EXAMINING TECHNICAL ASSISTANCE AND ITS USE IN HEALTH SYSTEM TRANSFORMATIONS

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Abstract

Many health systems are in the midst of transformation. They are slowly moving from the delivery of reactive care focused on individuals to considering proactive ways of supporting the health and well-being of populations. However, the road to what is often called 'population-health management' is rife with implementation challenges. One type of implementation support that has been used to navigate these challenges is *technical assistance*. Though the use of technical assistance is well documented, there is no consensus on a clear definition or understanding of how it can be used to support system transformation.

This thesis contributes to the field of technical assistance through three qualitative studies. First, a critical interpretive synthesis develops a definition and logic model for technical assistance. This logic model integrates diverse academic and grey literature. It aims to draw clearer boundaries around technical assistance as a concept and provide a common language for researchers, technical assistance providers, and decision-makers to use. Second, a qualitative descriptive study explores the use of technical assistance in population-health management transformations in England and the U.S., examining what technical assistance has been provided, by whom, and in what areas of application. Finally, a case study unpacks the use of technical assistance for a recent health-system transformation in Ontario. It examines the influence that political factors related to institutions, ideas, interests and external events have on shaping its evolution.

Together, these three studies provide greater clarity on the use of technical assistance in health-system transformations and the range of factors that may affect how it is conceptualized and operationalized.

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Though it seems like a lot of time alone, a thesis is a social accomplishment. It is the result of engaging with the ideas of a long line of colleagues, mentors and academics and support provided by a supervisor, committee members, fellow students, friends and family. I am fortunate to have many people to thank.

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Table of Contents

List of figures and tables

List of abbreviations

3I+E – institutions, ideas, interests and external events
ACO – accountable care organization
AHRQ – Agency for Healthcare Research and Quality
CCG – clinical commissioning group
CIS – critical interpretive synthesis
CMMI – Centres for Medicare and Medicaid Innovation
CSU – commissioning support unit
MSSP – Medicare Shared Savings Program
ICB – integrated care board
ICS – integrated care system
ICP – integrated care partnership
NHS – National Health Service
OH – Ontario Health
OHT – Ontario health team
QIN/QIO – quality improvement network/ quality improvement organization
VCSE – voluntary, community and social enterprise

Declaration of academic achievement

This thesis includes five chapters: an introduction (Chapter 1), three chapters of original research (Chapters 2,3, and 4, respectively) and a conclusion (Chapter 5). As the primary author, I developed the thesis including the focus of the work, the design of each chapter, the data collection and analysis, and wrote manuscripts for each chapter. My supervisor, Dr. John Lavis and my committee members Dr Katherine Boothe, Dr Jeremy Grimshaw and Dr Michael Wilson provided input at each stage of the research as well as on the direction for the introduction and conclusion. Dr Heather Bullock supported screening texts for the critical interpretive synthesis in Chapter 2.

Chapter 1: Introduction

This dissertation presents an original body of work consisting of five chapters focused on the role of technical assistance in health-system transformations. This first chapter helps to situate the four subsequent chapters by providing an overview of how this work was conceived and where it aims to provide conceptual clarity. The chapter outlines the aims and structure of the thesis before turning to the anticipated contributions of this work. I conclude with a statement of positionality and reflexivity.

Context and key concepts

The idea for this thesis was developed following the announcement of a health-system transformation in Ontario, Canada. The transformation was set to be a 'once-in-a-generation' change in the health system and proposed to operationalize a population-health management approach at a system level – aiming to improve both the responsiveness and personalization of the existing system. As elements of the transformation were announced, it became clear just how big of a change it would be from the status quo and that support would be needed to enable the transformation. This triggered a range of questions – what types of implementation supports enable true transformation? How are they designed and executed? What types of supports have been used elsewhere to enable similar changes?

In asking these questions, a common term emerged based on experience with a similar transformation in the U.S.– technical assistance. In starting to research the term, I quickly discovered that while it has been used extensively to support transformation, there was a lack of clear definition, uncertainty regarding its essential features, and minimal use of frameworks that can support decision-makers and researchers to systematically plan, implement, and evaluate technical-assistance efforts.(1-5) These findings led to the design and execution of the three studies presented in this thesis.

This thesis focuses on three interrelated concepts: 1) health system transformations; 2) technical assistance; and 3) population-health management. The study in chapter 2 delves into the first two concepts, while the studies in chapters 3 and 4 examine all three. Below, I describe each of the concepts and their relation to each of the three studies.

Health system transformations

Much of the literature describing health system transformations focuses on relatively small-scale change carried out by single or at times multiple organizations. The evidence base for larger scale or macro-level transformations is lacking.(6) Though some scholarship has examined transformational change from a political science perspective, much less has delved into the mechanics of change.(7) This may be due to the length of time that transformation takes, the complexity of transformations, or that large-scale transformation – those that "involve multiple types of organizations and professionals and includes altering one or more of the delivery, financial or governance arrangements, while creating impactful change… defined as improvements in care experienced 'on the ground' by patients, families and caregivers" – in health systems is relatively rare.(8) For this thesis, we differentiate between macro-level changes or transformations (i.e., coordinated changes involving multiple types of organizations and professionals and involving changes to one or more of the delivery, financial or governance arrangements), meso-level changes or reforms (i.e., changes within a single organization or many unconnected organizations but that may involve changes to the delivery or financial arrangements), and micro-level changes or innovations (i.e., changes focused on a particular professional or line of service and may involve changes to how a program or service is delivered).

The literature that has delved into the mechanics of health-system transformation frequently does so through the lens of 'complex adaptive systems.' A complex adaptive system is "a collection of individual agents with freedom to act in ways that are not always predictable and whose actions are interconnected so that one agent's actions change the context for other agents." (9) These types of systems are defined by their fuzzy boundaries with frequently changing membership.(9)

One of the implications of this framing of health systems as complex-adaptive systems is a shift in thinking about the mechanics of transformation from a linear model that emphasizes the top-down role of decision-makers, to instead thinking about transformation as needing a guided process that requires resources and supports to learn and change at every level.

This shift has resulted in questions about implementation supports and understanding when, in what context, and how they are effective in supporting transformative change. Though a significant amount of research has been done that focused on different implementation supports, there have been few efforts to develop a taxonomy of supports with clear definitions and boundaries. Though this is beyond the scope of this thesis, it does provide a deep dive into one type of implementation support – technical assistance.

The concept of health-system transformation acts as a backdrop to each of the three studies in this thesis and is central to studies 3 and 4.

Technical assistance

The specific implementation support that is examined throughout this thesis is technical assistance. The term technical assistance was first used as part of international development programs, where technical assistance referred to capacity building of staff in cooperation with local governments.(9) This involved having experts from high-income countries or international organizations build capacity for the administration of new government programs or departments in low- and middle-income countries.(10) In more recent years this term has fallen out of use, largely due to a reduced emphasis on top-down implementation supports and resistance to colonial approaches. Since then, the term technical assistance has been used beyond international development and has emerged in other sectors, including education, criminal justice reform, and health. In expanding beyond its initial use case, the definition and understanding of technical assistance has become muddied. This thesis was developed to respond to the lack of clarity by critically examining what is known about technical assistance and how it has been applied to select health system transformations in three high-income countries.

Technical assistance is the primary focus of all three studies in this thesis examining it both from a conceptual standpoint (Chapter 2) as well as in situ for three transformations – one in England (Chapter 3), one in the U.S. (Chapter 3), and one in Ontario, Canada (Chapter 4).

Population-health management

The final concept that runs through this thesis is that of population health management, which has been the focus of many transformation efforts and, because of its complexity, the focus also of significant technical assistance.(11-13)

Considering population health requires broadening the view of healthcare from the reactive treatment of individual patients who 'walk through the door' of clinics and hospitals to that of proactively managing the health of all members of a defined population and being held accountable for defined metrics. Population-health management has been conceptualized as a cycle of steps, including: population identification; segmenting for needs; risks and barriers; co-designing person-centred care models and service mix for each population segment; implementation and reach; and monitor and evaluate.(14, 15) Its focus is typically to improve equity-centred quadruple-aim metrics, which means equitably improving health outcomes and care experiences while keeping per capita costs manageable and providers engaged. Its focus on individuals may be accompanied by a concurrent focus on intervening on groups and populations (e.g., by improving housing and other aspects of their physical, economic and social contexts).(15)

Interest in population-health management has grown over the past few years as many are seeing it as a possible solution to some of the challenges that high-income health systems have faced for some time – aging populations, greater multimorbidity, increasing health inequality, increasing healthcare costs and changing patient expectations for their health system and their relationship with their healthcare providers, to name a few.(16) Its promise lies in the transition towards the delivery of more targeted and tailored approaches to health and social care that better account for populations with similar needs and the contexts in which they live.

Changes in the availability and use of digital technologies and data in the health system have led to increasing numbers of transformations embracing population health management as a foundational concept. The three transformations examined as part of Chapters 3 and 4, both focus on transformations that embed population-health management approaches in health systems.

Aim and structure of the thesis

This thesis asks three overarching questions: 1) what is technical assistance? (Chapter 2); 2) how has it been used to support population-health management transformations? (Chapters 3 and 4); and 3) how does it evolve alongside a transformation? (Chapter 4)

This thesis includes the following chapters.

Chapter 2 is a critical interpretive synthesis (CIS) of technical assistance. A CIS uses techniques from multiple methodologies to allow for the synthesis and critical appraisal of a heterogeneous literature.(17) The method is appropriate for scoping concepts that span different disciplines and methodologies. The method supports reflection about how a given topic is covered in each body of literature as well as what has been left out and, in doing so, helps to define boundaries around 'fuzzy' concepts. The study begins by asking: what is technical assistance and how can it be conceptualized by policymakers and other decision-makers to support health-system transformations? The study develops a logic model that acts as a backdrop for the subsequent two chapters.

Chapter 3 is a qualitative description of the technical assistance that has been provided to two population-health management transformations, one in England – the development of integrated care systems – and one in the U.S. – the development of Medicare accountable care organizations. Using the logic model developed in Chapter 2, this study provides a descriptive account of who is delivering technical assistance, in what areas of focus, and using which activities in each transformation. The study compares how the approaches are different and similar between the two jurisdictions.

Finally, Chapter 4 is a qualitative case study examining the development and evolution of technical assistance for Ontario Health Teams. The study triangulates the perspectives of policymakers, technical-assistance providers and Ontario Health Team leads to examine how the package of technical assistance developed over the first four years of the transformation and the role that institutions, ideas, interests and external events (3I+E) had in shaping it. This study builds on the logic model from Chapter 2 and provides a complementary perspective to Chapter 3 by using an explanatory rather than exploratory lens.

Chapter 5 provides a conclusion to the research, reviewing the contributions to the literature and providing possible next steps to policymakers and other decision-makers as well as for future research.

Overarching methodology

This thesis applies three different qualitative methodologies. As mentioned above, Chapter 2 uses a critical interpretive synthesis to bring together diverse literature into a single logic model. The study provides a definition for technical assistance and provides a logic model that sets boundaries for how it is conceptualized that is carried forward in the next two chapters. Chapter 3 uses qualitative description, a method that provides a straightforward account of a phenomenon, reliant on the views and experiences of those participating.(18) Qualitative description is particularly well suited to addressing practical challenges in areas that are not well covered by existing research, and may act as a stepping stone to additional studies that are motivated by conceptual (rather than applied) aims. Further, as a methodology, it gives preference to the ways that a phenomenon is described by those experiencing it – in this case those providing technical assistance.(19) The final study, described in Chapter 4, uses an exploratory single-embedded case study. This methodology was chosen as it allows for a holistic understanding of a phenomenon in its natural context and from the perspectives of those involved including those directing, delivering and receiving technical assistance.(20)

Anticipated contributions to the literature

This thesis aims to contribute to the field of health systems research and implementation science, theoretically, methodologically, and substantively

Theoretically, the critical interpretive synthesis in Chapter 2 provides a definition and logic model for conceptualizing technical assistance. It brings together a heterogeneous literature in an effort to better define what is and what is not part of a technical assistance. The logic model provides a hypothesis for how the components (inputs, activities, outputs and outcomes) that were identified across the literature could work together to enable transformation.

Though the contributions of the definition and logic model presented in Chapter 2 are largely theoretical, they also have a methodological component. In particular, the logic model may be used to guide the application of other research methods by providing a common language to describe the features of technical assistance.(21)

Substantively, Chapters 3 and 4 provide an exploratory (what) and explanatory (why) account of the delivery of technical assistance for three population-health management-based health-system transformations. This helps to move the literature on technical assistance forward, which to date has not robustly documented the provision of technical assistance in any of these initiatives.

Positionality and reflexivity

I do not come to this work as a neutral observer. My previous educational and professional experiences shape the questions that I ask in this thesis, my perspective throughout its development, and in the case of the third study the access that I had to participants.(21)

Prior to and throughout my PhD, I worked at the McMaster Health Forum, an organization based out of McMaster University focused on facilitating the use of evidence to address health and broader societal challenges. Through my role as Scientific Lead, Evidence Synthesis and Support, I learned about the proposed health-system transformation in Ontario. It was through my professional and educational experience at McMaster that I first explored the topic of technical assistance and began to ask questions about how implementation supports were being deployed in the province. Through the first two years of my doctoral degree, I was involved in

delivering technical assistance, by way of contextualized evidence support, to those participating in the transformation in Ontario. In this role, I observed first-hand the ways that technical assistance was being planned and provided. This experience, among others, has informed my views about technical assistance, what it is, and how it should be used.

Though I am unable to erase the effects of this experience on my work, I did make an effort to reduce their impact by engaging in reflexive thinking.(22) While developing protocols for each of the three studies, I reflected on my motivations for this work and wrote down expected findings from each study.(23, 24) During data collection for studies 2 and 3, I was transparent with all participants about my previous role as a technical assistance provider during the transformation in Ontario. For study 3, I considered my positioning as a researcher to those I was interviewing, particularly when speaking to representatives from Ontario Health Teams, and how this may affect their disclosure of key information. During data analysis, I returned to the expected findings from the development of the protocols and challenged the emerging themes to ensure that I was not unduly biasing the results. I also consulted with my supervisory committee who at times challenged my interpretation of select themes and urged me to consider how my positionality may be affecting my analysis.

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Chapter 2: Conceptualizing technical assistance for system change – A critical interpretive synthesis

Preface

This chapter aims to provide greater conceptual clarity about technical assistance and uses a critical interpretive synthesis methodology to better define what is and what is not considered technical assistance. The logic model provides a hypothesis for how the components (inputs, activities, outputs and outcomes) could work together to enable transformation. The definition and logic model act as a backdrop to Chapters 3 and 4.

This critical interpretive synthesis makes theoretical, methodological and substantive contributions to the literature by providing a novel logic model that can guide the application of other research methods in the future and the planning of decision-makers and technical assistance providers.

As the first author of this research, I was responsible for developing the study objectives, design, conducting searchers, extracting data from included articles and writing the manuscript. My supervisor, Dr John Lavis and committee members, Dr Katherine Boothe, Dr Jeremy Grimshaw and Dr Michael Wilson helped to shape this research by providing input on the study design, data extraction and analysis, and on the final manuscript. Dr Heather Bullock and I screened articles for inclusion together.

Chapter 2: Conceptualizing technical assistance for system change - A critical interpretive synthesis

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Key words: technical assistance, transformation, implementation science, critical interpretive synthesis, learning health systems

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Abstract

Background: Technical assistance has been a critical element in the implementation of policies, programs and services in both the public and private sectors. However, there remains a lack of consensus about the definition of technical assistance, uncertainty regarding the essential features of technical assistance and minimal use of frameworks that can support decision-makers and researchers to systematically plan, implement, and evaluate technical-assistance efforts.

Methods: This study uses a critical interpretive synthesis methodology to critically examine the literature related to technical assistance.

Results: Fifty articles were included from a systematic search, with an additional 22 added from purposive sampling. We draw on this existing evidence to put forward a definition and logic model that can be used by researchers, technical-assistance providers and policy and decision-makers to support health-system transformations. The proposed definition is “a contextualized package of supports (which may include individualized as well as universal supports) delivered by an individual or team of individuals with subject matter and process expertise to build capacity at the individual, organization and system level to support the implementation of a transformation or innovation.” A logic model synthesizes key findings about what is known about the key inputs, processes, outputs and outcomes of technical assistance.

Conclusion: This synthesis provides greater consistency in the language used to describe technical assistance, its roles, activities and mechanics which is critical for advancing the use and evidence of technical assistance and ultimately evaluating whether the components of the definition and the activities achieve proposed outputs and outcomes.

Introduction

The COVID-19 pandemic tested our health and social systems in unprecedented ways. In the two years following the pandemic, there have been wide-ranging discussions about how health and social systems need to change to meet the next generation of challenges – this includes delivering proactive, sustainable services that are better coordinated with one another. Meeting this goal requires substantial transformations to the ways our systems are governed and funded and how services are delivered. Many of the innovations that are needed to achieve these aims are well known and there is considerable research evidence backing them up. However, having a good policy solution is no guarantee of a successful change in outcomes.

The process of creating transformative change can be rife with implementation challenges. These include inaccessible research to understand core components of the transformation, too few resources being made available to support change, inadequate organizational and leadership support, and limited staff capacity and motivation, to name a few.(1) Approaches to overcome these, and other challenges, are needed.

Technical assistance is one such approach and has been a critical element in the implementation of policies, programs and services in both the public and private sectors at local, national and international levels.(1, 2) Technical assistance is a means to support capacity building and fits within both the implementation science literature and more recently the literature related to learning health systems. Within a recent framework for learning health systems, technical assistance was considered ‘a fuel and accelerant’ for the learning health-system gears, supporting them to continue to turn even when moderators and brakes (such as health system capacity and change priorities) exert their effects.(3)

However, despite an extensive literature on technical assistance and broad agreement on its use as a key approach for capacity building, there remains a lack of consensus about the definition of technical assistance, uncertainty regarding the essential features of technical assistance and minimal use of frameworks that can support decision-makers and researchers to systematically plan, implement, and evaluate technical-assistance efforts – these gaps are well documented and

are in part a result of significant diversity in the literature.(1, 2, 4-6) These gaps create a very murky landscape with little certainty about what is and what is not considered technical assistance.

This variation stems in part from literature related to technical assistance coming from different sectors, with different methodological traditions and different conceptions of technical assistance. Further discrepancies stem from technical assistance being provided to changes at many different levels (e.g., single communities, multiple disconnected communities, states or provinces, or national-level transformations), which require considerably different approaches to supporting implementation.

Technical assistance requires careful planning and partnership among all those involved in a transformation, including those directing, funding, implementing and evaluating change. The objective of this critical interpretive synthesis is to generate a definition for technical assistance and to present a logic model that can be used by each of these actors to better understand and systematically plan for and evaluate technical assistance.

Methods

Study design

Given the broad goal of this study and the scope of potentially relevant literature, which spans methodologies (e.g., program descriptions policy and program evaluation, case studies), systems (e.g., health and social) and types and levels of policy changes (e.g., changes to who makes what decisions, changes to how money flows), as well as the paucity of models and theories that describe technical assistance, we have selected a critical interpretive synthesis as the methodology to explore technical assistance.

The critical interpretive synthesis (CIS) method was first described by Dixon-Woods and colleagues as an approach to synthesize evidence that spanned methodologies and disciplines.(7) A CIS uses techniques from multiple methodologies including systematic review methodology

and meta-ethnography to critically appraise the literature. A CIS supports reflection from the authors about how a given topic is covered in the literature as well as what has been left out. This is appropriate for our aims of scoping the concept of technical assistance and ultimately developing the logical model to support policy and decision-makers. The methods begin by identifying a compass question, which may evolve through the course of the synthesis. For this study, our compass question is: what is technical assistance and how can it be used to support health system transformations?

Electronic search strategy

The literature was conducted in January 2023 using the following databases – CINAHL (via EBSCO), EMBASE (via Ovid), Medline (via Ovid), Health Systems Evidence, Social Systems Evidence – and the following search terms implement* AND "technical assistance" AND (health system OR social system OR health policy OR social policy OR develop*). Documents before 2000 were excluded. A McMaster University librarian was consulted on the search strategy prior to running it.

Document selection

Documents were included if they defined technical assistance, detailed components of technical assistance provided to the implementation of a transformation, or if they described the contributions of technical assistance to the implementation process. Complementary to the formal search, as is typical with the CIS method, hand searches of reference lists and purposive sampling was conducted to identify documents that could help to fill conceptual gaps during the analysis.

After completing the formal searches, the results were put into Covidence, an online software that supports reviewing titles and abstracts, full texts and data extraction for systematic and other reviews. Documents were classified as either include, exclude or uncertain, with notes included about why a label of uncertain was provided. While most of the titles and abstracts were screened by the first author (KW), a 20% random sample of titles and abstracts was independently

screened by two authors (KW and HB) to determine inter-rater agreement. Inter-rater agreement was determined using a Kappa statistic. Discrepancies in classification were discussed over a telephone call and were resolved between the two reviewers.

The full text of the remaining documents was assessed by one reviewer (KW). Documents were excluded if they did not provide insights into the compass question.

Data extraction, analysis and synthesis

Data analysis proceeded in three stages. In the first stage, while screening and assessing the documents for inclusion, we noted some general observations about what was included in the literature and what was being left out. Second, we used these observations to construct five tables for data extraction: 1) characteristics of studies; 2) definitions of technical assistance; 3) identified elements of technical assistance; 4) technical assistance providers and their qualities; and 5) associated frameworks described in the literature.

In the third stage, we focused on bringing each of these elements together to develop a logic model that decision-makers could use to consider the package of technical assistance that may be needed to support the implementation of a system transformation. To do so, data extraction tables were reviewed and included information was coded as relating to one or more elements of the logic model (e.g., inputs, processes, outputs and outcomes).

Results

Search results and document selection

Our search of electronic databases retrieved 2559 studies with 654 duplicates removed. A random sample of 258 studies were title and abstract screened by two reviewers (KW and HB), with a Kappa of 0.73, indicating a high level of agreement. A total of 1905 studies were screened and 1613 were excluded. The most common reason for exclusion was a failure to adequately describe the technical assistance provided (i.e., provide details about what was being provided,

by whom, with what aims and over what time period). In total, 292 full-text studies were assessed for eligibility, a total of 50 full-text documents were included with an additional 22 included through purposive sampling. However, there were two instances where documents reported on the same effort but were both included as the focus of the write up provided complementary perspectives. Appendix 1 provides a brief overview of all included documents.

Of the included documents, 19 focused on macro-level changes (i.e., coordinated changes involving multiple types of organizations and professionals and involving changes to one or more of the delivery, financial or governance arrangements), 31 focused on meso-level changes (i.e., changes within a single organization or many unconnected organizations but that may involve changes to the delivery or financial arrangements), and six focused on micro-level changes (i.e., changes focused on a particular professional or line of service and may involve changes to a program or service is delivered). There were also 16 included documents for which we were not able to assign a level given many of them were literature reviews and did not focus on a single change effort.

Sectors where technical assistance was used included: healthcare, public health, education, children and youth services, international development, justice, and labour and housing. Technical assistance was often used to support change focused on socially vulnerable and under-resourced populations.

Most of the literature examined technical assistance supporting planned changes within the U.S., however, there were also examples of technical assistance in Canada, Germany and some that address technical assistance provided as part of international development efforts.

Defining technical assistance

The term technical assistance comes from the international development literature and its use as part of international development programs, where technical assistance refers to capacity building to support systems change in cooperation with governments.(8) This often involved having experts from high-income countries or international organizations build capacity for the

administration of new government programs or departments in low- and middle-income countries.(8) However, in more recent years this term has fallen out of use within the international development literature, largely due to a reduced emphasis on top-down implementation supports and resistance to colonial approaches.

The term technical assistance has been adopted outside of international development and is cited most recently in scholarly literature related to health prevention, health promotion and K-12 education in the U.S.(2) This is in part a result of many U.S. federal agencies such as the Department for Health and Human Services and the Department of Education offering technical assistance as part of large grant programs.(9) The majority of this literature cites the use of a single framework, the Integrated Systems Framework, which describes technical assistance as an element of the support system alongside a synthesis and translation system and a delivery system (see Box 1).

Box 1. Integrated systems framework (1)

The integrated systems framework for dissemination and implementation was first published in 2008 by Wandersman at al. The framework presents three systems as being central to the dissemination and implementation of community-based health-promotion and disease -prevention interventions. The three systems include: the synthesis and translation systems (which distills information about innovations and translates it into user-friendly formats); the support system (which provides training and technical assistance to users in the field); and the delivery systems (which implements innovations in the world of practice). Despite having the three systems, Wandersman et al. describe not having clear boundaries between them, acknowledging that the same actors may work across systems.

Of the 72 documents included, about half (35) provide definitions for technical assistance. Within these definitions, there are three common concepts that appear. These include: 1) technical assistance as a form of capacity building for specialized areas; 2) providing a tailored or individualized approach that has been developed specifically to support those implementing a transformation; and 3) the use of hands-on, practical learning opportunities, whereby participants are applying their learnings to a real-world change. These definitions are provided in Table 1 (below), where these three common elements appear in bold and divergent elements appear in italics.

