.

The policy triangle [9] also helped to identify challenges with policymaking within the government of Ontario. Policy efforts that support older adults' self-management of disease and disability using ICTs were significantly impacted as result of the COVID-19 pandemic, an unpredictable external pressure. While the government of Ontario previously demonstrated few efforts to support self-management activities via ICTs [17], the COVID-19 pandemic has triggered a fundamental shift in digital health in various programs and services. With limited pre-pandemic efforts from the government of Ontario to include digital tools to support self-management, several barriers that are age-related and sociocultural may have either positively or negatively impacted older adults who were left needing to adapt or failed to adapt to pandemic-generated digitalization [28]. The COVID-19 pandemic has demonstrated that the current system is mainly reactive rather than proactive regarding the implementation of digital solutions to support older adults' self-management. Reactivity, however, may not be the adequate approach to implementing digital solutions for older adults as it risks leaving some behind due to pre-

existing inequities. Recent literature suggests that public health policies should consider implementing solutions that are cognizant of eHealth literacy, intergenerational in nature, supported with adequate training and education, and culturally appropriate to subgroups of older adults [29]. With a reactive approach, policymakers do not have time or sufficient people resources to ensure that policies effectively consider and address the various components highlighted above. Policymaking that is anticipatory in nature could be better suited for modernizing programs, services, legislation, and regulations that relate to older adults' self-management of disease and disability using ICTs. In fact, Tõnurist and Hanson [30] point to proactive policymaking as a good avenue for addressing complex and unpredictable policy questions. With rapid evolution happening in the technological world, even in that of technologies that support older adults' health, now called AgeTech [31], the government of Ontario would benefit from increased proactivity and action on this issue. From a broader perspective, actions at multiple levels including the Federal Government of Canada in collaboration with PT governments are needed to accelerate the inclusion of digital solutions into policy actions.

### **3.5. Limitations**

The study presents several limitations that should be considered in the interpretation of the research findings.

First, data collection focussed on a select group of government ministries because of their likelihood to address issues related to older adults, people with disabilities, self-management, and technology. This could have led to the noninclusion of ministries that may have worked on policies related to the topic of interest. This was mitigated, to a certain degree, by allowing participants to refer the researchers to individuals in other ministries, through snowball sampling.



Second, this study used a single model for policy analysis. The policy triangle by Walt and Gilson [9] guided data collection as it structured the interview format and formed the basis for data analysis via the deductive coding structure. This model was the most appropriate to ensure that several components of policymaking be considered in the analysis of policies. As stated in Walt and Gilson [9], other models for policy analysis exist, but largely focus on evaluating content of policies alone. Walt and Gilson's [9], policy analysis model revealed the strength of holistic analysis of policies and the requirement to consider factors such as the content of policies, the actors involved in policy development, implementation and evaluation, the process of policymaking and the context surrounding policymaking.

Third, data collection occurred during the COVID-19 pandemic and just before a provincial political election. Both these external factors could have resulted in a decrease participation from policymakers working through various competing priorities. While 59 public servants were invited, only a total of 10 accepted to participate. During the exploration of contextual factors impacting policymaking, participants put the COVID-19 pandemic at the centre of discussions. While COVID-19 had huge effects on policies within the last two years, this could have detracted participants from discussing other contextual pressures that were present a priori.

### **3.6. Future research**

Future research should engage policymakers in the development of solutions to mitigate challenges and limitations of policies on older adults' self-management of disease and disability using ICTs. In doing so, the solutions discussed would better reflect needs and capacity within the current policy environment. These would include looking for ways to make the system less reactive and more proactive in keeping up with innovations and advancements in ICTs to support

older adults' self-management. The COVID-19 pandemic, which has forced digitalization considerations and integration of digital solutions into policies, revealed a readiness of the system to move into these directions.

In addition, future research could investigate the outcomes and results of reactive policies that have been put in place during the COVID-19 pandemic. This would help to better understand the impacts on diverse groups of older adults in Ontario. It may also point to whether changes need to be made and if other avenues such as foresight and future thinking may be relevant tools to anticipate and make predictions about future concerns.

### **3.7. Take-home messages**

- Policies regarding older adults' self-management of chronic diseases and disabilities using ICTs exist as programs, services, legislation, and regulations, where some technology components are embedded. However, the government of Ontario lags in the digital modernization of policies in comparison to the pace of technology advancement and development.
- A variety of ministries of the government of Ontario, even those with unusual ties to health, are concerned with and working toward improving older adults' self-management of disease and disability using ICTs. Some ministries are working closely with one another and others acting more independently to address issues in this sphere.
- Context, in the form of unpredictable external pressures, has a tremendous impact on moving government actions toward digitalization of programs and services for older adults. This demonstrates a reactive rather than proactive policymaking system.

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## CHAPTER 4

# VALIDATION OF A FRAMEWORK FOR POLICYMAKING ON SELF-MANAGEMENT OF HEALTH BY OLDER ADULTS USING TECHNOLOGIES

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**Reason for journal selection:** BMC Health Research Policy and Systems publishes research that discusses evidence-based health policy and health research systems. The journal has a particular interest in articles that describe approaches to using health research in health policy and discussing the variety of people involved in health can work together to improve health. My article does exactly that, it validates a framework for policymaking specifically for those engaged in policies related to older adults' self-management of disease and disability using technologies. This journal was the ideal fit for the article and reaches the target audience (policymakers) for which the article was written.



## Abstract

**Background:** During the COVID-19 pandemic, the use of information and communication technologies (ICTs) to support care management exponentially increased. Governments around the world adapted existing programs to meet the needs of patients. The reactivity of governments, however, led to changes that were inequitable, undermining groups such as older adults living with chronic diseases and disability. Policies that align with recent developments in ICTs can promote better health outcomes and innovation in care management. A framework for policymaking presents potential for overcoming barriers and gaps that exist in current policies.

**Objective:** The goal of this study was to examine how well a provisional framework for policymaking captured the realities of government policymaking on older adults' self-management of chronic disease and disability using ICTs.

**Methods:** Through an online survey, the study engaged policymakers from various ministries of the government of Ontario in the evaluation and validation of the framework. The data were analyzed using simple statistics and by interpreting written comments.

**Results:** Nine participants, from three ministries in the government of Ontario, responded to the questionnaire. Overall, participants described the framework as useful and they identified areas for improvement and further clarification. A refined version of the framework is presented.

**Conclusions:** Through the validation exercise, our study confirmed the relevance and usefulness for a policymaking framework on the self-management of disease and disability of older adults' using ICTs. Further inquiries should examine the application of the framework to jurisdictions outside of Ontario considering the dissociated nature of Canadian provincial healthcare systems.

## **4. VALIDATION OF A FRAMEWORK FOR POLICYMAKING ON SELF-MANAGEMENT OF HEALTH BY OLDER ADULTS USING TECHNOLOGIES**

### **4.1. Introduction**

#### *4.1.1. Background*

Government policies must modernize to account for changing needs, new research, and emerging discoveries. Through effective knowledge translation, policymakers can more easily apply and implement new knowledge [1,2]; however, policymakers still encounter difficulties integrating new knowledge into policies since innovation and research occur at such a fast pace [3]. Digital health, which includes digital technologies such as medical connected tools that aim to improve health [4], is a good example of something that is not well represented in policy systems. Technologies, such as information and communication technologies (ICTs), are changing the way individuals care and manage their chronic diseases and disabilities, and promote increased opportunities for self-management. Research evidence points to the benefits of self-management using ICTs for diverse individuals, including older adults, on health outcomes and empowerment [5,6], effective care management, and the promotion of healthy lifestyles [7–10]. Effective integration of ICTs within the lives of individuals and patients who can self-manage their conditions relies heavily on policies and services that support their equitable access and use [11]. The COVID-19 pandemic provided a concrete example of the lag, which already existed, between innovation and its integration into policies. Prior to the COVID-19 pandemic, there had been limited efforts from organizations to include digital options for care delivery and health services even if effective ICTs already existed and had proven to be effective [12]. The pandemic led to reactive policymaking for services and programs such as the need to

shift to digital modes of care delivery for people with chronic diseases and disabilities in order to meet public health requirements such as physical distancing [13,14]. This reactive policymaking led to mixed results for several groups of the population sometimes growing the digital divide leading to inequities in access to healthcare [15]. For certain older adults in the province of Ontario in Canada, digital technology facilitated the continuation of care routines and ensured safety while for others, it exacerbated experiences of social isolation and negatively impacted care management [16].

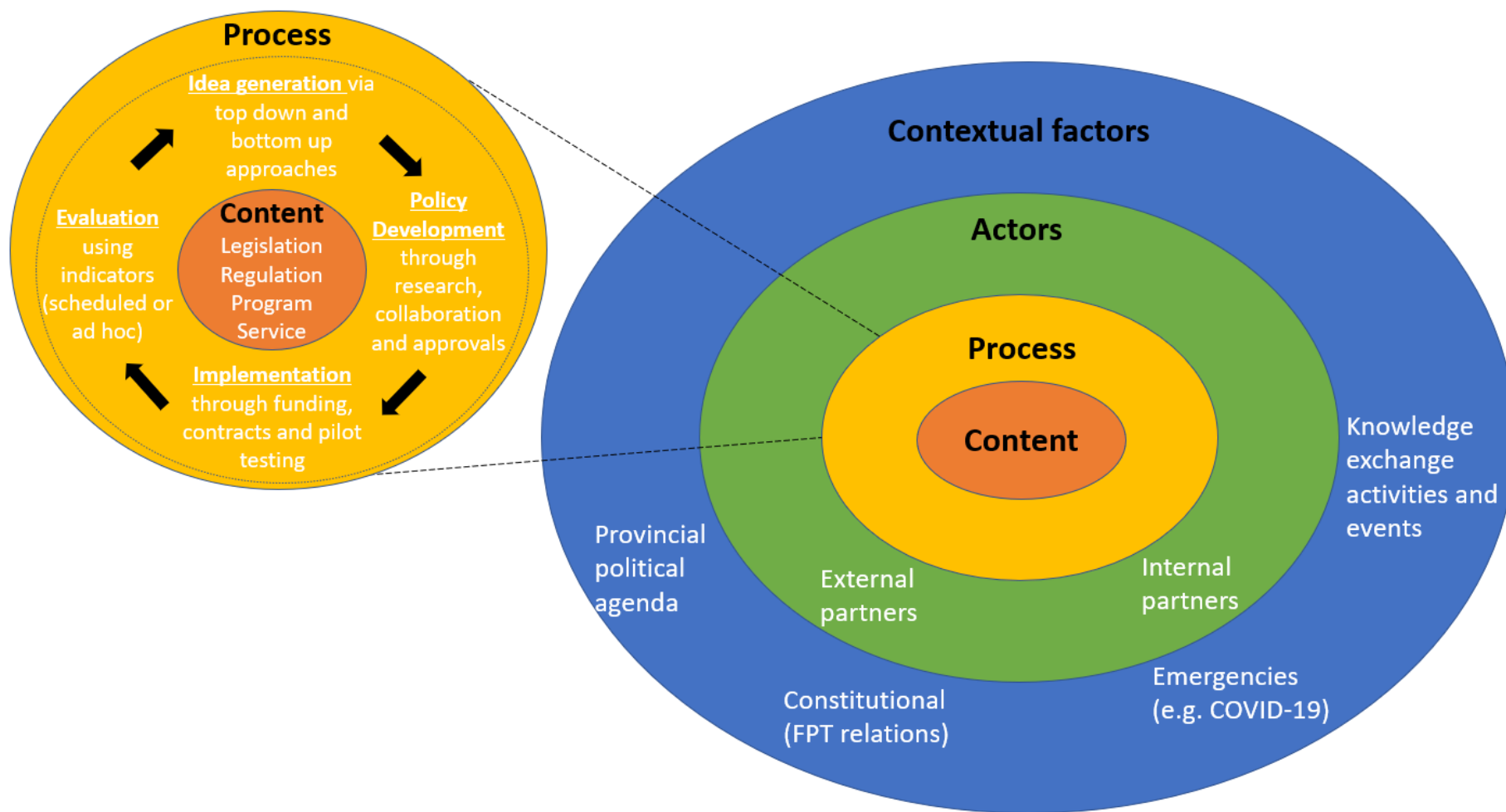
Proactively developing timely policies that consider the role of ICTs in supporting care could lead to better and more equitable programming and services over time. As such, policies can serve as a lever for organizations to consider innovative care management strategies.

#### *4.1.2. Prior Work*

Governments around the world are promoting self-care initiatives but research that supports policymaking on the issue is lacking [17]. In Canada specifically, there has been limited research on policymaking for older adults' self-management of disease and disability (SMDD) using ICTs. An examination of policies on self-management of chronic diseases reported in 2014 illustrated the divergence of policies on the topic across the country [18]. For Ontario specifically, much of the policy work on self-management was for disease-specific programming (mainly for diabetes) [18], with limited policies focusing on technology as an enabler of self-management [19]. In addition, there are several policy barriers that need to be addressed by policymakers to enhance the implementation of digital health technologies. These include (i) the need to clarify definitions of digital health innovation (ii) be able to articulate a clear mission for transformation (iii) clarify processes and use change management approaches to policymaking. To support such an endeavour, we engaged policymakers of various ministries that are

responsible for older adults' policies in a study to discover and map out policymaking environments in Ontario on the topic of older adults' SMDD using ICTs [16,20]. Key components that make-up the policymaking environment were identified and presented in a framework (Figure 4-1).

Figure 4-1. Framework for policymaking on older adults' self-management of disease and disability using ICTs



The complex system of factors that influence policymaking (Figure 4-1) requires a means of understanding the interactions between the factors to account for unintended consequences (i.e., issues of inequity and digital divide). Frameworks are high-level descriptions that are applicable to a wide range of scenarios. They employ concepts and their interrelationships to offer a frame of reference within which to organize and focus decision-making and assist interpretation of research evidence and other contextual information [21,22]. There are several conceptual frameworks for policymaking [23–25] and care management [26–28], but no evidence was identified of their application to older adults' SMDD using ICTs. Policies present as a tool to identify priorities that need to be integrated into practice, and there currently exists a significant gap and lack of connection between policy and practice. For this reason, we build upon on earlier evidence-based research [16] to further develop a realistic framework for policymaking on older adults' SMDD using ICTs.

#### *4.1.3. Goal of This Study*

This present study assessed how well the framework recently proposed by Gauthier-Beaupré et al. [16] captured the complex set of interactions between various components of government policymaking (context, actors, processes and content) for older adults' SMDD using ICTs. We conducted a survey of policymakers in the government of the province of Ontario, Canada to validate and refine the framework.

This study aimed to address the following objectives:

1. Examine the accuracy, understandability, and completeness of a framework to support policymaking; and
2. Use the survey findings to refine the framework to enhance its applicability, usefulness, and sustainability.

## **4.2. Methods**

### *4.2.1. Ethics Approval*

This study was approved by the University of Ottawa's Health Sciences and Sciences Research Ethics Board (Ethics File Number H-07-20-5555) (Appendix 3–4 and Appendix 3–5). Consent to participate in this study was obtained implicitly through the survey. An implied consent form (Appendix 4-1) was attached to the invitation emails (Appendix 4-2) and contained all details about the study, benefits, risks, confidentiality and anonymity, conservation of data, voluntary participation, and information about the study results. By clicking on the survey link, participants gave their implicit consent to participate, as was indicated in the implied consent form.

