The Case Management Challenge:

A systematic review and thematic synthesis of barriers and facilitators to case management in primary care

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Abstract

Background: In response to an aging global population and the corresponding increased of chronic illness, case management has emerged as a powerful innovation to address the health challenges of patients with complex needs. Case management is defined as the collaborative process of assessment, planning, facilitation, care coordination, evaluation and advocacy for the options and services required to meet patient needs. Despite growing evidence on the benefits of case management for the care of patients with complex needs in primary care, implementation of case management has been challenging worldwide. Integration of case management into primary care settings has been studied around the world, but these reports have never been globally synthesized. Accordingly, the objective of this work was to identify a common set of barriers and facilitators to case management function that emerge in primary care settings around the world.

Methods: A systematic review and thematic synthesis of qualitative findings was conducted. In collaboration with an academic medical librarian, three electronic databases (MEDLINE, CINAHL, and Embase) were searched for qualitative and mixed-methods studies, written in English or French, related to factors affecting case management function in primary care. Titles, abstracts and full texts were screened for relevance to the research question. Included studies were assessed for quality, and a sensitivity analysis was conducted. Every step was completed by two researchers. Results from included studies were synthesized according to the method of Thomas and Harden (2008).

Results: Of the 1572 unique records initially located, 19 studies, originating from six countries, met the inclusion criteria. Nine factors affecting the ability of primary care teams to conduct case management were identified: “Family Context”, “Policy and Available Resources”, “Physician Buy-in and Understanding of the Case Manager Role”, “Team Communication Practices”,

"Training in Technology", "Relationships with Physicians", "Relationships with Patients", "Time Pressure and Workload", and "Autonomy of Case Manager". A schematic representation, designed to demonstrate the relationships between these factors, is advanced at the conclusion of the analysis.

Conclusion: This systematic review identifies a wide range of barriers and facilitators that influence a primary care team's capacity to conduct case management. Understanding these barriers and facilitators may allow for the development of policy- or clinic-level interventions to improve case management function and, by extension, to provide better care for patients with complex needs. The findings may be useful to researchers (who may use this review as a starting point for future investigation), healthcare professionals (who may learn of strategies to facilitate case management at a local level), and policymakers (who may use this data to develop additional guidelines that foster case management function in their jurisdictions).

Résumé

Contexte : Face au vieillissement de la population mondiale et à l'augmentation correspondante du nombre de maladies chroniques, la gestion de cas est devenue une innovation puissante pour faire face aux défis de santé des patients ayant des besoins complexes. La gestion de cas se définit comme le processus collaboratif d'analyse des besoins, de planification, de facilitation, de coordination des soins, d'évaluation et de défense des droits de patients en faveur des options et des services nécessaires pour répondre aux besoins des patients. Malgré un nombre de preuves grandissant sur les avantages de la gestion de cas pour les soins des patients ayant des besoins complexes en soins primaires, la mise en œuvre de la gestion de cas demeure encore difficile dans le monde entier. L'intégration de la gestion de cas dans le cadre des soins primaires est déjà bien étudiée, mais ces rapports n'ont jamais été synthétisés. L'objectif de ce travail, donc, était d'identifier l'ensemble des barrières et des facilitateurs de la gestion de cas qui émergent dans le cadre des soins primaires du monde entier.

Méthodes : Une revue systématique et une synthèse thématique des résultats qualitatifs ont été réalisées. En collaboration avec une bibliothécaire médical universitaire, trois bases de données électroniques (*MEDLINE*, *CINAHL*, *Embase*) ont été recherchées pour des études qualitatives et méthodes mixtes, rédigées en anglais ou en français, concernant les facteurs affectant la fonction de la gestion de cas en soins primaires. Les titres, les résumés et les textes entiers ont été sélectionnés pour leur pertinence par rapport à la question de recherche. La qualité des études incluses a été évaluée et une analyse de sensibilité a été réalisée par deux chercheurs. Les résultats des études incluses ont été synthétisés selon la méthode de Thomas et Harden (2008).

Résultats : Parmi les 1572 articles uniques initialement localisés, 19 études, provenant de six pays, remplissaient les critères d'inclusion. Neuf facteurs influençant la capacité des équipes de

soins primaires à effectuer la gestion de cas ont été identifiés : « Contexte familiale », « Politique et ressources disponibles », « Assentiment des médecins et compréhension du rôle du gestionnaire de cas », « Pratiques de communication en équipe », « Formation en technologie », « Relations avec les médecins », « Relations avec les patients », « Contraintes de temps et charge de travail » et « Autonomie du gestionnaire de cas ». Une représentation schématique, conçue pour démontrer les relations entre ces facteurs est proposée avancée à la fin de l'analyse.

Conclusion : Cette revue systématique identifie un large éventail de barrières et de facilitateurs qui influencent la capacité d'une équipe de soins primaires effectuer la gestion de cas. La compréhension de ces barrières et facilitateurs peut permettre le développement d'interventions au niveau politique ou clinique pour améliorer la gestion de cas et, par extension, pour fournir de meilleurs soins aux patients ayant des besoins complexes. Les résultats peuvent être utiles aux chercheurs (qui peuvent utiliser cette analyse comme point de départ pour des enquêtes ultérieures), aux professionnels de la santé (qui peuvent apprendre des stratégies pour faciliter la gestion de cas au niveau local) et aux décideurs politiques (qui peuvent utiliser ces données pour élaborer des directives supplémentaires afin de renforcer la fonction de gestion de cas dans leurs juridictions).

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Preface

The thesis that follows has been written and organized in the **traditional monograph style** of thesis-writing. This format includes the five major elements of a thesis: An **Introduction**, a **Literature Review**, a description of **Methodology**, a **Results** section, and a **Scholarly Discussion**. Additional components include a Title Page, Bilingual Abstracts (English and French), a Table of Contents, a List of Figures and Tables, Acknowledgements, this Preface, an explanation of the Contribution of Authors, a Reference List and several Appendices. These components have been added per the guidelines of the McGill Department of Family Medicine, McGill Graduate and Postdoctoral Studies, the National Library and Archives of Canada, and the conventions of the discipline of health service and policy research.