Table 1. Definitions included in the literature (with common elements in **bold** and divergent elements in *italics*)

Author and year	Definition provided
Albers et al. 2020 (10)	"*Information sharing, expertise, instruction, training and other supports for improving program organization or system* **capacity** to achieve *specific goals, objectives or outcomes*"
Baumgartner et al., 2018 (11)	"Non-financial assistance designed to help programs build their **knowledge and capacity** to *enhance partnerships and services*. Technical assistance typically involves the transfer of knowledge, expertise, and skills to *individuals, organizations, or groups of organizations* to identify service gaps and needs, to plan for change, and to *develop innovations and solutions* to address long-standing and emerging challenges"
Bergeron et al. 2017 (4)	"The development of knowledge, skills, commitment, structures, system and leadership to enable effective health promotion and may include acquiring and applying **new or enhanced capabilities** to promote health and engage in evidence-informed interventions
Blase et al., 2009 (12)	"The timely provision of specialized advice and **customized support** to resolve *specific problems* and increase *clients*' **capacity**"
Butterfoss et al., 2004 (13)	"The cultivation and use of transferable knowledge, skills, systems and resources that affect *community- and individual-level* changes consistent with public health related goals and objectives"
Chaippone et al, 2018 (14)	"**Targeted** or **tailored** support given to an *individual* or *organization* to help assist with the successful *development, implementation, and evaluation* of a program, policy, intervention, or service through shared knowledge, resources and expertise"
Chilenski et al, 2016 (15)	"Support and assistance that a prevention effort receives from someone or some organization that is not part of a community team and has **specialized knowledge, experience and expertise** in the issues that are salient to such efforts that likely would support improved outcomes"
Choudhury et al., 2001 (16)	"The transfer of new knowledge along with new technology to others who do not know about it."
Darnell et al., 2017 (17)	"The process of providing **targeted support** to an *organization* with a *development need or problem*. TA may be delivered through one-on-one consultation, small group facilitation or through web-based clearinghouses. The help should enhance the users' knowledge or ability to carry out dissemination and implementation science and practice. It is focused on a particular issue unlike mentorship which focuses on a person"
DeCorby Watson et al., 2018 (18)	"**Personalized support**, including face to face meetings"
Dunst et al., 2019 (19)	"Refers to professional development, coaching and mentoring, consultation and other supports provided to *programs and organizations* to *affect change or adoption of evidence-based or innovative practices*."
Durlak et al., 2008 (20)	"The combination of resources offered to providers once implementation begins and may include retraining in certain skills, training of new staff, emotional support and mechanisms to promote *local problem-solving efforts*"
Escoffery et al., 2015 (21)	"Technical assistance typically *follows training* and is **individualized** to the specific needs of *individuals or staff teams*."
Fixsen et al., 2009 (22)	"Supports that are designed to build the **capacity** of *individuals and organizations* to achieve desired outcomes. Basic technical assistance includes providing documentation of evidence-based options, disseminating both examples of success and materials that facilitate success, and providing overview workshops that may assist others in the planning, implementation and use of existing tools. Intensive technical assistance means providing it with a sharp focus on purpose and outcomes as well as considerable depth, breadth, coherence and energy in relation to achieving those outcomes."
Flahspohler et al. 2012 (23)	"Intermediary support to complete with quality of the various tasks involved in prevention."
Florin et al. 2006 (24)	"Transfers knowledge and/or **practice skills** to clients that help them to **develop or improve programs, products, services, delivery systems or internal operations**"

Hunter et al., 2009 (25)	"Describes different *workshops, train-the-trainers models, and interactive web-based systems* to improve **community program capacity** and enhance outcomes"
Kegler et al., 2006 (26)	"Allows for the **customization of services** to meet the **individualized** needs of an organization. It usually involves assessing an organization's need, then providing **tailored assistance** by an expect to help **build** the identified **capacity**. Quality technical assistance includes engaging both the client and the technical assistance provider in a relationship based on trust, collaboration, and goodwill"
Le et al., 2016 (2)	"Approaches that focus on developing *individual knowledge* and skills and the conditions to ensure skills are used productively, developing *effective organizations* within which individuals can work, strengthening interrelationships among entities, and developing enabling environments for addressing issues across societal sectors"
Leeman et al., 2015 (27)	"*Interactive support* that is **individualized** to the *specific needs of individuals or teams*. Those who provide technical assistance may also be referred to as knowledge brokers, purveyors, linking agents, and external change agents among other terms"
Lyons et al., 2016 (28)	"Non-financial assistance meant to impart information, skills, and other expertise from one person or entity to others. It is typically delivered to *individuals, organizations or systems* to assess gaps, barriers and/or needs and identify solutions, develop a strategic plan for long-term change, or create innovative approaches to emerging, complex issues."
MacGillivray et al., 2002 (29)	"The process of providing help to *resolve a problem or create innovative approaches*"
Mitchell et al., 2002 (30)	"An intermediary support organization (or a coordinated network of organizations) that assist community-based prevention efforts and can be offered through government, university or private sector settings"
Olson et al., 2020 (31)	"An **individualized approach** that provides implementation support to, and **increasing capacity** for, continuous quality improvement among *program developers, service providers, managers, and decision makers*. It encompasses a wide variety of strategies including *training, coaching, educating, problem-solving, and generally supporting relevant stakeholders*. Technical assistance may be generalized, in which case it focuses on raising awareness through education and support while tailored assistance focuses on the unique needs of individual stakeholder groups and promotes new knowledge through concentrated efforts aimed at supporting organizations- and system-level changes"
Rachidi et al., 2016 (32)	"Transferring knowledge or building participants' skills"
Ray et al. 2012 (33)	"Strategic approach to bringing specific knowledge and/or skills to recipients and then helping recipients to adopt and use the information and /or skills with quality."
Rushovich et al., 2015 (34)	"Services that an outside entity provides to an agency or organization to help **build its capacity** to implement an innovation or improvement to their current operations"
Scott et al., 2022 (1)	"An **individualized hands-on approach** to **capacity building** in *organizations and communities*… involves the provision of tailored guidance by a technical assistance specialist to meet the specific needs of a site through collaborative communication between the provider and site or recipient. Technical assistance services include a combination of activities including *coaching, consulting, modeling, facilitating, professional development, site visits and referral to informational resources*"
Segre et al., 2013 (35)	"Sessions in which practitioners and host organizations gain the information, tools and support to implement new practices"
Smith et al., 2023 (36)	"A broad term used to describe communications and collaborations that be **tailored** to organizations with the ultimately goals of bridging the gap between research, policy and practice"
Soler et al., 2013 (37)	"The transfer of information and tools from one entity to another in order to address an identified need for change."
Spadaro et al., 2011 (38)	"Providing guidance, support and expertise"
Wandersman et al., 2012 (also cited in Kenworthy et	"An **individualized hands-on approach** to building an *entity's* **capacity** for quality implementation of innovations, usually following training"

al. 2023) (6, 39)	
Watson-Thompson et al., 2013 (40)	"Support general **capacity building** to enhance coalition functioning or innovation-specific **capacity-building** to provide intervention specific supports"
West et al, 2012 (41)	"Technical assistance is a dynamic **capacity-building process** for designing or improving the quality, effectiveness, and efficiency of specific *programs, research, services, products or systems*. A technical-assistance system, continually assesses needs and monitors the relevance and utility of an evolving base of experience, knowledge, and technology. It assists others in adapting and applying new knowledge, technology and innovative practices to improve outcomes and increase impact."

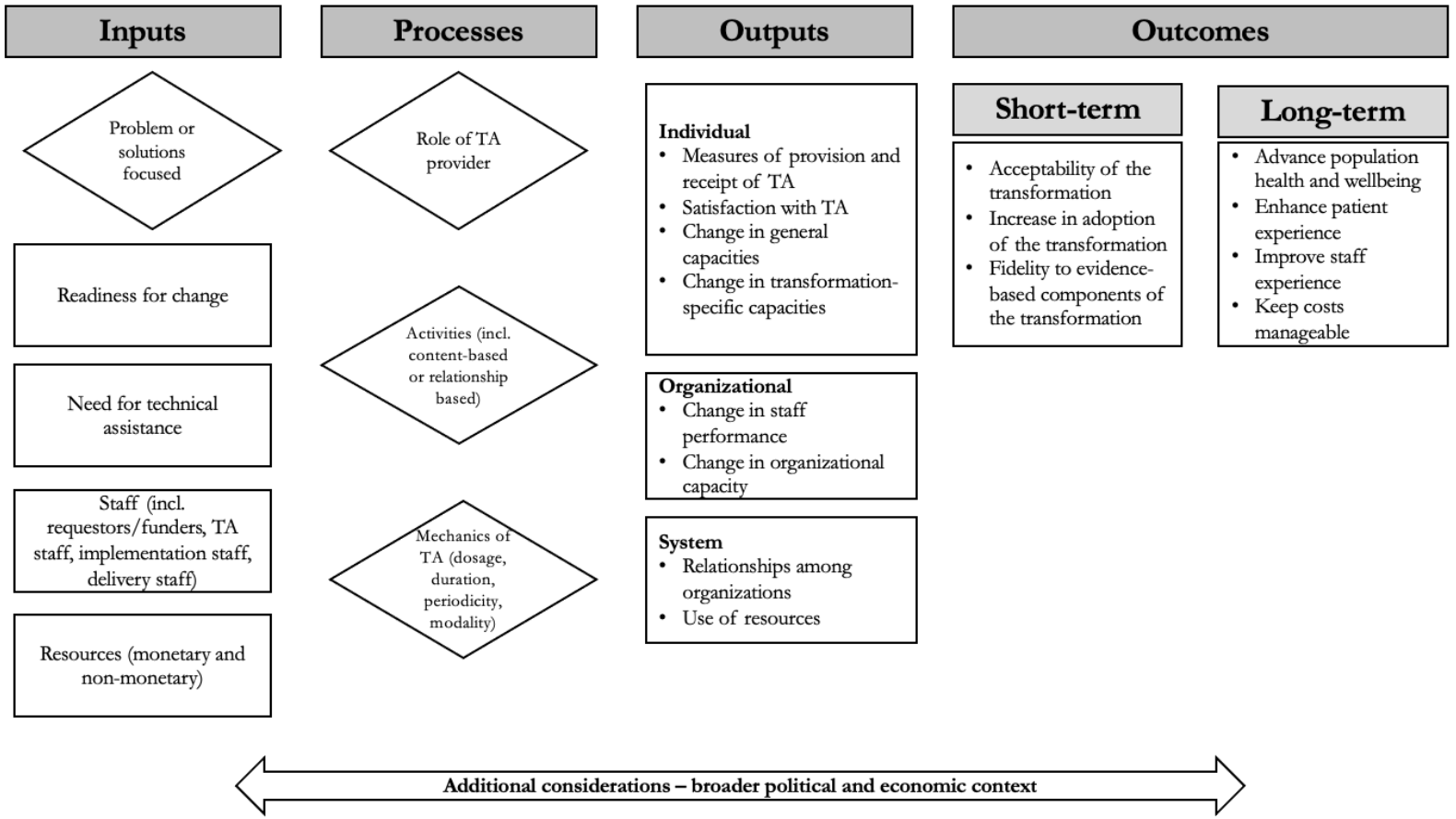
We can observe three places where the definitions diverge: 1) a distinction between capacity building to implement a specific (often evidence-based) intervention as opposed to capacity building to support problem-solving and choosing of an appropriate intervention or transformation (i.e., solutions-focused or problem focused); 2) an emphasis on different levels of capacity building (i.e., individual versus organizational versus system); and 3) the range of different approaches that are included in technical assistance, and in particular whether or not technical assistance encompasses didact approaches (e.g., tools) and training.

For this CIS, we are proposing a definition rooted in system transformations (as opposed to the implementation of a smaller-scale or sector-specific intervention). We define technical assistance as "**a contextualized package of supports (which may include individualized as well as universal supports) delivered by an individual or team of individuals with subject matter and process expertise to build capacity at the individual, organizational and system level to support the implementation of a transformation.**" The proposed definition builds on the three common elements from the definitions of technical assistance found in the literature. In addition, the mention of a package of supports is meant to encompass the complexity of systems transformation, acknowledging that many different tools may be needed to support change.(22) The definition regards technical assistance as encompassing training as it is rooted in findings from evidence syntheses that note that training and technical assistance need to be packaged together to be successful.(22, 27) Universal supports, such as training, require the opportunity for real-world practice (and correction), and technical assistance requires at least a foundational understanding of a given capacity.

Logic model to support policy and decision-makers

In addition to developing a definition for technical assistance, we have synthesized findings from the included literature into a logic model (Figure 1) to support decision-makers to systematically plan for technical assistance. The logic model is composed of four sections that illustrate the hypothesized relationship between the inputs for the transformation, technical assistance activities and envisioned outputs of technical assistance, as well as outcomes from health-system transformations. In the logic model, the diamonds represent instances where decisions need to be made about the types of technical assistance. The following text delves into what is known about each of the four sections. A more detailed version of the logic model is available as Appendix 2.

Figure 1: Logic model of technical assistance for health-system transformations



Inputs

Five types of inputs were identified in the literature. The first is the type of transformation and critically whether the transformation is solutions-focused or problem-focused.(27) A key difference that emerged from the included literature was whether decision-makers had a particular transformation chosen that they wanted implemented or whether they had recognized a problem (or area of concern) and wanted delivery and implementation staff to develop a solution. Examples from the literature of the former include the SafeCare model, Housing First model and Mpowerment model.(42-45) Examples of the latter included programs focused on preventing tobacco use, health-system transformations focused on value-based care, or statewide educational strategies to improve grades among low-income students. Large system transformations tended to be rooted in the latter, rather than the former. This choice is important in helping to define the role of a technical assistance provider as either providing support for a pre-determined transformation (and adapting it to a local context) or support to design a transformation to solve a specific problem.(46) It may also be referred to as "pushing" (aligned to solutions-based) or "pulling" (aligned to problem-based) a specific transformation.(27)

This distinction becomes particularly important when considering the next input which is the system and organizational readiness for change. Readiness is the extent to which a system or organization is both willing and able to implement a particular change. Like individuals, systems and organizations can be at different stages of readiness to receive technical assistance. Understanding this stage can support the prioritization of technical assistance (i.e., prioritizing organizations most ready for change).(34, 36, 41) Readiness has been identified as a key determinant of technical assistance outcomes and a mismatch between readiness and technical assistance risks the buy-in of the user – a necessary condition for successful technical assistance.(6, 34, 47)

Closely aligned to readiness, is the baseline level of need for technical assistance within the system or organization(s) participating in the transformation. Once the transformation or problem-area has been identified, the generic and transformation-specific areas in which capacity will need to be built can be determined. In addition to being critical for technical-assistance staff to plan activities (e.g., training, coaching), an understanding of needs is important for policy and

other decision-makers to ensure sufficient resources (another input) are dedicated towards the transformation and a match between capacity-gaps and the expertise of technical-assistance providers.(25, 31)

The remaining two inputs more closely resemble standard inputs in a logic model. The first is consideration of the different staff involved in the transformation. These include policy or other decision-makers who are frequently requesting and funding technical assistance, the staff contracted to deliver technical assistance as well as staff providing other implementation supports, for example those selling or developing data platforms, or external evaluators of the transformation. For organizations involved in a system transformation, staff will be split between those responsible for planning and executing the implementation of the transformation and those that will continue to deliver organizational services. Ensuring that there are dedicated, long-term staff available to support change, despite existing service pressures, is critical to maintaining momentum and buy-in for the transformation.(47)

While many of the staff involved in the transformation are pre-determined (e.g., are already employed in within the system), there is choice for policy- and other decision-makers with respect to the technical-assistance providers. The included literature provides insights into the skills policy- and decision-makers should look for. Technical assistance providers are frequently former professionals including nurses, social workers or teachers with high-levels of educational attainment (often masters or PhD) with specific expertise in an area or broadly in change management and learning and improvement.(48-50) Many (though not all) operate out of universities or academic institutions or specialty consulting firms. Technical assistance providers should be well versed in five areas, however the relative emphasis on each may vary based on the transformation, the role of the technical-assistance provider, and the network of other implementation supports in place. The five areas include knowledge of and experience related to: 1) the proposed transformation (or a similar transformations); 2) the local context in which the transformation is to be implemented; 3) learning and improvement strategies; 4) change management, preferably at a systems level; and 5) using and facilitating the use of evidence to inform approaches.(14, 28, 37, 48) The first four of these are frequently emphasized when considering expertise. The fifth is often left out but is necessary for ensuring that both the

approaches to technical assistance and decisions about the transformation draw on the best-available evidence.

In addition, findings from included documents also point to the importance of particular skills for technical assistance providers, namely good communication and negotiation skills and the ability to synthesize complex information.(2, 13, 41) The demeanour of the technical assistance providers is also important, which should be positive and supportive, solutions-oriented, and demonstrate empathy for the challenges experienced by the recipient.(10, 13, 15, 25, 51)

The last input is resources, which includes both financial resources allocated towards the transformation (including resources passed on to pay for technical assistance) as well as non-monetary resources such as administrative supports and data infrastructure, among others. Appropriate resourcing was consistently highlighted as being critical to the success of technical assistance, including having dedicated implementation staff that could move the transformation forward even when delivery staff were occupied.(2, 11, 18, 19, 41, 43, 50, 52)

Processes

The key players with respect to processes are those providing and receiving technical assistance, however it is also important to consider the relationship between technical-assistance providers and policy- or other decision-makers.

The processes section highlights three considerations – 1) the role of the technical assistance provider; 2) the type of technical assistance provided (and the discrete activities included as part of the technical-assistance package); and 3) the planned mechanics of technical assistance.

The literature conceptualized three roles for technical assistance providers – doer, partner or facilitator.(46) The decision as to which role they occupy is made in large part by policy- and other decision-makers, however, it can be made in consultation with potential technical-assistance providers and with staff implementing the transformation, who may be better positioned to assess the extent of support needed. Having clearly defined roles for technical

assistance providers is important, as unclear roles can result in recipients becoming overly dependent on providers, ultimately leading to sustainability challenges.(34)

These three roles represent a continuum from very directed to very wide-ranging support and should not be considered mutually exclusive. Different technical assistance providers may occupy different roles throughout the lifespan of the transformation depending on their area of expertise and the system need.

The first role is that of a doer, whereby technical assistance providers perform short-term technical functions. In this instance, the role of the technical-assistance provider is not to build sustainable capacity but rather capacity substitution to deliver a specific product or result. This role may be appropriate when there is a need for dedicated expertise that will disappear over the long-term.(46) A common example of this type of technical assistance is infrastructure procurement or grant writing. The second role is that of a partner. The role of a technical assistance provider as a partner is to perform targeted supports for identified challenge areas.(46) Compared to the facilitator, this role is relatively light-touch and is best-used when there is a particular technical-knowledge gap that needs to be filled, for example training and ongoing mentoring in population-health management, behavioural health interventions, or value-based financing. The final role – facilitator – is focused on performing longer term, widespread support for complex change processes where the supports that are needed are not always clear at the outset of the engagement and involve prolonged coaching and mentoring.(46)

Technical assistance providers may pull on a range of different activities to support implementation. Table 2 provides a listing of the activities identified and synthesized from the included literature. Each of the activities have been placed in a cell based on their alignment with the three technical assistance roles outlined above and the two approaches that were identified from the literature. However, activities in the table are not mutually exclusive and may be pulled on at different times by technical assistance providers based on what best fits the objectives. Not all activities need to be provided for the support to be considered technical assistance. The prototypical activity for technical assistance is the provision of one-on-one coaching supports and the ad hoc answering of questions. However, as the scale of the change gets larger (i.e.,

towards a transformation), this type of technical assistance activity gets more challenging to provide given the number of individuals and organizations in need of capacity building.

The two approaches (far left column) derived from the literature include a focus on content-driven approaches and relationship-driven approaches.(31) Content-driven approaches focused predominantly on information transfer and referral to address general capacity gaps and are pro-active in addressing the needs of individuals and organizations, often through pre-defined learning goals.(31) Relationship-driven approaches are often more flexible and focus on facilitating behaviour and system change through intensive technical assistance for transformation-specific capacities (as compared to more general capacities such as leadership).(31) This type of technical assistance is reactive in response to the needs, context and learning styles of those participating. Successful technical assistance, particularly for system transformation frequently pulls on both approaches to complement one another.(14)

Table 2. Technical assistance activities organized by type and position of the provider

Approach to technical assistance	**Doer**	**Partner**	**Facilitator**
Content-based	• Retrieving research evidence and other types of information (e.g., policy requirements) – such as jurisdictional scans or qualitative experiences – that can support implementation • Contextualizing research evidence and other types of information • Core component analysis • Implementation planning (incl. developing logic models and theories of change for the innovation) • Grant and report writing • Infrastructure procurement (incl. data and technology systems)	• Trainings, workshops and courses • Conferences and learning events • Answering ad hoc questions by email/telephone • Analytics support (data retrieval and data analysis) • Cost-analysis	• Tools and templates matched to the right ‘stage’ in implementation
Relationship-based	-	• Peer exchange (through communities of practice or learning networks)	• Readiness assessment • Needs assessment and feedback

		• Brokering relationships with experts and/or a network of technical assistance providers • Community consultation/ engagement (including among frontline providers where relevant) • Advocating for policy change/alignment	• to Visioning/co-defining goals and objectives • Observation and feedback (incl. fidelity innovation and progress summaries) • Supervision • Providing coaching and mentoring (incl. one-on-one and small group using different modalities) • Project management • Budget management

The final consideration within processes are the mechanics of technical assistance, of which we identified four – dosage, duration, periodicity and modality. Dosage refers to 'how much' technical assistance is provided, often reported in full-time equivalencies. With some types of activities, dosage is more easily controlled than with others. For example many content-based didactic activities rely on individuals to determine their own participation level (e.g., how much or how little they use a given tool), while relationship-based activities involving mentorship or knowledge sharing may be more centrally controlled by technical assistance providers.(53) The relationship between dosage and outcomes is influenced by the level of need, the stage of implementation and the relationship with technical-assistance providers, and as a result does not appear to demonstrate a linear dose-response relationship (i.e., more technical assistance does not always increase success of implementation).(15, 22, 31, 37) However, when appropriately matched, some literature indicates that relatively higher dosages of technical assistance resulted in "smarter" implementation (e.g., greater capacity for implementation) and sustained improvements compared to lower dosages.(1, 14, 27, 30, 41, 54, 55)

The second mechanism is duration, which refers to the period over which technical assistance is provided. Compared to dosage, the literature is relatively silent on the effects of different durations. However, like dosage, it is mediated by the relative needs of participants, complexity of the transformation, implementation stage, implementation capacity (e.g., how fast is the transformation moving), and the funding and resourcing made available to pay for technical assistance.(1, 8, 12, 25, 41, 56)

The third mechanism is periodicity, which refers to when and at what intervals technical assistance is provided. One of the included studies noted that early frequency of contact was related to higher coalition functioning among community prevention coalitions, pointing to the importance of some activities taking place early in the implementation process.(57) We were not able to identify findings related to optimal timing for each activity, however some general findings related to the intervals of select types of activities were identified. Relationship-based activities tend to take place at more regular intervals. For example, activities like coaching and mentoring may occur on a weekly or bi-weekly basis. Network or group-based activities such as learning collaboratives or communities of practice often occur at regular intervals for a set period (e.g., 60-90 minutes). Content-based activities can take place regularly, such as monthly or quarterly data retrievals and analysis, or may take place at more sporadic intervals, determined by need, for example one-off training sessions.

The final mechanism is the modality by which technical assistance is delivered. Some of the included evidence points to the importance of face-to-face contact.(39, 56-58) However, face-to-face approaches may be very resource intensive and in some cases (such as throughout the COVID-19 pandemic, or due to the size of the transformation) not possible.(44) Findings from evidence documents note that some activities may be more beneficial when conducted face-to-face and therefore could be prioritized when resource constraints are present. These include site visits and observational needs assessments,(58) experiential learning activities (39), feedback,(14) as well as select coaching for innovation-specific capacities. (33) The majority of included documents describe a combination of mediums, balancing face-to-face components with follow-up virtual components based on the activities and available resources.(1, 17)

Outputs

We separate outputs from outcomes and consider outputs to be those changes that are the direct result of technical assistance activities. Outputs have been placed into three levels – individual, organization and system. Individual level outputs include both measures of what was provided and received with respect to technical assistance as well as changes in knowledge and skills (e.g., improvements in capacity).(32) Capacities have been separated into two categories – general and

innovation-specific. General capacities are “related to infrastructure, skills, and motivation that is not specific to a particular transformation.” (39) These are capacities that are needed to support and facilitate change, learning and improvement. While capacities will differ based on the needs of those involved and the technical assistance being provided, common examples include leadership, evaluation skills, funding, resource development, or citizen and provider engagement. Transformation-specific competencies are those skills and knowledge needed to carry out a transformation. (39) These could include examples such as health promotion and prevention knowledge, skills for population-health management such as segmenting populations, or knowledge about value-based financing models, to name a few.