### *4.2.2. Participants and Recruitment*

Participant selection was made using criterion sampling which is based on predetermined criteria of importance for the selection of participants [29]. This project recruited policymakers, within specific sectors the government of Ontario, which could provide relevant insights about the framework. Participants were identified and selected based on the ministry where they were employed, which included the Ministry of Health, the Ministry for Seniors and Accessibility, the Ministry of Children, Community and Social Services, and the Ministry of Economic Development, Job Creation and Trade. Sample size was determined according to the number of participants required to obtain data saturation whereby new data repeats and relates to previous accounts and experiences [30]. We aimed to obtain at least one individual working in each of the targeted sectors of the government of Ontario to obtain a diversity of perspectives. Once the sectors were identified, we obtained the contact information of potential participants via the online government of Ontario [Employee and Organization Directory \(INFO-GO\)](#). Participants

were eligible to participate if they currently worked in the identified sectors of the government and were potential users of the framework due to the nature of their work.

Invitation emails were sent to 54 potential participants between July 18, 2022, and September 20, 2022. In the first round of invitations, we targeted policymakers that had previously participated in earlier stages of consultations and that would be potential users of the framework. Follow-up emails were sent twice on a two-week interval. We also supplemented criterion sampling with snowball sampling where participants referred the researchers to other potential participants.

#### *4.2.3. Survey Development and Administration*

Data were collected using an online survey through the survey platform SurveyMonkey (San Mateo, California, USA; [www.surveymonkey.com](http://www.surveymonkey.com)). The survey was organized into four sections: A) Demographics, B) ‘The Concept Map’—form and content, C) ‘Setting’—People and Organizations as Implementers, and D) Additional thoughts and Comments. These sections were derived from behavioural theory in implementation that indicates that implementation performance of policies rely on 3 clusters of independent variables: A) form and content of the policy, B) capacity of organizations responsible for the program and 3) qualifications of people in charge of operations [31]. The survey (Appendix 4-3) required participants to analyze, comment and propose some modifications and additions to the predefined framework for policymaking (Figure 4-1). For form and content, the survey assessed the framework for its usefulness and the importance of concepts presented in the framework. Questions revolved around the understandability, completeness, appearance and applicability of the framework. For importance, questions focused on the degree to which each component was viewed as impactful



to policymaking in this area. For organizational and operationality of the framework, the survey assessed factors influencing its implementation.

In the survey, we used the term “concept map” to define the visual representation of the framework and to allow participants to better understand how the framework was constituted of in preliminary phases of development. When inquiring about broader representation and applicability of the concept map, the survey used the term “framework”.

#### *4.2.4. Data Management and Analysis*

This study used a mixed methods approach to analyze and combine both quantitative and qualitative data. Quantitative data from the survey were entered into SPSS, summarized using simple descriptive statistics and reported as per the guidelines for reporting descriptive statistics [32]. Written comments were analyzed for each individual question and then integrated with the quantitative results. Additionally, we grouped data by the type of assessment they provided including evaluative ratings, usefulness ratings, definitional clarity ratings and importance ratings. Other open-ended comments were analyzed separately.

### **4.3. Results**

#### *4.3.1. Demographics*

Table 4-1 presents a summary of participant demographics. The study’s nine participants represent diversified expertise and experience across three different ministries of the government of Ontario. The participants represented a diverse workforce with positions ranging from advisors to directors. While most participants had been working in the government of Ontario for five years or more, all except one participant had been in their current roles for five years or less.

Table 4-1. Participant characteristics (N=9).

| <b>Participant identifier</b> | <b>Ministry</b>                                          | <b>Position</b>       | <b>Years in current position</b> | <b>Years in Ontario Government</b> |
|-------------------------------|----------------------------------------------------------|-----------------------|----------------------------------|------------------------------------|
| P1                            | Ministry for Seniors and Accessibility                   | Manager               | 1–2years                         | 5–10 years                         |
| P2                            | Ministry for Seniors and Accessibility                   | Director              | 2–5years                         | 11–20 years                        |
| P3                            | Ministry of Health                                       | Manager               | 5+ years                         | 11–20 years                        |
| P4                            | Ministry for Seniors and Accessibility                   | Program Advisor       | 2–5years                         | >20 years                          |
| P5                            | Ministry for Seniors and Accessibility                   | Team Lead             | 2–5years                         | 5–10 years                         |
| P6                            | Ministry of Health                                       | Director              | 2–5years                         | 5–10 years                         |
| P7                            | Ministry of Economic Development, Job Creation and Trade | Director              | 2–5years                         | 11–20 years                        |
| P8                            | Ministry of Economic Development, Job Creation and Trade | Senior Sector Advisor | 1–2years                         | 5–10 years                         |
| P9                            | Ministry of Economic Development, Job Creation and Trade | Program Manager       | 2–5years                         | >20 years                          |

Of the nine participants, eight fully completed the survey and one only answered some of the questions, which aligns with the study protocols that indicated that participants could skip any questions of the survey.

#### *4.3.2. Close-ended Assessment of the Framework*

The tabulated responses to the survey questions and associated comments from the respondents are presented in tables 4-2 to 4–6.

#### 4.3.2.1. Evaluative Ratings

Table 4-2. Evaluative ratings.

| <b>Level of agreement with statements</b>                                                       | <b>Strongly Agree</b> | <b>Agree</b> | <b>Somewhat Agree</b> | <b>Neither agree nor disagree</b> | <b>Somewhat Disagree</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|-------------------------------------------------------------------------------------------------|-----------------------|--------------|-----------------------|-----------------------------------|--------------------------|-----------------|--------------------------|
|                                                                                                 | n                     | n            | n                     | n                                 | n                        | n               | n                        |
| The concept map describes well the current and overall policymaking process used by our group.  | 0                     | 5            | 3                     | 0                                 | 1                        | 0               | 0                        |
| The concept map is visually appealing.                                                          | 0                     | 4            | 3                     | 0                                 | 0                        | 0               | 1                        |
| The format makes it easy to understand.                                                         | 0                     | 5            | 2                     | 0                                 | 1                        | 0               | 0                        |
| The concept map is usable in its present form.                                                  | 0                     | 2            | 2                     | 1                                 | 3                        | 0               | 0                        |
| I have the necessary expertise to understand such a concept map in my policymaking activities.  | 1                     | 6            | 0                     | 0                                 | 1                        | 0               | 0                        |
| I have the necessary expertise to implement such a concept map in my policymaking activities.   | 2                     | 2            | 2                     | 0                                 | 2                        | 0               | 0                        |
| I view this concept map as sustainable over time.                                               | 0                     | 3            | 4                     | 1                                 | 0                        | 0               | 0                        |
| This concept map enables a continuous monitoring and integration of innovation in policymaking. | 0                     | 3            | 2                     | 3                                 | 0                        | 0               | 0                        |
| I see the value of a framework to guide policymaking.                                           | 1                     | 4            | 3                     | 0                                 | 0                        | 0               | 0                        |
| The Government of Ontario and my organization could                                             | 1                     | 3            | 2                     | 2                                 | 0                        | 0               | 0                        |

|                                                                                                                             |          |           |           |           |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------|----------|-----------|-----------|-----------|----------|----------|----------|
| benefit from a framework to guide policymaking.                                                                             |          |           |           |           |          |          |          |
| The Government of Ontario and my organization are ready to implement a framework like the one proposed.                     | 0        | 2         | 5         | 0         | 1        | 0        | 0        |
| The Government of Ontario and my organization have the necessary human and financial resources to implement this framework. | 0        | 0         | 3         | 4         | 0        | 1        | 0        |
| <b>TOTAL</b>                                                                                                                | <b>5</b> | <b>39</b> | <b>31</b> | <b>11</b> | <b>9</b> | <b>1</b> | <b>1</b> |

Note. N=8 for all statements except for *The concept map describes well the current and overall policymaking process used by our group* (N=9).

Table 4-3. Comments associated with evaluative ratings.

| <b>Level of agreement with statements</b>                                                      | <b>Comments (quotes from participants)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The concept map describes well the current and overall policymaking process used by our group. | <p>It's a bit simplistic. In practice a wider range of contextual factors come into play including current state practices and capabilities. The descriptions of actors and processes are also highly generic.</p> <p>Under the AODA [Accessibility for Ontarians with Disabilities Act], we are legally required to integrate internal/external partners in the idea generation phase.</p> <p>The actors include more than internal and external partners. They also include stakeholders and citizens (who aren't necessarily part of a partnership group).</p> |
| The concept map is visually appealing. The format makes it easy to understand.                 | <p>The map would benefit from professional graphic design. The concepts are good.</p> <p>The image is not visually appealing, and it's not immediately clear where to start.</p>                                                                                                                                                                                                                                                                                                                                                                                  |
| The concept map is usable in its present form.                                                 | <p>The elements work well but would benefit from a professional graphic designer. People like stuff that looks cool. This is not a criticism but professional designers can add wait through visual appeal.</p> <p>As noted previously, it's quite generic and misses some key elements of what tends to inform real-world decision-making.</p>                                                                                                                                                                                                                   |

The evaluative ratings (Table 4-2) reveal high levels of agreement with the statements about the framework and with the organizational aspects related to the framework. Participants' ratings offer insights about the form and content of the framework, and the internal capacity of the government of Ontario to implement the framework, which are presented below.

Form and content. Participants gave positive ratings to the visual appearance and clarity of the framework. In their comments (Table 4-3), participants also provided some constructive feedback to improve appearance and clarity. Overall, the concepts were appropriately represented and also aligned with current methods for engaging in policymaking. Regarding suggestions for improving the visual appearance, two participants noted that “the elements work well but would benefit from a professional graphic designer. People like stuff that looks cool” (P7) and that “once all of the elements are in place, it would be worth investing some time to make it visually appealing” (P1).

The usefulness of the framework had equal positive and negative ratings which indicate certain limitations in its applicability. One participant (P6) suggested that the framework did not fully represent the policymaking process and may be missing some key elements. On the contrary, however, P8 stated that “th[e] map [was] very comprehensive”. This denotes some level of uncertainty with the level of detail provided in the concept map.

Internal Implementation Capacity. The internal capacity of the government to implement this framework focused on two domains: human resource expertise and organizational readiness. For human resources, participants positively rated their ability to understand and implement the framework. However, organizational capacity with regards to human and financial resources were given more neutral ratings which indicates that there may be some organizational limits to implementing the framework.

#### 4.3.2.2. Usefulness Ratings

Table 4-4. Usefulness ratings.

| Would this concept map help you/your group do the following?    | Yes | No |
|-----------------------------------------------------------------|-----|----|
|                                                                 | n   | n  |
| Identify the problem or issue                                   | 8   | 1  |
| Identify an appropriate policy solution                         | 7   | 2  |
| Identify and describe policy options                            | 7   | 1  |
| Assess policy options                                           | 5   | 4  |
| Prioritize policy options                                       | 5   | 3  |
| Develop a strategy for furthering adoption of a policy solution | 7   | 1  |

Note. N=9 for all options except for *Identify and describe policy options* (N=8), *Prioritize policy options* (N=8), and *Develop a strategy for furthering adoption of a policy solution* (N=8).

To better understand the usefulness of the framework, participants were asked questions about its ability to support key policy activities. Participants gave a positive rating of the framework in helping engage in key domains of policymaking such as identifying the problem or issue, identifying appropriate policy solutions, identifying and describing policy options, and developing a strategy for furthering adoption of a policy solution (Table 4-4); however, the two other activities, assessing policy options and prioritizing policy options, received mixed ratings. These two activities could have been viewed as different than the others as they would require more complex processes which are not represented in this framework. As was pointed by participants, some key elements of real-world decision-making was missing, and certain stakeholders were not included in the framework. This may have impacted ratings of usefulness for these two activities. For example, human and other resources not specified in the framework may be needed in assessing and prioritizing policy options.

#### 4.3.2.3. Definitional Clarity Ratings

Table 4–5. Ratings of definitional clarity.

| Clarity of definitions                                             | Very clear | Minor modifications needed | Major modifications needed | Not clear at all |
|--------------------------------------------------------------------|------------|----------------------------|----------------------------|------------------|
|                                                                    | n          | n                          | n                          | n                |
| <b>Context</b>                                                     | 3          | 3                          | 2                          | 0                |
| Provincial political agenda                                        | 5          | 3                          | 0                          | 0                |
| Constitutional Federal, Provincial and Territorial (FPT) relations | 2          | 6                          | 0                          | 0                |
| Emergencies (e.g., COVID-19)                                       | 7          | 1                          | 0                          | 0                |
| Knowledge exchange activities and events                           | 7          | 1                          | 0                          | 0                |
| <b>Total</b>                                                       | <b>24</b>  | <b>14</b>                  | <b>2</b>                   | <b>0</b>         |
| <b>Actors</b>                                                      | 4          | 4                          | 0                          | 0                |
| External partners                                                  | 4          | 4                          | 0                          | 0                |
| Internal partners                                                  | 6          | 2                          | 0                          | 0                |
| <b>Total</b>                                                       | <b>14</b>  | <b>10</b>                  | <b>0</b>                   | <b>0</b>         |
| <b>Process</b>                                                     | 6          | 1                          | 1                          | 0                |
| Idea generation                                                    | 4          | 4                          | 0                          | 0                |
| Policy development                                                 | 6          | 2                          | 0                          | 0                |
| Implementation                                                     | 4          | 3                          | 1                          | 0                |
| Evaluation                                                         | 5          | 3                          | 0                          | 0                |
| <b>Total</b>                                                       | <b>25</b>  | <b>13</b>                  | <b>2</b>                   | <b>0</b>         |
| <b>Content</b>                                                     | 5          | 3                          | 0                          | 0                |
| Policy                                                             | 6          | 1                          | 1                          | 0                |
| Programs                                                           | 5          | 3                          | 0                          | 0                |
| Service                                                            | 4          | 3                          | 1                          | 0                |
| <b>Total</b>                                                       | <b>20</b>  | <b>10</b>                  | <b>2</b>                   | <b>0</b>         |
| <b>Overall total</b>                                               | <b>83</b>  | <b>47</b>                  | <b>6</b>                   | <b>0</b>         |

Note. N=8 for all definitions assessed.

The framework presented to participants was supplemented with definitions about each of the concepts, and participants were asked to rate and propose modifications. Overall, participants

indicated that all definitions contained a certain level of clarity, being mostly very clear, with some requiring minor modifications and few requiring major modifications (Table 4–5).

Context. For context, participants had mixed opinions with regards to the clarity of the definition. The assessments for clarity ranged between being very clear, requiring minor modifications, and requiring major modifications. Within the subcategories of context, answers differed. For the provincial political agenda, participants noted that the definition was mostly very clear. For constitutional Federal, Provincial and Territorial (FPT) relations, participants mostly indicated that the definition required minor modifications. For emergencies (e.g., COVID-19) and knowledge exchange activities and events, participants had consistent responses indicating that the definition was very clear.

Actors. For actors, participants were split where 50% (n=4) indicated that the definitions for actors and external partners were very clear and 50% (n=4) indicated that they required minor modifications. For the most part (n=6), participants indicated that the definition for internal partners was very clear.

Process. For process, most of the participants were very clear about the definition provided. For the subcategories of idea generation and implementation, responses were mixed between very clear and needing a minor modification. For the subcategories of policy development and evaluation, participants mostly reported that the definitions were very clear, with a few (n= 2 and n=3 respectively) indicating that the definitions needed minor modifications.

Content. For content, participants reported that the definition was mostly clear, with a few (n=3) indicating the need for minor modifications. For the subcategory of policy, participants rated it as being mostly very clear with the definition provided. However, the definitions



provided for the programs and services received mixed ratings, where some reported the definitions were very clear (n=5 and n=4, respectively) and others reported that minor modifications were necessary (n=3 for both).

Overall, the findings for the assessment of definitional clarity indicate that the definitions accurately represent the concepts, but some clarifications may be necessary.