Contribution of Authors

In total, six reviewers – Matthew Hacker Teper, Xin "Martin" Yang (X.Y.), Eva Margo-Dermer (E.M.D.), Mélanie Le Berre (M.L.B.), Dr. Isabelle Vedel (I.V.) and Dr. Catherine Hudon (C.H.) – all contributed to this review, and, by extension, this thesis. Given these multiple contributions and the nature of this document, the specific contributions of the primary researcher and master's candidate, Matthew Hacker Teper, should be clarified with respect to those of his colleagues and supervisors.

- While discussions about a **Research Question** initially occurred between Matthew Hacker Teper and his two supervisors (I.V. and C.H.), the choice to pursue a research question that addressed barriers and facilitators to case management was made exclusively by Matthew Hacker Teper.
- The **Protocol and Methods** of this thesis were developed by Matthew Hacker Teper. While supervisors (I.V. and C.H.) provided guidance on these matters, the choice to conduct a systematic review and thematic synthesis of qualitative literature was initiated by Matthew Hacker Teper. What's more, Matthew Hacker Teper independently researched appropriate methodologies and delineated the required steps to complete this review.
- While all six researchers contributed at some point to **Data Collection and Analysis**, these processes were clearly coordinated, dominated and managed by Matthew Hacker Teper. X.Y. served as a second reviewer for the screening of articles, and E.M.D. served as a second reviewer for the quality assessment of included studies. M.L.B., I.V. and C.H. each contributed to the validation of content by reviewing two of the 19 total included studies. I.V. and C.H. also provided guidance and support as major decisions were made. Despite these contributions, Matthew Hacker Teper was clearly the primary and central researcher

in this process. He completed 100% of every aspect of study screening, data collection, data processing and data analysis. Other reviewers only acted in secondary or confirmatory roles.

- Topics, reflections and extensions for the **Discussion** were initially conceived of by Matthew Hacker Teper. I.V. and C.H. provided feedback on these elements, but Matthew Hacker Teper independently explored and wrote about them.
- Finally, this thesis document was entirely **Written** by Matthew Hacker Teper.

Introduction

The purpose of this research was to synthesize barriers and facilitators to case management in primary care, based on the perspectives and experiences of healthcare professionals.

In response to an aging global population and the corresponding increase of chronic illness, a new paradigm of healthcare delivery – case management – has emerged as a powerful innovation to address the needs of patients with complex needs (1, 2). Patients with complex needs often suffer from multiple chronic conditions, which may be compounded by mental health comorbidities and/or social vulnerability (3, 4). As a result, these patients require a variety of healthcare, social, and community-based services and supports (4). When these services and supports are poorly coordinated, patients with complex needs may suffer preventable deterioration of health (5) and may use hospital and emergency services to an extraordinary extent (6-9). This puts immense strain on healthcare systems that are not yet prepared to face these complex and chronic needs (6, 7). Globally, healthcare services face the excessive use of emergency department visits by a disproportionally small amount of people, many of whom suffer from high disease burden and/or chronic illness (7, 9). This burden is and will be exacerbated by a large and growing population of baby boomers with increase life expectancies (10, 11). As these patients grow older, traditional healthcare models, developed to manage acute diseases, will not be able to service the requirements of these high-need patients (10, 11).

Faced with the challenge of better addressing the health demands of patients with complex needs and of alleviating the stress that these patients place on overall health systems, governments and practitioners from around the world have turned to case management as a potential tool to coordinate services and improve care processes for patients with complex needs (12-15). The Case Management Society of America defines case management as “the collaborative process of

assessment, planning, facilitation, care coordination, evaluation and advocacy for options and services to meet an individual's and family's comprehensive health needs" (16). The goals of case management are to promote continuous, comprehensive, and cost-effective care through communication and coordination of services (16). By addressing the needs of patients with complex needs in a comprehensive and collaborative way, case management has the potential to improve care quality and outcomes for the patients whose complex and chronic care needs are unmet by current healthcare systems.

While case management is viable across diverse care settings, its usage in primary care has recently become of particular interest to clinicians, researchers and policymakers (17-19). The emphasis on case management in primary care reflects a global push to address the needs of patients *before* they reach emergency departments and/or they are admitted to hospitals (12, 13, 20). By managing chronic illness in primary care, clinicians have the potential to provide better care for patients with complex needs, and to prevent these patients from unnecessarily using of acute care services (6, 9). Furthermore, the coherence between the priorities of case management and the principles of primary care are marked. In primary care, like in case management, longitudinal relationships are valued, the entire biopsychosocial wellbeing of a patient is considered in conjunction with disease, and services are routinely coordinated (21).

Indeed, successful case management interventions in primary care are associated with improved satisfaction and quality of life for patients with complex needs (22-24). This includes patients with neurodegenerative disorders like dementia, and other ailments ranging from diabetes (25) to cardiovascular disease (26) to mental health disorders (27). Furthermore, by addressing the comorbidities of these patients with complex needs in a more efficient way, case management could reduce the strain that these patients place on overall healthcare system (e.g. alleviating

pressure on emergency departments running above-capacity, liberating resources for others who requires emergency services) (28). Case management, then, proposes an impactful solution to global healthcare challenges, by addressing patients with complex needs in more comprehensive, supportive and effective ways, and by reducing the stress that these patients place on overwhelmed healthcare systems.

Despite these optimistic findings and exciting potentials, primary care teams have historically struggled to implement and sustain case management in their clinical environments (1, 29-31). This is problematic, since the benefits of case management can only be realized when case management is fully adopted and integrated into routine practice (32, 33). Preliminary research on the barriers and facilitators to case management have advanced several potential factors governing the viability of case management in primary care, but these findings are context-specific (difficult to corroborate or generalize) and potentially unreliable (quality not assessed) (34-36). More critically, findings from individual studies remain inaccessible to practitioners, healthcare teams or policymakers who wish to gain insight into how to implement or improve case management function in their primary care contexts (37, 38). While the literature on barriers and facilitators to case management function is established and expanding (25, 39-43), there remains a lack of synthesis of this information. Such a synthesis is required to: centralize information about barriers and facilitators to case management function; validate or refute findings in individual reports; and identify novel themes or connections that can only be revealed through the combination of data from individual studies (44, 45).