At the organizational level, outputs may include changes in staff performance and improved organizational capacity based on the capacities generated at the individual level.(32)

At a systems level, outputs of technical assistance may include changes to the relationships among organizations and providers within a system (e.g., by creating new networks or partnerships) as well as changes to the use of resources throughout the system.(32) This may include more efficient use of resources (e.g., getting more for the same or less) or changes in how resources are used to better align with the goals of the transformation.

Regardless of the specific outputs being pursued, technical assistance providers in collaboration with policy- and other decision-makers should determine, at the outset of the transformation, specific outputs of technical assistance that clearly link to inputs, processes and outcomes.(37)

Outcomes

Outcomes as compared to outputs are longer term and are rarely as directly attributable to technical assistance. Three shorter-term outcomes focused on implementation (e.g., two to five years) for which technical assistance plays a primary role include the acceptability of the transformation, increased adoption of the transformation (i.e., widespread uptake throughout a system) and fidelity to the evidence-based components of the transformation.(19, 59)

The long-term outcomes include the equity-focused quadruple aim of advancing population health and wellbeing, enhancing patient experience, improving staff experience, and keeping per capita costs manageable.(60) These may be further specified based on the transformation.

Discussion

This critical interpretive synthesis draws on evidence from across disciplines to develop a definition and logic model that can be used by policy- and other decision-makers to plan for technical assistance for health-system transformations. The CIS builds on existing literature about technical assistance and proposes a definition that integrates common elements from the health promotion and health prevention literature, while bringing in key concepts to support its use for more complex system transformation. The proposed definition is "a contextualized package of supports (which may include individualized as well as universal supports) delivered by an individual or team of individuals with subject matter and process expertise to build capacity at the individual, organization and system level and support the implementation of a transformation." The logic model synthesizes key findings from the literature regarding the key inputs, processes, outputs and outcomes from technical assistance. It prompts policy and other decision-makers to think through the transformation including the type of transformation for innovation, system and organizational readiness and need for technical assistance, the role of technical assistance providers, technical assistance and mechanics of technical assistance, and desired outputs and outcomes of technical assistance in efforts to facilitate systematic planning.

There are three key strengths of this critical interpretive synthesis. The first is that the methodology supported synthesizing of a more diverse range of literature than has typically been included in syntheses related to technical assistance. This includes drawing on insights from both empirical and grey literature, global and domestic transformations as well as technical assistance delivered at the macro, meso and micro level. Second, the critical interpretive synthesis provides a definition and framing that encompasses the many different roles and activities that can be included in technical assistance and aims to present technical assistance processes as a 'toolbox' that can be adapted to any transformation. Finally, the study directly addresses policy- and other decision-makers, a key audience in technical assistance but one that is frequently left out.

Specifically, the logic model presents policymakers' role in defining many of the inputs for technical assistance and in consulting on the processes used.

There are a few limitations of this critical interpretive synthesis. The first is a limitation in the included literature. Given the many different terms for technical assistance, significant literature on capacity building, and the many individual technical assistance activities each with their own respective evidence base, this CIS could not benefit from fully systematic searches of, and include syntheses and studies for each of, these literatures. Instead, an approach that narrowly focused on technical assistance as it was self-defined by contributors to the literature was used. As a result, intersections with some relevant literature, such as that on policy implementation, have not been explicitly included. Further, documents were only included if they provided sufficient description of the technical assistance that was delivered, which may have excluded experiences from many transformations for which robust technical assistance was provided but not the focus of the study write-up.

The second limitation is that most of the included literature focuses on providing technical assistance pre-pandemic and does not capture the many technological changes or the even greater emphasis on behavioural and implementation research that was observed throughout the pandemic. As a result, we might expect changes to the types of transformations that use technical assistance, additional findings related to the modality and other mechanisms of technical assistance, as well as additional activities including those that may better assess and foster the behavioural preconditions (e.g., capability, motivation and opportunity) for transformations.

This critical interpretive synthesis reinforces many findings that have already been identified. This includes the finding that the research related to technical assistance requires significant methodological advancement before there can be consensus on what works, for what types of transformations and why.(5, 19) Much of the existing synthesized literature looks to either evaluate the effectiveness of technical assistance, which has proven extremely difficult given the diversity in the innovations and technical assistance, or aims to synthesize findings for a particular aspect of technical assistance, such as the expertise and skills needed for providing technical assistance or activities included in technical assistance. A previous logic model for

technical assistance was developed as part of a synthesis conducted by Scott et al. in 2022.(1) This critical interpretive synthesis builds on this previous work by including a broader evidence base about technical assistance and establishing a framework for the process of providing technical assistance (e.g., roles, activities and mechanics).

This critical interpretive synthesis has practice implications for policymakers, technical assistance providers, and researchers. Policymakers can use the logic model to proactively plan for technical assistance, as well as use the logic model as an input towards a theory of change for a given transformation. For technical assistance providers, the definition and logic model provide a common language to describe their role within a transformation, including the activities they will provide and the associated mechanisms. Researchers and evaluators can use the logic model to structure their reporting and evaluation, which is critical to developing a more 'synthesizable' evidence base and ultimately to understand if technical assistance is effective and under what conditions.

Future research should focus on building consensus (or at least identifying areas of agreement and disagreement) among technical assistance providers and other stakeholders on the proposed definition of technical assistance and the elements of the logic model. Additional efforts could use the logic model to identify core elements of technical assistance or as the basis for developing a c tool for policymakers and implementation staff to systematically and transparently plan for technical assistance.

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Appendix 1: Overview of included literature

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Albers et al. 2020 (10)	Global	Systematic review	Implementation science (broadly)	n/a	Defines role for implementation support practitioner	n/a	n/a
Baumgartner et al., 2018 (11)	United States	Environmental scan	Health and social sectors	Macro	Overview of technical assistance provided to U.S. federal government funded initiatives	n/a	n/a
Blase et al., 2009 (12)	United States	Grey literature – Roadmap for technical assistance	Education – primary education	Macro	Overview of technical assistance for education	n/a	n/a
Bonney et al., 2019 (61)	United States	Qualitative description	Labour – precarious work	Meso	Role of universities in providing technical assistance for interventions for precarious employment	Problem-based	n/a
Bonney et al., 2021 (62)	United States	Qualitative description	Public health – labour	Meso	Design and implementation of interventions to address precarious work	Problem-based	n/a
Boothroyd et al., 2017 (63)	United States – California	Program description	Children and youth services – child protection	Meso	Innovative intervention strategies to reduce long-term foster care stays and improve child and family outcomes	Problem-based	n/a

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Bradshaw et al., 2021(49)	United States – Maryland	Randomized control trial	Education – secondary education	Meso	Up to five positive behaviour interventions	Solutions-based	Multi-tiered Systems of Support framework
Brodowski et al., 2013 (52)	United States – Kansas and Nebraska	Qualitative case study	Children and youth services – child protection	Macro	Evidence-based interventions related to reducing child-abuse	Problem-based	Interactive systems framework
Bührmann et al., 2022 (48)	Global	Systematic review	Implementation science	n/a	Defining knowledge and attitudes of implementation support practitioners	n/a	n/a
Butterfoss, 2004 (13)	United States - Maryland	Mixed methods	Public health – perinatal health	Meso	Healthy start initiative to support normal birthweight	Solutions-based	Community Coalition Action Framework
Chaple et al., 2015 (64)	United States – New Jersey	Cohort study	Health systems – integrated health systems	Meso	Integrate behavioural care within primary care in two federal-qualified health centres	Problem-based	n/a
Chen et al., 2018 (65)	United States – Ohio	Mixed methods	Education – primary education	Micro	Child obesity prevention program	Solution-based	n/a
Chilenski et al., 2016 and 2021 (15, 57)	United States – Pennsylvania and Iowa	Randomized control trial	Education – primary education	Meso	Health promotion interventions based on the identified needs of students and families	Problem-based	n/a
Chaippone et al. 2018 (14)	United States – Missouri and Florida	Mixed methods	Education – primary education	Meso	Nutrition and physical activity	Problem-based	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
					interventions in elementary schools		
Chinman et al., 2008 (50)	United States – California and South Carolina	Cross-sectional	Health – mental health and addictions	Micro	One of six evidence-based programs for substance abuse prevention	Solutions-based	Interactive systems framework
Chinman et al. 2009 (66)	United States – Missouri and Tennessee	Cross-sectional	Health – mental health and addictions	Micro	One of six evidence-based programs for substance abuse prevention	Solutions-based	Interactive systems framework
Choudhury et al., 2001 (16)	Global – Philippines and Nigeria	Program description	International development	Macro	Development of microfinance institutions in low- and middle-income countries	Solutions-based	Not cited
Darnell et al., 2017 (17)	Global	Content analysis	Implementation science	n/a	Examines the activities provided in implementation science resource initiatives	n/a	Not cited
DeCorby-Watson et al., 2018 (18)	Global	Systematic review	Implementation science – capacity building	n/a	Compares capacity building activities	n/a	Not cited
Department of Education, 2015 (67)	United States	Program description	Education – primary education	Macro	Educational reform grants based on achievement of select measures	Problem-based	Not cited
Dunst et al., 2019 (19)	Global	Systematic review	Implementation science	n/a	Reviews the effectiveness of technical assistance on system change	n/a	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Durlak et al., 2008 (20)	Global	Systematic review	Implementation science	n/a	Review of factors affecting program implementation	n/a	Interactive Systems Framework
Escoffrey et al., 2015 (21)	United States	Cross-sectional	Public health – cancer screening	Meso	Assessing needs for training and technical assistance for grantees of the federal Colorectal Cancer Control Program	Solutions-based	Interactive systems Framework
Florin et al., 2006 (24)	United States – Rhode Island	Program description	Public health – disease prevention	Meso	Comprehensive tobacco control interventions in community-based organizations	Solutions-based	Not cited
Florin et al., 2012 (54)	United States – Rhode Island	Program description	Public health – disease prevention	Meso	Technical assistance centre for implementing interventions that fall within the Strategic Prevention Framework	Problem-based	Interactive Systems Framework
Forman et al., 2015 (68)	United States	Grey literature – Implementation guide	Education – primary education	n/a	School mental health programs	Problem-focused	Adult learning theory and theory of planned behaviour
Gibbs et al., 2009 (56)	United States	Qualitative description	Public health – health promotion	Meso	Evaluation of sexual violence prevention programs	Problem-focused	Not cited
Gothro et al. 2020 (51)	United States	Case study	Housing	Macro	Technical assistance focused on	Problem-based	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
					supporting the evaluation of an intervention developed by recipients of two federal youth homelessness grants		
Hefelfinger et al., 2013 (58)	United States	Mixed methods	Public health – health promotion	Macro	Population-based risk-focused strategies for chronic-disease prevention	Problem-based	Not cited
Hoon Choi et al., 2019 (69)	United States	Cohort study	Education – primary education	Meso	Up to five positive behaviour interventions	Solutions-based	Multi-tiered Systems of Support framework
Horchler et al., 2004 (70)	Germany	Mixed methods	International development	Macro	German technical assistance programs in low and middle income countries	Problem-based	Not cited
Hunter et al., 2009 (25)	United States	Mixed methods	Health – mental health and addictions	Micro	Substance use prevention interventions for middle schools and high schools	Problem-based	Interactive systems framework
Hurlburt et al., 2014 (42)	United States – California	Qualitative description	Children and youth services – child protection	Meso	Child neglect intervention	Solutions-based	EPIS framework
Juckett et al., 2022 (53)	Global	Systematic review	Implementation science	n/a	Capacity building efforts from academic institutions	n/a	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Kahn et al., 2009 (71)	United States	Program description	Education – primary education	Macro	Improvement plans for special education for pre- and primary education	Problem-based	Not cited
Kegeles et al., 2012; 2015 (44, 45)	United States	Qualitative description	Public health – Disease prevention	Meso	HIV prevention program using small groups and community outreach	Solutions-based	Interactive Systems Framework
Kegler et al., 2006 (26)	United States	Qualitative evaluation	Public health – Disease prevention	Meso	Smoking prevention interventions	Problem-based	Not cited
Kenworthy et al., 2022 (6)	United States	Qualitative description	Implementation science – technical assistance	n/a	Training for technical assistance providers	n/a	Interactive Systems Framework; Getting to outcomes framework; R=MC
Le et al., 2016 (2)	United States	Qualitative description	Implementation science – technical assistance	Macro	Model for guiding service and systems change	Problem-based	Not cited
Leeman et al., 2015 (27)	Global	Systematic review	Implementation science – technical assistance	n/a	Strategies used to build practitioners capacity to implement community-based interventions	n/a	Evidence based system of innovation support
Lyons et al., 2016 (28)	United States	Grey literature	Health systems – financial arrangements	Macro	Technical assistance to support the implementation of	Solutions-based	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
					the Affordable Care Act		
MacGillivray et al., 2002 (29)	United States	Program evaluation	Labour – Employment	Meso	Education and training interventions for justice-involved youth	Solutions-based	Not cited
Mitchell et al., 2002 (30)	Global	Narrative review	Public health – Health promotion and disease prevention	Meso	Technical assistance to support community-based prevention and health promotion initiatives	Problem-based	Interactive systems framework
Natase et al., 2020 (72)	Global	Theoretical	International development	Macro	Conceptualization of technical assistance for international development	n/a	Not cited
Natase et al. 2021 (46)	Global	Theoretical	International development	Macro	Designing technical assistance approaches	n/a	Not cited
Nelson et al., 2018 (43)	Canada	Case study	Housing	Macro	Housing and support services for those experiencing homelessness	Solutions-based	Interactive systems framework
Norton et al., 2017 (73)	United States – Massachusetts	Literature review	Education – primary education	Micro	Enhancing early education competencies among educators	Problem-based	Not cited
Nu'man et al., 2007 (74)	Global	Theoretical	Health – Disease prevention	Meso	HIV prevention interventions	Solutions-based	Not cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Olsen et al., 2018 (75)	United States -	Program description	Health – Mental health and addictions	Meso	Community-level mental health interventions	Problem-based	n/a
Olsen et al., 2020 (31)	United States – Maryland	Program evaluation	Children and youth services – substance use and mental health services	Meso	Community mental health initiatives	Problem-based	n/a
Oluwoye et al., 2023 (76)	United States	Program evaluation	Health systems – integrated care	Meso	Measurement-based care in community-specialty clinics	Solutions-based	n/a
Rachidi et al. 2018 (32)	United States	Grey literature	Implementation science – technical assistance	n/a	Considerations for evaluating technical assistance	n/a	Not cited
Ray et al., 2012 (33)	United States	Case study	Health promotion – Teen pregnancy prevention	Meso	Interventions to prevent teen pregnancy	Solutions-based	Interactive systems framework
Reyes et al., 2014 (77)	United States (applied to resource-limited settings)	Qualitative deliberative processes	International development	Meso	HIV care and treatment programs	Solutions-based	Clinical assessment for systems strengthening
Roeseler et al. 2011 (78)	United States – California	Case study	Public health – disease prevention	Meso	Community-level projects and advocacy campaigns for tobacco control	Solution-based	Interactive systems framework
Rushovich et al., 2015 (34)	United States	Qualitative description	Children and youth services – Child welfare reform	Macro	Innovations in state child welfare organizations	Problem-based	National implementation research network

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
							implementation framework
Sarkies et al., 2017 (47)	Global	Systematic review	Implementation science	n/a	Effectiveness of research implementation strategies for promoting evidence-based interventions	n/a	Not cited
Schafer et al., 2023 (79)	United States	Cross-sectional study	Health – Mental health and addictions	n/a	Characteristics of staff engaged in training and technical assistance for behavioural health interventions	n/a	Not cited
Scott et al., 2022 (1)	Global	Scoping review	Implementation science – technical assistance	n/a	Evaluation of the effectiveness of technical assistance	n/a	Interactive systems framework and Evidence-based system for innovation support
Segre et al., 2013 (35)	United States	Cross-sectional study	Public health – health promotion	Micro	Implementation of peri-natal depression screening	Solutions-based	None cited
Smith et al., 2016 (80)	United States	Qualitative description	Health	Meso	Health programs implemented in rural and remote communities	n/a	Interactive systems framework
Smith et al., 2023 (36)	United States	Cross-sectional study	Health systems – integrated primary care	Macro	Integrating pharmacists into primary care organization	Problem-based	None cited

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
Soler et al., 2013 (37)	United States	Grey literature	Justice – juvenile justice	Macro	Juvenile justice reform in four U.S. states	Problem-based	None cited
Spadaro et al. 2011 (38)	United States	Mixed methods evaluation	Public health – health promotion	Meso	Supports for CDC prevention research centers to conduct health promotion and disease prevention research, training and other activities	Solutions-based	None cited
Stanhope et al., 2017 (81)	United States	Cross-sectional study	Health systems – mental health and addictions	Macro	Behavioural health system transformation as part of the Affordable Care Act	Solutions-focused	n/a
Viglione et al., 2023 (82)	Global	Systematic review	Implementation science	n/a	Catalogues dissemination and implementation science capacity building programs	n/a	None cited
Vitale et al., 2018 (83)	United States	Case-control study	Public health – disease prevention	Meso	Tobacco control interventions	Solutions-focused	n/a
Wandersman et al., 2012 (39)	Global	Theoretical	Implementation science	n/a	n/a	n/a	Interactive systems framework
Watson et al., 2013 (40)	United States	Cross-sectional	Health – Mental health and addictions	Meso	Substance use prevention interventions	Problem-focused	Framework for collaborative public health in communities
West et al., 2012 (41)	Global	Narrative review	Implementation science –	Macro	n/a	n/a	n/a

Author and year	Jurisdiction studied	Methods	Area of technical assistance	Level of technical assistance	Summary of change effort	Problem or solution based	Framework
			technical assistance				

Appendix 2: Detailed logic model for technical assistance

Inputs	Processes	Outputs	Outcomes

Problem to be solved OR Innovation/initiative to be implemented
 	
System/organizational readiness for change
 	
System/organizational need for technical assistance
 	
Staff
Requestors/funders
Technical assistance staff
Other implementation support staff
Implementation staff
Delivery staff
 	
Resources
Monetary resources
Non-monetary resources
	Role of technical assistance provider
	• Doer
	• Partner
	• Facilitator
	
	Technical assistance activities
	Content based
	• Retrieving research evidence and other types of information – such as jurisdictional scans or qualitative experiences – that can support implementation
	• Contextualizing research evidence and other types of information
	• Core component analysis
	• Implementation planning (logic models and theories of change for the innovation)
	• Grant and report writing
	• Cost-analysis
	• Infrastructure procurement (incl. data and technology systems)
	• Tools and templates
	• Trainings
	• Conferences and learning events
	• Answering ad hoc questions by email/telephone
	• Analytics support (data retrieval and data analysis)
	Relationship based
	• Readiness assessment
	• Needs assessment and feedback
	• Visioning/co-defining goals and objectives
	• Advocating for policy change/alignment
	• Brokering relationships with experts and/or a network of technical assistance providers
	• Community consultation/ engagement (including among frontline providers where relevant
		• Individual
		  ○ Measures of provision and receipt of technical assistance
		  ○ Satisfaction with technical assistance
		  ○ Increase in general capacities (e.g., knowledge and skill use)
		  ▪ Leadership
		  ▪ Data analytics
		  ▪ Evaluation
		  ○ Increase in transformation-specific capacities
		• Organizational
		  ○ Changes in staff performance
		  ○ Improvement in organizational capacity
		• System
		  ○ Relationships among organizations
		  ○ Use of resources
			Short-term
			• Acceptability of the transformation
			• Increase in adoption of transformation
			• Fidelity to evidence-based components of transformation
			Long-term
			• Equity-centred quadruple aim metrics
			  ○ Advance population health and wellbeing
			  ○ Enhance patient experience
			  ○ Improve staff experience
			  ○ Keeping costs manageable

	• Peer exchange (through communities of practice or learning networks) • Supervision, observation and feedback (incl. fidelity to innovation and progress summaries) • Coaching and mentoring (incl. one-on-one and small group using different modalities) • Project management • Budget management **Mechanics of technical assistance** • Dosage (i.e., how much) • Duration (i.e.., over how long) • Periodicity (i.e., in what intervals) • Modality (i.e.., in-person; online; hybrid)		

Chapter 3: Document technical assistance in accountable care transformations in England and the U.S.

Preface

This chapter aims to identify and describe the landscape of technical assistance provided to two large-scale health-system transformations focused on increasing provider accountability for the health and wellbeing for defined populations. The study uses a qualitative description methodology and provides substantive contributions to the literature by providing an initial documentation of the technical assistance being delivered as part of each transformation, which is critical to someday advancing evaluation of technical assistance and our understanding of what works, when and why.

As the first author of this study, I was responsible for developing the study objectives, design, data collection including undertaking interviews, data analysis and writing the manuscript. My supervisor, Dr John Lavis and committee members, Dr Katherine Boothe, Dr Jeremy Grimshaw and Dr Michael Wilson helped to shape this research by providing input on the study design, data extraction and analysis, and on the final manuscript. Dr Jeremy Grimshaw also supported the identification of interview participants in England.

Chapter 3: Documenting technical assistance to support accountable care transformations in England and the U.S.

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Key words: technical assistance, transformation, accountable care, integrated care

Word count: 7785 (main text); 13125 (inclusive of abstract, tables, figures and references)

Abstract

Background: Large-scale health-system transformations in England and the U.S. are working to emphasize greater accountability for providers for the health and well-being of a defined population and use population-health management approaches to get the right mix of care to those who need it. Despite literature that documents these two transformations, very little has documented how their implementation is being supported.

Methods: This study uses a qualitative description methodology to describe the landscape of technical assistance being provided to English integrated care systems and U.S. Medicare accountable care organizations. Four types of data were examined in this study: 1) academic literature identified through a literature search; 2) policy documents identified through a grey literature search; 3) interviews; and 4) organizational websites.

Results: The study included interviews with 11 technical assistance providers, one email exchange, 13 academic studies and 17 policy documents related to the two transformations. This study identified that the approach used for technical assistance is heavily influenced by the history and context of the health systems in which it is deployed. In the England, centralized approaches relying on government and arms' length assets to deliver technical assistance has been used, with relatively less reliance on private-sector consultants. In the U.S., a distributed, market-based approach has been used with some technical assistance provided by the central agency directing the transformation, Centres for Medicare and Medicaid Innovation. Despite the

differences in transformation, similar areas of focus emerged for technical assistance including a focus on: digital health and information sharing; leadership, accountability and governance; and performance measurement, quality improvement and continuous learning. Additional similarities include the significant reliance on content-based technical assistance activities that could be modified to different topic areas and for different audiences.

Conclusion: This study highlights the different approaches to technical assistance that have been pursued to support transformations focused on accountable care and population-health management approaches. Given the relatively little documentation of implementation supports for either of these transformations, this initial documentation is a critical first step to ultimately advancing evaluation of technical assistance and our understanding of what works, when and why.

Introduction

Select health systems are in the process of transformations that emphasize greater accountability of providers for the health and wellbeing of a defined population and use population-health management approaches to proactively get the right mix of care to those who need it. Two such changes which aim to systematize these concepts are integrated care systems (ICS) in England and accountable care organizations (ACO) in the U.S. Medicare system.

A significant amount has been written about each of these initiatives in both academic and grey literatures, particularly for ACOs, which have been around for considerably longer than ICSs.(1-5) However, while much of the substance of these transformations is documented, what remains less clear is how their implementation has been supported.(4)

The objective of this research is to describe the technical assistance landscape for organizations and providers participating in the development of ICSs in England and Medicare ACOs in the U.S. We aim to describe who is responsible for delivering technical assistance, what activities they are using, and what are the key areas of focus. We compare the two approaches to uncover similarities and differences in the approaches to technical assistance provided to these two transformations. In the discussion section, we provide some comments on factors that we believe may contribute to these similarities and differences as well as suggestions for possible next steps for research, policy and practice.

Technical assistance

Technical assistance is defined as “a contextualized package of supports (which may include individualized as well as universal supports) delivered by those with subject matter and other expertise to build capacity at the individual, organizational and system-level to support the implementation of a transformation”.(6) The mention of a package of supports recognises the complexity of systems transformation and acknowledges that many different tools may be needed to support change.(7) For example, it may be pre-defined and planned by a government or decision-making organization, with providers tightly connected to another or it may develop

organically alongside the transformation, with providers only loosely aware of one another's work.