#### 4.3.2.4. Importance Ratings

Table 4–6. Ratings of importance of key concepts.

| Level of Importance                      | Extremely | Very      | Moderate  | Neutral  | Slight   | Low      | Not at all |
|------------------------------------------|-----------|-----------|-----------|----------|----------|----------|------------|
|                                          | n         | n         | n         | n        | n        | n        | n          |
| <b>Context</b>                           | 4         | 4         | 0         | 0        | 0        | 0        | 0          |
| Provincial political agenda              | 6         | 1         | 1         | 0        | 0        | 0        | 0          |
| Constitutional FPT relations             | 2         | 1         | 4         | 1        | 0        | 0        | 0          |
| Emergencies                              | 2         | 5         | 1         | 0        | 0        | 0        | 0          |
| Knowledge exchange activities and events | 1         | 1         | 5         | 1        | 0        | 0        | 0          |
| <b>Total</b>                             | <b>15</b> | <b>12</b> | <b>11</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b>   |
| <b>Actors</b>                            | 3         | 3         | 0         | 0        | 0        | 0        | 0          |
| External partners                        | 4         | 2         | 2         | 0        | 0        | 0        | 0          |
| Internal partners                        | 3         | 2         | 2         | 1        | 0        | 0        | 0          |
| <b>Total</b>                             | <b>10</b> | <b>7</b>  | <b>4</b>  | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b>   |
| <b>Process</b>                           | 3         | 5         | 0         | 0        | 0        | 0        | 0          |
| Idea generation                          | 2         | 4         | 2         | 0        | 0        | 0        | 0          |
| Policy development                       | 4         | 1         | 3         | 0        | 0        | 0        | 0          |
| Implementation                           | 4         | 4         | 0         | 0        | 0        | 0        | 0          |
| Evaluation                               | 1         | 5         | 1         | 1        | 0        | 0        | 0          |
| <b>Total</b>                             | <b>14</b> | <b>19</b> | <b>6</b>  | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b>   |
| <b>Content</b>                           | 5         | 3         | 0         | 0        | 0        | 0        | 0          |
| Policy                                   | 4         | 4         | 0         | 0        | 0        | 0        | 0          |
| Programs                                 | 4         | 4         | 0         | 0        | 0        | 0        | 0          |
| Service                                  | 5         | 3         | 0         | 0        | 0        | 0        | 0          |
| <b>Total</b>                             | <b>18</b> | <b>14</b> | <b>0</b>  | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>   |
| <b>Overall total</b>                     | <b>57</b> | <b>52</b> | <b>21</b> | <b>4</b> | <b>0</b> | <b>0</b> | <b>0</b>   |

Note. N=8 for all options except for *Actors* (N=6).

Participants were also asked to determine the level of importance for each of the concepts presented. The participant ratings indicate that most concepts presented are very or extremely important with some at least moderately important for policymaking on the topic of older adults' SMDD using ICTs. The political agenda surpassed all other concepts as being extremely important. Second, the results indicate that participants viewed content of policies and services as extremely important and very important. The least important concept in the views of participants was the concept of knowledge exchange activities and events.

#### *4.3.3. Open-Ended Assessment of the Framework*

The survey included several open-ended questions to capture information that may have been omitted from the framework. The survey asked participants to list additional factors that they believe are important for policymaking on older adults' SMDD using ICTs. Participants listed 3 main points: 1) the role of companies, 2) capabilities of the state to follow innovations in technology and clinical practice, and 3) stakeholder engagement. The role of companies was said to be critical to include in a framework focused on policymaking that involves technology and innovation. As mentioned by P7, there needs to be "a greater emphasis on the role of companies". Companies may already be included or embedded within various concepts of the framework, "but the forces and innovation coming from service and technology advisors may deserve a more specific call out" (P7). Similarly, another participant emphasized the importance of state capability within a society that "innovate[es] in the technology market or clinical practice" (P6) coupled with "capacity of service delivery partners" (P6). As such, participants stressed the necessity to consider other players in the policymaking sphere. P3 supported this claim by indicating the need for "stakeholder engagement through the process cycle".

The survey also asked participants about ways to integrate innovations in technology within the government policies, programs, and services. Participants listed several key factors to consider, namely the role of technology and its value, diversity of stakeholders consulted and the engagement process. First, the role of technology in SMDD needs to be better understood by policymakers to allow them to effectively integrate them within their policies. Specifically, participants mentioned that there needs to be “better recognition that technology and services it drives is central to the “persons” self-management” (P7) and that governments should have “improved understanding of the value of ICT” (P1). Second, participants denoted several groups of stakeholders that need to be involved in the integration of innovations in technology within policies. Participants discussed the role of companies and innovators as stakeholders that cannot be ignored in policymaking. Specifically, P7 mentioned that governments should “challenge companies and innovators to solve problems through revised incentives”. Participants also believed that there is a role for “advocacy groups” (P3) as well as other groups and organizations such as “persons with lived experience, community members, [other levels of] government (FPT), public health units” (P1). Third, participants believed that engagements should at the forefront for ensuring better integration of innovations in technology within policies, programs, and services. Engagement needs occur at multiple levels and with diverse individuals to “determine gaps” (P1). Participants mentioned that engagement should occur with “technology and services innovators” (P7) and “users, patients and seniors” (P3). P3 even noted that “engagement of seniors/users is critical”. This approach would ensure that all policy solutions follow a “user-friendly and user-centred” (P3) approach.

In addition, with the understanding that policies are developed at a specific time point but live within a world that evolves, the survey asked participants their thoughts on how to develop

sustainable policies on the topic of older adults' SMDD using ICTs. Participants discussed three main areas that they believe would ensure sustainable policy action: 1) commitment and investment, 2) supportive systems and expert professionals, and 3) collaboration and cooperation. First, participants identified commitment and investment from the government as a key feature to ensure policies are sustainable. This commitment can be done by "prioritization" (P3) where policymakers make decisions based on the sorting of priorities, where technologies to support older adults' SMDD is a "continued priority" (P3) and where there is a constant "evaluat[ion] [of] new opportunities" (P7). While it was suggested that there be "resource investments [and] long-term commitment[s]" (P8), policymakers need to be "ab[le] to measure budget outlays against deferral of future/downstream system costs" (P7). As was pointed out by P6, "it is difficult to tie outcomes (e.g., improvements in quality of life or health system resource utilization) to investments made in ICT. If these linkages could be better made then it would allow for more stable and predictable support from government". Second, participants discussed the importance of a supportive system which incorporates learning and development opportunities at all levels (policymakers and stakeholders). Participants revealed that the creation of sustainable policies would only be possible with "deeper training of policy professionals to understand technology" (P7) and with "improved data analysis capabilities within government" (P1). In alignment with that, P7 also mentioned the need for "patients/citizen [...] to be trained at many levels to manage their care". Beyond creating these learning opportunities, a supportive system also considers "privacy laws that allow for flexibility and ensures privacy" (P1). Third, participants revealed that sustainability cannot exist without collaboration and cooperation. The "ability to share data across government ministries for policymaking" (P1) and "broader co-

operation and commitment to delivering the product” (P8), both make for sustainable policy actions.

Overall, open-ended assessments of the framework provided detailed information about missing components in the framework, ways to integrate innovation into government policies, and defined key enablers to sustainable policymaking. With regards to additions to the framework, participants mentioned the need to include companies as a distinct system, include capabilities of governments to keep up to speed with innovations, and the role of stakeholder engagement throughout the cycle. For integration of innovations, participants noted the need for policymakers to value the role of technologies, consult a diversity of stakeholders in their policymaking activities and the need for engagement at multiple levels of policymaking. Finally, for ensuring sustainability of policies, participants noted that it was mandatory to have commitment and investment in the sector, have supportive environments with experts on the topic, and allow for collaborative and cooperative processes.

#### **4.4. Discussion**

##### *4.4.1. Principal Findings*

The results suggest that the provisional framework for policymaking on older adults’ SMDD using ICTs (Figure 4-1) adequately captured the basic components that should compose the framework. The visual representation and comprehensiveness of the framework were noted as areas for improvement (Table 4–7). While the definitions of concepts of the framework were considered mostly adequate, the results suggest that they could be improved in all four areas: context, actors, process, and content. Participants recommended adding new elements such as the role of companies and stakeholder engagement, and the capability of policies to follow innovation. For better sustainability of policies over time and as innovations in technologies

increase, the results suggest that governments are willing to commit and invest in policy solutions that include ICTs for older adults who are self-managing, within supportive systems of expert professionals, and through amenable collaboration and cooperation in this cross-cutting area. Participants also noted operational and organizational limits of governments, so these were added as enveloping the framework for the constraints they impose on all aspects of policymaking.

Table 4–7. Summary of framework changes.

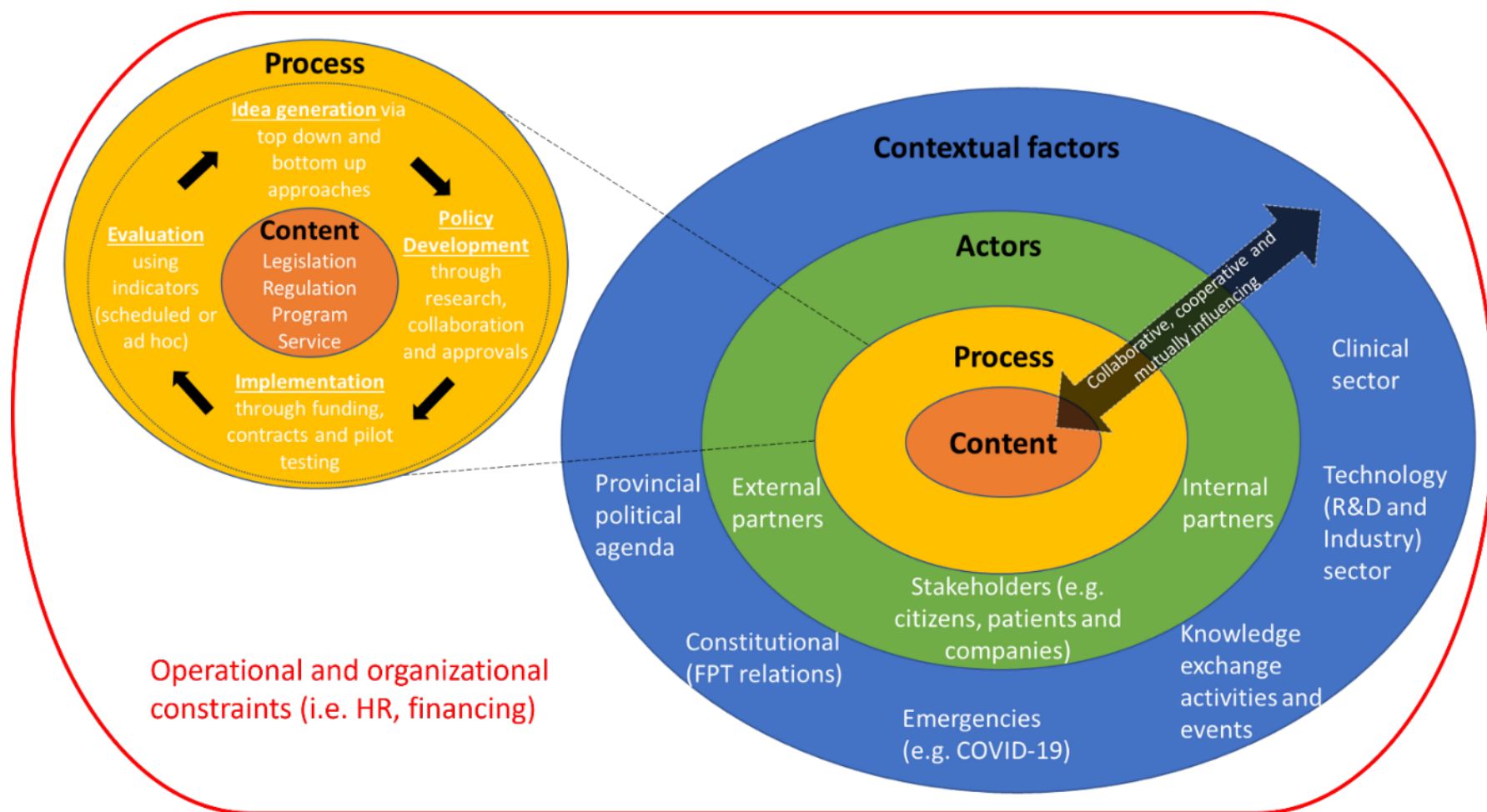
| Concept        | Area within concept                                       | Change                                                                                                                                                                                                                               |
|----------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Content</b> |                                                           | <i>*Requires further investigation</i>                                                                                                                                                                                               |
|                | Programs                                                  | <i>*Requires further investigation</i>                                                                                                                                                                                               |
|                | Services                                                  | <i>*Requires further investigation</i>                                                                                                                                                                                               |
| <b>Process</b> | Policy development                                        | The definition of policy development was modified to include a stronger emphasis on the importance of the engagement process.                                                                                                        |
|                | Evaluation                                                | <i>*Requires further investigation</i>                                                                                                                                                                                               |
|                | Collaboration and cooperation                             | Collaboration and cooperation are viewed as essential to maintain sustainable policies. As such, it was added to the framework as a cross-cutting activity that occurs throughout the whole process of policymaking.                 |
|                |                                                           | The definition of actors was modified to include specific wording about actors being embedded within supportive systems and composed of individuals or groups who are experts in the area.                                           |
| <b>Actors</b>  | External partners                                         | <i>*Requires further investigation</i>                                                                                                                                                                                               |
|                | Stakeholders                                              | Stakeholders was added to the framework as it was noted that external and internal partners do not compose the whole realm of stakeholders involved. Stakeholders are diverse and include citizens, patients and companies.          |
|                |                                                           |                                                                                                                                                                                                                                      |
| <b>Context</b> | Constitutional FPT relations                              | <i>*Requires further investigation</i>                                                                                                                                                                                               |
|                | Technology (research and development and industry) sector | The technology sector, including research and development, and industry, was noted to be impactful on policymaking and was therefore added to the framework. This sector is one that creates innovations in technology. Policymaking |

|                                               |                 |                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                 | relating to technology wouldn't exist without developments from the technology sector.                                                                                                                                                                                 |
|                                               | Clinical sector | The clinical sector was added to the framework as it is the one that supports the implementation and use of technologies to support patients with their care. Without the clinical sector oversight and support, self-management with technology wouldn't be possible. |
| <b>Operational and Organizational factors</b> |                 | Operational and organizational factors are composed of all system-level constraints to policymaking. They include human resource capability and financing.                                                                                                             |

*\*Requires further investigation:* Level of detail and proposed changes not obtained through surveys. Further investigation necessary to identify required changes.

The revised framework (Figure 4-2) offers a more complete representation of policymaking on older adults' SMDD using ICTs. The visual representation portrays the necessary engagements between actors, the collaborative and cooperative nature of processes and influential sectors that need to be considered in policymaking for older adults' SMDD using ICTs.

Figure 4-2. Changes to the framework for policymaking on older adults' self-management of disease and disability using ICTs





#### *4.4.2. Comparison with Prior Work*

The validated framework is unique in that it portrays multiple sectors that intersect in the area of older adults' SMDD using ICTs. It is composed of the technology sector, the clinical sector, the political system, and considers the roles of various stakeholders and external pressures within all those sectors. It builds on existing approaches to policy analysis such as Walt and Gilson's model for policy analysis [33] and visually represents the influence of various factors ranging from contextual to organizational.