In sum, case management has the potential to dramatically improve the quality of care that all patients, especially those with complex needs, receive in a primary care setting. It may also alleviate pressure that these patients place on larger health systems. Despite this potential, research

examining the nature of barriers and facilitators to case management function specific to primary care remain general, disconnected and invalidated. This dearth of synthesis surrounding barriers and facilitators to case management function necessitates a careful synthesis of a broad body of research works.

Literature Review

Premise

In this section, the reader will be oriented to the origins, elements and benefits of case management. First, this chapter will describe the challenges to care integration for patients with complex needs, and how case management emerged to address these challenges. Next, the history of case management, and its current manifestations, will be presented. The relationship between case management and primary care will be articulated. Then, the benefits of case management in primary care will be explained. Implementation science, and its relevance to case management and healthcare systems reform, will be defined. Finally, this section will conclude by defining knowledge gaps in the literature, the purpose of this review, and a precise review question.

Challenges of Care Integration for Patients with Complex Needs

Globally, adults with complex needs and chronic conditions consume a disproportionally large share of healthcare resources (5). For example, the sickest 10% of Canadians consume almost 80% of healthcare resources (46). Similar trends exist in the United States, where the sickest 30% of adults account for 89% of total healthcare expenditure (47). In an increasingly fragmented healthcare system (between community, hospital and long-term care), patients with complex needs are prone to gaps in care coordination that lead to unnecessary exacerbations in healthcare challenges (5). When these gaps emerge, patients with complex needs inappropriately rely on hospital and emergency services to address healthcare needs that could have – and should have – been addressed proactively upstream through primary care (6, 9). In fact, a recent study in the United States found that up to 80 percent of frequent users of healthcare suffer from chronic conditions that can be cared for by providing better upstream care (28). Preventable use of these

healthcare services (and subsequent overcrowding of emergency departments and hospitals) is costly (18, 48), and impedes others from accessing critical care resources when they need them (39).

Well-coordinated care is critical for patients with complex needs, who often follow complicated regimens of medication, diet, exercise and self-monitoring (5, 18). As a result, these patients require a more continuous and comprehensive network of support (8, 18). However, a recent high-profile study from Schoen et al. suggests that this network of support for patients with complex needs – care coordination and chronic illness management – is poorly accomplished in 11 developed countries: Australia, Canada, France, Germany, Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States (5). Even in the most sophisticated healthcare systems in the world, there remains a sizeable lack of guidance and support in managing complex and chronic illness. 30 to 60 percent of chronically ill patients surveyed reported never discussing main goals, care plans or clear instructions with their healthcare providers, and between 20 and 40 percent of patients said they could not easily call their caregivers to ask a question or get advice (5). These findings highlight how chronic illness mismanagement and failed care coordination are not specific to any country or healthcare system. Private (United States), Mixed (Switzerland, Australia) and public healthcare systems (Canada, United Kingdom) all suffer from the same ailment. To better address the demands of patients with complex needs (and, by extension, to reduce costs associated with rising burdens of chronic illness), many of these countries have turned to team-based collaborative care models like case management (17-19).

Defining Case Management

Origins of case management

While the term "case management" emerged in healthcare spheres around 1960, the origins of case management can be traced nearly a century earlier, with the first board of charities in Massachusetts, United States (49). The board of charities used a system of index card files designed to identify needs, neighbourhood issues and environmental challenges of sick and poor families (50). Social service pioneers advocated on behalf of vulnerable people, and promoted interagency cooperation and service coordination to meet the needs of patients (49). By 1900, the figure of the community nurse – who could provide direct nursing care, coordinate social services and address the social or spiritual needs of the family – was gaining prominence (51).

The end of World War II, and the sudden influx of military veterans, brought the United States' *Veterans Affairs (VA)*, and their use of case management, to the forefront of health and social service provision (50, 52). The *VA* was tasked with treating the biopsychosocial problems of soldiers, including addressing decade-long traumas of substance abuse, poverty, homelessness and post-traumatic stress disorder (52). The *VA* solution was to group together diverse health and social care professionals to act as a "one stop shop" (50) for the needs of veterans. Individual practitioners were charged with *managing* each clinical *case* (a veteran), and the term *case management* was born (52). Today, case management has been implemented in clinical settings around the world with varying complexity, breadth and depth (53, 54).

Essential components of case management

The Case Management Society of America defines case management as "the collaborative process of assessment, planning, facilitation, care coordination, evaluation and advocacy for options and

services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes." (16) Wagner adds the importance of "reviewing, monitoring and subsequently adapting care plans for patients" to this definition (55). Robbins & Birmingham describe case management as a more humanist process, through which healthcare professionals assess patients and families within a context; understand their premorbid condition; possess an understanding of community services; and help patients and families to access those services (56).

Figure 1: "Case Management", as defined by the Case Management Society of America (16)

Whatever the definition, scholars and practitioners alike emphasize that, in order to be effective, case management should be continuous, comprehensive and collaborative (among health professionals and between professionals and patients). Specifically, Barlow et al. and Freund et al. highlight four essential components of case management: (1) a regular evaluation of the patient's needs and resources; (2) the establishment and continuity of individualized services tailored to patient needs; (3) the coordination of services between healthcare professionals to improve service integration; and (4) the development of self-management support for the patient and his or her

family (57, 58). Case management emphasizes team-based managerialism and promotes the sharing information, coordinating work, and making joint decisions about patient care (25, 32). It involves frequent communication and collaboration between healthcare professionals from different disciplines, and emphasizes a holistic psychosocial and biomedical treatment plan centered around the individual needs of patients.