Methods

Description of included transformations

Integrated care systems in England

The National Health Service (NHS) in England has introduced multiple past reforms that promote accountability and population-health management within the health system. However, the introduction of the 2022 Health and Care Act is the farthest-reaching NHS reform to date and is the fifth attempt at increasing the accountability of clinicians for the planning and commissioning of local health services.(8) The transformation is guided by the NHS Long-Term Plan, which sets out a vision for the health system for the next ten years and includes many associated documents including plans for digital health services, a people's plan (for the health workforce), and a mental health plan, among others.(9)

ICSs are partnerships that bring together NHS organizations delivering health services and local authorities (responsible for social and community services) to take collective responsibility for planning services, improving health and reducing inequalities.(10) There are 42 ICSs across England, each covering a population of between 500,000 and 3,000,000.(11)

ICSs have focused on transforming governance arrangements. ICSs are statutorily required to have two core elements: an Integrated Care Board (ICB) and an Integrated Care Partnership (ICP). The Integrated Care Board has assumed the local NHS planning function and allocation decisions that clinical commissioning groups held previously for health services.(10, 11) The Board is directly accountable to NHS England for spending its allocated funds on health services. The ICB operates as a unitary board and includes the following members: a chair; the chief executive officer of the Integrated Care System; at least three members drawn from

different NHS trusts and foundation trusts, general practice or local authorities; and at least one member with knowledge and expertise in mental health.(11)

In contrast, the Integrated Care Partnership (ICP) is a joint committee of members of the Integrated Care Board, local authorities (responsible for education, transport, waste collection, community planning) and the voluntary, community and social enterprise sector (made up of local, regional or national charitable organizations working in sectors such as food and nutrition, housing, physical activity, community participation) in the area.(11) The ICP brings together a broader range of partnership members (as compared to the ICB). It must include one member appointed by the Integrated Care Board, one member appointed by each of the relevant local authorities, and an array of additional partners often representing social care providers, public health, the voluntary sector, and other local organizations involved in housing and education.(11)

The ICP is charged with developing an integrated care strategy for the area covered by the ICS based on their population health needs. This strategy must be used by the ICB when making funding decisions related to NHS (health) services and is used to guide the work of local authorities. It is also used to support the distribution of the 'Better Care' fund, which are discretionary funds that can be used to deliver integrated care in a way that supports better local outcomes.

The ICP is responsible for setting out how the wide-ranging health needs of the local population will be met which includes accounting for any relevant joint strategic needs assessments produced by Health and Wellbeing Boards, the local chapter of Healthwatch (a committee of the Care Quality Commission charged with understanding the views and experiences of those using local health and social care services and making recommendation on how care can be improved) or the local voluntary, community and social enterprise sector.(12) No funds flow through the ICP and it does not directly commission services for the community.

Together the ICB and ICP are fiscally and clinically responsible for the health outcomes of a defined population and are responsible for reporting outcome to the Care Quality Commission as well as participating in annual audits and reviews conducted by NHS England.

Accountable care organizations in the U.S.

Between 2005 and 2010, the Centres of Medicare and Medicaid services first began experimenting with accountable care by providing a series of financial incentives (and disincentives) for improved care coordination for select groups of high-cost Medicare beneficiaries. Though the results from this relatively small pilot were mixed, there was sufficient agreement that there was a need to shift from volume-based to value-based care.

As a result, the Medicare Shared Savings Program (MSSP) was initiated under the Affordable Care Act in 2010 and first launched in 2012. The program encouraged healthcare providers (which could include physician groups and practices, hospitals, post-acute care providers, specialty care providers, and federally qualified health centres, among others) to join up and voluntarily form ACOs. As an ACO, all participating providers and organizations are held collectively accountable for the fiscal and clinical outcomes of their attributed Medicare beneficiaries. Organizations and providers that make up the ACO can adjust how care is delivered and coordinated to ensure improvements to population health. For organizations to apply to form an ACOs, they must:

- agree to participate in the model for no less than five performance years
- have a minimum number of Medicare fee-for-service beneficiaries assigned to their ACO (determined based on the model in which they are participating)
- have a governing board and established governance structure for the ACO
- agree to ongoing measurement and public reporting of performance
- maintain an ACO participant list that is regularly reported to the Centres for Medicare and Medicaid (i.e., a list of participating providers and organizations).(13)

Under this new model, providers continue to be paid on a fee-for-service basis based on the established fee schedule. At the end of an operating year, the payment for all beneficiaries falling under the ACO is compared to a projected benchmark. If the ACO can reduce annual costs below the projected amount while meeting a series of quality benchmarks, they receive the difference to reinvest in the ACO. ACO models differ on whether they have only one-sided risk or whether

ACOs are eligible for two-sided risk sharing. In two-sided risk sharing, ACO's that spend more than the projected benchmark and do not meet quality benchmarks owe the difference to the Centres for Medicare and Medicaid.

Many different models of ACOs have been piloted over the years including Pioneer ACO, Next Generation ACO, Comprehensive End-Stage Renal Disease Care Model, Advanced Payment ACO, National Rural ACO, Integrated Delivery System ACO, Community-Based ACO, and most recently the Realizing Equity, Access and Community Health (REACH) ACO.(14)

The most recent REACH model differentiates itself by promoting provider leadership and governance through a requirement that 75% control of each ACO's governing body is held by participating providers and designated representatives and requiring the development of a robust plan describing how ACOs will meet the needs of people with traditional Medicare in underserved communities and address health disparities among their attributed population. Additional incentives have been developed for REACH ACOs that meet these goals.

Comparing ICSs and ACOs

Further information about these two transformations is available in Table 1. The bulleted section below provides a short comparison between the two initiatives by building block:

- in general, ICSs are responsible for a significantly larger patient population than most ACOs;
- ICSs populations are geographically defined, while ACOs are based on historical use patterns;
- ICSs include all health services covered by NHS England as well as all adult social care, while ACOs have no required set services but tend to include primary care organizations, hospitals, skilled-nursing facilities, home care, and behavioural health;
- both ICSs and ACOS are required to have citizens represented within their governance structure and identify ways to elicit their feedback;
- changes to patient care and experience are prescribed in ICSs with four keys themes (listed in table 1) that they are asked to work towards, while ACOs have greater flexibility in the coordination approaches they choose to implement;

- ICSs are tasked with implementing digital health supports in line with the NHS long-term plan and are provided with nationally procured digital tools while ACOs may explore their own digital solutions but these must adhere to standards established by the Office of the National Coordination for Health Information Technology;
- new governance bodies with representatives of those participating in the network of care are required in both transformations;
- ICSs are provided with a single pot of finances to commission health services for their populations as well as additional funds to support coordination with social care, while ACOs continue to bill fee-for-service but are eligible to receive additional payments based on their performance;
- both ICSs and ACOs participate in annual national quality improvement efforts and must report on a range of quality measures, for ACOs achieving these measures is tied to financial rewards.

Study design

This study uses a qualitative description approach. Qualitative description is a methodology for generating a descriptive account of a phenomenon. The methodology uses a naturalistic approach which aims to create an understanding of a phenomenon that is recognizable and agreed upon by participants.(15) The output of a qualitative descriptive study is a "straight descriptive account of the informational contents of the data." (15) Qualitative description is used when information is required directly from those experiencing a phenomenon under investigation, and when time and resources are limited. These studies are oriented towards discovering the "who, what, where and why of phenomenon." Hallmarks of a qualitative descriptive study include: 1) examining a phenomenon in its natural state; 2) using interviews with a semi-structured interview guides; 3) using purposive sampling for participants; and 4) content analysis that stays close to the data, describing patterns in the data rather than theorizing and re-contextualizing it.(16, 17)

Sampling and recruitment

Four types of data were examined in this study: 1) academic literature identified through a literature search; 2) policy documents identified through a grey literature search; 3) interviews; and 4) organizational websites.

A purposive sampling approach was used for documents (including both academic literature and policy documents) and interview participants. This included both criterion sampling and respondent-driven sampling.(18) Criterion sampling involved identifying and selecting documents that and individuals who met predetermined criteria of importance, while snowball or respondent-driven sampling involved identifying documents and individuals of interest from those examined or interviewed previously.(18) Both are sampling approaches with an emphasis on identifying similarities in efforts to describe the average.

Our inclusion criteria for documents were that they described the package of technical assistance (or a specific technical support) provided to either English ICSs or Medicare ACOs (including Medicare shared savings program, pioneer model, advance payment model, next generation or REACH).

For interview participants, the individual had to be involved in the delivery of technical assistance to English ICSs or Medicare ACOs. An initial list of individuals was determined based on mentions of organizations in either academic or policy documents followed by scanning of organizational webpages to determine the most appropriate person to contact.

Data collection

A librarian at McMaster University advised on databases to search for academic literature and policy documents as well as to support the identification of key search terms. An initial search was run in June 2023 when writing and submitting the protocol for this paper. This provided an initial set of technical assistance providers. A second search was run in January 2024 and was used to identify the academic literature and policy documents. Academic literature and policy documents were screened by the first author (KW).

Academic literature

PubMed was searched for academic literature. Search terms for integrated care systems included: ("integrated care system" OR "ICS") AND ("England") AND ("technical assistance" OR "technical support" OR "implementation supports").

Search terms for accountable care organizations included: ("accountable care organization" OR "ACO" OR "Medicare" OR "shared savings") AND ("technical assistance" OR "technical support" OR "implementation support"). A filter limiting results to after 2012 (when ACOs were first announced) was also applied.

Policy documents

Policy Commons was searched to identify policy documents. Policy Commons is a database that includes indexed reports from think tanks, agencies and governments from across the world. Search terms for ACOs included: ("accountable care organizations" OR "ACO" OR "Medicare") AND ("technical assistance.") A date limit of after 2012 and for only U.S.-based organizations was applied.

Search terms for ICSs included: ("integrated care system" OR "ICS") AND ("implementation support" OR "technical assistance"). Results were limited to U.K.-based organizations..

In addition, a hand search of each the NHS England website and CMMI website was completed to identify formal evaluations for each of the transformation. This differs from the website search described below, which focused on website content rather than reports.

Interviews

Semi-structured interviews were used to collect additional data, with all interviews being one-on-one except for one interview that included three participants. Interviews were conducted by the first author (KW), who is a PhD candidate with experience interviewing health-system

stakeholders including policy and other decision-makers, managers of organizations, and health professionals. Interviews took place between September 2023 and April 2024. All interviews were conducted using Microsoft Teams, a secure videoconferencing platform. Interviews lasted between 30 and 50 minutes. Interviews were audio recorded and transcribed using transcription software embedded in Microsoft Teams. The lead researcher then checked and revised transcripts for accuracy and removed identifying information. Interviews focused on how the individual and organization became involved with the transformation, the technical assistance they provide, how they fit within the broader network of technical assistance providers, how they work with those directing the transformation, and any barriers or facilitators to the delivery of technical assistance that they have experienced. Appendix 1 provides the interview guide that was used.

Websites

Websites were used as a final source for information on what technical assistance was being provided to both transformations. Websites of technical assistance providers that were mentioned in one or more of the above sources (i.e., empirical literature, policy documents, or transcripts from key informant interviews) were searched to find a more fulsome description (and/or additional examples) of the technical assistance provided.

Data analysis

Frameworks employed during analysis

This study uses two frameworks to support the analysis of the technical assistance provided to the two transformations. The first of which is a logic model for technical assistance that we developed.(6) The logic model synthesizes key findings from the literature about what is known in relation to the key inputs, processes, outputs and outcomes from technical assistance, It prompts policy and other decision-makers to think through the transformation, including the type of transformation for innovation, system and organizational readiness and need for technical assistance, the role of technical assistance providers, technical assistance and mechanics of technical assistance, and desired outputs and outcomes of technical assistance in efforts to

facilitate systematic planning. For the purpose of this study, we focus on two types of technical assistance – content-focused and relationship-focused activities as well as the 'buckets' of activities that were identified in the logic model to provide a frame within which to sort the identified supports provided to each ICSs and ACOs. The logic model is provided in Appendix 2.

The second framework that is used is that of the Ontario Health Team 'building blocks.' These were developed by the Rapid-Improvement Support and Exchange (RISE) team in collaboration with the Ontario Ministry of Health and Ontario Health in Ontario, Canada.(19) The framework provides a list of mutually exclusive and collectively exhaustive domains where strategic choices need to be made by those implementing population-health management and value-based care transformations.(19) This framework was chosen for its adaptability. Within the study, these eight building blocks are used to analyze the areas of expertise for which technical assistance was provided. The building blocks framework is provided in Appendix 3.

Analysis and comparison

Pre-defined (or deductive codes) were determined based on the two frameworks. These codes were used to create the outlines for Tables 2 and 3. Analysis began by reading each of the empirical literature, policy documents, and interview transcripts in full to identify providers of technical assistance, technical assistance activities, and areas of expertise in which technical assistance was provided. This information was then used to fill in the tables below. In many instances additional information had to be extracted from the websites of technical assistance providers to understand what technical assistance was being provided as a sufficient description was not available in the included literature or policy documents. Once completed, the tables were read in full with a comparative lens alongside a second reading of the interview transcripts to develop the declarative titles for the text summary. These are used to provide context to the information in the tables (e.g., to further describe the landscape). Particularly salient quotes have been included from interview transcripts to further support the content analysis and declarative titles.

Strategies to establish rigour

Two key strategies are used to establish rigour in the analysis. The first is the use of triangulation whereby data obtained from multiple sources are used to ensure accuracy and to support the description of each transformation and its technical assistance.(20) Second, a form of member checking was used whereby participants were shown the categories from the data analysis tables during the interview and asked to consider where they would position their technical assistance.

Results

From the academic literature, PubMed returned 62 results related to ICSs, of which three were included for full text screening, and 256 results for ACOs, of which 21 were included for full text screening. We included 13 academic studies (two from England and eleven from the U.S.) (5, 13, 21-31). For policy documents, the search returned 19 documents related to ICSs and 129 related to ACOs, of which 18 were included (nine from the U.K. and nine from the U.S.) (31-47), interview transcripts from nine interviews with 11 key informants (four from England and seven from the U.S.), and one email exchange. All academic literature and policy documents include mentions of specific technical assistance provided to the transformations. Ten key informants were representatives of organizations delivering technical assistance to either ICSs or ACOs. One key informant occupied an internal position with an ICS, providing internal technical assistance to partnered organizations. Seven key informants were identified by criterion sampling and four through snowball sampling.

Tables 2 and 3 present the identified technical assistance providers. It should be noted that organizations were only added to the tables when there was evidence (i.e., described in an empirical study or policy paper, as part of an interview or on a webpage) that they address a given building block or specifically use the given activity. Where multiple organizations are listed in the same box, they have been placed in alphabetical order, as evaluating the extent of the technical assistance, its uptake or effectiveness was not possible with the information identified.

The following text provides a summary of the technical assistance landscape in England and the U.S. We use declarative headings (in *italics)* to organize and compare the technical assistance in

both transformations. Select quotes from interviews have been included when they are particularly illustrative of a point.

Both transformations draw on a history of experiential learning with accountable care, with many technical assistance partners having been involved in previous iterations

Documents and key informants from both jurisdictions point to a history of experiential learning with accountable care and an evolution towards present day approaches to the transformations towards ICSs in the U.K. and ACOs in the U.S.

In England, iterations of accountable care and population health management have previously been tried through the establishment of general practitioner fundholding, primary care networks, clinical commissioning groups, and finally 12 'vanguards' that acted as pilots for the most recent transformation towards ICSs.(5) In line with the history of the transformations has been a 20-year investment in implementation and quality improvement supports, which though not directly linked to the development of ICSs could be leveraged to support the transformation. While the focus and aims of these supports have changed, many of the same support providers have been called on at national, regional and local level to enable these transformations. This includes reliance on national level, NHS-owned, supports that have been iteratively developed throughout the past 20 years. Examples include organizations such as NHS Futures, NHS Improvement (now NHSEI), NHS Leadership Academy, and Alliance for Quality Advancement, as well as NHS England regional teams, which all have larger mandates but provide technical assistance. Another example where the historical legacies of technical assistance partners can be seen is in the revised mandate for Commissioning Support Units (CSU). These units were first established to provide technical assistance to Clinical Commissioning Groups – a transformation brought about in 2013.(25) However, since the shift to ICSs, there has been an amalgamation of CSUs across the country into four units. Further, their work has expanded from a focus on enhancing local commissioning capacity to supporting integrated care boards with procurement, finance, administration, data analytics and in some cases even host specialty teams that provide additional types of technical assistance.

Though many technical assistance providers have been through previous transformations, the integration with local authorities and the voluntary, community and social enterprise (VCSE) sector has brought new support providers into the landscape in England. Many national-level organizations such as the Local Government Association are supporting local authorities and social service providers to understand the health system and participate in the transformation towards ICSs.

In the U.S., a similar pattern has emerged with many of the technical assistance partners reporting to have been involved in previous iterations of managed care and value-based payment reforms.

> "Our [leadership team member] has worked on value-based payment reform for decades and knows everyone working in the space. There were several leaders that came together following the efforts with managed care and had a sense of what would be needed to support implementation and shared learning for ACOs." (Technical assistance provider in the U.S.)

However, where the U.S. differs is in the creation of the Centre for Medicare and Medicaid Innovation (CMS Innovation), which was developed following the passage of the Affordable Care Act. CMS Innovation has the mandate of piloting and evaluating financial and delivery transformations within the U.S. federal health system (i.e., for Medicare and Medicaid beneficiaries). This was the first instance in the U.S. of having a central agency responsible for supporting widespread scale-up of a health system transformation. Despite the explicit role in supporting transformation, much of their role is in the regulation of the transformation and funding technical supports and evaluations. The result in the U.S. is a mix of top-down centralized supports and a large market-based approach.

ICSs, as compared to ACOs, receive technical assistance from a greater number of national-level, government related entities

As noted above, the history of experiential learning from health-system transformations in the U.K. has left behind a significant centralized infrastructure that can be reorganized and deployed to support new priorities. This differs from the U.S., where the national level supports in the U.S. are largely limited to CMS Innovation, the Centres for Medicare and Medicaid, and the Agency for Healthcare Research and Quality.

As noted in the Hewitt Report - a recent national review of the transformation towards ICSs– the national government has taken a central role in the transformation.(33) This includes developing legislative requirements for ICSs, supporting ICSs to become legal entities, issuing specific implementation guidance, and mobilizing many of the assets within the NHS to provide ICSs with technical assistance. Examples include using existing organizations such as NHS Futures, NHS Leadership Academy, NHS Improvement (now NHSEI), and the Advancing Quality Alliance to provide a range of supports for ICSs.

Within the technical assistance landscape, other national-level organizations play roles supporting the transformation. Among others, this includes three significant health-research charities – The Health Foundation, The King's Fund, and Nuffield Trust. There is also a significant presence of national organizations from the social care and voluntary, community and social enterprise sectors that are providing ICSs – in particular ICP members – with technical assistance provided by the Voluntary, Community and Social Enterprise Health and Wellbeing Alliance, the King's Fund and NHS Confederation focused on understanding the health-system landscape and how to participate and work with healthcare organizations.(48)

Compared to England, fewer national-level, government-controlled technical assistance providers have been mobilized to support ACOs. Though, CMS Innovation, the Centres for Medicare and Medicaid, and the Agency for Healthcare Research and Quality have been involved in providing technical assistance for particular areas of support. CMS Innovation has also contracted out some technical assistance including for the Quality Improvement Network and Quality Improvement Organization program (which is available to all organizations serving Medicare beneficiaries and not just ACOs) and the ACO Learning Networks. CMS Innovation

has also funded organizations such as the National Rural Accountable Care Consortium to provide technical assistance to rural and smaller ACOs.

Though the top-down approach to technical assistance facilitates accessibility and widespread participation, it was noted in interviews to have created some challenges for ICSs requiring further contextualization to local areas.

> "There is a lot available at the national level and a lot of it looks great on a page but it can't work in the real world. The assumptions that are made are not always reflective of what is occurring on the ground." (Technical assistance provider in England)

> "It is worth mentioning that even though there are pieces that are part of the central architecture there are still sources of considerable variability based on what has been mobilized locally – for example [some specialty organizations] operate under the banner of a single CSU (commissioning support unit) and is not reproduceable everywhere in the country." (Technical assistance provider in England)

By comparison, technical assistance in the U.S. is largely decentralized and often provided by academic institutions and consulting firms with expertise supporting health systems or health services transformation

With the few exceptions noted above, ACOs are largely responsible for finding their own technical assistance when needed, which has resulted in a competitive and less coordinated landscape in the U.S. as compared to England.

> "I think that one of the lessons learned was there wasn't a lot of hands-on technical assistance provided to MSSPs. It was more you will meet with your CMS representative once a month and you will work with them on compliance. You would be given Medicare data and you could track your patients but they didn't really provide anything else in the early days. They learned from this first effort and I think that later models received more support." (Technical assistance provider in the U.S.)

Much of the technical assistance for ACOs comes from management consulting firms. An analysis of recent ACO expense reports found that over three years ACOs collectively spent approximately US$30 million dollars on management consulting fees.(27) This represents less than 10% of ACO expenditure – and much of it comes from ACO funds rather than CMS funds.(27)

Beyond management consultants, some ACOs have formed strategic partnerships with community/culture organizations, economic support organizations (e.g., supporting housing) and local and state government agencies that provide technical assistance to providers and organizations within the ACO to facilitate the spread of key competencies beyond healthcare delivery (e.g., supporting the design and development of behaviour change curricula or providing cultural competency training).(41)

There has also been an emergence of independent initiatives over time. Examples of these include the development of the National Association for ACOs, which is a member-driven organization that supports Medicare, Medicaid and commercial ACOs, as well as select academic and research institutions which are providing technical assistance for smaller and rural ACOs.(13) Many of these organizations are affiliated with universities and are funded by commissioned projects and grants from larger organizations supporting health system transformation. Examples of these include the Centre for Health Care Strategies, which is a technical assistance provider funded by the Robert Wood Johnson Foundation and the Rural Policy Research Initiative within the University of Iowa that is funded by grants from the Federal Office of Rural Health Policy.(13)

> "In larger urban centres, they have access to technical assistance to hire. They have resources and personnel specialists, IT specialists and others. There aren't enough providers in rural areas to do all these things and as it gets more complex the ability for one organization to manage an incredibly complex set of factors becomes difficult" (Technical assistance provider in the U.S.)

The final significant player in providing technical assistance in the U.S. are management organizations (not to be confused with management consulting firms), particularly among ACOs lacking capital and technical expertise. Management organizations sign an agreement with an ACO to share in the financial risk or reward in return for providing select supports, some of which include technical assistance. Recent research suggests that approximately one third of ACOs have a management partner. (29)

In England, though much of the technical assistance is provided by national-level organizations, there is some additional technical assistance provided at regional and local levels. However, the availability and accessibility of these types of supports is almost entirely based on legacies of former transformations.

> "It is completely due to legacies. Those areas where there were strong supports are still there. There have been so many reorganizations that have left people in different places that there are now pockets of expertise. It is a holdover." (Technical assistance provider in England)

Each ICS has a 'research lead' whose role it is to both support those conducting research within the ICS, as well as to support the uptake and use of research evidence in their planning processes. In addition, ICSs may have particular 'centres of excellence' available to them based on previous relationships from older transformations have developed supportive relationships with them. Examples of this include the Strategy Unit, based within the Midlands and Lancaster Commissioning Support Unit or the Health Services and Management Centre at the University of Birmingham. Though there are many examples like this across the country, they are not evenly distributed among the 42 ICSs and have left some systems better off.

> "We do work for individual ICSs, but we make what we do publicly available. I hope that people will use it, pick up on it and advance it. At the minute though that is very sporadic, and part of the issue is that the skill set is quite varied and in large parts of the country there aren't people that are able to take this work and run with it" (Technical assistance provider in England)

Technical assistance in both countries has generally focused on three 'building blocks'- digital health and information sharing; leadership, accountability and governance; and performance measurement, quality improvement and continuous learning

Across both transformations, there is a concentration of supports in three areas (or building blocks). These include: 1) digital health and information sharing, 2) leadership, accountability and governance; and 3) performance measurement, quality improvement and continuous learning. These areas of concentration are not a surprise as all three are central to the transformation and represent largely new capacities for many of the participating providers and organizations, who must now work together to improve patient care.

> "We have made a series of playbooks on value-based care and the first one was focused on data - we hear that need a lot - how to get timely actionable data that is interoperable. We are working on a series of those playbooks focusing on financial benchmarks, quality measurement and beneficiary engagement." (Technical assistance provider in the U.S.)

Digital health and information sharing is critical to understanding patient data, supporting interoperability of information systems between networked organizations and providers, and implementing new approaches that improve the coordination and active monitoring of beneficiaries. In England, this area is largely covered by the national government or arms-length organizations, while in the U.S. there is a greater mix of organizations involved in supporting the adoption of digital health technologies, though there is considerable centralized guidance and technical assistance provided by the Office of the National Coordinator for Health IT.

Both transformations have required the development of new governance structures as well as new approaches to leadership and accountability. Specifically, this includes adopting shared governance models, distributed leadership approaches and working with new partners, including beneficiaries. Technical assistance for both transformations is provided by a range of different organizations, with national-level and arms' length organizations providing guidance and requirements. In England, given so much of the transformation is focused on governance

arrangements, academic and research institutions (including the three large national charities) have carved out areas of expertise in this building block. A review of approaches to support integration in each of the four countries of the U.K., point to most technical assistance being focused on "joint governance and financial arrangements" and less so on "address[ing] culture, norms, systems and processes needed to support integrated ways of working and fundamentally change the way services operate." (36)

> "We need to be supporting the leadership - that is the most important component of the outcomes. We have boards of directors that don't understand transformation." (Technical assistance provider in the U.S.)