Our study provides conceptual clarification to the role of governments as a complex system that supports innovation for older adults. In alignment with previous research on policymaking related to digital health innovation in Ontario [20], our study reinforces the need for participatory design approaches via stakeholder engagement at multiple levels during the policymaking process.

Other existing frameworks and models related the self-management and chronic disease management, such as the Ottawa Charter for Health Promotion [26], Ontario's Chronic Disease Prevention and Management Framework [27], the Chronic Care Model [28], provide good foundations for addressing this complex issue, but are limited in providing direction for policymaking specifically. They include public policy as a core function in addressing caring for disease and disability, but do not provide guidance for engaging in it. Our framework provides conceptual clarification for engaging public policy in addressing this issue with the right set of actors, processes and among complex interactions of contextual factors.

#### *4.4.3. Application of the Framework to Policymaking*

Future work involving health policy experts will be facilitated by the application of this framework as it can serve as the foundation for identifying all actors and sectors that should

compose the consultations. The framework also acts as a reminder of the importance of this continuous and engaged cooperation and consultation among all players. In fact, previous research demonstrated the value of cooperation and consultation during policy development and throughout the policy cycle as one that leads to better and more innovative policies that truly address the issue [34]. Finally, the framework can facilitate policymaking as it allows for the identification of numerous policy options that would be generated as the result of consultations and engagements. In policymaking, being able to identify all policy options is critical because it ensures that the most appropriate and most suitable options are selected to address the policy issue [35].

The application of the framework relies on its uptake by policymakers. In this role, policymakers will need to adequately understand the framework and its different components. As mentioned by participants, it is imperative that policymakers develop expertise and knowledge in the technology sector. The need for professional development and training has been highly discussed by the European Commission and the OECD, who have also developed training to support policymakers to make evidence-informs policies and decisions. The European Commission states that policymakers must know “how to work with [evidence] and [...] integrate it into the complex machinery of policymaking. [...] [T]hey need the skills to identify and use relevant evidence in an appropriate way” (para. 1) [36]. Policymakers will be key in obtaining the breadth of information from all required sectors to be able to answer the complex policy questions. Finally, policymakers’ role will also involve applying the framework to all emerging policy work related to older adults’ SMDD using ICTs.

The framework should be beneficial for policymaking in Ontario, and later in other jurisdictions, as it supports a sustained implementation of ICT-based policies. This integration

comes at a time when digital health solutions and innovations are part of healthcare and are increasingly playing an important role in care management [14]. The framework will also be beneficial to policy ecosystems as it considers the evolving nature of technological innovation by reminding policymakers of the importance of sustained engagement with key actors in specific sectors. Lastly, the framework conceptually defines policymaking for this complex and modern policy area. It can provide conceptual orientation to the application of change management in the context of policymaking for older adults' SMDD using ICTs.

#### **4.5. Limitations**

This study used a survey design with open-ended questions. While this method is adequate to perform the validation exercise, it provided limited accounts of details of the assessments provided by participants. Some limited feedback was obtained through open-ended questions, but don't represent complete and detailed accounts to the extent of qualitative research. Future research that includes semi-structured interviews with policymakers could help gather clarifications on some new components of the framework and on increasing the level of detail for subcategories needing modification.

In addition, the survey was administered to managerial and director-level participants. Its full application in a policy environment would require its use by working-level employees as well. Future evaluations of the framework should involve diverse levels of policymaking individuals, including working-level policymakers.

#### **4.6. Conclusions**

A framework to support policymaking on older adults' SMDD using ICTs was validated using a survey with policymakers. The results revealed that the provisional framework accurately reflected the realities of policymaking for chronic disease self-management but could benefit

from some definitional clarifications and the addition of few additional factors. The framework can be used to encourage research that promotes a common understanding among stakeholders on the legitimacy of various perspectives in considering policymaking.

The validated framework will be useful for sustained integration of ICT-based interventions within policy initiatives. The applicability of this framework to jurisdictions outside of Ontario, Canada may require contextual adjustments. Future research should focus on evaluating the implementation of the framework within a policy ecosystem and identifying improvements, as needed.

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**CHAPTER 5**  
**INTEGRATIVE DISCUSSION**

## **5. INTEGRATIVE DISCUSSION**

The purpose of this chapter is to summarize the main findings from the three published/in-revision/submitted peer-reviewed articles of the present dissertation and highlight their significance. This integrative discussion will include three major discussion points about policymaking for older adults' self-management of diseases and disabilities using ICTs, the role of a conceptual framework in this area, and implications for population health. I will also highlight limitations with the research and end the chapter with the dissertation conclusion and considerations for future work.

### **5.1. Summary of Studies**

The overall aim of this dissertation was to identify factors that affect the development and implementation of a framework for policymaking for older adults' self-management of chronic disease and disability using ICTs. Particularly, I focussed on ICTs that could function as assistive devices to help older adults perform IADLs and overcome barriers with chronic diseases and disability. I conducted one large study with three phases to obtain detailed information about the policymaking environment and propose an overarching framework to support future policymaking endeavours on the topic.

In the first study, I used archival research to document the evolution of policies on health self-management in the province of Ontario over 37 years. The collection and analysis of policy documents published during the period from January 1, 1985, to May 5, 2022, revealed that the topic of health self-management was introduced around the late 2000s and there was a lack and sporadic mention of digital technology in policies. When it mentioned in policy documents, digital technologies were viewed as an inflection point in the policymaking timeline for self-management and their mention was either as a potential tool to support existing programming or

to support healthcare providers in clinical settings. Additionally, healthcare self-management policies were found to be highly dependent on political influences, choices in approaches to policymaking, and changing pressures on the healthcare system over time.

In the second study, I conducted qualitative semi-structured interviews with policymakers from various ministries within the government of Ontario to assess the policymaking environment and its influencers in relation to policymaking on the topic of interest. The results suggest that policymaking is complex as it targets diverse groups of the population, uses a diverse set of policy mechanisms, involves actors at multiple levels and from diverse sectors, and is significantly influenced by emerging contextual concerns. With regard to the role of policies to support ICT-enabled self-management, participants emphasized 1) the role of the provincial government in aiding and supporting the growth of companies that work in health technologies, and 2) the governments' efforts via focused programs to support access to technology for the management of certain chronic diseases. It was extremely rare to identify policymakers that conducted work at the intersection of all topics of interest (older adult, self-management and ICTs), so broad conclusions were generated from my overall interpretation of the individuals account and experiences of policymakers from various areas of work.

In the third study, I administered a survey to policymakers where I introduced a provisional framework for policymaking on older adults' self-management of disease and disability using ICTs, and inquired about the understandability, completeness, and usability of the framework. The findings show that the provisional framework adequately captured the basic components that should make up a framework for policymaking and could be supplemented with the inclusion of few other components to portray the full breadth of sectors involved on this issue. Specifically, the technology sector which includes companies, was noted as one critical part to add to the

framework. The results also point to the importance of considering the role of technologies in self-management policymaking, but that policymakers may be ill-equipped to understand their applicability.

The three phases of the project could further aid in understanding policymaking in the province of Ontario on the topic of older adults' self-management of chronic disease and disability using ICTs. The results revealed the multi and mutually influencing factors that interact in the policymaking environment. There exists variability in policymaking as a function of the types of ICTs considered. Namely, policies on clinical health technologies (i.e., telemedicine) are more developed than policies that support patient-level use of ICTs (i.e., apps for chronic disease management). My dissertation found discussion points related to the role of policymaking toward population health interventions.

## **5.2. Current and Future Directions and Trends for Policymaking about Chronic Disease and Disability Self-Management and Technology in the Foreseeable Future**

The study findings point to the complexity of the policymaking environment, which is multi-sectoral (i.e., health, aging, economic), interdependent, and mutually influencing across all stages and domains of policymaking. Through my research, I was able to map the landscape and name critical components of the policy system for health self-management, with a particular focus on ICTs from the perspective of policymakers. Additionally, engagements with policymakers that conduct firsthand work in this field allowed me to show directions and trends for policymaking in the future.

### *5.2.1. Need to Adapt Existing Policies, Programs and Services to include ICTs*

Policies on self-management are outdated because there is an absence of a recognizable policy framework to guide policymaking that includes ICTs. Policymakers, often working in

siloes, are also ill-equipped to respond to emerging health threats such as unpredictable diseases and crises as well as new challenges in care management such as increases in patients' use of technology for health-related purposes. Extreme pressures on governments and healthcare systems usually result in emergency and ill-conceived actions to modernize these outdated policies. The pressures are multiple and intersect all areas that compose the policymaking environment. As cited in Walt and Gilson's [1] policy analysis model, it is the interrelationship between context, actors, and processes that make up the content of policies, which should make them more adaptable and implementable. Importantly, external factors, also referred to as the policy context, are key features of political systems that influence health policymaking [2,3]. These include a multitude of elements such as emerging new diseases, the political context and technological developments [2,3]. In the case of policies on older adults' self-management of disease and disability using ICTs, the results of this dissertation point to the role of contextual factors (such as pandemics) on generating change and making policy systems evolve (articles 1, 2 and 3).

Crises, which I refer to as unpredictable external events in article 2, are among the external factors that most significantly impact health policymaking [4]. The current and most relevant example of a crisis's influence on policymaking is the COVID-19 pandemic. Throughout this pandemic, governments around the world created and modified policies in response to the emerging public health threats [5]. Mechanisms employed to protect populations have differed greatly across the globe, but have all significantly impacted and changed systems and policies [6]. The results in article 2 align with the literature that discusses the emergence of technology within policy responses to the COVID-19 pandemic. Digitalization of care, for example, should be included among the most notable pivots that occurred during the pandemic. In fact, many

services and programs turned toward digital modes of delivery to ensure the safety of populations [7,8]. Similarly, the government of Ontario pivoted much of its programming and services to citizens toward online and virtual modes of delivery to ensure a continuous but safe care continuum (article 2), without necessarily considering digital literacy. These temporary fixes, such as increased use of EHealth, telemedicine and virtual care. They are usually short-lived efforts of governments to mitigate challenges over the safe delivery health services [9], but lead to permanent changes such as the new virtual care model in the Ontario healthcare system [10]. Changes in policies that result from crises, such as the COVID-19 pandemic, are a demonstration of the policy systems' reactivity to evolving pressures.

#### *5.2.2. Policies to Enhance Availability and Access to ICTs*

The role of ICTs is a critical part of future solutions in care management. My research showed that the evolution of health self-management policies in Ontario were slow to include ICTs in policy (article 1) and that COVID-19 served as a strong pivotal moment to demonstrate the benefits and necessity to include ICTs in programs and services for the population (article 2) [11].

Since the late 1900s, there have been several disputes over the speed of uptake of technology within medical practices [12]. Similarly, ICTs have been neglected in health policymaking, especially ICTs that can be used by patients themselves (i.e., ICTs to support home-based care management) (articles 1 and 2). Since much research already points to the benefits of ICTs to support self-management [13], even within older adult populations [14–16], it is important to consider the role of policies to support its uptake. The most promising opportunities lie at the options offered by policies to enhance availability and access to ICTs via more diverse programs and initiatives.

The availability of ICTs to support self-management also relies on the commercial availability and cost of such products. While many researchers and producers have created the solutions, getting it into the market presents a significant challenge due to the short commercial viability [17]. ICTs can be funded through several business models (i.e., state reimbursement and purchasing system, insurance-fund reimbursement, and a self-purchased market) [17]. In Ontario, however, funding for the purchase of ICTs is not widely provided by the province and when it is, funding inequitably advantages those who have digital literacy capacities (article 2). As a result, businesses or start-ups could view the Ontario market (which presents as the biggest in Canada, but a smaller one within North America or the world) as an unattractive investment area. The government of Ontario has a role to play to enable growth and commercial development opportunities for those businesses who wish to commercialize innovative ICT-based solutions for self-management, such as those developed in Ontario. Ensuring economic viability through supportive policies and programs for businesses that develop ICT-based self-management solutions is critical if we want to reach the health benefits for older adult end users.

When ICT-based self-management solutions are commercially available, barriers such as financial and technical factors may still prevent older adults to get access to them. For example, technological infrastructure such as the internet can be unavailable or extremely expensive in remote, rural areas, and may not be affordable to diverse groups of older adults which makes ICT access inequitable [18]. Additionally, issues with digital literacy may prevent many from benefitting from such innovations [18]. Policies that use a diversity lens can play an influential role in mitigating barriers to access for diverse groups of the population. For example, policymakers can develop initiatives with community organizations across Ontario to increase access to ICTs, especially in areas where increased challenges with healthcare access exists.



Considering and addressing diversity in policies on ICTs for self-management will allow for a larger number of older adults to benefit from technology-based solutions for more effective care management. As discussed previously, now more than ever before, newer technologies that promote improvements in health outcomes via increased physical and social well-being [19–21] present the future of care management. Government policymaking presents as an effective avenue to support the uptake and integration of modern technologies into health systems and into the lives of diverse older adults. However, sustainability and scaling of ICT-based health solutions needs a strong policy environment [22,23]. For this reason, future policy efforts aimed at advancing health of populations should consider ICTs as an obligatory part of policymaking without neglecting availability and access of ICTs.

#### *5.2.3. Building Expertise for Better Multi-Sectoral and Evidence-Informed Policies*

Policymaking on the topic of older adults' health self-management using ICTs crosses a multitude of sectors, such as politics, health, business, and aging (articles 2 and 3). It is not uncommon, however, to learn that policymakers work in silos and address only a certain sector-specific part of the problem, even if this approach is unsuitable for the issue at hand. Policy-level challenges can hamper holistic understandings of this complex issue and therefore limit multi-sectoral collaborations in policy environments. Policymakers may be ill-informed about a topic and its implications across multiple areas of policy, and therefore omit to include relevant sectors of activity in policy engagements. In article 3 for example, I discovered that there exist gaps in knowledge about the technology sector from policymakers working in the health-focussed areas. This can have damaging implications where policymakers may dismiss technologies and their potential to support health promotion initiatives. To enable policymaking that crosses boundaries, it is imperative for those who engage in it to have knowledge about all components

of the issue and to know how to use that knowledge in their policy activities. Thus they should seek advice from multiple relevant sources including public, academic and private sectors' experts and community partners and publications.

By engaging with evidence and real-world experiences, policymakers can enhance their knowledge about health technology (including ICTs) and develop better and more coherent policies. Accessing these elements in a timely manner is critical [24,25]. Through evidence-informed approaches, systems are better equipped to justify decisions [26] with the overall goal to obtain better outcomes and decreased risks [27]. Fortunately, there exists a wide range of ways for policymakers to access evidence from all around the world and across disciplines. Evidence for policymaking can be shared in many ways such as through research studies, literature reviews, panels with expert advisors, opinion pieces, lobbying [4]. Additionally, evidence should be obtained internally through close collaboration with those working in related areas in government. For instance, individuals in the Ministry for Seniors and Accessibility could supplement external stakeholder engagement and learning from partnerships with consultation with other ministries such as Ministry of Health or the Ministry for Economic Development, Job Creation and Trade. Addressing policy-level expertise through evidence gathering and sharing presents a promising opportunity to build knowledge and skill which can lead to better collaborative cross-sectoral policymaking, especially in older adults' self-management of disease and disability using ICTs. For policymakers to understand the level of complexity accompanying policymaking on this topic, it was relevant to develop a framework that visual depicts all components of the complex system.