The brokerage/generalist model

While there are four distinct variants of case management – *brokerage/generalist* case management, *assertive community treatment*, *strengths-based* case management, and *clinician/rehabilitation* case management (54, 59) – the model most commonly used in primary care, and thus the variant of case management relevant to this study, is the *brokerage/generalist* model of case management (60). The primary goals of this model of case management are twofold: to help patients identify their needs, and then to broker ancillary or supportive services to address those needs (60, 61). Accordingly, this model of case management is especially defined by the coordination of services, a process which is often facilitated by a case manager (54). Service provision is also prioritized, but this aspect is provided by other healthcare professionals (physicians and nurses) (54). Homecare visits may occur, but the happenings of case management are strongly rooted within the primary care clinic (60). Whereas other models of case management are highly intensive and aimed at growth or recovery, the *brokerage/generalist* model acknowledges that *stabilization* of chronic illness is first required (54). Recovery or improvement is a secondary objective (54). Accordingly, this model of case management is particularly suited for chronic illness for which there is no cure: neurodegenerative diseases like dementia, serious mental health disorders, or biophysical ailments like diabetes (25, 62, 63). Healthcare professionals

strive to *empower* the patient to be invested in their health (54). Patients and families work together with case managers to make decisions about health, as opposed to passively accepting paternalistic direction from a healthcare professional. Forming longitudinal relationships are encouraged, and since interactions with patients are less frequent than in other models, primary care teams are able to maintain larger caseloads of patients (54). A brief table comparing the *brokerage/generalist* model of case management with other models of case management, is included in Appendix A.

Who are case managers?

As has been alluded to above, the process of case management, including service coordination, is often mediated by a specifically designated "case manager." This position is most frequently filled by a nurse, nurse practitioner, or social worker (29, 64). Case managers ensure that multiple inputs from different healthcare professionals are understood, and interface with actors from the public, private and community sectors to ensure the best care for their patients (65). Case managers interact with patients by performing many of the activities defined above: they assess patient needs, create and implement care plans, and monitor and follow up on health statuses (55, 66).

Case management in primary care

Case management has been implemented in primary (community-based), secondary (hospital) and tertiary (niche or highly-specialized) care settings (67). Although the models and processes of case management can manifest in any of these settings, the way in which they are accomplished are vastly different. Case management function in primary care is distinguished from secondary and tertiary settings by several qualities:

- **Continuity:** Primary care promotes sustained relationships between patients and clinicians (68). This allows for a sustained and recurring evaluation of patient needs and a subsequent refinement of options and services required to meet these needs (68). Continuity of care is an important objective of both primary care and the *brokerage/generalist* model of case management (54).
- **Whole-person focus:** primary care maintains a whole person perspective, that does not focus on a particular disease, organ or system. Primary care is based in understanding a patient's personal and medical history, plus life circumstances, in addition to acute diagnoses (68). This emphasis is equally valued under all case management paradigms (56).
- **Inter-agency coordination**: In primary care case management, the services and personnel required to meet the needs of patients likely exist both within and beyond the primary care clinic (68). This is an important distinction from secondary- or tertiary-care settings, where members a multidisciplinary team is housed in proximity to one-another, and where finite resources are often contained within a ward or building (69).

Benefits of Case Management in Primary Care

Improved satisfaction and quality of life

Globally, it has been demonstrated that primary care case management increases the satisfaction and quality of life of frail and elderly and chronically ill patients (1, 70). For example, a high-profile systematic review in the *British Medical Journal* finds that case management may enhance the quality of life of cardiovascular disease patients (71). Frail and elderly patients are satisfied

with case management, as are their caregivers, who experience a decreased burden of care under the intervention (72).

Improved quality of care and reduced functional decline

In Australia and Canada, quantitative research shows that case management leads to improved quality of care for, and improved functional status of, frail and elderly patients (26, 72). Another systematic review by Boult et al. includes studies on case management that unanimously conclude that case management is associated with improved quality of care for frail and elderly patients (70). A lack of case management and care coordination, by contrast, may contribute to poor overall health of people with chronic illnesses (73).

Decreased Emergency Department (ED) visits and risk of hospitalization

A systematic review containing studies from Canada, the United States, the United Kingdom, Sweden and Australia find that case management is associated with reduced ED use and improved social and clinical outcomes for patients with complex needs (39). Additional randomized controlled trials demonstrate that patients with complex needs visit EDs less frequently, an incur fewer healthcare costs, when their primary care teams use case management (24, 74). A final study from Canada shows that these patients, when exposed to case management, experience "reduced risk of being institutionalized [and a] decreased risk of short-term hospitalization" (72).

Improved psychosocial mediators for patients with mental health challenges

Finally, case management has been shown to positively affect knowledge, social support and health benefits, as well as psychosocial mediators such as self-efficacy, for patients. This finding

applies to frail and elderly patients with diabetes (25, 75), as well as younger patients who suffer from high comorbidity, mental health problems and general social precariousness (24, 74, 76, 77). Case management has also been successfully used to address the needs of all patients with complex needs who suffer depression and related mental health challenges (22, 78, 79). Case management can also be tailored to patients with psychotic disorders and other severe mental illnesses (80).

Implementation Science: The Study of Barriers and Facilitators

These proposed benefits of case management in primary care can only be achieved when case management is integrated into routine practice (32, 33). Such integration has been challenging, and reports of healthcare teams struggling to establish and maintain case management in their clinical are common (1, 29, 30). To address this challenge, scholars have turned to the field of *implementation science* to develop strategies to improve case management integration into clinical settings.

What is implementation science?