Finally, both transformations have placed a significant emphasis on performance measurement and continuous learning. In both England and the U.S., central agencies directing the transformation – NHS England (and NHS Improvement) and CMS Innovation – hold key roles in the technical assistance provided for this 'building block', in particular by providing data to ICSs and ACOs on their performance, advising them on the types of data they should be collecting and analyzing, and further supporting them to understand where there is room for improvement in their work. In the U.S., this includes CMS Innovation providing regular "raw data feeds and interpretable performance data" that allows ACOs to compare themselves to benchmarks as well as other ACOs.(49)

However, there are also many other organizations, apart from the two central agencies, providing technical assistance. This includes many academic and research-based organizations, consulting organizations with existing expertise in data analytics and quality improvement, and in the case of the U.S., this has been an area where individualized coaching supports have been procured and where management partner organizations have been used to support the transformation.(50)

Documented technical assistance activities focus predominantly on content-based technical assistance; the exception is significant relationship-driven technical assistance for facilitating peer exchange

The technical assistance landscape for both organizations is largely focused on content-driven approaches (i.e., focused on information transfer to address capacity gaps) rather than relationship-driven approaches (i.e., focused on facilitating behaviour and system change), except for peer exchange. Documented technical assistance activities tended to focus on those that can be delivered to a group or can be self-administered by participating providers or organizations (e.g., using tools and templates).

In general, most activities were content-driven approaches that could be easily adapted to different topic areas and different stages of implementation.

Some rapid research activities were identified. These are mostly rapid case studies of ICSs and ACOs that provide inspiration about what is being done, select qualitative studies which include interviews with leaders and providers to document their experience transforming care, and some rapid evaluations of new care models or care coordination approaches. However, the transparency in reporting and methodological rigour of this work varies.

Reports and documents contextualizing research evidence and other types of information were more common in England and typically prepared by two of the three health-research-oriented charities as well as by specific units affiliated with academic centres that have expertise in knowledge translation. Examples of these include ‘long-reads’ that help to contextualize national policy and provide guidance for ICSs.(51)

Tools and templates were a key activity provided for both transformations. Those that were identified covered many different topic areas including patient and beneficiary engagement, provider and organizational engagement, prototypical governance structures and templates, and quality improvement templates to guide Plan-Do-Study-Act cycles, among others.(39)

In both transformations, many different training opportunities were identified. These include multi-day, single-day and hour-long sessions taking place online such as through a webinar as well as select in-person training opportunities. Trainings targeted various individuals involved in the transformation from senior members of leadership teams to individual health- and social-

service providers. Topics covered included leadership and governance training, population-health management training, training to understand the basics of value-based care, and quality-improvement courses, to name a few. Other similar learning opportunities included conferences, which tended to be annual events organized by national-level organizations.

The final type of content-based technical assistance that was a significant focus of technical assistance providers is analytics support, particularly in helping ICSs and ACOs to understand their beneficiaries and their existing patterns of care. This includes both supporting ICSs and ACOs to understand what data they have access to, what they could collect, and how it can be analyzed and used to support improvements in care. In both transformations, analytics supports are also provided to help ICSs and ACOs meet reporting requirements. In the case of the U.S., it has also included supporting ACOs to understand and interpret the data that is provided to them by CMS Innovation.

With respect to relationship-based technical assistance, the most concentrated support activity was peer exchange. Many different organizations in both England and in the U.S. are providing platforms to facilitate the sharing of experiences and lessons learned. These include formalized communities of practice and learning collaboratives as well as less formal online discussion forums In some instances, these peer exchange activities are defined by particular topics such as the bundled care collaborative or population-health management collaborative run by Premier Inc in the U.S. or the leadership support network run by the NHS Confederation in England, while others are defined by participating organization such as the learning collaborative run for rural ACOs by the Rural Policy Research Initiative (RUPRI).

Discussion

Principal findings

This study identified that the approach used for technical assistance is heavily influenced by the history and context of the health systems. In each country, the approach to technical assistance mirrors that of the two health systems. In particular, the history of previous health system

transformations and the governance arrangements of each health system. The U.K., which has a largely centralized health system with a significant publicly financed and publicly delivered component, used a centralized approach relying on government and arms' length assets to deliver technical assistance with relatively less reliance on private-sector consultants. The U.S., which has traditionally relied on a large privately financed and delivered health system, uses a distributed, market-based approach with some technical assistance provided by the central agency directing the transformation, CMS Innovation.

Despite the differences, similar areas of focus emerged for technical assistance including a focus on digital health and information sharing, leadership, accountability and governance, and performance measurement, quality improvement and continuous learning. Additional similarities include the significant reliance on content-based technical assistance activities that could be modified to different topic areas and for different audiences. It should be noted that this may be in part a result of the methods used for this study, which favours technical-assistance activities delivered to many organizations rather than one-off consulting supports (which are unlikely to have been documented in the literature or on organizational websites).

Strengths and limitations

This study has several strengths as well as some limitations. The primary strength of this work is that it addresses a topic that is not well covered in the literature. There is very little written about the supports being provided to either ICSs or ACOs, despite significant amounts of attention being paid to both transformations.(2, 50, 52) Documenting what supports are being provided (and where there are gaps) is a critical first step to drawing lessons from these two transformations and ultimately evaluating their implementation. The second strength of this study is the array of different forms of data that it brings together, triangulating information from the empirical literature, publicly available policy documents, key informant interviews and information provided on websites. The third and final strength of this study is the use of frameworks that support an understanding of where there are concentrations of supports and where there are gaps in the technical assistance provided to each transformation. Further, the use of these frameworks allows for more explicit comparison and lesson drawing between the two

transformations and could ultimately inform an evaluation of the technical assistance in both transformations.

The primary limitation is the relatively few key informants interviewed. Emails with a request to participate in the study were sent to a wide cross-section of technical assistance providers in both England and the U.S., with follow-up emails sent approximately one month after the initial contact. In addition, many online forms requesting to speak with someone from the organizations were filled out over an eight-month period, when specific email addresses could not be identified. In addition to many non-replies, three organizations rejected participation, citing the unavailability of staff and in one instance, a conflicting study examining a similar question. Despite best efforts, we were only able to document the perspectives of 11 key informants through nine interviews. While this is a good first step, we recognize that this means the information presented is not comprehensive and may be missing several key players. To combat this limitation, a comprehensive search for documents (both academic literature and policy documents) and a thorough website review were used to supplement the data from key informants. While this was useful for placing additional information in the tables it does not provide the same context for technical assistance that key informants do, nor were we able to confirm that our assumptions of where we have placed particular technical assistance activities are correct.

Strengths and weaknesses in relation to other studies

As mentioned above, this is the first study that has aimed to systematically identify the technical assistance being provided to English ICSs and U.S. ACOs. There is some previous literature that aims to apply concepts from the technical assistance literature to large-scale transformations, however, it is largely theoretical rather than descriptive.(53)

Some findings from this study align with other literature related to the effects of institutions on health-system transformations.(54) In this study, the approaches taken to technical assistance in each England and the U.S. are influenced by the history of their health systems and, as noted explicitly here, previous experience with transformations. In England, there is a long history of

implementing health-system transformations and developing centralized health-system assets that could be called upon to provide technical assistance, among other implementation supports. Many of these assets are funded by the same government department – the Department of Health – and can largely be directed using top-down approaches.

By comparison, the introduction of CMS Innovation represented a significant shift in the transformation landscape in the U.S. For the first time, an agency was charged with piloting new approaches to financing and delivering health care at a systems level. Prior to the Affordable Care Act, the U.S. had a history of having disconnected transformations, often being supported by one-off technical assistance providers. Similar approaches can be seen in the technical assistance provided to ACOs.

Implications for policy and practice

The findings from this study, and challenges in engaging a diverse array of individuals directly involved in the many types of available technical assistance, point to the need for those delivering technical assistance and those commissioning technical assistance to write more about it in the public domain. While in the case of the U.S., this may be a symptom of the competitive market for technical assistance, we would expect more literature on technical assistance and implementation support for transformations in England – particularly as ICSs continue to evolve. None of the evaluations that have been conducted address the range of implementation supports available nor assess whether these are sufficient to support transformation. However, this documentation and inclusion in national evaluations that are routinely conducted is needed to get a full picture and ultimately to support similar transformations elsewhere. While this study found insufficient information about the technical assistance to provide governments interested in future transformations with an optimal approach, a few high-level implications stemming largely from findings from the interviews, could be considered, including:

- packages of technical assistance should consider both centralized and local support providers who can help to contextualize top-down guidance
- packages of technical assistance should cover both content-focused and relationship-focused activities

- for transformations focused on population health management and accountable care, technical assistance will likely be needed, at a minimum, to support digital health and changes to governance arrangements
- evaluations of the technical assistance and whether it is meeting its aims should be embedded in its development.

Implications for future research

Finally, future research efforts should focus on adding to what has been documented in this study for each transformation and provide a more comprehensive perspective. Additional research could continue efforts to compare the two different approaches to technical assistance, either from an explanatory or evaluative perspective. An explanatory perspective could further investigate, for example, why technical assistance for these transformations has predominantly focused on three building blocks. An evaluative perspective could ask one of two questions: 1) is the technical assistance effective? and 2) to what extent are the approaches to technical assistance informed by evidence? Answers to each of these questions would significantly advance this area of research and support our understanding of what is needed to support health system transformations towards accountable care.

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Table 1: Description of transformations at maturity by building block (40, 46, 55)

Building block	English integrated care systems	U.S. accountable care organizations
Defined patient population within a population-health management approach	• Patient populations are defined based on geographic boundaries and must cover a sufficient scale of approximately one million people • These boundaries should represent a meaningful geographic footprint that respects patient flows • The patient population should be in line with local authority boundaries (e.g., districts and municipalities) but where this is not possible arrangements should be constructed for working across these boundaries	• Patient populations are defined based on historical usage and reflect beneficiaries' affiliation with a primary care practice • CMS attributes beneficiaries to ACOs based on claims analyses, that vary based on the type of ACO (i.e., MSSP, advance payment, pioneer, REACH) • At a minimum, each ACO must have at least 5,000 attributed beneficiaries
In-scope services	• All health services covered by NHS England • All adult social care and care provided by the voluntary, community and social enterprise sectors • Services provided by local authorities	• Apart from primary care, there are no set services that must be included within ACOs • Some ACOs are entirely comprised of physicians while others include hospitals or other providers (including both health and social services) • The majority of ACOs include primary care organizations, hospitals, skilled-nursing facilities, homecare organizations, and behavioural health providers
Patient partnership and community engagement	• ICS partnership must have representation from patients and provide them with opportunities to meaningfully participate in priority setting and decision-making • Organizations such as HealthWatch support engagement with patients and the public to gather information about the experiences of those who use care and support using these insights to inform decision-making and governance	• ACOs must have representation from beneficiaries and provide them with opportunities to meaningfully participate in the governance of the ACO • Many ACOs also host beneficiary advisory councils, which report to ACO governance boards • ACOs implement multiple strategies to elicit patient and family feedback including using surveys, interviews and focus groups
Patient care and experience	• Changes to patient care and experience must align with centrally determined priorities • The initial focus of ICSs is on developing integration plans that address four service changes identified as part of the NHS long-term plan including: o Address unwanted clinical variation o integrate services around the needs of the population in neighbourhoods o integrate services vertically, at place o collaborate horizontally across providers within each ICS	• Changes to patient care and experience are determined by ACOs • ACOs are incentivized to improve coordination between providers as well as implement improved care models and service delivery pathways • This may be done through a range of different approaches including, but not limited to, hiring care coordinators and care managers to work with individual patients, reaching out to patients in between contacts with healthcare providers, and sharing information via electronic health records to all providers

	• ICSs should move towards redesigning care models that support prevention and reduce health inequalities as well as have population-health management capabilities embedded at each level that support the ongoing design and delivery of proactive care	
Digital health	• Changes to digital health must align with centrally determined priorities and ICSs are provided with some centrally procured digital technologies • ICSs are tasked with working towards the following digital health goals outlined in the NHS long-term plan: o ensure patients have digital access to NHS services o ensure that clinicians can access and interact with patient records and care plans wherever they are o use decision support and artificial intelligence to help clinicals in applying best practice, eliminate unwarranted variation across the whole pathway of care, and support patients in managing their health condition o use predictive techniques to support local health systems to plan care for populations o protect patient privacy and give them control over their medical records o Link clinical, genomic and other data to support the development of new treatments to improve the NHS, making data captured for care available for clinical research, and public, as open data, aggregate metrics about NHS performance and services	• Changes to digital health are determined by ACOs but must adhere to standards established by the Office of the National Coordinator for Health Information Technology • A meaningful use standard (typically requiring a certain level of interoperability) is applied each year that must be met by providers and organizations to avoid a downward payment adjustment • ACOs may choose to invest in additional digital technologies that enable information sharing, data collection and visualization (i.e., dashboards) that support their work to better coordinate patient care
Leadership, accountability and governance	• ICSs must establish two governance bodies an Integrated Care Board and an Integrated Care Partnership • The Integrated Care Board (ICB) is responsible for allocating the NHS budget and commission services for the population • The Integrated Care Partnership (ICP) is responsible for setting priorities for integration and brings together members of the ICB and local authorities • Membership of the ICP must include one member appointed by each of the relevant local authorities as well as social care providers, public health, health watch and a representative for the Voluntary, Community and Social Enterprise sector	• ACOs must establish an identifiable governing body with authority to execute the functions of an ACO • The ACO must establish a mechanism for shared governance that provides meaningful participation to participating providers and organizations • The governing body must include a beneficiary that is served by the ACO • Participating providers and organizations must maintain at least 75% control of the ACO governing body • The ACO governing body must report the division of voting shares to the Centres for Medicare and Medicaid

Funding and incentive structure	• ICSs are provided with a 'single pot' of finances with which they are responsible for commissioning health services • Funding is linked to population need • ICSs are responsible for spending these funds by commissioning services and ensuring the system maintains financial balance • Integrated Care Boards will be asked to take on commissioning with a greater focus on population health and outcomes included in contracts • Social service budgets currently remain separate and will be allocated by local authorities with input from the Integrated Care Partnership and Integrated Care Board	• Providers and organizations continue to receive traditional Medicare fee-for-service payments for services rendered but are eligible to receive additional payments based on their performance • Assessment of each ACO' s overall spending is based on the collective performance of all the ACO's providers for all of the assigned beneficiaries • ACOs are eligible to receive additional payments if the total Medicare spending for their assigned beneficiaries is at or below pre-set, risk-adjusted benchmarks and their performance on quality meets specific metrics • Some ACOs – if on shared-risk track – are at risk for losses if total spending exceeds the risk-adjusted retrospectively calculated benchmarks o These ACOs are also eligible for a greater percentage of shared savings (i.e., are incentivized to take the risk) • Additional incentives are present depending on the model of ACO, for example some ACOs provide a population-based payment while other provide upfront advanced payments and monthly advanced payments to incentivize providers to enter ACOs and defer some of the initial start-up costs
Performance measurement, quality improvement and continuous learning	• ICSs must participate in annual national quality improvement efforts, which include a performance assessment and financial audit to ensure they are performing their required functions • ICSs are responsible for reporting to the Care Quality Commission, who in turn is responsible for ensuring a baseline quality of care as well as reviewing the quality of adult social care and the partnerships that have been established within the ICS	• ACOs are required to participate in annual national quality improvement efforts, which include regular reporting on a series of quality measures • Metrics are groups into four domains: patient/carer experience; care coordination; preventive health; and chronic disease management • Annual independent evaluations are conducted for CMMI each year for each model of ACO that aggregates overall findings on the success of the model

Table 2. Areas of expertise by organizational type

Building block	U.S./ England	Government or arms-length organization	Academic or research institution	Consulting firms with expertise supporting health systems or health services transformation	Other consulting firms	Professional or organizational association	Other
Defined patient population within a population-health management approach	U.S.	• CMS Innovation • Centres for Medicare and Medicaid (40)	• Brookings-Dartmouth ACO Collaborative (28) • Institute for Accountable Care	• Healthcare Master Data Management • Premier Inc (56)	• Consulting firms such as Deloitte		• Management partner (29)
	England	• NHS England					
In-scope services	U.S.	• Agency for Healthcare Research and Quality (for primary care through the National Centre for Excellence in Primary Care Research)				• Partner organizations** (41)	• Management partner (29)
	England	• NHS England			• Social Business International		• Local Government Association • Voluntary, Community and Social Enterprise Health and Wellbeing Alliance

Patient partnership and community engagement	U.S.			• Mathematica, in partnership with Institute for Healthcare Improvement and Premier Inc. (57)			
	England	• Advancing Quality Alliance • Healthwatch (local branches) (5) • NHS England • Social Care Institute of Excellence	• The King's Fund (39)				• Local Government Association
Patient care and experience	U.S.	• Agency for Healthcare Research and Quality • Medicare QIN/QIOs (Quality Improvement Organizations)		• Premier Inc.		• National Association of Accountable Care Organizations	• National Rural Accountable Care Consortium
	England	• Advancing Quality Alliance • NHS Future • Social Care Institute for Excellence					
Digital health and information sharing	U.S.	• CMS Innovation • Office of the National Coordinator for Health IT – Regional Extension Centres (26, 40)	• Institute for Accountable Care	• Mathematica • Premier Inc.	• Consulting firms such as Deloitte	• Healthcare Transformation Taskforce (58)	• Management partner (29)

	England	• Commissioning support units (31) • NHS England regional teams (35) • Social Care Institute for Excellence • The Strategy Unit*	• The Health Foundation				
Leadership, accountability and governance	U.S.	• CMS Innovation	• Brookings Institution		• Consulting firms such as Deloitte • Legal firms		• Management partners (29)
	England	• Advancing Quality Alliance • NHS Confederation • NHS England regional teams • NHS Leadership Academy • Social Care Institute of Excellence • The Strategy Unit*	• Health Services and Management Centre at Birmingham University • Nuffield Trust • The King's Fund		• Social Business International	• National Council for Voluntary Organizations	• Local Government Association
Funding and incentive structure	U.S.	• CMS Innovation	• Institute for Accountable Care	• Premier Inc.		• Healthcare Transformation Taskforce (58)	• National Rural Accountable Care Consortium (in partnership with a range of other technical assistance providers)

	England	• Commissioning Support Units • NHS England	• Health Services and Management Centre at Birmingham University		• Social Business International		
Performance measurement, quality improvement and continuous learning	U.S.	• Agency for Healthcare Research Quality • CMS Innovation (46) • Medicare QIN/QIOs	• Brooking-Dartmouth ACO collaborative (28) • Institute for Accountable Care	• Mathematica, in partnership with Institute for Healthcare Improvement, Premier Inc. (57) • Premier Inc.		• Healthcare Transformation Taskforce (58)	• Ad hoc practice transformation coaches hired by ACOs • Management partners (29) • National Rural Accountable Care Consortium (in partnership with a range of other technical assistance providers)
	England	• NHS England • Social Care Institute of Excellence • Future NHS • NHS Confederation (34) • NHS England regional teams (35) • Healthwatch(5) • The Strategy Unit*	• The King's Fund • The Health Foundation • Nuffield Trust • Implementation Lab at Leeds University				• Local Government Association

*Although owned by the NHS (under the banner of one of the Commissioning Support Units), it operates as an independent consulting firm.
** Some ACOs have formed partnerships with organizations that work outside of healthcare delivery, such as community/culture organizations, public local and state agencies or other organizations that internally facilitate the spread of key competencies beyond health.

Table 3. Technical assistance activities

Type of technical assistance	Activities	England	U.S.
Content-based	Rapid research activities	• Internal research units within Integrated Care Boards • NHS Confederation in partnership with National Voices, National Association for Voluntary and Community Action (Systems for Change – case studies) (59) • NHS England (ICS case studies) (60) • Nuffield Trust (Reports)(61) • The King's Fund (Research projects; Evidence and consultation)	• Ad hoc grants for studying ACOs provided by Commonwealth Foundation, John Hartford Foundation, and Robert Wood Johnson Foundation to university-based research institutes and not-for-profit organizations • Agency for Healthcare Research and Quality • Brookings-Dartmouth ACO Collaborative (pilot sites project) (28) • Institute for Accountable Care (on behalf of the National Association of Accountable Care Organizations) • Mathematica, in partnership with HCMDM, IHI, Premier Inc. (ACO case studies – Learning system for accountable care) (57)
	Contextualizing research evidence and other types of information	• Internal research units within the Integrated Care Boards • Health Services and Management Centre at Birmingham University (Knowledge and evidence service) • Select regional units such as Implementation Lab at Leeds University • The King's Fund (Briefings and long reads) • The Strategy Unit (Evidence and knowledge translation products) • The Health Foundation (Reports and long reads)	• Agency for Healthcare Research and Quality • Institute for Accountable Care (on behalf of the National Association of Accountable Care Organizations)
	Core component analysis	• Not identified	• Not identified
	Implementation planning (incl. developing logic models)	• Social Care Institute for Excellence (logic model for integrated care)(62)	• Consulting firms such as Deloitte (63) • Management partners (29)
	Tools and templates	• NHS England (Implementation guidance)(64) • Advancing Quality Alliance (Quality, service improvement and redesign tools)	• Agency for Healthcare Research and Quality (through the National Centre for Excellence in Primary Care Research)(66) • CMS Innovation (Medicare Learning Network) • National Association of ACOs (Playbooks)

		• NHS Confederation in partnership with National Voices, NAVCA and Local Government Association (Systems for Change) • Social Business International (Procurement to partnership toolkit) (65) • The King's Fund (Guides) (39) • The Strategy Unit in partnership with other organizations such as Nuffield Trust and The Health Foundation	• Brookings Institution (Implementation guides and evaluation framework) • Mathematica, in partnership with HCMDM, IHI, Premier Inc. (ACO Toolkits) (57) • Healthcare Transformation Taskforce (Transformation resources) (58)
	Training (including single day and multi-day sessions)	• Advancing Quality Alliance (Leading Integrated Teams program) (67) • Local Government Association (Peer-facilitated workshops) (68) • NHS England (QI Learning Platform) • NHS Future (Population health management academy) • NHS Leadership Academy (NHS Senior Leadership Onboarding and support) (69) • NHS England (QI Learning Platform) • NHS Future (Population health management academy) • Social Care Institute for Excellence (Integrated care webinars; Leadership in integrated care)(70) • The King's Fund (Leadership courses)(71) • The Strategy Unit (Learning programs)	• Agency for Healthcare Research and Quality (through National Center for Excellence in Primary Care Research)(72) • CMS Innovation (Medicare Learning Network) • National Association of ACOs (ACO Bootcamp; Learning labs) • National Rural Accountable Care Consortium (new ACO onboarding) • Mathematica, in partnership with HCMDM, IHI, Premier Inc. (Learning system for accountable care – in-person and virtual learning events and webinars) (57)
	Conferences and learning events	• NHS Confederation (Integrated Care Systems Network) (34) • The King's Fund (Integrated Care Summit)	• CMS Innovation (Annual conference) • National Association of ACOs (Annual conference)
	Answering ad hoc questions by email and telephone	• Not identified	• National Rural Accountable Care Consortium
	Analytics support	• Advancing Quality Alliance (67) • Commissioning Support Units (25, 31) • Healthwatch (5) • The Strategy Unit • The Health Foundation	• Agency for Healthcare Research and Quality (United States Health Information Knowledgebase; AHRQ data tools)(73) • CMS Innovation (22) • Consulting firms such as Deloitte • Management partners (29)

		• Internal research supports within the Integrated Care Board	• Mathematica (Dashboard development) • Medicare QIO/QINs • National Rural Accountable Care Consortium • Premier Inc. (Population health management collaborative; Value-based care collaborative) (56)
Relationship-based	Readiness assessment	• Not identified	• Not identified
	Needs assessment and feedback	• Not identified	• National Rural Accountable Care Consortium (Community needs assessments)
	Visioning/co-defining goals and objectives	• Not identified	• Not identified
	Advocating for policy change/alignment	• Social Care Institute for Excellence • National Association for Voluntary and Community Action • The King's Fund (37)	• National Association of ACOs (Advocacy and learning collaboratives) • National Institute for Accountable Care Organizations
	Brokering relationships with experts and/or a network of technical assistance providers	• Not identified	• Management partners (varied) (29)
	Community consultation	• Not identified	• Not identified
	Peer exchange	• FutureNHS (Integrated Care Learning Network) (70) • NHS Confederation (ICS Network and Leadership Support Network) (34) • Internal ICS quality academies* (5) • Local Government Association (Peer reviews) • Advancing Quality Alliance (NHS Quest Network) • The Strategy Unit (Midlands Decision-Support Network*)	• National Association of ACOs (REACH learning discussions; Affinity groups) • CMS Innovation (Connect site; Learning and diffusion team) (46, 49) • Mathematica, in partnership with HCMDM, IHI, Premier Inc. (Learning system for accountable care) (57) • Premier Inc. (Partnership for care transformation collaboratives) (43) • Engelberg Center for Health Care Reform at Brookings and the Dartmouth Institute for Health Policy and Clinical Practice (ACO learning) (5, 43)

	Supervision, observation and feedback	• Social Institute for Excellence (Safeguarding audit and review)	• Management partners (varied) • Medicare QIOs (Quality Improvement Organizations)
	Coaching and mentoring	• Advancing Quality Alliance (Consultancy services) • Local Government Association (Peer mentoring) • The Strategy Unit (Midlands Decision-Support Network)	• Ad hoc transformation coaches employed by individual ACOs • Agency for Healthcare Research and Quality (through Practice-based Research Networks) (74) • CMS Innovation (coaching for understanding how to use and work with CMS provided data) • Medicare QINs/QIOs (Quality Improvement Networks and Quality Improvement Organizations) • National Association of State Mental Health Program Directors (On-site technical assistance to ACO-affiliated organizations) (44) • National Rural Accountable Care Consortium
	Project management	• Not identified	• Management partners (varied) (29)
	Budget management	• Commissioning Support Units (25)	• Management partners (varied) (29)

*now being replicated in other ICSs outside of Midlands

Appendix 1: Interview guide for providers of technical assistance

In this study we are interested in understanding the technical assistance provided to U.S. Medicare Accountable Care Organizations as well as in the initial development of Integrated Care Systems in England. The aim of this study is to compare the technical assistance toolbox used by technical assistance providers in the implementation of each of the two initiatives. This study is not intended to be evaluative, rather is meant to understand the technical assistance tools needed to enable the implementation of large-scale transformations. The following questions address the landscape of technical assistance, the tools and content of technical assistance that has been provided to Teams, and reflections on the barriers and facilitators of delivering technical assistance.