An additional consideration for policymakers in the development of policies is the use of conceptual models and specific definitions to describe the problem and population being

targeted. For instance, selecting to develop policies that address self-management from the perspective of Corbin and Strauss [28] or Schulman-Green [29] can have significantly different impacts and lead to very different interventions that promote ICT use. An intervention that is developed using the theoretical underpinnings of Corbin and Strauss [28] could lead to policies that rely on individual capabilities and focus on enhancing personal uses of ICTs while an intervention that is developed using the theoretical underpinnings of Schulman-Green [29] may focus more on the interconnected use of ICTs among diverse groups of actors around an older adult. As presented here, policymakers' decisions in a theoretical approach and the way by which they define components of the problem can lead to significant differences in policy interventions which further emphasizes the need use evidence and access appropriate information sources to truly understand the complexity of a problem.

In this same line of thought, future research on policymaking around older adult's self-management of diseases and disabilities should involve various members of society such as older adult advocacy groups, healthcare professionals, companies and, most importantly, older adults. In these inquiries researchers should explore the impacts of policymaking and policies on the lives of older adults who are users of ICTs to self-manage, and could document the actual impacts, gaps and experiences of members of society with policies and policymaking on this complex issue. As a result, future policymaking endeavours could be better informed and truly respond to the needs of the population.

### **5.3. The Role of the Conceptual Framework to Advance Research on Policymaking**

Through this dissertation, I was able to develop and confirm a conceptual framework for policymaking for older adults' self-management of disease and disability using ICTs (article 3). This framework offers a practical and visual representation of all the components that make up

the complex ecosystem of policymaking in this area. The value and role of the framework is that it develops a foundation for the concepts and their relatedness [30]. Policymaking is a process that influenced by multiple components, involves a plenitude of actors, and stretches across multiple sectors internal and external to government for a given problem. As such, intentionally organizing key concepts that interfere with one another within the conceptual framework gives direction and a vision for engaging in policymaking on older adults' self-management of disease and disability using ICTs.

The framework generated from this dissertation will help advance research on policymaking as it promotes the value for engaging policymakers in applied research. It will do so by helping policymakers to 1) understand their environment, 2) understand the issue they are working on, and 3) develop proper engagement and collaboration strategies. The framework proposes a visual that encompasses all the components of the policy cycle as well as the interfering factors of context and actors. As such, policymakers that consult the framework can get a wholesome perspective on key components that influence their policymaking activities. An appreciation of this environment may better equip them to judge the importance of each factor on their activities and therefore create policies that consider all interfering pressures. The framework also enables to visually see the complexity of the issue. As discussed earlier, it covers multiple sectors and disciplines within a complex system of interdependencies. For policymakers, seeing these wide range of sectors can serve as reminders for engaging across all levels and domains. Finally, the framework also allows to visually see the breadth of actors that participate in the policy environment. Policymakers that understand which actors engage in the area of focus will be better suited to engage and consult with them through collaborative means. Overall, the framework is a distinctive tool that maps out the complexity and mutually

influencing relationships among policy environments. It opens the door for future research inquiries about the interdependencies of all components of the environment and can support policymaking activities in this area as well.

For the framework to achieve its intended outcomes, there needs to be a consideration for a thorough and well-developed knowledge mobilization plan. Specifically, this knowledge mobilization plan should consider how to appropriately disseminate the framework with its potential users, specifically, policymakers in Ontario. As a first potential step, the three articles generated from this thesis should be disseminated with policymakers in Ontario. These include the participants in the studies as well as other policymakers from the same ministries and areas of work. Second, a short policy brief explaining the research and the main findings could also be created and disseminated among senior-level executives from the Ministry of Health, the Ministry of Children, Community and Social Services, the Ministry for Seniors and Accessibility and the Ministry of Economic Development, Job Creation and Trade. Third, it may be relevant to disseminate the articles and policy briefs with advocacy groups who can bring up some of the findings with policymakers during external consultations. Finally, it will be important to communicate the findings of this dissertation via conference talks where there is potential attendance from government representatives. With all these activities, there is a high potential to get the knowledge generated as part of this dissertation to policymakers who could use it in their day-to-day activities.

#### **5.4. Implications for Population Health**

Policies on self-management of disease and disability using ICTs contribute to population health from a broad perspective. In fact, policies represent one type of population health intervention [31] and encompass actions within and beyond health [32]. As discussed throughout

this dissertation, policies that concern older adults' self-management of disease and disability are cross-cutting through sectors such as health, business, technology, and gerontology (articles 2 and 3). When governments create policies that contribute to domains that intersect with self-management and technology, they are contributing solutions to mitigate challenges that populations may be facing. In fact, population health goes beyond improving health outcomes, but it is about creating macro- and micro-environments that change conditions within which populations are living [32]. The conceptual framework presented in my dissertation points to the importance of considering multiple factors, which we also call determinants of health, that contribute to health of populations [33]. For instance, if policies support easier financial access to ICTs by community-dwelling older adults, they may be in a better position to uptake self-management strategies involving technologies in their care management. While earlier I discussed how policies are promising for increasing availability and access to ICTs, other factors that support sustained use are also important. Policies have the power to connect different systems together to allow them to become interrelated and function in tandem for better care management. For example, policies focussed on business development in Ontario can enhance availability of ICTs locally, and when coupled with programs that support the purchase and access to those technologies, then both businesses and older adults could yield economic and health-related benefits.

Polymaking in older adults' self-management of disease and disability using ICT is an example of a complex adaptive system (CAS). A CAS policy is defined as segments that are disconnected and present their own views and values, but that interact with each other to achieve their own means [34]. More precisely, a CAS represents a set of systems that interact on multiple levels based on existing processes, and that learn and adapt as a result of these interactions and

other environmental factors [35]. The practical framework generated from this dissertation points to the systems that interact within one another and influenced by environmental factors (article 2). Specifically, the elements of the system include factors such as healthcare, technology (Research and Development, and industry), politics, external emergencies, and FPT relationships. The interrelationships and interactions between all these elements of the system and their actors influence outcomes and evolve through time. By understanding policy through the lens of a CAS, policymakers will be able to situate their activities within a set of interactions among different systems that mutually influence and depend on one another. CAS is helpful to see how system concepts interrelate to then understand how changes to one part of a system impact other parts. Policy change is about managing limited resources and a CAS lens can help with that. In the case of policymaking that composes with constant technological innovation, a CAS will help to understand the intricacy for embedding technology as a component that affects all systems. The framework that I developed in this dissertation aligns with the application of CAS in implementation science, by portraying the non-linearity of policymaking, but rather that it is dynamic and unpredictable endeavour [36]. Future work on policymaking of older adults' self-management of disease and disability using ICTs should go deeper in applying the CAS principles to identify the interrelatedness, thus the range of complexity, among the components of policymaking. Identifying the range of complexity could help to study the way systems behave [37].

## **5.5. Limitations**

My dissertation research had limitations on the sample size and representation of participants, and COVID-19 pandemic-induced restrictions on participant engagement.

In study 2, I aimed to involve public servants from a diverse public service: the Ministry of Health, the Ministry of Children, Community and Social Services, the Ministry for Seniors and Accessibility or the Ministry of Economic Development, Job Creation and Trade. My approach focussed on including, at a minimum, individuals for each of the selected ministries starting at the higher levels of policymaking (deputy minister, assistant deputy minister, director, manager, and executive lead). In instances where there was limited participation at the higher levels of policymaking, individuals from lower levels (working level public servants) were invited if they had the relevant expertise and experience. Similarly, in study 3, the survey participants were those who took part in earlier phases of the project and others that would be able to provide useful evaluations of the framework. While qualitative studies usually have small sample sizes, the small sample size for study 2 (qualitative study) and study 3 (survey study) may be viewed as a limitation because they only represent the views of few policymakers working on a related topic, even if all ministries were represented in studies 2 and 3 out of the 4 targeted ministries were represented in study 3. In study 3, we did not obtain any responses from the Ministry of Children, Community and Social Services, and only two responses from the Ministry of Health. The specificity of the topic in question largely limited the number of potential participants and is an issue has been widely discussed in existing literature which stipulates that sample size is influenced by multiple factors including the research topic and the research populations' structure [38]. Limitations in accessing the research population and the small number of eligible participants may have influenced the small sample size. Inviting policymakers to take part in research was a challenge due to a multitude of factors such as time constraints, competing priorities and the need for approvals to take part in research, alongside a pandemic. In fact, recent research points to challenges of involving policymakers because they often cannot see the



immediate relevance of the research to advancing their work [39]. With regards to representation, I initially included a shortlist of three ministries based on the online descriptions of the ministry's work; however, there are limitations in this approach as I only included the ministries which performed work related to the topic of interest. This may have led to omitting certain ministries of importance such as the Ministry of Long-Term Care. This limitation was mitigated by recruiting participants via snowball sampling in study 2. As a result, I was able to include a fourth ministry in the list of ministries within the eligibility criteria. Additionally, I started by inviting potential participants from higher seniority levels and with responsibilities related to policy and program delivery. Higher-level executives often referred me to other levels of policymakers in the case that they did not view themselves as the right person to involve. On certain occasions, however, higher-level policymakers did not respond to the invitation due to competing priorities. By targeting those individuals with policy and program delivery experience, I was also able to omit individuals that performed tasks unrelated to the topic of interest (i.e., administrative staff). Future research on this topic should rightly involve a wider range of policymakers from diverse ministries and in larger numbers, where possible. This would ensure more confidence that the results are generalizable.

Second, there were challenges that emerged with the proposed design of this dissertation. The intent was to perform an in-person concept mapping exercise with policymakers. This exercise would have allowed participants engage in a dialogue by exchanging and collaborating within a focus group-type environment in the development of a draft framework [40]. However, the COVID-19 pandemic precluded an in-person gathering. As such, I adapted the semi-structured interviews (study 2) and the survey (study 3) to account for the limited engagement in the development of the framework.

## **5.6. Conclusions**

In my dissertation research, I was able to discover factors that intersect in policymaking on the topic of older adults' self-management of disease and disability using ICTs. Influences from various external pressures, which include emergencies or crises, emerging health concerns, and political changes in government, were major contributors to shaping policy for older adults' self-management. Considerations for the multitude of systems involved, including those outside of the health system, is critical when developing policy solutions that concern health. The fast evolution of technological innovations in the form of ICTs makes for increased complexity in policymaking. However, if sector-specific policymakers make conscious efforts to unite with other sectors, then policies will become more sustainable over time. Future policymaking strategies should capitalize on strengths within the complex systems involved (i.e., governmental, political, clinical, technological) to develop joint solutions that consider the limits and opportunities that each sector presents. This dissertation revealed the role of policies to support older adults that engage in self-management of their chronic diseases and disabilities using ICTs. Increased efforts from the policy side to support self-management of health through ICTs can lead to enhanced well-being and quality of life for older adults living in a world of constant technological innovation.

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**CHAPTER 6**  
**APPENDICES**

## **Appendix 2–1. Detailed Search Strategy (Article 1)**

### **1. Archives of Ontario**

Three databases that contain archives of the Ontario government were searched: Archives descriptive database (Ontario), legislative library of Ontario, and the government and legislative libraries online publications (GALLOP) portal

Each search was performed using the search term self-management (archives descriptive database and legislative library of Ontario) or self-management (GALLOP portal). A single search term was used due to the limited possibilities offered by the different portals. For the GALLOP portal, more than 8000 entries were identified using the search term self-management. For this reason, pages were viewed until no new documents could be found (pages screened in total: 20).

Search performed in 2021 (revised November 1, 2021, and May 5, 2022)

### **2. Government of Ontario website**

The government of Ontario's website was searched using the search function of the website. A single search term was used due to the limited possibilities offered by the search function of the website. The search term used was self-management. Over 5500 entries were identified using this search term. For this reason, pages were viewed until no new documents could be found (pages screened in total: 10).

Search performed in 2021 (revised November 1, 2021, and May 5, 2022)

### 3. Database search (search terms and databases)—Searches performed in 2021 (revised November 1, 2021, and May 5, 2022)