While new healthcare technologies and interventions are continually unveiled by research, these findings cannot affect patient outcomes unless healthcare services and healthcare professionals adopt them into practice (81). This transition – from invention to adoption – is seldom straight forward (82). In fact, some estimates show that two thirds of organizations' efforts to implement change fails (83). Implementation science, defined as "the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice," and has emerged an attempt to promote the effective implementation of innovations into practice (81). A main focal point of implantation science is to focus on the barriers and facilitators

to the implementation of an innovation (81, 82). Barriers and facilitators to implementation may exist on multiple levels of healthcare delivery: the patient level, the provider level, the team level, the organizational level, or the market/policy level (14). Characteristics of the innovation itself, the related or replaced tasks, the adopters, the disseminators, the communication, and the surrounding context should all be considered when crafting or critiquing an implementation strategy (84).

Understanding perspectives

Many of the defining works in implementation science identify "perspective" as a major focal point of the field (84, 85). Dearing and Greenhalgh both argue that in addition to examining *characteristic* of a novel intervention, it is equally important to examine *human perspective* – how an innovation is viewed or experienced – in the diffusion of innovations (84, 86). For example, even if benefits of an intervention exist, healthcare teams are more likely to adopt the intervention if those benefits are *observable* or can be *perceived* by adopters (84, 87). Despite this emphasis, the term "perspective" lacks a unified or consensus definition. For the purposes of this study, a perspective will be defined as the meaning attached to something that is lived, felt, undergone, made sense of and accomplished by human beings (88). It is influenced by interactions, intentions, attitudes, actions, values and beliefs (88). Perspective is a more complex phenomenon than knowledge or awareness. Perspective is distinguished from "knowledge" in that it is an interpretive stance derived from particular actors in particular circumstances (89). It is distinguished from awareness in that it is more than just a passive reception of sensation (e.g. the "opening of a lens of a camera") (90). Accessing the perspectives of healthcare professionals renders identified

barriers and facilitators more credible, since they are linked with reality and the real practices of healthcare professionals.

Barriers and facilitators

Ultimately, the successful or failed implementation of an innovation is dependent on a series of barriers and facilitators related to the innovation itself, the individuals charged with adopting the innovation, and the system in which the innovation manifests (84). The Oxford English Dictionary describes these factors as any "circumstance, fact or influence that contributes to a result or outcome" (91). In the context of this thesis, "barriers" are anything preventing, impeding or limiting the function of case management. "Facilitators" are elements that promote, encourage or foster the faction of case management. Grol and Grimshaw and Ferlie and Shortnell advance that barriers and facilitators affecting the implementation of change in patient care may exist on different "levels" – the patient, the clinician, the team practice, the entire clinic, and/or the wider environment." (14, 92). For the purpose of this review, barriers and facilitators on all levels will be included in the analysis.

Research gaps: synthesizing barriers and facilitators to case management

Using implementation science to understand the barriers to case management function is no new concept. Indeed, barriers to case management function in clinical settings have been studied since the 1990s (30, 93, 94). Even so, a 2012 study by Hoff, Weller and Depuccio found that implementation-focused research on the case management model still lags behind the number of studies assessing the model's effect on different outcomes (95). Research concerning case management implementation in primary care is especially valuable, since the unique conditions of

primary care present specific barriers and facilitators to case management function (21). Although isolated inquiry on barriers and facilitators to case management continues to expand, there remains a relative dearth of synthesis of evidence related to this subject. Specifically, the evidence that exists currently lacks several elements:

1. **Synthesizing barriers to case management function:** while studies concerning barriers to case management implementation and function are easily located, these barriers are not well synthesized. A multitude of systematic reviews have explored the capacity of case management to improve patient outcomes (25, 39-43), and one has even explored the relationship between select barriers and patient outcomes ("barrier-outcome matching") (63). However, these syntheses are highly outcome-focused (quantitative in nature), and fail to explore barriers to case management in a meaningful, profound, or nuanced way. Furthermore, it remains unknown whether or not barriers to case management are setting-specific, or common across clinics and systems.
2. **Considering *facilitators* to case management function:** If the synthesis of barriers to case management function is incomplete, the synthesis of *facilitators* to case management function is non-existent. While it is undoubtedly important to understand and evade barriers to the function of any intervention, it is ultimately the facilitators that will maximize the potential for the intervention to reach practice (96). For example, Kitson, Harvey and McCormack argue successful implementation (SI) of research into practice is a function of evidence (E), context (C), and facilitation (F) (96). Barriers are not mentioned in this equation. Facilitators to case management function, then, should be considered alongside its barriers.

3. **Understanding barriers and facilitators in the context of *primary care*:** While knowledge of barriers to case management function is generally useful, the majority of studies and syntheses that exist examine case management function in secondary (i.e. hospital) care. Primary care practice, however, does not resemble secondary or tertiary care (21). Given the global push to address the needs of chronically ill patients in community-based and primary care settings (12, 13, 20) it is important that researchers, practitioners and policymakers understand factors affecting the viability of case management that are specific to primary care.

Research question

To address the knowledge gaps described above, there is a need to conduct a synthesis that focuses on barriers to case management, introduces the value of facilitators to case management, and anchors these barriers and facilitators in a primary care context. Improving this understanding can be accomplished through a systematic and comprehensive review, based on the perspectives of healthcare professionals, that focuses on barriers and facilitators specific to primary care. Accordingly, this review aims to answer the following question:

What are the barriers and facilitators to conducting case management in primary care from the perspectives of healthcare professionals?

Methodology

Systematic Reviews vs. Scoping Reviews

Systematic reviews use an explicit, transparent and systematic process to define a research question, search for studies, assess their quality and synthesize findings either qualitatively or quantitatively (97, 98). Although the general objectives of a systematic review, to employ rigorous, transparent and replicable methods in the summary of literature relevant to a research question, are similar to those of scoping reviews, these types of review differ in several ways. The differences between systematic and scoping reviews are summarized in Table 1, below:

Table 1: Differences between systematic and scoping reviews, as defined by Armstrong et al. (97), Pluye et al. (98), and Grant et al. (99).