Questions about background of technical assistance providers

1) Could you provide a bit of background on yourself and your organization? In particular, how you became involved with the transformation?
2) Could you explain the technical assistance that you provide?
3) What types of supports are made available (provide listing based on logic model)? How is funding provided?
4) Did any model or framework underpin your approach to technical assistance? If yes, which one?
5) Did you look to other or previous reforms when developing (or tailoring) the approach to technical assistance?
6) What is your relationship with those directing the transformation?
7) Do you and your organization work with other providers of technical assistance to ensure a coordinated approach to supporting implementation?

Reflections on technical assistance

8) What do you see as having been barriers to the delivery and success of technical assistance?
9) What do you see as having been facilitators to the delivery and success of technical assistance?

Additional questions

10) Are there other individuals or organizations that were providing technical assistance at the same time as you that you would recommend we speak to?
11) Are the any publicly available documents you recommend be included as part of the study?

Appendix 2: Description of building blocks (19)

Building block	Description of the building block
Defined patient population within a population-health management approach	• The identified population for which networks of providers are responsible, including how this is defined
In-scope services	• The range of services (health and social) that may be included as part of the transformation
Patient partnership and community engagement	• The ways in which patients (or beneficiaries) and other community members (including health and social care providers) are engaged in the transformation
Patient care and experience	• The range of methods in place to improve patient access to care, transitions and coordination between providers, integration of health and social care and self-management
Digital health	• The digital supports pursued to enable improvements in patient care and experience, monitoring of patient care and population health, and support data sharing and use
Leadership, accountability and governance	• The ways in which the network is led and governed, including how providers are engaged
Funding and incentive structure	• The ways in which money flows through the network to pay for services and the incentives (or disincentives) that have been put in place to support the transformation
Performance measurement, quality improvement and continuous learning	• The ways in which rapid learning and improvement are being supported throughout the network and within the transformation more broadly, including required reporting on performance measures

Appendix 3: Detailed logic model for technical assistance (6)

Inputs	Processes	Outputs	Outcomes

Problem to be solved OR Innovation/initiative to be implemented
 	
System and organizational readiness for change
 	
System/organizational need for technical assistance
 	
Staff
Requestors/funders
Technical assistance staff
Other implementation support staff
Implementation staff
Delivery staff
 	
Resources
Monetary resources
Non-monetary resources
	Role of technical assistance provider
	• Doer
	• Partner
	• Facilitator
	
	Type of technical assistance
	Content based
	• Retrieving research evidence and other types of information – such as jurisdictional scans or qualitative experiences - that can support implementation
	• Contextualizing research evidence and other types of information
	• Core component analysis
	• Implementation planning (logic models and theories of change for the innovation)
	• Grant and report writing
	• Cost-analysis
	• Infrastructure procurement (incl. data and technology systems)
	• Tools and templates
	• Trainings
	• Conferences and learning events
	• Answering ad hoc questions by email/telephone
	• Analytics support (data retrieval and data analysis)
	Relationship based
	• Readiness assessment
	• Needs assessment and feedback
	• Visioning/co-defining goals and objectives
	• Advocating for policy change/alignment
	• Brokering relationships with experts and/or a network of technical assistance providers
	• Community consultation/ engagement (including among frontline providers where relevant
	• Peer exchange (through communities of practice or learning networks)
	• Supervision, observation and feedback (incl. fidelity to innovation and progress summaries)
		• Individual
		  ○ Measures of provision and receipt of technical assistance
		  ○ Satisfaction with technical assistance
		  ○ Increase in general capacities (e.g., knowledge and skill use)
		  ▪ Leadership
		  ▪ Data analytics
		  ▪ Evaluation
		  ○ Increase in transformation-specific capacities
		• Organizational
		  ○ Changes in staff performance
		  ○ Improvement in organizational capacity
		• System
		  ○ Relationships among organizations
		  ○ Use of resources
			Short-term
			• Acceptability of the transformation
			• Increase in adoption of transformation
			• Fidelity to evidence-based components of transformation
			Long-term
			• Equity-centred quadruple aim metrics
			  ○ Advance population health and wellbeing
			  ○ Enhance patient experience
			  ○ Improve staff experience
			  ○ Keeping costs manageable

	• Coaching and mentoring (incl. one-on-one and small group using different modalities) • Project management • Budget management **Mechanics of technical assistance** • Dosage (i.e., how much) • Duration (i.e.., over how long) • Periodicity (i.e., in what intervals) • Modality (i.e.., in-person; online; hybrid)		
Additional considerations Broader political and economic context			

Chapter 4: Examining the role of ideas, interests, institutions and external events (3IE) in shaping the technical assistance provided to Ontario Health Teams

Preface

This chapter aims to identify how institutions, ideas, interests and external events shape the technical assistance provided to the Ontario Health Team transformation. The study uses a single embedded case study methodology and provides both theoretical and substantive contributions to the literature on technical assistance. The theoretical contribution is the application of political science concepts – institutions, ideas, interests and external events - to examining the evolution of technical assistance during the implementation of a transformation. This chapter providers a substantive contribution by retrospectively considering the factors that affect the design of technical assistance. These findings can be applied prospectively by health system decision-makers and technical assistance providers as they are planning for transformation supports and to consider how they can either combat or harness these factors throughout implementation.

As the first author of this study, I was responsible for conceiving of its objectives and design, undertaking data collection, data analysis and writing the manuscript. My supervisor Dr John Lavis and Committee members, Dr Katherine Boothe, Dr Jeremy Grimshaw and Dr Michael Wilson helped to shape this research by providing input on the study design, data extraction, data analysis and the final manuscript.

Chapter 4: Examining the role of ideas, interests, institutions and external events (3IE) in shaping the technical assistance provided to Ontario Health Teams

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Key words: technical assistance, transformation, integrated care, Ontario Health Team,

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Abstract

Background: In early 2019, the Ontario government announced a health system transformation designed to strengthen the clinical and fiscal accountability that health-service providers and organizations have in achieving the equity-centred quadruple aim of an attributed population. Technical assistance was procured to support the implementation of this transformation. This study explores how institutions, ideas, interests and external events have shaped the technical assistance provided to a large-scale, macro-level, transformation over time.

Methods: The study uses an exploratory single-embedded case study methodology drawing on data from three sources: 1) a search of academic literature; 2) a review of policy documents pertaining to the development of Ontario Health Teams; and 3) insights from interviews with policymakers, technical assistance providers and implementation leads of Ontario Health Teams.

Results: The study includes six studies from the academic literature related to the transformation and ten policy documents, as well as interview transcripts from 20 interviews. The study found strong effects of institutions in shaping the technical assistance that was provided to Ontario Health Teams. In addition, external events including a new provincial government and the COVID-19 pandemic shaped the context for the technical assistance as well as the relative power of different organizations providing technical assistance. Finally, ideas influenced what was provided to OHTs. Policy feedback and learning as well as the entrance of new technical assistance providers changed the type of activities – shifting towards a greater focus of 'hands on' supports.

Conclusions: This study retrospectively considers the effects of institutions, ideas, interests and external events have on the technical assistance designed to support the health-system transformation. However, these findings can also be used by health system decision-makers and technical assistance providers as they are planning for transformational supports and to consider how they can either combat or harness these factors throughout implementation.

Introduction

Transforming health systems is incredibly difficult and happens rarely in Canadian health systems. Transformative change is defined by a combination of the breadth of change and the impact of that change. Broad changes involve "multiple types of organizations and professionals and may include altering one or more of the delivery, financial or governance arrangements, while impactful change is defined as improvements in care experienced 'on the ground' by patients, families and caregivers as measured by changes for the better in the equity-centred quadruple-aim". (1) This type of transformative change requires not only great ideas but the right implementation supports to accompany them. One type of implementation support that can be provided to assist these transformations is technical assistance.

Technical assistance can be defined as "a contextualized package of supports (which may include individualized as well as universal supports) delivered by an individual or team of individuals with subject matter and process expertise to build capacity at the individual, organizational and system level and support the implementation of a transformation." (2) However, there is significant variability in the ways that technical assistance can be organized and executed to support transformational aims.(3)

Providing technical assistance for a health-system transformation is a significant undertaking, one that requires investment of time and resources, often spanning multiple years. The extended time frame that is needed for these transformations to take place can be both a blessing and a curse. On one hand, it provides enough time to build capacity among those pursuing transformation to make sustainable change, where the transformation is maintained and continues to produce benefits for those using the system.(4) On the other hand, maintaining fidelity to a vision for the transformation and consistent access to the right implementation supports over multiple years can be difficult.(5) Particularly as these types of transformations are often high-profile and operate within the confines of political environments.(6)

This complexity is the result of different factors that can affect a transformation and the supports provided to it. The most common factors to explaining policy change are summarized by the "3-I" framework.(7) This framework holds that policy developments are influenced by institutions,

actors' ideas and interests as well as by the external events that take shape and change the policy landscape. The framework provides a kind of checklist to think through each of the factors and is useful in explaining changes in both retrospective policy analysis and to support the planning of future policy implementation.

The purpose of this study is to explore how institutions, ideas, interests and external events have shaped the technical assistance provided to a transformation over time. This study uses the case of implementing Ontario Health Teams, a transformation that began in 2019 in the province of Ontario (Canada). Ontario Health Teams were designed to strengthen the clinical and fiscal accountability that health-service providers and organizations have in achieving the equity-centred quadruple aim (e.g., improved patient experience, better health outcomes, lower costs, and clinician well-being) of an attributed population.(8)

Context for the transformation – Ontario and its health system

Ontario is Canada's second largest province (by square km) and its largest by population, approximately 14.3 million.(9) Ontario is home to two in every five Canadians. It covers more than 1 million square kilometers, and is bounded by two provinces to the west and east – Manitoba and Quebec.

A summary of key features of the Ontario health system prior to the Ontario Health Team transformation is provided on the left-hand side of Table 1. In general, the health system in Ontario provides free at the point of use, medically necessary care[1] to residents of Ontario when delivered in a hospital or by a physician through the Ontario Health Insurance Program (OHIP). OHIP is funded through a combination of general provincial taxes as well as earmarked federal health transfer payments. Other parts of the system such as pharmaceuticals, out-of-hospital rehabilitation care, as well as dental and vision care are paid for largely by private insurance

[1] Medical necessity is not defined in the Canada Health Act, instead provincial and territorial health care insurance plans (in the case of Ontario, the Ontario Health Insurance Plan, consult with their respective physician colleges or groups and collectively decide which services are medically necessary for health care insurance purposes 10. Government of Canada. Canada's health care system. Ottawa: Government of Canada; 2023. https://www.canada.ca/en/health-canada/services/canada-health-care-system.html# (accessed 10 October 2023).

premiums (typically part of employee benefits), out of pocket payments, or through select provincial programs that are tied to needs-based measurements. The health system in Ontario is administered at a high level by the Ministry of Health and the Ministry of Long-Term Care. Prior to the transformation (discussed below), the health system was supported by a range of provincial organizations including Cancer Care Ontario, eHealth Ontario, Health Quality Ontario, HealthForceOntario, Public Health Ontario, and Trillium Gift of Life Network as well as a range of research-based organization that support clinical practice improvements and health-system policymaking.(11) At a regional level, the province was divided into 14 regions, each over seen by an administrative body called a Local Health Integration Network, which was responsible for planning, integrating and funding care at the regional level.(12)

The Ontario Health Team transformation

As mentioned above, health-system transformations are rare. In 2018, the Ontario Progressive Conservative party campaigned on a platform to transform the health system.

In February 2019, after her party won a majority government in the provincial election, the new Minister of Health announced the introduction of Ontario Health Teams (OHTs). OHTs would bring together a range of health and social service organizations, providers, patients and other stakeholders into a network of care that will ultimately be held clinically and fiscally responsible for the health outcomes of a population.(8) The ministry announced a second fundamental transformation, the amalgamation of key agencies including the 14 Local Health Integration Networks, Health Quality Ontario, Trillium Gift of Life, and Cancer Care Ontario, among others into a single entity, which would become responsible for overseeing the implementation of OHTs. Additional information is available in Appendix 1, 2 and 3. The right side of Appendix 1 contrasts what has changed (or is expected to change) in Ontario's health system because of the transformation. Appendix 2 details the process of becoming an OHT, while Appendix 3 provides an overview of the OHT model by building block.

Since the application process began, there have been four cohorts of approved OHTs that cover 80% of the province's population. In addition, there are a handful of 'in-development teams,'

which are expected to be approved shortly. Figure 1 provides a timeline of the OHT transformation from February 2019 until June 2023.

There is significant diversity among operating OHTs with respect to:

- the number of organizations and providers involved
- the sectors in which these organizations and providers work
- the geography covered by the network of organizations and providers
- the size of the attributed population
- the health status of the attributed population
- the maturity of the network (e.g., the length of time in which they have working together to serve population-health needs).

Methods

Qualitative approach and research paradigm

The study design is an exploratory single-embedded case study adopting a pragmatic constructivist approach to case study methodology drawing on work from Yin (2018).(13) As a research paradigm, a pragmatic approach applies the best method available to answer the research question – looking to what and how to research a phenomenon based on the intended consequences of the research.(14) Pragmatism views knowledge as being socially constructed and that research always occurs in social, historical, political and other contexts.(14) Though a pragmatic approach is typically used in mixed methods research – to support the plurality of approaches – it is also frequently used for qualitative research that is practice or policy oriented.(14)

Case study methodology allows for a holistic understanding of a phenomenon in its natural context and from the perspectives of those involved.(13) It is used to capture information related to explanatory variables such as how a particular approach to providing technical assistance evolves. The use of a single case study is justifiable when the case under study is extreme or unique.(13) While there is significant writing on technical assistance coming from the U.S., the

majority of it pertains to smaller, community prevention initiatives rather than system transformation, leaving a gap in the empirical literature.(2) Further, the external events that have taken place during the studied period, which include a global pandemic, add to the unique and extreme context for the technical assistance under study.

Positionality of the authors

The first and fifth authors' (KW, JNL) perspectives on this transformation are shaped by professional work. Both authors work at the McMaster Health Forum – as the Director (JNL) and the Scientific Lead for Evidence Synthesis and Support (KW). The second author and Director of the Forum (JNL) is responsible for the creation of the Rapid Improvement Support and Exchange, a technical assistance partner in the OHT transformation and has been working for many years with the Ministry of Health in Ontario supporting evidence informed decision-making. The lead author (KW) works with the Rapid Improvement Support and Exchange developing evidence-synthesis products to support OHTs and policymakers within the Ministry of Health and Ontario Health. These roles afforded an inside look at the transformation as well as access to policymakers and technical assistance providers that may have otherwise been challenging.

The experience of participating in discussions and having professional work affected by decisions made by the Ministry of Health and Ontario Health about the technical assistance for OHTs has also informed our views around what technical assistance is, how it has been conceptualized in Ontario and how it can be used to successfully support transformations. Understanding this, the first author maintained reflexive awareness throughout the research process, details of which are provided in the section related to enhancing trust, while the fifth author maintained distance from the study choosing to comment predominantly on the methods of the study rather than influencing data analysis, presentation or conclusions.(15)

Context and sampling

Canada was chosen as the country of interest out of convenience, given the familiarity with the health system. The criteria used to select cases from amongst Canadian provinces and territories for this analysis included: 1) the presence of a recent system transformation; and 2) the explicit use of technical assistance to support the implementation. Though there were significant system transformations in other provinces such as in Alberta and the development of Strategic Clinical Networks and in Quebec the development of Integrated Health and Social Service Centres, the explicit use of technical assistance was not mentioned in either initiative. As a result, the transformation in Ontario was chosen.

Data for this analysis was derived from three sources: 1) a literature search of published academic literature on Ontario Health Teams; 2) a review of policy documents pertaining to the development of Ontario Health Teams; and 3) insights from interviews with implementation leads of Ontario Health Teams, technical assistance providers, and senior policymakers directing the transformation.

Sampling strategies differed for each of three sources of data. For the literature search, published literature would be included if it focused on the OHT transformation (e.g., findings were derived from a study of OHTs) and if they included a mention of the technical assistance (or supports) being provided. For the policy documents, all documents produced by the Ministry of Health or Ontario Health related to the Ontario Health Team transformation between February 2019 and June 2023 would be included.

For the first category of interviewees, maximum variation sampling was applied, whereby Ontario Health Teams were purposefully recruited that could provide different perspectives. For the second two categories – senior policymakers and technical assistance providers – intensity sampling was used, where efforts were made to recruit representatives of the whole population.

Ethics approval was first provided for this study by the Hamilton Integrated Research Ethics Board (HIREB) on 18 February 2022 and was renewed on the 25 February 2023 (project ID #14640).

Data collection

Empirical literature

Health Systems Evidence and PubMed were searched in March 2022 with a subsequent search taking place in September 2023. The search terms “Ontario Health Team” OR “Ontario Health Teams” was used in both databases. Health System Evidence retrieved no results, while PubMed returned 17. Of the 17, six were relevant to the study.

Policy documents

Policy documents were retrieved by reviewing the Ontario Health Teams website that the Ministry of Health maintains as well as the website maintained by the Rapid-Improvement Support and Exchange (RISE). Ten policy documents were included.(8; 16-24)

Interviews

All interview participants were identified through public-facing websites and recruited through email beginning in November 2022 and ending in June 2023. Participants were invited to share their perspectives in a one-on-one 60-minute virtual interview taking place on Microsoft Teams. All interviews were conducted by a single investigator (KW). A total of 20 interviews were undertaken.

Interviews were conducted using an interview guide tailored to each type of participant and were recorded directly on Microsoft teams and the built-in transcription feature was used. One investigator (KW) read through each of the transcription and fixed any mistakes as well as removed any identifying mentions of organizations or individuals.

Description of the 3I+E framework

The 3I+E framework provided the first set of codes of data analysis for each type of document, reading through each document for where ideas, interests, institutions, or external events were mentioned. In particular, 3I+E acts as a checklist to consider the range of factors that may be responsible for policy change – in this case, it is used to examine whether any of the factors affected the technical assistance provided to the OHT transformation. This included how it was

conceptualized to support transformation, who in the system was responsible for delivering it, how providers were chosen and how technical assistance was structured .(25) The first "I" in the framework refers to ideas, defined as "knowledge or beliefs about what is, views about what ought to be, or combinations of the two." Ideas influence how different actors define a problem, but also which solutions they determine to be effective, feasible and acceptable.(26) Policy change resulting from ideas takes shape when new actors with new ideas emerge, or when existing actors are presented with new information that changes their understanding or beliefs.(27) The second "I" refers to interests, defined as "agendas of societal groups, elected officials, civil servants, researchers and policy entrepreneurs." (7) Policy changes take place when stakeholders operating inside or outside of the policy process exert their influence and mobilize to pursue their interests.(26) The final "I" is institutions, which refers to the formal and informal rules, norms, precedents, and organizational factors that structure behaviour.(26) These include government structures, policy networks and policy legacies.(26; 28) Policy change can take place through the interaction between policies and institutions including through policy effects and feedback mechanisms. This can take shape either through the introduction of new policies and their interaction with existing institutions or new policies that bring about new institutions. The final element of the framework is external factors which are outside forces that can influence policy.(25) These include political, economic or technological changes that influence the importance of a given policy issue.

Data analysis

Empirical literature

Data analysis from empirical literature began prior to the interviews. Included articles were read in full prior to coding. A deductive approach was used to assign excerpts in each of the empirical studies based on the 3I+e framework. Inductive sub-codes were then created and triangulated with those from the interviews and policy documents.

Policy documents

Data analysis from policy documents unfolded similarly to empirical literature. Documents were read in full first and then a deductive approach to coding was used to assign excepts to each of

the four factors, adding in sub-codes. In addition to coding, policy documents were reviewed for key dates and events. When mentioned, these dates or events were extracted and used to create a timeline of the transformation (see Figure 1).

Interviews

Data analysis for interviews was undertaken concurrently with ongoing data collection, which allowed probing for specific gaps in the information coming from the interviews. A staged approach was used whereby the same deductive approach to code for the four factors made up the first stage, followed by an inductive approach to applying sub-codes.

Integration of data sources

Coded excerpts from each of the sources were sorted according to the four factors. Examples of sub-codes included: “pitching supports” “prior experience and expertise” “coordination of supports” “resources needs/resource challenges”. Sub-codes were examined to see where they could be combined or further clarified to align to one another to develop the themes presented in the findings section below.

Techniques to enhance trustworthiness

Three techniques were used to enhance trustworthiness of the study. The first is writing up the study according to the Standards for Reporting Qualitative Research, which supports transparency in methods and reporting of qualitative findings such that they could be reproduced in the future. The second technique, is the use of reflexive awareness throughout the research process. (15) In conceptualizing the protocol for this study, I considered my own relationship to the transformation and my motivations and interests in it and how that might skew the research in particular directions.(15) This included writing an initial statement of positionality in efforts to begin to ‘bracket out’ my viewpoint. During data collection, I was very upfront with all participants about my role with RISE and was careful to ask neutral questions, a template for which is provided in Appendix 4. During data analysis, I looked for unexpected findings that would challenge my own preconceptions. I also relied heavily on the included policy documents and questions from the co-authors to provide a ‘north star’ to ensure that my own recollection of the evolution of the transformation was not overly informing the results. Finally, member-

checking was used with one participant from each category of interviewee to ensure the results of the study resonated with their experience.

Findings

We included six studies from the academic literature related to the transformation (29-34) and 13 policy documents, (8; 16-24; 35-37) as well as interview transcripts from 20 interviews. Key informants included implementation leads (or those with similar titles) of Ontario Health Teams (seven interviews; nine participants), technical assistance providers (nine interviews; ten participants), and senior policymakers (four interviews; four participants). Implementation leads represented a range of different OHT experiences including those from different geographic locations (urban n=5; rural n=2) (East = 2; Central = 2 Toronto = 1; West = 2), different sizes of OHTs and different cohorts (Cohort 1= 4; Cohort 2= 2; Cohort 3= 1). Technical assistance providers were all leads of organizations (and in some cases additional staff members) that hold transfer payment agreements with the Ministry of Health and are participants in the OHT Central Program of Supports. Senior policymakers were all employees within the Ministry of Health, responsible in some capacity, for the Ontario Health Team transformation.

We begin our results section by providing key findings related to the landscape of technical assistance, how it has evolved and how it is being experienced by those involved. We then turn to the effect of the 3I+E factors to consider how these have shaped where we have gotten to.

Technical assistance for Ontario Health Teams

To support the provincial transformation, the Ministry of Health contracted with technical assistance providers in the province to deliver a range of supports to OHTs. The Ministry termed this formalized group of providers the OHT Central Program of Supports. Table 1 provides a list of members and description of their activities.

In addition to these providers, there are a range of technical supports provided by organizations that have not been formally contracted by the Ministry. This paper focuses on the formal

supports that have a contract with the Ministry. It should be noted there are no requirements in place that OHTs use or engage with any of the supports provided.

As can be seen in Table 1, formal technical assistance for Ontario Health Teams is primarily provided by research organizations, many of which are associated with universities in the province (e.g., McMaster University, Northern Ontario School of Medicine, Queen's University). The exception is to this is Ontario Health.