|                                                              | CINAHL (EBSCO)                                                                                                            | EMBASE (OVID)                                                                                                             | ProQuest Politics Collection (ProQuest)                                                                                 | Canadian Business and Current Affairs Database (CBCA)                                                                   | Canadian Public Policy Collection (Scholars Portal)                                                                       | Canadian Periodical Index (CPIQ)                                                                                         | Academic Search Complete (EBSCO) | GALLOP Portal                                                                                                             | Factiva                      |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Concept 1                                                    | Self-management                                                                                                           | Self-management                                                                                                           | Self-management                                                                                                         | Self-management                                                                                                         | Self-management                                                                                                           | Self-management                                                                                                          | Self-management                  | Self-management                                                                                                           | Self-management              |
| Concept 1- Search in database Thesaurus                      | 1 (MH "Self-Management")                                                                                                  | 1 self care/                                                                                                              | 1 MAINSUBJECT.EXACT.EXPLODE("Empowerment")                                                                              | 1 MAINSUBJECT("Empowerment")                                                                                            |                                                                                                                           |                                                                                                                          | 1 SELF-management (Psychology)   |                                                                                                                           |                              |
|                                                              | 2 (MH "Self Care")                                                                                                        | 2 self monitoring/                                                                                                        | 2 MAINSUBJECT.EXACT.EXPLODE("Autonomy")                                                                                 | 2 MAINSUBJECT("Autonomy")                                                                                               |                                                                                                                           |                                                                                                                          | 2 PATIENT self-monitoring        |                                                                                                                           |                              |
|                                                              | 3 (MH "Self-Efficacy")                                                                                                    | 3 personal autonomy/                                                                                                      |                                                                                                                         | 3 MAINSUBJECT("Self-care")                                                                                              |                                                                                                                           |                                                                                                                          | 3 AUTONOMY (psychology)          |                                                                                                                           |                              |
|                                                              | 4 (MH "Autonomy")                                                                                                         |                                                                                                                           |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          | 4 SELF-efficacy                  |                                                                                                                           |                              |
| Concept 1- Search in ti, ab, or other fields like .mp or .tw | 5 "self-manag"                                                                                                            | 4 self-manag'.mp                                                                                                          | 3 ti,ab(self-manag')                                                                                                    | 4 TIAB(self-manag')                                                                                                     | 1 self-manag'                                                                                                             | 1 self-manag'                                                                                                            | 5 HEALTH self-care               | 1 self-manag'                                                                                                             | 1 self-manag'                |
|                                                              | 6 "self-care"                                                                                                             | 5 self-care.mp                                                                                                            | 4 ti,ab(self-care)                                                                                                      | 5 TIAB(self-care)                                                                                                       | 2 self-care                                                                                                               | 2 self-care                                                                                                              | 6 self-manag'                    | 2 self-care                                                                                                               | 2 self-care                  |
|                                                              | 7 "self-monitor"                                                                                                          | 6 self-monitor'.mp                                                                                                        | 5 ti,ab(self-monitor')                                                                                                  | 6 TIAB(self-monitor')                                                                                                   | 3 self-monitor                                                                                                            | 3 self-monitor                                                                                                           | 7 self-care                      | 3 self-monitor                                                                                                            | 3 self-monitor               |
|                                                              | 8 "self-efficacy"                                                                                                         | 7 self-efficacy.mp                                                                                                        | 6 ti,ab(self-efficacy)                                                                                                  | 7 TIAB(self-efficacy)                                                                                                   | 4 self-efficacy                                                                                                           | 4 self-efficacy                                                                                                          | 8 self-monitor                   | 4 self-efficacy                                                                                                           | 4 self-efficacy              |
|                                                              | 9 "Autonomy"                                                                                                              | 8 Autonomy.mp                                                                                                             | 7 ti,ab(Autonomy)                                                                                                       | 8 TIAB(Autonomy)                                                                                                        | 5 Autonomy                                                                                                                | 5 Autonomy                                                                                                               | 9 self-efficacy                  | 5 self-efficacy                                                                                                           | 5 Autonomy                   |
| Concept 1 (final)                                            | 10 Combine concept 1 with OR                                                                                              | 9 Combine concept 1 with OR                                                                                               | 8 Combine concept 1 with OR                                                                                             | 9 Combine concept 1 with OR                                                                                             | 6 Combine concept 1 with OR                                                                                               | 6 Combine concept 1 with OR                                                                                              | 10 Autonomy                      | 6 Combine concept 1 with OR                                                                                               | 6 Combine concept 1 with OR  |
| Concept 2                                                    | Disease and Disability                                                                                                    | Disease and Disability                                                                                                    | Disease and Disability                                                                                                  | Disease and Disability                                                                                                  | Disease and Disability                                                                                                    | Disease and Disability                                                                                                   | Disease and Disability           | Disease and Disability                                                                                                    | Disease and Disability       |
| Concept 2 Thesaurus                                          | 11 (MH "Disease")                                                                                                         | 10 diseases/                                                                                                              | 9 MAINSUBJECT.EXACT.EXPLODE("Disease")                                                                                  | 10 MAINSUBJECT("Disease")                                                                                               |                                                                                                                           |                                                                                                                          | 12 PATHOLOGY                     |                                                                                                                           |                              |
|                                                              | 12 (MH "Disability Management")                                                                                           | 11 disability/                                                                                                            | 10 MAINSUBJECT.EXACT.EXPLODE("Illness")                                                                                 | 11 MAINSUBJECT("Illness")                                                                                               |                                                                                                                           |                                                                                                                          | 13 DISEASES                      |                                                                                                                           |                              |
| Concept 2 - ti,ab                                            | 13 "disease"                                                                                                              | 12 disease.mp                                                                                                             | 11 ti,ab(disease)                                                                                                       | 12 TIAB(disease)                                                                                                        | 7 disease                                                                                                                 | 7 disease                                                                                                                | 14 DISABILITIES                  |                                                                                                                           |                              |
|                                                              | 14 "illness"                                                                                                              | 13 illness.mp                                                                                                             | 12 ti,ab(illness)                                                                                                       | 13 TIAB(illness)                                                                                                        | 8 illness                                                                                                                 | 8 illness                                                                                                                | 15 disease                       | 7 disease                                                                                                                 | 7 disease                    |
|                                                              | 15 "disability"                                                                                                           | 14 disability.mp                                                                                                          | 13 ti,ab(disability)                                                                                                    | 14 TIAB(disability)                                                                                                     | 9 disability                                                                                                              | 9 disability                                                                                                             | 16 illness                       | 8 illness                                                                                                                 | 8 illness                    |
|                                                              | 16 "impairment"                                                                                                           | 15 impairment.mp                                                                                                          | 14 ti,ab(impairment)                                                                                                    | 15 TIAB(impairment)                                                                                                     | 10 impairment                                                                                                             | 10 impairment                                                                                                            | 17 disability                    | 9 disability                                                                                                              | 9 disability                 |
|                                                              | 17 "condition"                                                                                                            | 16 condition.mp                                                                                                           | 15 ti,ab(condition)                                                                                                     | 16 TIAB(condition)                                                                                                      | 11 condition                                                                                                              | 11 condition                                                                                                             | 18 impairment                    | 10 impairment                                                                                                             | 10 impairment                |
| Concept 2 (final)                                            | 18 Combine concept 2 with OR                                                                                              | 17 Combine concept 2 with OR                                                                                              | 16 Combine concept 2 with OR                                                                                            | 18 Combine concept 2 with OR                                                                                            | 12 Combine concept 2 with OR                                                                                              | 12 Combine concept 2 with OR                                                                                             | 19 condition                     | 11 condition                                                                                                              | 11 condition                 |
| Concept 3                                                    | Ontario                                                                                                                   | Ontario                                                                                                                   | Ontario                                                                                                                 | Ontario                                                                                                                 | Ontario                                                                                                                   | Ontario                                                                                                                  | Ontario                          | Ontario                                                                                                                   | Ontario                      |
| Concept 3 Thesaurus                                          | 19 (MH "Ontario")                                                                                                         | 18 Ontario/                                                                                                               |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          |                                  |                                                                                                                           |                              |
|                                                              |                                                                                                                           |                                                                                                                           |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          |                                  |                                                                                                                           |                              |
|                                                              |                                                                                                                           |                                                                                                                           |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          |                                  |                                                                                                                           |                              |
| Concept 3 ti, ab                                             | 20 "Ontario"                                                                                                              | 19 Ontario.mp                                                                                                             | 17 ti,ab(Ontario)                                                                                                       | 19 TIAB(Ontario)                                                                                                        | 13 Ontario                                                                                                                | 13 Ontario                                                                                                               | 21 Ontario                       | 13 Ontario                                                                                                                | 13 Ontario                   |
| Concept 3 (Final)                                            | 21 Combine concept 3 with OR                                                                                              | 20 Combine concept 3 with OR                                                                                              | 18 Combine concept 3 with OR                                                                                            | 20 Combine concept 3 with OR                                                                                            | 14 Combine concept 3 with OR                                                                                              | 14 Combine concept 3 with OR                                                                                             | 22 Combine concept 3 with OR     | 14 Combine concept 3 with OR                                                                                              | 14 Combine concept 3 with OR |
| Other limits/restrictions                                    |                                                                                                                           |                                                                                                                           |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          |                                  |                                                                                                                           |                              |
| Langues / Languages ?                                        | English and French                                                                                                        | English and French                                                                                                        | English and French                                                                                                      | English and French                                                                                                      | English and French                                                                                                        | English and French                                                                                                       | English and French               | English and French                                                                                                        | English and French           |
| Années/Years ?                                               | 1985-2020                                                                                                                 | 1985-2020                                                                                                                 | 1985-2020                                                                                                               | 1985-2020                                                                                                               | 1985-2020                                                                                                                 | 1985-2020                                                                                                                | 1985-2020                        | 1985-2020                                                                                                                 | 1985-2020                    |
| Final search                                                 | 10 AND 18 AND 21 AND Other limits                                                                                         | 9 AND 17 AND 20 AND Other                                                                                                 | 8 AND 16 AND 18 AND Other                                                                                               | 9 AND 18 AND 20 AND Other limits                                                                                        | 6 AND 12 AND 14 AND Other                                                                                                 | 6 AND 12 AND 14 AND Other                                                                                                | 11 AND 20 AND 22 AND Other       | 6 AND 12 AND 14 AND Other                                                                                                 | 6 AND 12 AND 14 AND Other    |
| Name search strategy saved in the platform - Name            | CINAHL Step 1- Archival Research 2020 12 21                                                                               | EMBASE Step 1- Archival Research 2020 12 21                                                                               | ProQuest Step 1- Archival Research 2020 12 21                                                                           | Canadian Business and Current Affairs Database Step 1- Archival Research 2020 12 21                                     | Self-manag' OR self-care OR self-monitor' OR self-efficacy OR Autonomy AND (disease)                                      |                                                                                                                          |                                  |                                                                                                                           |                              |
| Database date                                                | 237                                                                                                                       | 354                                                                                                                       | 17                                                                                                                      | 88                                                                                                                      | 5                                                                                                                         | 11                                                                                                                       | 148                              | 8210                                                                                                                      | 2500                         |
| Number of results                                            | 233                                                                                                                       | 237                                                                                                                       | 11                                                                                                                      | 74                                                                                                                      | 5                                                                                                                         | 8                                                                                                                        | 53                               |                                                                                                                           |                              |
| Results without duplicates                                   |                                                                                                                           |                                                                                                                           |                                                                                                                         |                                                                                                                         |                                                                                                                           |                                                                                                                          |                                  |                                                                                                                           |                              |
| Comments                                                     | Search re-run on November 1, 2021 - 10 new articles to screen<br>Search re-run on May 5, 2022 - 18 new articles to screen | Search re-run on November 1, 2021 - 35 new articles to screen<br>Search re-run on May 5, 2022 - 78 new articles to screen | Search re-run on November 1, 2021 - no new articles to screen<br>Search re-run on May 5, 2022 - 1 new article to screen | Search re-run on November 1, 2021 - 2 new articles to screen<br>Search re-run on May 5, 2022 - 2 new articles to screen | Search re-run on November 1, 2021 - no new articles to screen<br>Search re-run on May 5, 2022 - no new articles to screen | Search re-run on November 1, 2021 - no new articles to screen<br>Search re-run on May 5, 2022 - 1 new articles to screen | Could not redo search            | Search re-run on November 1, 2021 - no new articles to screen<br>Search re-run on May 5, 2021 - no new articles to screen | Not included                 |

### **Appendix 3–1. Invitation Email (Article 2)**

Dear *[name of potential participant]*,

I am a PhD candidate at the University of Ottawa in Population Health. I am contacting you because you have significant knowledge and experience in Ontario Provincial public service. My supervisor is Professor Jeffrey Jutai in Interdisciplinary School of Health Sciences, University of Ottawa.

I am doing a study entitled: “Conceptual Framework for Policy-Making for Older Adults’ Self-Management of Disabilities with Information and Communication Technologies (ICTs)”.

I am hoping that I may interview you to understand important policy issues and approaches to policy-making within your branch and department.

My study aims to analyze the process of policy, program or service development, implementation and evaluation regarding self-management of disabilities by older adults. I am particularly interested in examining policies that concern their use of information and communication technologies (ICTs) in this regard.

I hope to answer the following research question:

“What factors influence the development and implementation of a framework for policy making for older adults’ self-management of disabilities with ICTs”?

The study has received ethical approval from the University of Ottawa (uOttawa ethic file number: H-07-20-5555).

If you accept to participate in this study, I would like to do a one-hour interview with you, at a time and process of your choice.

To participate in this study, you must meet the following eligibility criteria:

1. Employed within one of the Ontario Government departments;
2. Work in the Ministry of Health, the Ministry of Children, Community and Social Services, or the Ministry of Seniors and Accessibility;
3. Have occupied your current position for at least one year;
4. Able to understand and speak English;
5. Experience working on files (policies or programs) that involve older adults and technology OR disability and technology;

I look forward to engaging with you in a dialogue, and read your positive email response and interest in participating.

If you include your telephone number, I would be pleased to speak with you to address any questions you may have about the study and send you a copy of the information and consent form.

Sincerely yours,

Amélie Gauthier-Beaupré, BSc, PhD(c)

PhD Candidate in Population Health

Faculty of Health Sciences

University of Ottawa

[LinkedIn profile](#)

## **Appendix 3–2. Semi-structured Interview Guide**

**Title of the study:** Conceptual Framework for Policy-Making for Older Adults’ Self-Management of Disabilities with Information and Communication Technologies (ICTs)

### **Interview Introduction**

Hello and welcome, I am Amélie Gauthier-Beaupré, a PhD candidate in Population health at the University of Ottawa.

This present study is looking at policy-making when it comes to older adults’ self-management regarding disabilities by engaging information and communication technologies.

We want to get a better understanding and knowledge of current and future important policy needs—your needs—and existing approaches and those being developed within your branch and department to address issues related to the aforementioned topic.

In this interview, we would like to get a better understanding of your day-to-day activities along with overall approaches that your division takes to address issues specific to [older adults, self-management, disabilities, technologies—(choose based on the participant)].

There is no right or wrong answer.

If there is a word that is unfamiliar to you or if a question is unclear, please ask me about it.

You can choose not to answer a question.

You can choose to stop the interview when you want.

You can also tell me anytime if you need a break.

The interview will be approximately 60 minutes long.

We would like to audio-record the interview so that we can accurately document what you tell us. May I start the recording now?

[Obtain verbal consent to participate on the audio-recording if the interview is via videoconference or telephone]

## **Section A—Background**

1. What are the main files that you work on? (If no answer, hesitation or no because it is confidential) What were files you previously worked on and that have been implemented (or not, discarded and why) ?
2. What are the main files that your team/division works on?
3. More specifically, in terms of older adults' self-management of disabilities using information and communication technologies:
  - a. Can you expand on the nature of the work that you do in that area?
  - b. What policy documents (if any) have you developed in the area of self-management specifically?
    - i. Are these documents publicly available? Where can they be accessed?
4. Could you please describe what you do on a day-to-day basis?
5. Which teams do you collaborate with? Intra-vs. inter-departments
  - a. [If they collaborate with other teams] What is the nature of this collaboration?

Legal, regulatory, budgetary

    - i. How often are you meeting with other teams?
    - ii. Who is more involved in decision-making?

- iii. Who leads this collaboration?

## **Section B—Political Context**

1. To what extent do other provincial or federal initiatives guide or drive the work that you do? What about municipal work?
2. How is the provincial political agenda impacting the work that you do? (Influence of the election cycle, gov. political parties' view, etc.)

## **Section C—Policies (note: take good notes of the titles and try to identify web links)**

1. Does your division develop or oversee any policies?
  - a. [If yes] What policies did your division develop or oversees?
2. Who decides which policies are developed/overseen by your division?
3. Who is impacted by the policies that you develop/oversee?
4. What is the process for designing and implementing policies in your division?

## **Section D—Programs (Note: Pay attention to details—ask if there are joint programs at the municipal or federal levels and co-funding)**

1. Does your division deliver and oversee any programs?
  - a. [If yes] What programs does your division deliver or oversee?
  - b. [If yes] Who decides how these programs are delivered/overseen?
  - c. [If yes] Who is involved in these programs? (Other divisions, community organizations, others?)



- d. [If yes] Who are the beneficiaries of programs you deliver?
- 2. What is the process for designing, delivering and overseeing programs in your division?
  - a. Design:
    - i. Who decides that a program needs to be designed?
    - ii. Who designs the programs?
    - iii. Who gives funding for the programs?
    - iv. What is the core origin of the program ? New government, from within the division ?
  - b. Delivery:
    - i. Who delivers the program?
    - ii. Who mostly benefits from the programs?
    - iii. Who makes decisions on how the program is delivered? Be prepared to give examples to any questions—ex. political
  - c. Oversight:
    - i. Who assesses the impact of a program? What is the process—review who is engaged, every year, two years, election cycle?
    - ii. Who ensures that the program is delivered according to its initial intent?  
Deliverables vs. within budget

## **Section E—Service Delivery**

- 1. Does your division deliver any services to the community?
  - a. [If yes] What services does your division deliver?
  - b. [If yes] To whom does your division deliver services?

- c. [If yes] For what purpose does your division deliver services?
  2. What is the decision process for delivering services? What qualifies people or organizations to get the funding and then deliver them?
  3. How are service deliveries managed by your organization? Yearly, budget cycle, tighter control

## **Section F—Innovation**

1. What is your definition of innovation ?
2. What is the importance and role of innovations in the development of policies and /or programs that have been developed or implemented by your division?
3. Describe how (the process) innovations get adopted in your division? Maybe ask for the initial source
4. How does your division keep “up to date” with recent innovations in the realm of aging and technology or disability and technology?
5. What is the role of public servants in innovating on a day-to-day basis?
6. What is the approval process for suggesting innovations in processes/policies/programs, etc.?

## Appendix 3–3. Consent Form (Article 2)



**Université d'Ottawa**  
Faculté des sciences  
de la santé

École interdisciplinaire  
des sciences de la  
santé

**University of  
Ottawa**  
Faculty of Health  
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### Consent Form - Interview

**Title of the study:** Conceptual Framework for Policy-Making for Older Adults' Self-Management of Disabilities with Information and Communication Technologies (ICTs)

**Researchers:**

Amélie Gauthier-Beaupré  
PhD Candidate in Population Health  
Faculty of Health Sciences  
University of Ottawa

Jeffrey W. Jutai, Ph.D. (supervisor)  
Full Professor  
Faculty of Health Sciences  
University of Ottawa

**Invitation to Participate:** I am invited to participate in the abovementioned PhD thesis research study conducted by Amélie Gauthier-Beaupré, PhD(c) and under the supervision of Jeffrey W. Jutai, PhD.