	Scoping Review	Systematic Review
Question	Broad question or questions	Focused question; narrow parameters
Search	Completeness of searching determined by time constraints. May include research in progress	Aims for exhaustive, comprehensive searching
Inclusion/Exclusion Criteria	Developed post-hoc	Usually defined at outset
Appraisal	No formal quality assessment	Quality filters often applied
Data Extraction	May or may not involve data extraction	Detailed data extraction
Synthesis	Typically tabular with some narrative component	Typically narrative with tabular accompaniment
Analysis	Characterizes parameters and gaps in a body of literature	Articulates what is known, and unknown about a question, advances recommendations for practice and for future research

This review process adheres to norms and standards associated with systematic reviews: the proposed question is singular and specific, explicit inclusion and exclusion criteria identified from the outset, quality appraisal of studies and a subsequent sensitivity analysis are performed by two researchers, data extraction methods are extensive, the synthesis is narrative, and the analysis articulates practical knowledge related to the review question (35, 99).

The Value of Qualitative Research Synthesis

The use of systematic evidence to support public and health policy decisions is not a new concept (100). In fact, since 1975, "meta analyses" and "systematic reviews" have been conducted in medicine and health to assess the effectiveness of healthcare interventions (100, 101). While these systematic reviews have been used to drive evidence-informed policy and practice movement for nearly half a century, the integration of qualitative research into these approaches is relatively nascent (45, 102, 103). Qualitative research, however, provides a unique and valuable perspective into the perspectives, experiences and social contexts that affect – and are affected by – complex healthcare interventions (104). Although methodologies of qualitative research syntheses may not be well understood by some researchers (often because they are ill-described), Sandelowski and Barroso advocate for the value and rigour of such syntheses (103):

- Qualitative research synthesis is rigorous because it, itself, constitutes a form of scientific inquiry.
- Whereas a narrative background review of literature typically precedes a study (to identify gaps, errors or controversies to be studied), qualitative research syntheses systematically and justifiably apply conditions to data (e.g. enforcing strict inclusion and exclusion criteria).
- Qualitative research synthesis is systematic and exhaustive in the search, retrieval, and analysis procedures employed.
- Qualitative research synthesis does not re-analyze the "raw" data of qualitative studies. Rather, the primary data in qualitative research synthesis studies are the findings generated from the raw data across other primary studies.

Conceptual Framework

Coordination of Care

Analysis of this thematic synthesis (described below) was guided by a conceptual framework entitled, *An in-depth analysis of theoretical frameworks for the study of care coordination* by Van Houdt et al. (2013) (105). The choice to use a conceptual framework was made to ensure that the reviewers acknowledged and included barriers and facilitators related to *all* aspects of case management (for example, related to aspects of team dynamic, external factors, patient relationships, physical resources, etc.). Leveraging the guidance of a conceptual framework in this review was appropriate, since case management is a notoriously ill-defined, highly variable and complex initiative (15, 16, 54-58, 106). The Van Houdt framework identifies fourteen "key concepts" of care coordination: 'External Factors', 'Structure', 'Task Characteristics', 'Cultural Factors', Knowledge and Technology', 'Need for Coordination', 'Administrative Operational Processes', 'Exchange of Information', 'Goals', 'Roles', 'Quality of Relationship', 'Patient Outcome', 'Team Outcome' and '(Inter)organizational Outcome' (105). The choice to include a framework centered around the "coordination of care" was made because, while case management is a multidimensional intervention, its most central and ubiquitous function is the *coordination* of care within and between healthcare and social service institutions (62, 107, 108). This emphasis on coordination was especially compatible with the *generalist/brokerage* model of case management that is most prevalent in primary care (described in the literature review) (54).

Hybrid approach

While the "coordination of care" framework was a useful tool to explore all of the factors that may be associated with the ability of primary care teams to conduct case management, it remained true

that coordination is just one of six (or more) functions commonly associated with case management (16, 55). To coordinate care is not to do case management. To reflect this reality, the analysis of this systematic review proceeded with a *hybrid* approach. The hybrid approach incorporated a data-driven inductive approach with the deductive a priori conceptual framework that allowed for a maximally wide range of themes to emerge directly from the data (109). Whereas using the 14 conceptual themes from the framework (described above) forced the researchers to consider barriers and facilitators to case management that would otherwise be undetected, proceeding with an inductive approach beyond this initial framework ensured that findings from this thematic synthesis were reflective of the current literature, and not artefacts of an unrelated analysis. In other words, the deductive framework was a way to organize or illuminate findings, but the inductive extraction of codes from the data made certain that the conclusions of this review were drawn *from the data.*

Thematic Synthesis

The methodology of qualitative research synthesis selected for this research was the thematic synthesis (36). Developed by Thomas and Harden in 2008, this approach is particularly tailored towards understanding a health issue "from the experiences and point(s) of view(s) of groups of people targeted by health policy and public health interventions" (36). Such a methodology was well-suited for the proposed research question, which sought to understand barriers and facilitators to case management though the perspectives and experiences of healthcare professionals. While the outcomes of case management ultimately affect patient care, the process of doing case management encourages healthcare professionals to alter their knowledge, attitudes and practices.

The choice to use thematic synthesis, then, was made to access and synthesize the barriers and facilitators to case management through the perspectives of healthcare professionals.

The thematic synthesis shares common characteristics with the meta-ethnography (110) and meta-synthesis (45). All three of these methodologies involve two general steps: (1) identifying key concepts from studies; and (2) "translating" these concepts between studies. The process of "translation" involves recognizing concepts between studies that are equivalent or similar, even though they may not be expressed in identical words (36). While the thematic synthesis is comparative in nature, the synthesis also involves "going beyond" the contents of the primary studies (44). Thorne et al. advance that these types of syntheses "are integrations that are more than the sum of parts, in that they offer novel interpretations of findings…not found in any one research report, but…derived from taking all of the reports in a sample as a whole" (36, 45).

The following subsections describe the stages involved with searching, assessing, extracting, and synthesizing qualitative findings for this research project. The systematic review was completed according to the Cochrane Handbook for Systematic Reviews (111). All other stages were completed according to the description of Thomas and Harden (36). Deviations from these protocols are noted.