Table 1. Overview of Central Program of Support Partners (with partners from 2019 appearing in bold)

Partner	Description of capacity building activities
Accountability, shared leadership and governance (ADVANCE)	• Collaborative leadership and governance needs assessment • Virtual governance and leadership training using a train-the-trainer approach
Health System Performance Network	• Guides and measurement tools for OHTs to evaluate their progress • Webinars on OHT priority issues including population-health management, evaluation, and digital health • Online community of practice focused on evaluation and performance measurement • Province-wide evaluation of OHTs
Institute for Clinical and Evaluative Sciences	• On-demand responses to data analytics questions
INSPIRE-PHC	• Primary care data analysis for OHTs • Guidance on effectively engaging primary care providers in OHTs • Indicators for primary care to support teams in evaluation
Indigenous Primary Health Care Council	• Education and training for all OHTs on meaningful engagement and inclusion of Indigenous organizations
Ontario Health	• Guidance on digital health and for select specific initiatives (e.g., lower limb preservation, home care pilots) • Working group advisory support • Convene regional OHTs • Digital health secretariat • Time-limited funding for specific initiatives • Online communities of practice focused on OHT building blocks (and emerging priorities) (*hosted in partnership with RISE)*
Public and Patient Engagement Collaborative	• Hands-on patient engagement support for OHTs • Guidance and tools to support appropriate patient engagement and evaluation of patient engagement efforts • Province-wide and one-on-one supports for evaluation of OHT patient engagement

Partner	Description of capacity building activities
Rapid Improvement Support and Exchange (now partnered with Northern Ontario School of Medicine)	• Hands-on coaching supports for population-health management working with clinical and operational leaders for priority-population working groups • Online learning and improvement collaboratives for population-health management • Online communities of practice focused on OHT building blocks (and emerging priorities) (*hosted in partnership with OH)* • On-demand evidence products for OHTs • Facilitated deliberations for OHTs, support partners, policymakers and other stakeholders on priority issues • 'One-stop' website for program support partners to include products or tools that could support OHTs • Events calendar and monthly newsletter

Technical assistance providers operate as intermediaries in the transformation. They deliver capacity building activities to the OHTs, including, among others, training sessions in select topics, one-on-one coaching, facilitating peer learning and sharing, and designing tools and templates. Technical assistance providers also support the Ministry of Health in iteratively designing the transformation, lending their expertise in providing evidence support and in specific topic areas as well as their experience (both historical and ongoing) with transformational change.

The package of technical assistance has evolved alongside the transformation since it was first introduced to OHTs in 2019. This includes changes to providers technical assistance, the types of technical assistance provided and the ways in which technical assistance providers work together.

With respect to who provides technical assistance, while all the original partners remain (listed in bold in Table 1) there has been three significant additions to the organizations delivering technical assistance since 2019. These include Ontario Health (central as well as its regional branches), the Indigenous Primary Health Care Council, and the Northern Ontario School of Medicine (through the Rapid Improvement Support and Exchange). The latter two were introduced as a greater number of northern Ontario Health Teams were announced and new supports were needed that were better tailored to these teams.

However, the most significant evolution has been to what is being provided. Technical assistance was initially envisioned to be 'light touch' and delivered to many OHTs at once, using activities

such as contextualizing evidence into 'easy to digest' reports, providing trainings, providing opportunities and a platform for peer-sharing and learning, and developing tools and templates that could be adopted by OHTs.

However, as the transformation began technical assistance providers found that the capacity needs of OHTs combined with the limited staff resources available within OHTs, resulted in the need for a more 'hands-on approach.' As a result, many technical assistance providers ended up delivering ad hoc one-on-one support as well as ultimately introducing team-based coaching in population-health management during the second and third years of OHTs.

> "It was meant to be a very light touch approach and it has turned into a much heavier touch for some teams. We started to draw on a different set of technical assistance tool kit, I think over time" (Technical assistance provider)

> "We were doing things very light touch but it became progressively more difficult as OHTs joined because we didn't have many resources and teams were in very different places" (Technical assistance provider)

These needs have varied with each of the cohorts and have required a high degree of flexibility for technical assistance partners to ensure they are able to meet each new cohort 'where they are at'. Over the course of the transformation, technical assistance partners have moved from didactic teaching and helping OHTs interpret Ministry guidance to now enabling the transformation.

> "For us, we really had to start right at the beginning because people weren't familiar with the concepts, so we started with didactic learning so they could learn the terms and the meanings and then once they kind of got that we could move into different approaches" (Technical assistance provider)

Finally, there have been changes to how technical assistance partners work together. At the beginning of the transformation, there were no efforts in place to bring together providers of

technical assistance, however it was quickly noted that this resulted in an uncoordinated set of supports. More importantly, it resulted in a lot of uncertainty among OHTs about what supports were being provided and placed a significant burden on them to navigate the many offerings.

> "There is confusion around all the technical assistance providers we have in the province. We are not the only game in town but trying to figure out who is on base for what was confusing and I am not sure it was ever really that clear… it feels like we have a miscellaneous group of people that was never designed as a deliberative program" (Technical assistance provider)

> "I don't know that anyone has their arms wrapped around all the opportunities for OHTs. It feels overwhelming. It would be great if folks could consider whether the events conflict with one another and could help us understand the purpose and who it is targeted to because we struggle to understand who the best person to attend is" (OHT Implementation lead)

However, in recent years there have been more efforts to coordinate among members of the OHT Central Program of Supports. This includes regular meetings among partners (termed the Central Coordination Committee), increased transparency from the ministry regarding the future of OHTs, as well as deliberate efforts to align supports where possible.

Table 2 provides a summary of the evolutions in the delivery of technical assistance and efforts to address them.

Table 2. Evolution in the delivery of technical assistance and efforts to address them

Identified challenge with how technical assistance has been structured or provided	**Policy learnings and efforts to address challenges**
Lack of coordination among technical assistance providers	• Creation of Central Coordination Committee meetings to provide updates on each partner's work • OHT Central Program of Supports events calendar, in effort to ensure events are not scheduled on the same day

Identified challenge with how technical assistance has been structured or provided	Policy learnings and efforts to address challenges
	• Some effort to better coordinate supports for cohort 3 but ultimately, an integrated approach was not pursued
Lack of clear mandate for supports (or required participation of OHTs)	• Teams that were not initially successful with their full application were referred to technical assistance providers to help refine their proposals • Inclusion of population-health management approaches in third year Transfer Payment Agreements with OHTs, which promoted the use of particular supports and population-health management as an important concept for OHTs to learn
Explicitly matching needs with technical assistance providers	• Engaging new technical assistance to meet existing gaps, including expertise in Indigenous health and service delivery as well as those with expertise in northern, rural and remote issues
Few 'direct-lines' to decision-makers	• Increased number of deliberative discussions including policymakers, support partners and OHTs, where participants are encouraged to speak openly and honestly about challenges in the transformation
Short-term funding for top-down priorities	• Efforts from Ontario Health to increasingly put out funding calls for larger sums of money, connected explicitly to digital health priorities
Tight timelines for reporting requirement	• Greater flexibility was provided to teams, particularly during significant waves of COVID-19, when administrative capacity was particularly low
Unequal distribution of change capacity within OHTs	• Small efforts for technical assistance that better supports teams by 'gap filling' such as OHT Impact Fellows, however efforts differ by region and are largely OHT-led
Uncertainty about 'end-state' model	• Released 'The Path Forward' document at the end of 2022, which provided some greater clarity on governance models and expected organizational partners for OHTs, however much of the future visit relating to financing remains uncertain

Key findings about the effects of the 3I+E factors

This section considers, how we got here by examining the influence of institutions, ideas and interests and external events on the technical assistance provided to OHTs. We identified that institutions, ideas and external events had the greatest influence on shaping the technical assistance provided to OHTs (see table 3 for a summary of identified themes). These are

described below in order of their impact, from greatest to least (institutions, external events, ideas).

In conducting our analysis, we have tried to differentiate the effects of each of these factors. However, they rarely have a discrete impact and are frequently inter-related. In each of the sections, we do our best to draw out these connections and make clear that it is the total effects of these factors that have ultimately led to the package of technical supports provided to OHTs.

Table 3. Summary of identified themes

3I+E element	**Identified themes**
Institutions	• A lack of administrative capacity, because of usual supports being tied up in the creation of Ontario Health • The package of technical assistance was based largely on support partners who held previous contracts with the ministry 'pitching' what they could provide
External events	• Provincial election in 2018 set out the ideas for transformation and the fiscal context within which technical assistance would be provided • COVID-19 led to the 'standing down' of established supports and the emergence of Ontario Health as a key support partner
Ideas	• Policy learning through other initiatives and through feedback by those involved has helped to better align technical assistance with what OHTs report needing • A focus on 'boots on the ground' supports emerged as more northern and rural OHTs were approved as parts of cohort 3 and 4

<u>Institutions</u>

Institutional effects have been critical in the transformation for creating the conditions in which the package of technical assistance was designed. Two institutional effects were identified that ultimately influenced who was relied upon to provide technical assistance and whose ideas were prioritized.

The first institutional effect was a shift in the administrative capacity within the province to support transformations following the emergence of a new institution - Ontario Health.(28) Significant provincial capacity to support transformations were housed in organizations

that would become part of the ‘super-agency’, namely the former Health Quality Ontario and Cancer Care Ontario. As the development of the ‘super-agency’ was planned to occur in parallel to the development of OHTs, policymakers acknowledged not being able to access these assets to support the initial design and implementation of OHTs as “they were caught up in their own changes” (Policymaker). This resulted in policymakers turning to different partners.

The second institutional effect is resource and incentive effects from past policies, which can be observed as influencing to whom the ministry turned to design supports and ultimately, whose ideas for the transformation and the technical assistance were prioritized.

Policymakers described not having a clear plan for the technical assistance or knowing who to ask to support its design and defaulted to having ‘ad hoc’ conversations that provided select actors and organizations with the opportunity to pitch their ideas to the Ministry.

> “This type of scale of transformation is unprecedented and we knew required tons of support but we didn’t have much of a plan when we wrote down the guidance for OHTs.” (Policymaker)

> “There was very little dialogue from the ministry at the time, the conversation was much more about the model and what they were going to ask OHTs to do but there was really little thought to what types of supports they might need… at that point we started having conversations and it was an informal relationshipthat led to us supporting OHTs” (Technical assistance provider)

Policymakers and technical assistance providers noted that those pitching were largely research organizations with legacy contracts and prior experience working with the Ministry. Many of these groups used existing connections and opportunities to pivot their work to the new priorities of the Ministry.

> "There were a number of existing relationships [with technical assistance providers] that had the rights skills and competencies and availability to do the work so to move quickly we adapted these" (Policymaker)

> "I do sometimes [think]… sometimes it is hard to separate the technical assistance infrastructure from key leaders who have built strong relationships prior to doing this work and so it can be hard to tease apart the role of influencing the transformation as part of the infrastructure versus some of the qualities of people leading it" (Technical assistance provider)

External events

Two external events – a provincial election and a global pandemic – can be seen as influencing the technical assistance provided to the transformation.

The first is the change in government from a long-term Liberal government to a new Progressive Conservative government. The entrance of a newly elected government combined with a perceived fiscal crisis made way for a different set of ideas and priorities to rise to prominence and ultimately, be operationalized through the Ontario Health and OHT transformation.(38)

> "For over a decade, policymakers in Ontario, Canada's most populous province, have attempted to put in place initiatives to nudge the province's health care system towards a better clinically coordinated and fiscally integrated health system. Yet, despite their focus on integration, initiatives such as Health Links in 2012 and Integrated Funding Models in 2015 remained largely hospital-centric. Launched in 2019 by Ontario's Ministry of Health, Ontario Health Teams (OHTs), were heralded as "a fundamental shift in the way health care will be delivered and funded," cementing the move from a reactive, acute-care focus towards collaborative partnerships and population health management." (Embuldeniya et al.)

However, the underlying emphasis on fiscal responsibility was evident through the relatively small budget for supports and technical assistance that were made available for the

transformation, resulting in an initial reliance on largely 'light touch' supports. Technical assistance providers and implementation leads pointed to the challenge that limited funds and staff dedicated to supporting the transformation posed and cited this as a key challenge for not moving forward, faster.

> "We were doing things very light-touch and it became progressively more difficult as OHTs joined because we didn't have many resources" (Technical assistance provider)

> "Our staff is split between their usual work at the hospital and working on our OHT. There are really big expectations for very lean human resources. It's great to have people working on developing supportive materials but if you don't have people that can do the work then it's all for naught, really" (OHT implementation lead).

The second external event was the COVID-19 pandemic. The pandemic had divergent effects on OHTs, with some transforming quickly in the face of a crisis, while others reverted to 'old ways' of working. However, with respect to its effect on the package of technical assistance, the most significant legacy of the pandemic was leading to the increased prominence of Ontario Health as a technical assistance partner.

Though most technical assistance partners were asked to 'stand down' during the pandemic to allow OHTs to focus on COVID, a select number were looked to for COVID-specific supports, in particular drawing on working from the nascent Ontario Health.

Throughout the pandemic Ontario Health established a role providing guidance to organizations and at the regional level was responsible for convening health-system partners to support a coordinated response. As work on the pandemic waned, the relative power of Ontario Health had grown and the agency was poised to take on a significant role with respect to Ontario Health Teams.

> "The other context that is important is the emergence of Ontario Health and the roles of the Ministry and Ontario health. Ontario Health was standing up some COVID infrastructure and OHTs had to participate in both. That got more complicated over

time … as a TA provider we had to compete with other organizations for attention. This is an external shock that rattled everything" (Technical assistance provider)

"I think looking to how the operational responsibilities have shifted and I think there are more that will continue to shift over time. For instance, responsibility for TPAs [Transfer Payment Agreements] and for the business intelligence tool. Like you can see the puzzle piece kind of falling into place" (Policymaker)

While policymakers acknowledged knowing that Ontario Health would at some point occupy a central role with respect to the transformation:

"In this province, the ministry provides direction through policy and then it should be the agency that gives it arms and legs and working with folks on the ground to bring it to life… I think the first six to eight months though was just dealing with the consequences of being in an in-flight process" (Policymaker)

Other technical assistance providers and OHTs described how this increase in relative importance has, in some cases, introduced greater complexity and uncertainty in lines of accountability and roles with respect to technical assistance.

"We still don't have clarity on exactly who's responsible for what. We don't get the sense that, there's clarity even within the government circles as to who should be dealing with what. There is confusion as to who we should be contacting regarding various issues." (Indar et al.)

"the things OHTs are expected to do does not necessarily align with the vision for what they are working towards. Some of the expectations related to new possibilities to procure strategies got a bit distracting and it isn't always clear how it fits into the strategy" (Technical assistance provider)

"There are multi-levels of different people that we need to go through to get an answer to a question and it is often not clear who or where to go." (OHT implementation lead)

However, there is some indication from participants that this may be changing and that greater clarity on the role of Ontario Health is emerging:

> "It taken us a long time to figure out the relationship but now it is very clear who our contact is and how we work with them." (Technical assistance provider).

Ideas

Finally, we turn to the role of ideas. While institutions and external events have had a greater effect on influencing who (organizations and individuals) delivers technical assistance, ideas have played a critical role in influencing what is being provided (i.e., what types of activities and for what topics). This is observed through policy learning of those procuring and providing technical assistance, as well as through the emergence of new actors that bring with them new ideas about the focus of technical assistance and how it should be delivered (e.g., a more 'hands on' approach).

Throughout the lifespan of OHTs, policymakers have had discussions with technical assistance providers and with representatives of OHTs and have adjusted their approach based on the feedback provided. In particular, this has focused on the need for improved coordination among support partners (resulting in the creation of the Central Coordination Committee and OHT events calendar), asking for an increased number of deliberative discussions with policymakers, and releasing additional information that helps to clarify the 'end-state' for OHTs. Though these changes represent relatively small adjustments to the technical assistance on offer, they can be understood as supporting progress in the transformation by adapting to the challenges and constraints raised by those working on the ground.

In addition, the appearance of new actors later in the transformation resulted in new ideas regarding the focus of technical assistance. As new OHTs were approved as part of cohort 3 and 4, the demographics involved in the transformation changed and voices from northern and rural Ontario brought awareness to the need for 'boots on the ground' supports. In particular, the recognition of significant differences in the capacity of northern Ontario Health Teams to simultaneously engage in the transformation while keeping their

health system running and in the complexity of issues that they needed to address led to the mobilization of supports specific to northern OHTs. At the time of the interviews, these had not been fully developed, however many of them, including having technical assistance providers located in the north, are now in place.(39) Other examples of gaps brought forward by the approval of new OHTs include the need to engage technical assistance providers that could support meaningful Indigenous engagement in both urban and rural areas. These support partners have since provided training in the foundation of Indigenous Cultural Safety and have adapted frameworks for OHTs to include an Indigenous model of wholistic health and wellbeing.

Interests

Interests are not absent from the transformation, many groups have organized to push for changes to the ways in which OHTs are being developed, however they are not present in their effects on the technical assistance provided. Instead of pushing for a material interest, the focus for technical assistance providers has been on maintaining access to those involved in the transformation and ensuring their ideas remain present – which is more aligned to institutional effects than interests.

Discussion

This study provides an in-depth look at how technical assistance evolves over the course of a transformation, and the important role that institutions, ideas and external factors have on shaping these changes. At the outset of the transformation, we observed strong effects of institutions, whereby technical assistance providers with previous experience working with the Ministry pitched supports for Ontario Health Teams bringing with them ideas about how the transformation should unfold. With respect to external events, a new provincial government shaped the transformation and the fiscal context in which they would be working, while the COVID-19 pandemic resulted emergence of Ontario Health as a key player in the transformation. Finally, ideas also influenced what was provided to OHTs. Policy feedback and learning as well as the entrance of new technical assistance providers changed the type of activities – shifting towards a greater focus of ‘hands on’ supports.

As mentioned earlier in the study, there are instances where the effects of these factors are not mutually exclusive. For instance, population-health management as an area of focus for technical assistance can be understood as the result of institutional resources available (technical assistance partners with expertise in this area), external events (COVID-19 pandemic which brought into focus the need to proactively support an entire population), and ideas from partners about where the focus of improvement should be placed.

In many ways this study is the first of kind. It has an explicit focus, not just on describing the technical assistance provided to a health system transformation but also on describing how it has changed since its inception and identifying the factors that have influenced its evolution. With respect to the describing what is provided, the findings from this study are consistent with the literature on technical assistance, much of which describes the importance of aligning technical assistance with transformation goals (40), the clarity of these goals to those implementing the transformation (41; 42), behavioural preconditions of those implementing the change (e.g., capability, motivation and opportunity), (43) and sufficient dosage geared to the level of need.(3; 41-44) This study is also consistent with the relatively few studies published on the OHT transformation, which has emphasized the emergence of Ontario Health, the important role of external events (namely the COVID-19 pandemic) and the challenges with coordination that have been experienced.(6; 30)

This study has several strengths as well as two limitations. With respect to strengths, the position of the authors allowed for inside look at the Ontario Health Team transformation, including bringing significant expertise on the transformation and the various stakeholders involved, which would not have been possible if written from the outside. Second is the triangulation of different viewpoints including those implementing the transformation as part of OHTs, those supporting the transformation (e.g., technical assistance providers) and those directing the transformation (e.g., policymakers) as well as the triangulation of different forms of data, combining published literature, insights from interviews and insights from policy documents. The result of which is a fulsome account of a system transformation and the case under investigation. There are two significant limitations to this case study, both of which stem from interviews with representatives

from OHTs. The number of representatives from OHTs was lower than had initially been desired for the study. Though we were still able to achieve a broad sample, it was difficult to find contact information for these individuals, with few organizational charts posted on public-facing websites. Further, there has been significant turnover among staff within OHTs, with very few having held positions early in the transformation. As a result, the thematic analysis draws more heavily on perspectives from the two other types of participants (those directing the transformation and technical assistance providers) as well as on documents from the transformation.

This study presents implications for both policy and practice. For policymakers, it highlights the importance of early planning and communicating a clear vision for change. Transformations that require coordinated changes across multiple types of organizations and professionals need strong visions that those implementing the transformation can align to. For policymakers, this means creating and clearly communicating expectations and pathways to maturity as well as 'conducting' the orchestra of technical assistance providers. For practice – or those providing technical assistance – two important implications can be taken away from this study. The first is to assess the needs of those implementing the transformation and designing supports with these in mind – greater attention to this could have triggered the development of a support package that better balances top-down design with bottom-up needs. Second, is the importance of working together, understanding that there is a clear need for coordination in supports moving forward. Just as OHTs are expected to work together to deliver seamless care to patients, the same expectations should be placed on those providing implementation supports. As there are relatively few resources available to Ontario Health Teams, it is imperative that those providing technical assistance work to create a cohesive program.

Future research efforts could focus on updating this study to capture the next three to five years of the transformation, examining how technical assistance changes as OHTs shift their attention from 'standing up' their teams to sustaining them. Additional research efforts, though admittedly more difficult to do, should focus on an evaluating the technical assistance provided to Ontario Health Teams and specifically which aspects have been beneficial to moving the transformation forward.

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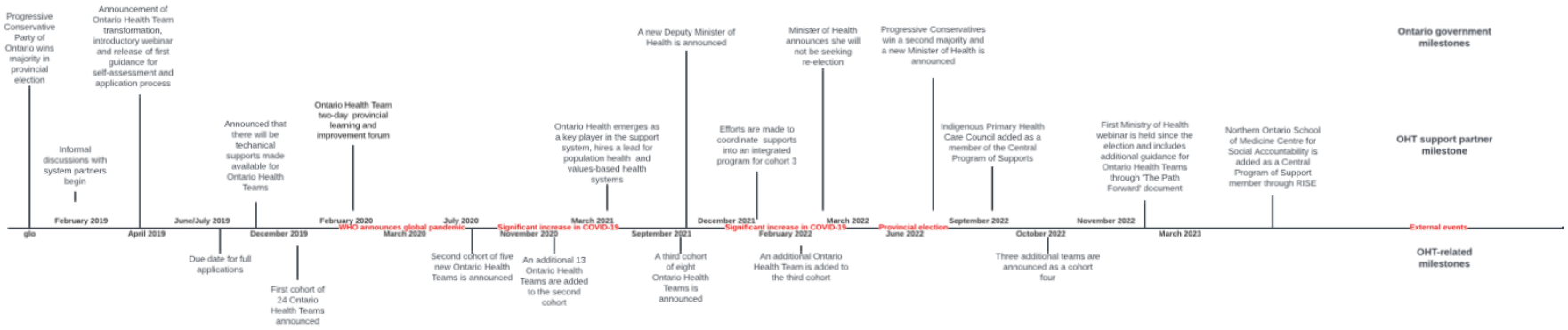
Figure 1. OHT development timeline



Appendix 1. Key features of the Ontario health system (prior to 2019) and changes following the introduction of Ontario Health Teams (adapted from (45; 46))

Health-system arrangements	Key features	Changes made with the introduction of OHTs
Governance arrangements		
• Policy authority	• The Ministry of Health and the Ministry of Long-Term Care are responsible for the high-level administration of the health system • The ministries retain policy authority for some areas such as the development of high-level strategic decisions (e.g., health-system transformations), allocation of budgets, decisions related to eligibility as well as for some key programmatic areas such as the Ontario Drug Benefit Program (which pays the cost of prescription drugs for select groups) but has decentralized some authority to Local Health Integration Networks (responsible for planning, integrating and funding care to be adapted to regional needs) as well as to government agencies such as Cancer Care Ontario (responsible for key decisions related to the cancer system), eHealth Ontario (responsible for facilitating the development of Ontario's EHR system), Health Quality Ontario (responsible for quality improvement efforts), HealthForceOntario (responsible for workforce planning), Trillium Gift of Life Network (responsible for organ and tissue donation), and Public Health Ontario (responsible for provincial public health decisions)	• Ontario Health absorbed the 14 Local Health Integration Networks as well as five of the six previously independent agencies (with Public Health Ontario being the exception) • Ontario Health has established six regions across the province that provide resources and supports to the Ontario Health Teams and organizations operating in each of the regions, including: o Implementing health system changes o Funding health care providers o Monitoring health care performance • Ontario Health will also become responsible for managing the Transfer Payment Agreements with OHTs as well as ultimately taking responsibility for the technical supports available to OHTs (beginning in 2024)
• Organizational authority	• Some organizations within the Ontario health system operate on a not-for-profit basis including community health centres and hospitals, while others including community pharmacies, independent health facilities (which provide diagnostic and therapeutic procedures) and some long-term care homes are for profit • These organizations make decisions about how they buy and lease space, recruit and employ staff and organize how care is provided so long as it follows rules set out by ministries of health and of long-term care or rules set out by a regulatory college	• OHTs will bring together existing health-service providers who will collectively become accountable for the health outcomes, care experiences, provider experiences and per-capita costs of an attributed population • New not-for-profit corporations are being created for the purpose of managing and coordinating OHT activities and will be responsible for OHT initiatives to design and deliver integrated care • Each OHT member organization will also maintain their existing boards of directors and accountabilities
Financial arrangements		
• Financing	• Public spending on healthcare is mostly financed through taxation, with private spending derived mostly from out-of-pocket payments and private insurance (often through employers)	• No change