**Purpose of the Study:** The purpose of the study is to discuss policy-making on the issue older adults' self-management of disabilities using ICTs. This study has 4 objectives:

- 1) Review and synthesize policies, frameworks and documents about self-management
- 2) Analyze the policy environment to understand the needs of policy-makers
- 3) Design and propose a framework for policy-making
- 4) Test and evaluate the newly developed framework

**Participation:** My participation will consist essentially of attending a single 1-hour audio-recorded interview during which I will provide input on the design and implementation of policies and programs within my division. *The interview* has been scheduled in advance with the principal investigator. I will also be asked to answer some demographic information about my roles and responsibilities within the division.

**Risks:** The researcher has informed me that there are no risks associated with my participation in this research study.

**Benefits:** By participating in this study, I may become more aware of complex issues involving older adults, technology, self-management and disability. My participation has the potential to contribute to the development of innovative ways to develop and implement policies for the area of older adults' self-management of disabilities using ICTs.



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**University of  
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Faculty of Health  
Sciences

Interdisciplinary School  
of Health Sciences

+1 613 562 8218  
+1 613 562-5632

25 Université/University  
Ottawa ON K1N 6N5 Canada

**Compensation (or Reimbursement):** I will not be compensated for my participation in this study.

**Confidentiality and anonymity:** I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used only for research purposes and that my confidentiality will be protected by ensuring that research documents and data are de-identified and stored on an encrypted drive in a locked filing cabinet.

**Anonymity** will be protected in the following manner: Upon consent to the initial telephone call, participants will be assigned a pseudonym. These pseudonyms will substitute participants' names on all gathered data. The consent form which contains the participant's name and telephone number will be secured separately in a locked office at the University of Ottawa. The document containing the participant's name and telephone number will only be accessed when planning to meet with participants for the interviews. Pseudonyms will be used in all quoted material in the final study report, and other identifiable information will not be reported. Any real name used will be removed from the transcripts and replaced with a pseudonym. The assigned pseudonym will be the name used when quoting participants in research outputs.

**Conservation of data:** The data collected (research documents, tape recordings of interviews, and transcripts) will be kept in a secure manner by being stored in a locked filing cabinet in a locked office at the University of Ottawa where only the researchers mentioned above can access them. Data and research documents will be retained for five years. Following this period, the data will be permanently destroyed. All electronic and audio files will undergo secure deletion as to be non-recoverable. Hard copies of all research documents will be appropriately shredded and disposed.

**Voluntary Participation:** I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, my data will be destroyed unless I allow the principal investigator to use them.

**Acceptance:** I, [Name of participant], agree to participate in the above research study conducted by Amélie Gauthier-Beaupré, PhD(c) of the Faculty of Health Sciences, which research is under the supervision of Jeffrey W. Jutai, PhD.



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Ottawa ON K1N 6N5 Canada

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5  
Tel.: (613) 562-5387  
Email: [ethics@uottawa.ca](mailto:ethics@uottawa.ca)

There are two copies of the consent form, one of which is mine to keep.

\_\_\_\_\_  
Participant's signature:

(Signature)

\_\_\_\_\_  
Date: (Date)

\_\_\_\_\_  
Researcher's signature:

(Signature)

\_\_\_\_\_  
Date: (Date)

## Appendix 3–4. Certificate of Ethics Approval (Articles 2 and 3)

19/09/2020

**Université d'Ottawa**  
Bureau d'éthique et d'intégrité de la recherche

**University of Ottawa**  
Office of Research Ethics and Integrity

### CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

|                                                              |                                                                                                                                                      |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Numéro du dossier / Ethics File Number                       | H-07-20-5555                                                                                                                                         |
| Titre du projet / Project Title                              | Conceptual Framework for<br>Policy-Making for Older Adults'<br>Self-Management of Disabilities<br>with Information and<br>Communication Technologies |
| Type de projet / Project Type                                | Thèse de doctorat / Doctoral<br>thesis                                                                                                               |
| Statut du projet / Project Status                            | Approuvé / Approved                                                                                                                                  |
| Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy) | 19/09/2020                                                                                                                                           |
| Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)    | 18/09/2021                                                                                                                                           |

### Équipe de recherche / Research Team

| Chercheur /<br>Researcher  | Affiliation                                                                                        | Role                                            |
|----------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Amélie<br>GAUTHIER-BEAUPRÉ | École interdisciplinaire des sciences de la santé / Interdisciplinary<br>School of Health Sciences | Chercheur Principal / Principal<br>Investigator |
| Jeffrey JUTAI              | École interdisciplinaire des sciences de la santé / Interdisciplinary<br>School of Health Sciences | Superviseur / Supervisor                        |

### Conditions spéciales ou commentaires / Special conditions or comments

This ethics certificate is valid only for research activities conducted remotely as the University of Ottawa does not yet allow in person activities. If you want to conduct in person activities, you will have to submit a request for modification.

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Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • [ethique@uOttawa.ca](mailto:ethique@uOttawa.ca) / [ethics@uOttawa.ca](mailto:ethics@uOttawa.ca)  
[www.recherche.uottawa.ca/deontologie](http://www.recherche.uottawa.ca/deontologie) | [www.recherche.uottawa.ca/ethics](http://www.recherche.uottawa.ca/ethics)

# Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

# University of Ottawa

Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout événement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Germain ZONGO

Responsable d'éthique en recherche / Protocol Officer

Pour/For **Daniel LAGAREC** Président(e) du/ Chair of the **Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board**

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[www.recherche.uottawa.ca/deontologie](http://www.recherche.uottawa.ca/deontologie) | [www.recherche.uottawa.ca/ethics](http://www.recherche.uottawa.ca/ethics)

## Appendix 3–5. Certificate of Ethics Approval (Renewal) (Articles 2 and 3)

08/09/2021

**Université d'Ottawa**  
Bureau d'éthique et d'intégrité de la recherche

**University of Ottawa**  
Office of Research Ethics and Integrity

### CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number  
Titre du projet / Project Title

H-07-20-5555  
Conceptual Framework for  
Policy-Making for Older Adults'  
Self-Management of Disabilities  
with Information and  
Communication Technologies  
Thèse de doctorat / Doctoral  
thesis

Type de projet / Project Type

Statut du projet / Project Status  
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)  
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

Renouvelé / Renewed  
19/09/2020  
18/09/2022

#### Équipe de recherche / Research Team

| Chercheur /<br>Researcher  | Affiliation                                                                                        | Role                                            |
|----------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Amélie<br>GAUTHIER-BEAUPRÉ | École interdisciplinaire des sciences de la santé / Interdisciplinary<br>School of Health Sciences | Chercheur Principal / Principal<br>Investigator |
| Jeffrey JUTAI              | École interdisciplinaire des sciences de la santé / Interdisciplinary<br>School of Health Sciences | Superviseur / Supervisor                        |

Conditions spéciales ou commentaires / Special conditions or comments

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# Université d'Ottawa

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Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout événement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Safaa LAMHOUEB

Coordonnateur de l'éthique / Ethics Coordinator

Pour/For Daniel LAGAREC Président(e) du/ Chair of the Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board

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## Appendix 4–1. Implied Consent Form (Article 3)



### Implied Consent - Survey

**Title of the study:** Conceptual Framework for Policy-Making for Older Adults' Self-Management of Disabilities with Information and Communication Technologies (ICTs)

**Researchers:**

Amélie Gauthier-Beaupré  
PhD Candidate in Population Health  
Faculty of Health Sciences  
University of Ottawa

Jeffrey W. Jutai, Ph.D. (supervisor)  
Full Professor  
Faculty of Health Sciences  
University of Ottawa

**Invitation to Participate:** You are invited to participate in the abovementioned research study conducted by Amélie Gauthier-Beaupré, PhD(c), who is being supervised by Jeffrey W. Jutai, PhD.

**Participation:** If you wish to participate in this study, please complete the survey linked in the invitation email. Your decision to complete and submit this survey will be interpreted as an indication of your consent to participate. The survey should take you approximately 30 minutes to complete. You do not have to answer any questions that you do not want to answer. Once you have completed the survey, please make sure you save and submit your responses via the survey platform. We would appreciate your submission before August 9, 2022. If we do not receive a notice of completion by said date, we will send you a notice of reminder.

**Purpose of the Study:** The purpose of the study is to discuss policy-making on the issue older adults' self-management of disabilities using ICTs. This study has 4 objectives:

- 1) Review and synthesize policies, frameworks and documents about self-management
- 2) Analyze the policy environment to understand the needs of policy-makers
- 3) Design and propose a concept map for policy-making
- 4) Test and evaluate the newly developed framework

**Benefits:** Participating in this study will not get participants any direct benefits but it may make them more aware of complex issues involving older adults, technology, self-management and disability. My participation has the potential to contribute to the development of innovative ways to develop and implement policies for the area of older adults' self-management of disabilities using ICTs.

**Risks:** The researcher has informed me that there are no risks associated with my participation in this research study

**Confidentiality and Anonymity:** The information that you will share will remain strictly confidential and will be used solely for the purposes of this research. The only people who will have access to the research data are the researchers conducting this research (Amélie Gauthier-Beaupré, PhD(c) and Jeffrey W. Jutai, PhD). In order to minimize the risk of security breaches and to help ensure your confidentiality we recommend that you use standard safety measures such as signing out of your account, closing your browser and locking your screen or device when you are no longer using them / when you have completed the study.

Results will be published in pooled (aggregate) format. Anonymity is guaranteed since you are not being asked to provide your name or any personal information.

**Conservation of data:** The surveys will be kept in a locked filing cabinet in the office of the supervisor at the University of Ottawa for a period of 5 years at which time they will be destroyed.

**Voluntary Participation:** You are under no obligation to participate and if you choose to participate, you may refuse to answer questions that you do not want to answer. Completion and submission of the questionnaire by you implies consent. If I choose to withdraw, the survey data cannot be removed from the study because the survey is anonymous.

**Information about the Study Results:** The study results will be published in the scientific literature. If you wish to receive the study results directly, please make sure to email the researchers.

If you have any questions or require more information about the study itself, you may contact the researcher or his/her supervisor at the numbers mentioned herein.

If you have any questions with regards to the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, tel.: (613) 562-5387 or [ethics@uottawa.ca](mailto:ethics@uottawa.ca).

We invite you to print or save a copy of this form for your records.

If you agree to participate in this study, you can access the survey at the following link:

<https://www.surveymonkey.ca/r/CDDRKF3>

Thank you for your time and consideration.

Amélie Gauthier-Beaupré  
PhD Candidate in Population Health  
Faculty of Health Sciences  
University of Ottawa

Jeffrey W. Jutai, Ph.D.  
Full Professor  
Faculty of Health Sciences  
University of Ottawa

## Appendix 4–2. Invitation Emails (Article 3)

Hello *[name of potential participant]*,

I am a PhD candidate at the University of Ottawa in Population Health. I am contacting you because you have significant knowledge and experience in Ontario public service and your knowledge and expertise could be useful for my PhD project.

This research study is being conducted by Amélie Gauthier-Beaupré and Dr. Jeffrey W. Jutai and is entitled:

“Conceptual Framework for Policy-Making for Older Adults’ Self-Management of Disabilities with Information and Communication Technologies”.

This study aims to discuss the issue of policy-making when it comes to older adults’ self-management of disabilities using information and communication technologies. Specifically, it aims to answer the following research question:

“What factors influence the development and implementation of a framework for policy making for older adults’ self-management of disabilities with ICTs”?

In previous stages in the project, we have gained knowledge and understanding of the policy-making in the context of Ontario on the topic of older adults who are self-managing their disease and disability with ICTs. Through the process, we have developed a concept map that is intended to support for the policy-making in this area.

You are being invited to take part in this study because we feel that your current role and function would make you one of the potential actors of the concept map. **We are therefore**

**seeking your expertise in reviewing and answering some questions about the concept map's content, form, and the feasibility of implementing it in the future.**

If you accept to participate in this study, you will be asked to fill-out an **online survey** which should take no longer than 15 minutes of your time.

To participate in this study, you must meet the following eligibility criteria:

1. Employed under the Ontario Government
2. Have occupied your current position for at least one year
3. Able to understand and speak English

Your participation in this study is voluntary. It is your choice whether to participate or not. More details can be found in the consent form attached to this email.

**If you wish to participate, we ask that you please read the consent form and subsequently access the survey at the following**

**link: <https://www.surveymonkey.ca/r/CDDRKF3> or [CLICK HERE](#) by September 16, 2022.**

Do not hesitate to contact us if you have any questions.

Kind regards,

Amélie Gauthier-Beaupré  
PhD Candidate in Population Health  
Faculty of Health Sciences  
University of Ottawa

Jeffrey W. Jutai, PhD.  
Full Professor  
Faculty of Health Sciences  
University of Ottawa

**uOttawa ethic file number: H-07-20-5555**

### **Appendix 4–3. Survey Questions (Article 3)**

## **Validation Survey for a draft Framework in Policy-making in the field of older adults' self-management disease and disability using information and communication technologies**

### **Introduction**

Thank you for agreeing to participate in the study.

As mentioned, this study aims to discuss the issue of policy-making when it comes to older adults' self-management of disabilities using information and communication technologies (ICTs).

In previous stages in the project, we have gained knowledge and understanding of the policy-making in the context of Ontario for the issue of older adults' self-management of disease and disability with ICTs. Through the process, we have developed a concept map that is intended to portray current models of policy-making in this area. The goal is to get your input on this concept map on the following components:

1. How accurately it represents your current model of policy-making
2. How it could be modified to support policy-making in a sustainable way for the healthcare and social system considering technologies that support self-management are continuously changing and evolving.

The desired outcome is to develop a novel and adaptive concept map for better policy-making that is sustainable over time in the context of a continuously changing technological time and able to navigate administrative onboarding of such new ICTs in that growing segment of the population, older adults.

You are being invited to take part in this study because we feel that your current role and function would make you one of the potential actors of the concept map.

This online survey should take no longer than 30 minutes of your time.

You are under no obligation to participate and if you choose to participate, you may refuse to answer questions that you do not want to answer.

Completion and submission of the questionnaire by you implies consent.

If you choose to withdraw, the survey data cannot be removed from the study because the survey is anonymous.

If you have any questions or require more information about the study itself, you may contact the researcher or his/her supervisor at the numbers mentioned below.

Amélie Gauthier-Beaupré

PhD Candidate in Population Health  
Faculty of Health Sciences  
University of Ottawa

Jeffrey W. Jutai, PhD.