Stage 1: Designing a research question

The research question used in this systematic synthesis was, **"what are the barriers and facilitators to conducting case management in primary care from the perspectives of healthcare professionals?"**

Stage 2: Designing a search strategy

Systematic reviews are designed to access a wide range of literature across a diverse range of data sources. According to this principle, a search strategy was conceived that was broad and inclusive. In collaboration with an academic medical librarian, three electronic databases (Ovid MEDLINE, CINAHL, Embase) were searched for qualitative and mixed-methods studies related to factors affecting case management practice in primary care. No date or geographic restrictions were imposed, since case management is practiced globally, and research related to this field emerged as early as 1990 (93, 94). By omitting restrictions on time or place common in systematic reviews, the search strategy was able to maximize conceptual saturation and heterogeneity in retrieved studies – a common goal of thematic syntheses (36). The development of the search strategy for this systematic review was an iterative process. Given the sparse nature of literature on the desired topic, the primary researcher (M.H.T.) was conscious to develop a search strategy that was highly sensitive (i.e. that "correctly identified" or retrieved as high a percentage of potentially viable articles as possible). Specificity (excluding non-relevant studies) was a lesser priority. To achieve these objectives, the search strategy was validated by testing results against relevant articles known to the researchers. Broad concepts were tested and modified to ensure that three diverse but relevant articles – De Stampa (2014), Iliffe (2001) and Sargent (2008) (29, 64, 112) – could all be retrieved by the search. If ever these three articles did not collectively appear in the results of a search, the search strategy was loosened to be more inclusive.

Table 2: Three main concepts and filters used across search strategies, plus associated subject headings and keywords

	Concept #1: Case Management	Concept #2: Perspectives of Healthcare Professionals	Filter: Qualitative Research
Subject Heading 1	Case Management	Interprofessional Relations	Qualitative Research
Subject Heading 2	Managed Care Programs	Attitude of Health Personnel	Interviews as Topic
Subject Heading 3	Patient Care Team	Interdisciplinary Communication	Focus Groups
Keyword 1	Care Management	Workload	Experience
Keyword 2	Care Navigator	Social Work	Perspective
Keyword 3	Patient Centered Medical Home		Meaning

The result of this process yielded a search strategy that included two concepts: "case management" (or equivalent terminology) and "perspectives" (or equivalent terminology), plus a qualitative research filter. These concepts and filters are represented in Table 2, above. "Primary care" was not included as a concept because it led to the unnecessary exclusion of viable studies on case management in primary care or community settings that were not tagged or referenced as such. Similarly, the concepts "barriers" and/or "facilitators" were not included in the search strategy because they were found to be overly restrictive. For example, of the 19 articles ultimately included in this study, eight lack both of these concepts in their full texts or database tags, and an additional seven only include one of the two concepts. "Equivalent terminology" to each concept included MeSH terms (designed to retrieve articles that were "tagged" or "indexed" in each database as being relevant, even if the MeSH term did not appear in the full text) and non-MeSH keywords (included to ensure that newer articles, with a lower likelihood of being indexed, would still be detected). The "case management" concept was restricted to appear in the title or abstract after a piloted search that revealed over 4 000 studies. The researchers (M.H.T., I.V. and C.H.) decided that if an article didn't mention "case management" (or equivalent terminology) in the title or abstract, it was highly unlikely that such a paper would truly explore barriers and facilitators to case management. The "perspectives" concept was included to retrieve studies that advanced barriers and facilitators based on the real-world perspectives and understandings of healthcare

professionals (as opposed to lofty or unrealistic normative guidelines from handbooks or manuals). All keywords, wherever possible, were truncated with an asterisk (*) to ensure that deviations in plurality or spelling were not omitted (e.g. "case manage*" returns results for "case manager", "case managers", and "case management"). MeSH terms and keywords referring to the same concept were combined with the "OR" function, and each of the three concepts were combined with the "AND" function. Lastly a qualitative filter – designed by researchers and validated by individual databases – were used to ensure that any empirical study including any qualitative method would be included in the search results. This reflects a decision to include mixed methods studies in the search results, but to only include relevant qualitative findings in the synthesis. Full database-specific search strategies, including qualitative filters, are available in Appendices B, C and D.

Table 3: Examples of various types of terminology used in search strategy

Text	Type
Case Manage*	Truncated Keyword / MeSH Term
Care Manage*	Truncated Keyword
Care Navigat*	Truncated Keyword
Managed Care Programs	MeSH Term
Patient Care Team	MeSH Term
Patient Centered Medical Home	Keyword

The search results were restricted to original empirical research published in peer-reviewed literature. Grey literature was not included because of time restrictions associated with this master's thesis. Still, given that the understanding of barriers and facilitators to case management in primary care is amenable to a suite of qualitative methods of inquiry, the reviewers are confident that information on this topic is adequately represented in the formal literature. This decision to exclude grey literature is validated by Conn et al., who argue that "the value of grey literature must be high to justify the increased costs [time] of securing these difficult-to-locate studies" (113, 114).

Stage 3: Study selection

From the outset of the screening process, six core inclusion criteria were imposed on all retrieved search results. Included studies had to (1) contain empirical (as opposed to normative) data; (2) use at least one qualitative method; (3) examine perspectives or experiences of healthcare professionals (not just patients or policymakers); (4) be situated in a primary care and/or a community setting; (5) involve the provision of comprehensive case management (involving at minimum patient assessment, planning and coordination of services); and (6) be written in either English and French, the two languages mastered by the primary researcher (M.H.T.). Normative literature, like case management handbooks, manuals, or narrative texts, was excluded from the search. This decision was made because recommended competencies in case management are well explored and delineated. Focusing on empirical experiences, instead, is closer to the realities of case management provision. Untranslated studies in different languages (German, Swedish, Mandarin, and Dutch) also had to be excluded because of the linguistic competencies of the research team, although very few of these studies existed (see results). The inclusion of studies in French was intentional, since several important studies on case management implementation have been conducted in France and Quebec (2, 7, 32, 65). An expanded list of inclusion and exclusion criteria is presented in Table 4, below.