• Funding organizations	• The most significant process of funding organizations is the transfer of funds from the Ministry of Health to the Local Health Integration Network, which provide funding through organizations to cover programs and services ○ This includes many home and community care organizations, all hospitals and many long-term care homes	• OHT partners continue to receive funds as individual entities, but OHTs will eventually receive a single integrated funding budget (calculated using a risk-adjusted capitation model) and become eligible for saving incentives that can be shared among partners • Once approved and after Collaborative Decision Making Agreements were created within the OHT, each OHT was provided with an initial investment to support progress towards integrated care (funding totaled 25.25 million for all approved teams) • Additional funds have been made available through Ontario Health for OHTs to pursue specific initiatives such as to support the advancement of online appointment booking, patient portals, and innovative models of care
• Remunerating providers	• Remuneration of providers other than physicians typically negotiate through collective bargaining with unions to establish a wage, benefits, and employment conditions • Physician remuneration is negotiated between the Ontario Medical Association and representatives from the Ministry of Health • Physician remuneration is dependent on the model in which physicians are working, while there remain physicians working fee-for-service for others such as those working within Family Health Groups, Family Health Networks, Family Health Organizations, Family Health Teams, and Community Health Centres are provided a mixture of fee-for-service with programmatic capitation, blended capitation, and blended salary	• No change
Delivery arrangements		
• Infrastructure	• Some infrastructure in Ontario is planned for and financially supported by government (e.g., Community Care Access Centres, private not for profit hospitals, and local public health agencies), while others are not, or are indirectly supported with government funds (e.g., community support service agencies and most primary care practices) • The Ministry of Health, Ministry of Long-Term Care, Local Health Integration Networks, and Cancer Care Ontario carry out capacity planning for select types of infrastructure including hospitals and regional cancer centres • Ontario Telemedicine Network is responsible for supporting videoconferencing to help address difficulties faced by hard-to-serve	• Infrastructure that is planned for centrally will continue to be in collaboration between the Ministry of Health and Ontario Health, with OHTs supporting planning of some local services based on their population needs • Ontario Health is now responsible for both the Ontario Telemedicine Network as well as eHealth Ontario and has a particular focus on supporting the advancement of digital-health infrastructure • OHTs are responsible for meeting requirements related to digital-health infrastructure and services including ensuring connectivity between OHT-partner

	residents from across large rural and northern geographic areas, and to prevent patients from having to travel long distances to see a specialist • eHealth Ontario is responsible for supporting the implementation of electronic medical records and electronic health records in the province	organizations, the availability of patient portals and e-consultation services for patients
• Workforce	• HealthForceOntario is the province's strategy to ensure the right number and mix of qualified health providers in the province, with a mandate of identifying and addressing Ontario's health human resource needs	• Ontario Health is now responsible for HealthForceOntario and is working with the ministry on a range of programs to address shortages in the health workforce following the COVID-19 pandemic o One of which includes a $40 million fund, for which OHTs are eligible to apply, the bring forward ideas for how to better organize healthcare providers across hospitals, health care facilities, long-term care homes, home care providers, family health teams, nurse practitioner-led clinics and others
• Care by sector	• Home and community care organizations are funded by Local Health Integration Networks, staff from which support Ontarians to access home and community care, determine eligibility for government-funded services and settings, and arrange for and coordinate the delivery of government-funded professional, personal support and homemaking services of or people living in their own homes • Primary care is increasingly organized as teams of providers, who are responsible for acting as gatekeepers to the rest of the health system • Specialty care is made up both of acute-care hospitals as well as community-based specialty clinics, where individuals may go to receive lower risk diagnostic and therapeutic procedures • Rehabilitation care is provided both in hospitals as well in the community and has been more extensively privatized than other sectors • Long-term care can be provided in private for-profit, private not-for-profit or publicly owned facilities, all which provide clients with 24/7 access to nursing and personal care supports as well as medical, rehabilitation and social services • Public health is provided by 36 local public health agencies, which are responsible for delivering prevention, education, health assessment and disease surveillance, enforcement of some public health legislation and some limited clinical services o Public health agencies are governed by a board of health and administered by a medical officer of health and are either autonomous organizations or act as a department within a municipal corporation	• Home and community care support service organizations have been created to coordinate in-home and community-based care, including providing referrals to community services and managing Ontario's long-term care home placement process o These organizations take on the role previously held by the Local Health Integration Networks, until such a time in which integrated budgets for Ontario Health Teams are introduced o Ontario Health Teams are required to have some representation of home and community care organization in their partnership • Ontario Health Teams are required to have some representation of primary care providers in their partnership, however there are currently no requirements for primary care providers to participate and is instead reliant on the goodwill of participating physicians • Specialty care is also a required partner for Ontario Health Teams, and many hospitals act as their Team's designated fund holder • No changes to rehabilitation care • No changes to long-term care, apart from the transition to a new referral process through Home and Community Care Support Services

		• No change to public health, though the government is offering one-time funding to public health units that are willing to voluntarily merge

Appendix 2: Overview of OHT readiness assessment process (adapted from Ontario Ministry of Health**) (8)**

Components	**Description**
Self-assessment	• Interested providers or groups of providers are invited to complete a self-assessment to familiarize themselves with the model and required components and work through how they could meet the minimum criteria • Minimum criteria include: • proposed coverage of an attributed population of least 50,000 individuals • endorsement from First Nations communities, where they are present in the proposed population base • representation from primary care, specialty care and home and community-care organizations • Based on self-assessments OHTs were categorized as being either in development (which indicates a higher degree of readiness) or in discovery (which indicates that the team is at the beginning stage of readiness)
Full application	• Based on the full application, select groups of organizations are invited to submit a full application where they are asked to demonstrate their ability to meet the Ontario Health Team Candidate readiness criteria for each of eight OHT building blocks • Full applications are reviewed and evaluated and those that demonstrate a higher degree of readiness for implementation will be invited to participate in an in-person visit
In-person visit	• Select groups of organizations are assessed through a final in-person visit to identify those that are demonstrably ready to become Ontario Health Teams • During the visit, providers will be expected to present a comprehensive current state assessment of their system and a vision for the future of patient care in both the near and long-term

Appendix 3: Overview of OHT model by building block (adapted from RISE brief 1: Building blocks)

Building block	Expectation of OHTs at maturity
Defined patient population within a population-health management approach	Teams will be responsible for the health outcomes of the population within a geographic area that is defined based on local factors and how patients typically access care.
In-scope services	Teams will provide a full and coordinated continuum of care for all but the most highly specialized conditions to achieve better patient and population health outcomes.
Patient partnership and community engagement	Teams will uphold the principles of patient partnership, community engagement and system co-design. They will meaningfully engage and partner with – and be driven by the needs of – patients, families, caregivers and the communities they service. Patient, families and caregivers are included in governance structure(s) and patient leadership within the Team is established.
Patient care and experience	Teams will offer patients, families and caregivers the highest quality care and best experience possible. 24/7 coordination and system navigation services are in place for those who need them. Patients will be able to access care and their own health information when and where they need it, including digitally, and transitions between professionals and sectors will be seamless.
Digital health and information sharing	Teams will use digital health solutions to support effective healthcare delivery, ongoing quality and performance improvement, and better patient experience.
Leadership accountability and governance	Teams will determine their own governance structure(s). Each team will operate through a single clinical and fiscal accountability framework, which will include appropriate financial management and controls
Funding and incentive structure	Teams will be prospectively funded through an integrated funding envelope based on the care needs of their attributed patient populations
Performance measurement, quality improvement and continuous learning	Teams provide care according to the best available evidence and clinical standards, with an ongoing focus on quality improvement. A standard set of indicators aligned with the quadruple aim will measure performance and evaluate the extent to which Ontario Health Teams are providing integrated care, and performance will be reported.

Appendix 4: Interview guide for policymakers, technical assistance providers, and representatives from Ontario Health Teams

In this study we are interested in understanding the technical assistance provided to Ontario Health Teams throughout the first four years of their development. The aim of this study is to examine how and why technical assistance may change over the course of a transformation. This study is not intended to be evaluative, but rather to understand how technical assistance supports the implementation of largescale transformations and why it may need adjustments over time to be successful. The following questions address the development, procurement of technical assistance, the content of technical assistance that has been provided to Teams, and the evolution of technical assistance throughout the implementation of Ontario Health Teams.

Development and procurement of technical assistance

For policymakers

1) Could you describe how the idea to commission technical assistance to support the Ontario Health Team transformation came about? If possible, with specifics related to the timing and process?
2) What was the vision for providing technical assistance? Were there particular areas or challenges where you anticipated it would be needed?
3) How were the providers of technical assistance chosen? And how were their roles determined?

For technical assistance providers

12) How did you and your organization become involved with the Ontario Health Team transformation?
13) Could you describe your experience providing technical assistance prior to working with Ontario Health Teams?

For representatives of Ontario Health Teams

1) Thinking back to first establishing your Ontario Health Team, what areas would you have identified as needing technical assistance? Have these changed over time?
2) How was your team first approached to receive technical assistance?

Content of technical assistance

For policymakers

4) What roles have you seen those providing technical assistance play so far in the implementation of Ontario Health Teams: gap filling; technical advice; capacity development; influencing; watchdog; or project management?

For technical assistance providers

14) Could you describe the assistance that you and your organization provide to Ontario Health Teams? What are the aims? What are the elements? How is it structured?
15) How was this approach developed? When did you start to develop the assistance and how did you initially environ the supports working?
16) Which of the following roles do you think you or your organization have played and describe how: gap filling; technical advice; capacity development; influencing; watchdog; or project management?

For representatives of Ontario Health Teams

3) Was there any effort to determine what needs your team had for technical assistance? If so, how was this done and by which providers of technical assistance?
4) Were goals for technical assistance discussed with your team? If so, what were they?
5) Could you describe your experience receiving supports from each of the technical assistance providers?

6) What roles have those providing technical assistance played so far in the development and implementation of your Ontario Health Team: gap filling; technical advice; capacity development; influencing; watchdog; or project management?

Evolution of technical assistance through the transformation

For policymakers

5) Have you seen the providers of technical assistance or their role change since they began work with Ontario Health Teams? Alternatively, have the anticipated needs of Ontario Health Teams changed since technical assistance was initially commissioned?
6) If you have seen changes in either the roles of technical assistance providers or anticipated needs, what has instigated these?
7) Can you describe the relationship between technical support providers and your branch of the Ministry of Health? Has this changed over time?
8) What has been the effect of the COVID-19 pandemic on the plan for technical assistance and for the trajectory of the Ontario Health Team transformation? Have there been additional changes that affected the trajectory of Ontario Health Teams (i.e., election; change in Minister; other health system priorities)
9) What do you see as having been barriers to the delivery and success of technical assistance so far? And moving forward?
10) What do you see as having been facilitators to the delivery and success of technical assistance so far? And moving forward?

For technical assistance providers

17) Has the approach to technical assistance changed over time? If so, how? What precipitated these changes?
18) What has been the effect of the COVID-19 pandemic on your ability to provide assistance to Ontario Health Teams? Have there been additional changes that affected the provision of technical assistance?
19) What do you see as having been barriers to the delivery and success of technical assistance so far? And moving forward?
20) What do you see as having been facilitators to the delivery and success of technical assistance so far? And moving forward?

For representatives of Ontario Health Teams

7) How has your experience receiving technical assistance changed over time? Have the areas of focus evolved? Have the tools or techniques used for delivery of technical assistance changes? Are providers of technical assistance supporting your team in different ways than at the outset of the transformation?
8) What has been the effect of the COVID-19 pandemic on your team's receipt of technical assistance? Have there been other external events that have affected your team's receipt of technical assistance?
9) What do you see as having been barriers to your team's receipt of technical assistance? And moving forward?
10) What do you see as having been facilitators to your team's receipt of technical assistance? And moving forward?

Chapter 5: Conclusion

This thesis includes three original research studies, with three primary aims: 1) to develop a definition and logic model for technical assistance that brings greater consistency to how technical assistance is conceptualized, operationalized and studied (chapter 2); 2) to document what technical assistance has been provided to similar health-system transformations (chapter 3); and 3) to understand the factors that may influence the technical assistance that is provided to a health-system transformation (chapter 4).

In this chapter, I summarize key findings from each study, highlight the theoretical, methodological and substantive contributions, and address the strengths and limitations of the thesis before turning to implications for future research and for policy and practice.

Key findings by study

Chapter 2: Conceptualizing technical assistance for system change: A critical interpretive synthesis

This synthesis draws on existing evidence from across disciplines to put forward a definition and logic model that can be used by researchers, technical assistance providers and policy and decision-makers to support health-system transformation. The proposed definition is "a contextualized package of supports (which may include individualized as well as universal supports) delivered by an individual or team of individuals with subject matter and process expertise to build capacity at the individual, organization and system level to support the implementation of a transformation or innovation."

The logic model builds on this definition and synthesizes key findings about what is known about the key inputs, processes, outputs and outcomes of technical assistance. The logic model aims to provide greater consistency in how technical assistance is researched, planned for and delivered– which is a key limitation to moving the evidence base forward. Though it is not the first logic model to be developed for technical assistance, it draws on a wider range of literature

and describes in greater detail the key inputs for planning for technical assistance and the activities that may be included within the package of support.(1)

Chapter 3: Documenting technical assistance to support accountable care transformations in England and the U.S.

This study uses a qualitative descriptive approach to comparatively examine the technical assistance provided in transformations in England and the U.S. This study identified that the approach used for technical assistance is heavily influenced by the history and context of the health systems in which it is deployed. In the England, centralized approaches relying on government and arms' length assets to deliver technical assistance has been used, with relatively less reliance on private-sector consultants. In the U.S., a distributed, market-based approach has been used with some technical assistance provided by the central agency directing the transformation, Centres for Medicare and Medicaid Innovation.

Despite the differences in transformation, similar areas of focus emerged for technical assistance including a focus on: digital health and information sharing; leadership, accountability and governance; and performance measurement, quality improvement and continuous learning. Additional similarities include the significant reliance on content-based technical assistance activities that could be modified to different topic areas and for different audiences.

Chapter 4: Examining the role of institutions, ideas, interests and external events (3IE) in shaping the technical assistance provided to a health-system transformation

This study uses a case study methodology to provide an in-depth look at the factors that affect the technical assistance that is provided to a health-system transformation and how it evolves over time. In particular, it uses the 3I+E framework to examine the role that institutions, ideas, interests and external events have on shaping the package of technical assistance and any subsequent changes.

The study identified that institutional effects have been critical in the transformation, creating the conditions under which the package of technical assistance was first designed. Two institutional effects – a shift in administrative capacity and resource and incentive effects – can be understood as influencing who was relied upon to provide technical assistance and whose ideas were prioritized. In addition, both external events and ideas had significant roles in shaping the evolution of the technical assistance provided. The COVID-19 pandemic (an external event) has influenced who is providing technical assistance, by enhancing awareness of the work of Ontario Health, increasing its relative power as a technical assistance provider as compared to others in the Ontario Health Team (OHT) Central Program of Support. Ideas have played a critical role in influencing what is being provided over time through the policy learning of those procuring and providing technical assistance, as well as through the emergence of new actors, such as OHTs from Northern Ontario, that bring with them new ideas about the focus of technical assistance and how it should be delivered.

Overarching findings

Together these studies begin to 'pull back the curtain' on technical assistance. They suggest that it is a unique implementation support that can be configured in flexible and different ways to support change. Three overarching findings connect these three studies.

First, the studies demonstrate the perceived usefulness of technical assistance in supporting health-system transformation. Chapter 2 provides a definition for technical assistance that is reflective of the literature, which includes its use for large-scale, macro -level, change. Similarly, the logic model that is provided is configured to focus on outputs and outcomes at the systems level. Where Chapter 2 provides the framing, Chapter 3 and 4 provide evidence of the use of technical assistance to support health system transformation in England, the U.S. and in Ontario. Chapter 3 notes the extent to which accountable care organizations (ACOs) in the U.S. have been purchasing technical assistance where it has not been directly provided to them, indicating its perceived usefulness among users at support transformation.

Second, the studies show that technical assistance may look different for each transformation. Chapter 2 provides a logic model which highlights a range of decisions that those directing the transformation, technical assistance providers and technical assistance recipients will need to make. Examples of these decisions include whether the transformation is problem or solutions-focused, the role of the technical assistance provider(s), the activities that will be provided, and the mechanics of technical assistance (e.g., how much, over what period of time, at what intervals, and using what modes). Each of these decisions will lead to a different package of technical assistance. These findings are then demonstrated in Chapters 3 and 4, where though the scale and focus of the transformation being pursued have similarities, the landscape for technical assistance looks quite different, particularly with regards to who are providing technical assistance and the role of those directing the transformation. Chapters 3 highlights the different approaches that have been taken for two of these transformations, whereby England is re-using many supports from government and arms-length agencies that were developed to support previous transformations while the U.S., is pursuing a largely market-oriented approach. Further, Chapter 4 highlights the role that institutions, ideas and external events, which differ significantly between systems, have on forming the technical assistance that is provided. In particular, on determining who may be responsible for delivering technical assistance, their relationships with those directing a transformation, and whose ideas loom largest in the supports provided.

Finally, the studies note the importance of planning for technical assistance and for its evolution through the implementation of a transformation. In Chapter 2, we describe that the on-going monitoring of outputs related to capacity is important for understanding how technical assistance may need to change as transformations move forward (i.e., if some activities are more useful than others or if the capacity has outgrown the need for select technical assistance activities). Chapter 3 picks up on this idea of evolution through the example in the U.S., where throughout different models of accountable care organizations there has been increased technical assistance provided by the Centres for Medicare and Medicaid Innovation, in addition to what is procured by individual ACOs. Chapter 4 tells a similar story, whereby the technical assistance was not explicitly planned for and initially did not meet the needs of OHTs. However, many changes

have been made to the intensity and focus of technical assistance such that it is better able to support ongoing transformation.

Contributions

This thesis contributes theoretically, methodologically and substantively to the literature on technical assistance.

Theoretical contributions

There are two theoretical contributions of this thesis.

The first is from in Chapter 2, which provides a new definition and logic model to better understand what technical assistance is, its components and its possible contribution to health-system transformations. Chapter 2 contributes to the theoretical understanding of technical assistance in two ways. First, the proposed definition and logic model build on a significant amount of previous work spanning numerous literatures. Rather than 'reinventing the wheel,' this logic model builds existing complementary frameworks into the logic model. Examples of this include the integrated systems framework, which comes from public-health literature that conceptualized technical assistance as part of the support system for transformation.(2) Other examples include the framework for technical assistance roles – of doer, partner and facilitator – that was first proposed by Natase et al (3; 4), the types of technical assistance (as either content-focused or relationship-focused) which was described by Olson et al,(5) and the mechanics of technical assistance, that were described as an output of technical assistance in an evidence synthesis conducted by Scott et al. (1) Second, the logic model and definition build on a wider array of literature than previous frameworks which have tended to stay within (and only include the insights from) a single sector (e.g., public health; international development). As a result, this thesis makes a novel contribution to the literature by theorizing the range of components that make up technical assistance and the decisions that need to be made to ensure it is fit to support a given transformation.

The second theoretical contribution is from Chapter 4 and is the application of political science concepts – institutions, ideas, interests and external events – to technical assistance and to explaining their influence on who delivers technical assistance and whose ideas are featured in the transformation. Much of the technical assistance literature examines it from either a descriptive or evaluative perspective (e.g., documenting what has been done or what has worked in what context), and this study provides a first effort to explain the development of technical assistance and why it may evolve in ways that deviate from explicit planning.

Methodological contributions

The second chapter of this thesis provides methodological contributions. A CIS is not a new methodology, however despite its increased popularity, it remains an emerging synthesis method as compared to others such as meta-analysis or scoping reviews.(6) One of the benefits of the CIS is its iterative approach to developing theory. Evans and colleagues (2022) described the novel approach of integrating existing theory within the CIS, using it as "scaffolding" during theory development.(7) This differentiated itself from previous approaches which have either created new frameworks or have used existing frameworks to structure data extraction.(8; 9) This CIS integrated multiple frameworks (mentioned in the paragraph above) in both the data extraction and analysis phase as well as building them into different elements of the proposed logic model – ensuring they are complementary to one another rather than in competition. The second methodological contribution from the CIS is forward looking, namely its potential to guide the application of other research methods by providing a common language to describe the features of technical assistance.

Substantive contributions

Each of the three studies make substantive contributions to the literature. The logic model in Chapter 2 can support decision-makers and technical assistance providers to proactively plan for technical assistance. Chapters 3 and 4 provide an exploratory (what) and explanatory (why) account of the delivery of technical assistance for three population-health management-focused health system-transformations. For Chapter 3, there has been relatively little written about

implementation supports provided to either the integrated care systems or accountable care organization transformation. The initial documentation of this approach is a critical first step to ultimately advancing evaluation of technical assistance and our understanding of what works, when and why. Chapter 4 provides a substantive contribution by retrospectively considering the effects of institutions, ideas, interests and external events have on the technical assistance designed to support the health-system transformation. These findings can be applied prospectively by health system decision-makers and technical assistance providers as they are planning for transformational supports and to consider how they can either combat or harness these factors throughout implementation.

Strengths of the thesis

Taken together there are two main strengths of this thesis. The first is that it covers an area that is not well represented in the existing literature. In particular, the intersection between technical assistance and health system transformations. This includes both a lack of theory about technical assistance for health system transformation as well as minimal substantive documentation of its use. Concerning the limited theory, the CIS presents the first logic model to synthesize the range of activities that could be delivered as part of technical assistance and to pair it with findings related to providers of technical assistance, the range of roles that they could play and the mechanics for its delivery. Further, as can be seen from the literature searches in Chapter 3 and 4, despite many mentions of technical assistance being used, there is relatively little written in the academic literature about what is being provided for any of the three transformations. This thesis makes a first effort to document the 'what' as well as providing a retrospective look on the first four years of providing technical assistance during a transformation in Ontario, Canada.

The second strength is the use of methodologies that support the inclusion of a diverse range of literature and diverse perspectives. The critical interpretive synthesis, as compared to a scoping review, systematic review or meta-analysis, supports the synthesis of both academic and grey literature as well as insights from heterogeneous transformations (e.g., spanning sectors and levels of change). Both qualitative description and case study methodology also support the triangulation of a range of different data types, including interviews, academic literature, grey

literature and in the case of Chapter 3 findings from websites. Further, in efforts to provide a fulsome account of the technical assistance provided to Ontario Health Teams, Chapter 4 triangulated different viewpoints within interviews including those implementing the transformation as part of OHTs, those supporting the transformation (e.g., technical assistance providers) and those directing the transformation (e.g., policymakers). This is notable given there is a lack of representation of decision or policy-maker perspectives in the literature related to technical assistance, offering a unique set of findings.

Limitations of the thesis

One of the strengths of this thesis is paradoxically also the source of its most significant limitation. In choosing to examine a topic that is not well covered or defined in the literature, there were challenges in ensuring the comprehensiveness of each study. This appeared differently in each of the chapters. For Chapter 2, despite undertaking a fulsome review as part of the CIS, concerns about comprehensiveness stem from the many literatures that intersect with technical assistance and the different descriptors that are used for technical assistance as well as limiting search results to English. Further in the process of review, many documents were excluded as they did not provide a sufficient description of the technical assistance that was delivered, which may have excluded experiences from transformations for which robust technical assistance was provided but not the focus of the study write-up.

For Chapters 3 and 4, challenges were experienced in recruiting participants. For Chapter 3, despite sending out many invitations to participate the response rate was low. Two possible reasons may be that invitees do not self-identify as a technical assistance provider (particularly in England, where this term is not used as readily) or not wanting to participate in a research project (particularly for private sector companies in the U.S.) due to concerns about evaluation, confidentiality or market share. In Chapter 4, while a broad cross-section of participants was achieved, the number of representatives from OHTs was less than initially desired. However, reasons for this are largely attributable to a lack of publicly accessible contact information for OHTs and significant staff turnover during the pandemic. To address these limitations, we have

drawn more heavily on other sources of data, including academic literature and policy documents.

Implications for future research

Future efforts should focus on advancing both theoretical and empirical research related to technical assistance. For the theoretical research, a next step could be to examine use the definition and logic model to begin work towards achievement agreement among technical assistance providers using a modified Delphi process or similar. While empirical research could focus on adding to what has been documented for each of three transformations covered in this thesis to provide a more comprehensive perspective to the technical assistance. Additional research could focus on bringing an evaluative component for the technical assistance provided to each of the transformations, particularly for new Realizing equity, access and community health (REACH) accountable care organizations which are in the process of being implemented or for the newly announced initial 12 Ontario health teams that have been selected for an accelerated path to implementation and who will be receiving additional technical assistance. In particular, they could focus on evaluating the relative contributions of the different components to determine the determine the effectiveness and value of technical assistance.

Implications for policy and practice

There are two important implications for policymakers and technical assistance providers from this thesis. The first implication is for policymakers and technical-assistance providers to begin to use the logic model, and the evidence mapped to its key components, from Chapter 2 to plan for technical assistance systematically and transparently. This includes documenting the aims of technical assistance, decisions made related to the inputs and processes, and expected outputs and outcomes of technical assistance, as well as including an evaluation of technical assistance alongside evaluations of the transformation. The second is the need for regular needs assessments and evaluations (both process and summative) of technical assistance as transformations are implemented. As Chapter 4 demonstrated, there can be a significant amount of change that takes place during a transformation and maintaining awareness of this and

continually examining capacity levels and the ongoing effectiveness of technical assistance can help to keep the transformation on track.

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