Full Professor  
Faculty of Health Sciences  
University of Ottawa

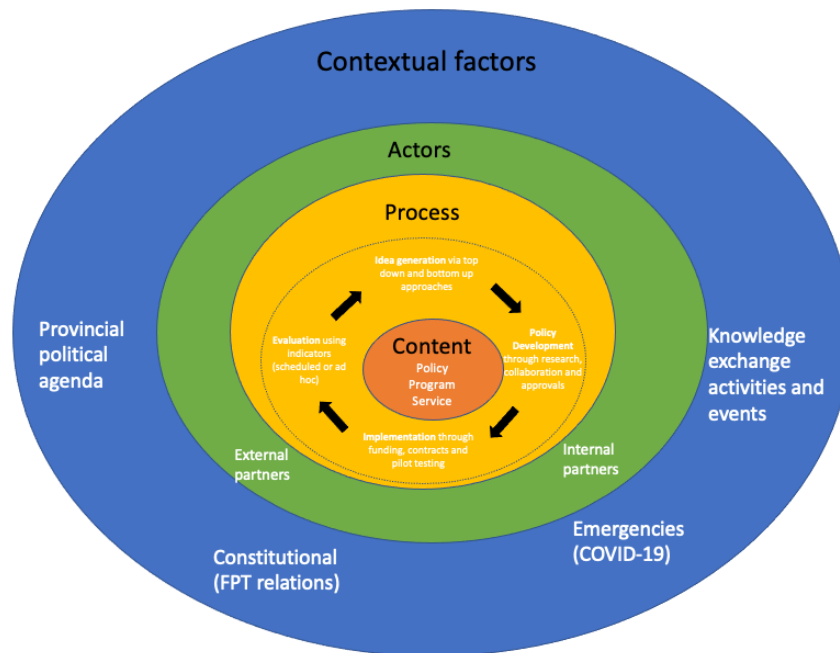
## A) Demographics

1. Please select the ministry or agency for which you work within the Ontario government.
  - a. Ministry for Seniors and Accessibility
  - b. Ministry of Health
  - c. Ministry of Children, Community and Social Services
  - d. Ministry of Labour, Training and Skills Development
  - e. Ministry of Economic Development, Job Creation and Trade
  - f. Other, please specify: \_\_\_\_\_
2. What is your role within the Ontario government
  - a. Policy analyst
  - b. Team leads
  - c. Program manager
  - d. Manager
  - e. Other, please specify
3. How many years of experience do you have in your current role?
  - a. Less than 1 year
  - b. 1-2years
  - c. 2-5 years
  - d. 5+ years
4. How many years have you been within the Ontario government?
  - a. Less than 1 year
  - b. 1-2years
  - c. 2-5 years
  - d. 5-10 years
  - e. 11-20 years
  - f. >20 years

## B) ‘The Concept Map’—form and content

In previous steps of the project, some key components were identified as composing current models of policymaking in the area of older adults’ self-management of disease and disability (Figure 1 below).

Figure 1: Concept map for policy-making on older adults’ self-management of disease and disability using information and communication technologies



5. Based on the concept map presented in Figure 1, please rate your overall level of understanding and agreement on how well this concept map describes the current and overall policy-making process used by your group for older adults' self-management of disease and disability using ICTs.
- Strongly agree
  - Agree
  - Somewhat agree
  - Neither agree or disagree
  - Somewhat disagree
  - Disagree
  - Strongly disagree

If you disagreed (responses d through g), please use this space to explain why:

[Open text]

6. Would this concept map help you/your group to do the following:
- Identify the problem or issue?
    - ☐ Yes
    - ☐ No
  - Identify an appropriate policy solution
    - ☐ Yes
    - ☐ No
  - Identify and describe policy options



- ☐ Yes  
☐ No
- d. Assess policy options  
☐ Yes  
☐ No
- e. Prioritize policy options  
☐ Yes  
☐ No
- f. Develop a strategy for furthering adoption of a policy solution  
☐ Yes  
☐ No
7. Based on the concept map presented in Figure 1, please rate whether the definitions **clearly and adequately** explain the concepts related to policy-making for older adults' self-management of disease and disability using ICTs.

| Concept                      | Definition                                                                                                                                                                                                                                              | Level of Importance                                                                                        |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Contextual factors           | External factors that influence stakeholders taking into consideration their origins, processes and content of policies, programs or services.                                                                                                          | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Provincial political agenda  | The elected government has the lead on what work needs to occur (based on their electoral platform and promises). The public servants follow the elected governments' lead and decisions. There are strong political orientations                       | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Constitutional FPT relations | There are significant federal priorities that guide or impose upon provincial priorities in Ontario. For example, when funding is involved with transfers from the federal to the provincial, Ontario needs to ensure they are meeting the commitments. | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Emergencies (COVID-19)       | Emergencies refer to external pressures that lead to immediate expansion of current efforts and actions (pivot). It also leads to the                                                                                                                   | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                            |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|                                          | development of new and improved supports because of limitations brought by the external pressures. For example, COVID-19 has expanded the use of virtual care in home and community care.                                                                                                                                                                                                                          |                                                                                                            |
| Knowledge exchange activities and events | There is often cross-jurisdiction (community, municipal, provincial, federal) analysis to compare and see whether the efforts and actions of other provinces would benefit the province of Ontario. Efforts in other jurisdictions don't always apply to the province of Ontario, but some components may. The Ontario public service is always on the look-out and learning from other provinces and territories. | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Actors                                   | All individuals or groups that will contribute in some form to the policy, program or service.                                                                                                                                                                                                                                                                                                                     | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| External partners                        | Set of partnerships with collaborators that include researchers, foundations, advocacy organizations, community of service providers, businesses, municipalities, and people with lived experience.                                                                                                                                                                                                                | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Internal partners                        | Collaboration with other ministries or departments within the Ontario government. This includes intradepartmental and interdepartmental collaboration with groups that have expertise in different areas (policy, program, IT, etc.), working groups, and committees.                                                                                                                                              | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Process                                  | Mechanism that delineates the ideation, creation, implementation and evaluation of policies, programs, or services.                                                                                                                                                                                                                                                                                                | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Idea generation    | The generation of ideas is a hybrid between top down and bottom up approaches whereas ministers or senior management may propose new ideas and avenues to explore or working level public servants propose new and innovative ways to conduct their work or address a specific issue.                                                                                                                                                                                                                    | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Policy development | Policy development is a complex process that involves research, collaboration between various partners (internal and external) via working groups, advocacy or consultations, and a series of approval levels before a policy is fully shaped and delineated.                                                                                                                                                                                                                                            | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Implementation     | Policy implementation can take various forms. It can be delivered through funding programs (or reallocation of funding from previous obsolete programs) where specific amounts are allocated to projects, contracted to external groups to perform the work or deliver a specific program or service, or internally within government departments or agencies. Some implementation may occur through pilot testing where a particular project is tested on a smaller scale before larger implementation. | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Evaluation         | Evaluations take the form of performance measurement and outcomes evaluation where there is a balance between oversight and reporting. Various evaluation instruments are used such as pre-established indicators, metric evaluations, and outcome measurement. Frequency of evaluations differ for each policy                                                                                                                                                                                          | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |

|         |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|         | where some are scheduled, and others are ad hoc.                                                                                                                                                                                                                                                                                                                                                    |                                                                                                            |
| Content | Choices in the shape form and topic of policies, programs or services.                                                                                                                                                                                                                                                                                                                              | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Policy  | Existing legislation or regulations relevant to or impacting older adults self-managing diseases or disability using ICTs. For example, the Accessibility for Ontarians with Disabilities Act (AODA) is a law that sets out process for developing and enforcing accessibility standards, and components of that law may be linked to older adults self-managing diseases or disability using ICTs. | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Program | Funding program, delivered directly by the Government of Ontario or through a community or tier partner, focussing on impacting older adults self-managing diseases or disability using ICTs.                                                                                                                                                                                                       | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |
| Service | Direct service to a group that is or may serve older adults self-managing diseases or disability using ICTs.                                                                                                                                                                                                                                                                                        | a. Very clear<br>b. Minor modifications required<br>c. Major modifications required<br>d. Not clear at all |

8. Based on the concept map presented in Figure 1, please rate the **importance** of each concept as it relates to your policy-making on the topic of older adults' self-management of disease and disability using ICTs.

| Concept            | Level of Importance                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------|
| Contextual factors | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important |

|                                          |                                                                                                                                                               |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | f. Low importance<br>g. Not at all important                                                                                                                  |
| Provincial political agenda              | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Constitutional FPT relations             | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Emergencies (COVID-19)                   | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Knowledge exchange activities and events | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Actors                                   | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| External partners                        | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance                            |

|                    |                                                                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | g. Not at all important                                                                                                                                       |
| Internal partners  | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Process            | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Idea generation    | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Policy development | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Implementation     | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Evaluation         | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |

|         |                                                                                                                                                               |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Content | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Policy  | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Program | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |
| Service | a. Extremely important<br>b. Very important<br>c. Moderately important<br>d. Neutral<br>e. Slightly important<br>f. Low importance<br>g. Not at all important |

Please rate your agreement with the statements below about the concept map presented in Figure 1 and include comments if you disagree:

|                                              |                                                                                                             |          |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------|
| 9. I find the concept map visually appealing | a. Strongly agree<br>b. Agree<br>c. Somewhat agree<br>d. Neither agree nor disagree<br>e. Somewhat disagree | Comments |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------|

|                                                               |                                                                                                                                                    |          |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                                               | f. Disagree<br>g. Strongly disagree                                                                                                                |          |
| 10. The format of the concept map makes it easy to understand | a. Strongly agree<br>b. Agree<br>c. Somewhat agree<br>d. Neither agree nor disagree<br>e. Somewhat disagree<br>f. Disagree<br>g. Strongly disagree | Comments |
| 11. The concept map is usable in its current form             | a. Strongly agree<br>b. Agree<br>c. Somewhat agree<br>d. Neither agree nor disagree<br>e. Somewhat disagree<br>f. Disagree<br>g. Strongly disagree | Comments |

12. List any additional factors that you think are important when developing new or modernizing policy on older adults' self-management of disease and disability using ICTs, that may not be represented in the concept map depicted in Figure 1. For example, are there important policy issues for which this concept map may not be suitable?

[Open text]

13. How can innovations in technology to support older adults to self-manage be easily integrated in the Government of Ontario policies, programs and services through time? List any ideas, in terms of context, actors, processes, content of others that would need to be considered for better integration of technological innovations that support older adults' self-management into existing or new policies.

Context: [Open text]

Actors: [Open text]

Processes: [Open text]

Other: [Open text]

14. Thinking about technology and digitalization of healthcare, what do you think would allow policies within the Government of Ontario to be sustainable over time?

[Open text]

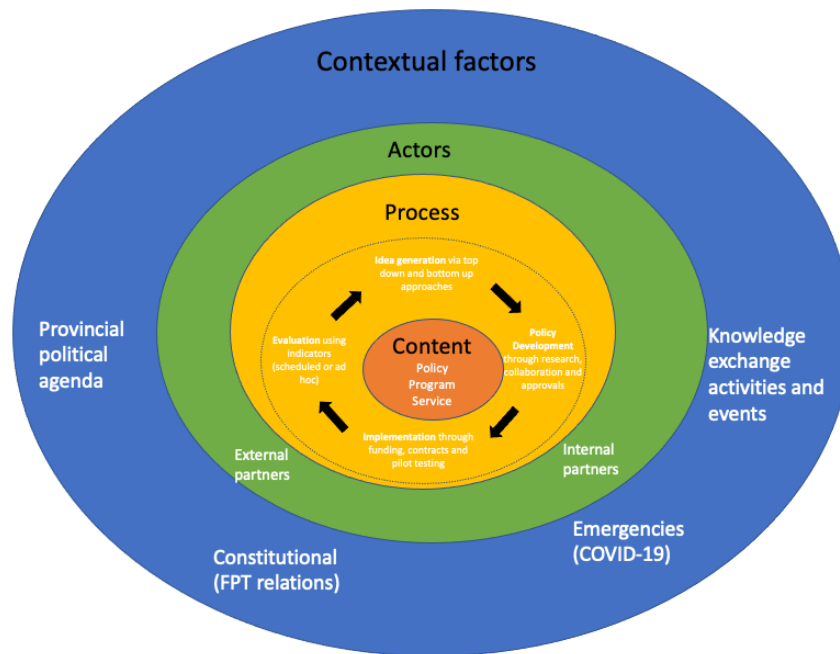
15. Please provide any additional comments about the concept map's form and content:



[Open text]

### C) 'Setting'—People and organization as implementers

Figure 1: Concept map for policy-making on older adults' self-management of disease and disability using information and communication technologies



16. Would you say that you could be a user or strong proponent of the concept map in your policy-related tasks specific to older adults' self-management of disease or disability using ICTs?
- Definitely would
  - Probably would
  - Possibly
  - Probably would not
  - Definitely would not
17. Who would be the best positioned to use and implement this concept map to guide their policy work? Please select all that apply.
- Policy analysts
  - Team leads
  - Program managers
  - Managers
  - Directors
  - Others Please specify: \_\_\_\_\_

Please rate your agreement with the statements below:

|                                                                                                                                                                                             |                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18. I have the necessary expertise to <b>understand</b> and implement such a framework in my policy-related activities.                                                                     | <ul style="list-style-type: none"> <li>a. Strongly agree</li> <li>b. Agree</li> <li>c. Somewhat agree</li> <li>d. Neither agree nor disagree</li> <li>e. Somewhat disagree</li> <li>f. Disagree</li> <li>g. Strongly disagree</li> </ul> |
| 19. I have the necessary expertise to <b>implement</b> such a concept map in my policy-related activities.                                                                                  | <ul style="list-style-type: none"> <li>1. Strongly agree</li> <li>2. Agree</li> <li>3. Somewhat agree</li> <li>4. Neither agree nor disagree</li> <li>5. Somewhat disagree</li> <li>6. Disagree</li> <li>7. Strongly disagree</li> </ul> |
| 20. I see the value of a concept map to guide policymaking in the area of older adults' self-management of disease and disability using ICTs.                                               | <ul style="list-style-type: none"> <li>a. Strongly agree</li> <li>b. Agree</li> <li>c. Somewhat agree</li> <li>d. Neither agree nor disagree</li> <li>e. Somewhat disagree</li> <li>f. Disagree</li> <li>g. Strongly disagree</li> </ul> |
| 21. I view this concept map as sustainable over time                                                                                                                                        | <ul style="list-style-type: none"> <li>a. Strongly agree</li> <li>b. Agree</li> <li>c. Somewhat agree</li> <li>d. Neither agree nor disagree</li> <li>e. Somewhat disagree</li> <li>f. Disagree</li> <li>g. Strongly disagree</li> </ul> |
| 22. This concept map enables a continuous monitoring and integration of innovation in policy-making (i.e., new technological developments to support self-management).                      | <ul style="list-style-type: none"> <li>a. Strongly agree</li> <li>b. Agree</li> <li>c. Somewhat agree</li> <li>d. Neither agree nor disagree</li> <li>e. Somewhat disagree</li> <li>f. Disagree</li> <li>g. Strongly disagree</li> </ul> |
| 23. The Government of Ontario and my organization could benefit from a framework to guide policy-making on the topic of older adults' self-management of disease and disability using ICTs. | <ul style="list-style-type: none"> <li>a. Strongly agree</li> <li>b. Agree</li> <li>c. Somewhat agree</li> <li>d. Neither agree nor disagree</li> <li>e. Somewhat disagree</li> <li>f. Disagree</li> <li>g. Strongly disagree</li> </ul> |

|                                                                                                                                                                                                                                       |                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 24. The Government of Ontario and my organization is ready to implement a concept map or framework, like the one proposed, to guide policy making on the topic of older adults' self-management of disease and disability using ICTs. | a. Strongly agree<br>b. Agree<br>c. Somewhat agree<br>d. Neither agree nor disagree<br>e. Somewhat disagree<br>f. Disagree<br>g. Strongly disagree |
| 25. The Government of Ontario and my organization have the necessary human and financial resources to implement this concept map.                                                                                                     | a. Strongly agree<br>b. Agree<br>c. Somewhat agree<br>d. Neither agree nor disagree<br>e. Somewhat disagree<br>f. Disagree<br>g. Strongly disagree |

26. Please provide any additional comments about the people and organizations (Government of Ontario) as implementers of the concept map:

[Open text]

#### **D) Additional thoughts and comments**

27. Please provide any additional comments on the topic of policy-making for older adults who are self-managing their disease or disability using ICTs.

#### **End of survey**

Thank you for taking the time to respond to this survey.

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