Table 4: Main inclusion and exclusion criteria

	Inclusion Criteria	Exclusion Criteria
Data Source	Empirical (e.g. primary studies)	Normative (e.g. guidelines, handbooks, textbooks)
Methods	Minimum one qualitative method (interviews, focus groups, ethnography)	Strictly quantitative methods (RCTs, surveys, cohort studies)
Setting	Primary-or community-based care	Secondary or tertiary care
Study Population	Healthcare professionals (physicians, nurses, nurse practitioners, social workers, psychiatrists, case managers, pharmacists, etc.)	Informal caregivers (family members, loved ones), patients, or policymakers
Intervention Population	Patients with complex needs (multiple chronic conditions and/or mental health comorbidities and/or frequent users of healthcare services)	Unique populations or patients with isolated disease (e.g. HIV patients, indigenous communities, high-risk schizophrenics)
Nature of Case Management	"Comprehensive" (minimum patient assessment, care planning, and the coordination of services)	Highly specific (only one aspect of case management)
Language	English, French	All other languages

Screening and selection of articles proceeded in two phases. First, two authors (M.H.T. and X.Y.) independently screened every title and abstract, assigning a grade of "yes" (proceed to read full text"), "unsure" (defer to the other researcher) or "no" (exclude article). Both reviewers were well versed in the definition and conceptual nuances of case management, as well on the distinguishing factors of inclusion and exclusion criteria. Including a second reviewer (X.Y.) in the initial screening processes helped to prevent any unconscious biases that the primary researcher and author of this thesis (M.H.T.) may have had (115, 116). This decision is consistent with a core objective of both the Cochrane handbook for systematic reviews and Thomas and Harden's thematic synthesis methodology, which is to provide reliable answers to particular questions that are not distorted by biases in the review process (35, 36). Articles that were unanimously graded "yes" were included for subsequent full-text screening. Articles that were unanimously graded "no", or where one reviewer graded "no" and the other graded "unsure", were immediately discarded. The remaining articles (for which at least one reviewer graded "yes", or both reviewers graded "unsure") were individually re-reviewed by the reviewers together to determine whether or

not they should be included in the full-text screening round. Cases of disagreement, although extremely rare, were resolved through consultation with a supervisor (I.V.). The entire initial screening process was done through separate and personalized Microsoft Excel® files that were eventually merged to compare screening results.

After initial title and abstract screening, the same two reviewers (M.H.T. and X.Y.) independently screened a randomly selected 10% of candidate articles by reading the full text of each study. Full text revision was done in tandem to ensure that inclusion criteria were being fairly and consistently applied, which could not be determined by looking at the title and abstract alone. This 10% of full text articles was randomly selected from the list of candidate articles in Microsoft Excel®. However, random selection of articles was stratified to include a proportionate number of articles that unanimously passed the initial screen (i.e. both reviewers said "yes"), and articles that passed the initial screen, but only after a debate among reviewers. This choice was made to ensure that the 10% of full texts examined by two independent reviewers were representative of the entire sample. Full text articles were sorted into two groups: "include in synthesis" or "exclude from synthesis". After the two reviewers (M.H.T. and X.Y). independently screened 10% of full texts, an inter-rater reliability score (Cohen's kappa 0.83, suggesting strong or near perfect agreement[1]) was established (117, 118). Given this strong kappa score, the primary researcher (M.H.T.) proceeded to screen the remaining full text articles.

[1] Cohen originally suggested that a kappa of 0.61-0.80 be viewed as "substantial agreement", with 0.81-1.00 being "almost perfect agreement". A more contemporary analysis by McHugh argues that 0.80-0.90 be considered "strong" agreement, with only kappa values above 0.90 qualifying as "almost perfect agreement".

Stage 4: Quality assessment

Once a final list of articles was selected, these articles were subject to quality assessment. The quality of each included study was assessed to avoid drawing unreliable conclusions (from biased or untrustworthy studies), and to maximize transparency of the synthesis process (36, 119). While Thomas and Harding to not advocate for one specific quality assessment rubric – in their own studies they have used rubrics of between seven and 12 quality assessment criteria (120, 121) – they recommend a method of quality assessment that evaluates the quality of *reporting* (of a study's aims, contact, rationale, methods and findings), the quality of *strategies* (employed to establish the reliability and validity of the data collection and analysis), and the quality of the *appropriateness* (of the study methods, to ensure that these findings are rooted in participants' genuine perspectives) (36). Given these general parameters, the decision was made to assess the quality of included studies with the *Standards for Reporting Qualitative Research (SRQR)* tool, created by O'Brien et al. in 2014 (122). The *SRQR* quality assessment rubric identifies 21 structured statements, organized into five themes:

- "Title and Abstract" (2): concise description, summary of key elements
- "Introduction" (2): problem, purpose or research question
- "Methods" (11): qualitative approach, reflexivity, context, sampling, ethical issues, data collection methods and instruments, units of study, data processing and analysis, and techniques to enhance trustworthiness
- "Results and Findings" (2): synthesis and interpretation, links to empirical data
- "Discussion" (2): integration with prior work, limitations
- "Other" (2): conflicts of interest, funding

The *SRQR* tool was selected for several reasons. First, this tool applies to *all* qualitative methodologies (as opposed to tools that are exclusive to focus groups and interviews) (122). This distinction is most significant, since several studies included in this thematic synthesis are case studies that including participant observation and/or document analysis (65, 123, 124). Second, this tool was established through a literature review of older quality assessment tools, but validated through expert debate with researchers (122). This process of refining an academic foundation with debate among experts in relevant fields lends itself to a greater applicability and dependability than in tools that are purely literature-based (125) or researcher-based (126). Third, this tool is recommended by the authors to be applied to, among other fields, healthcare and health services fields (122). The research question of this review falls well within these domains. Finally, this tool balances brevity with comprehensiveness (122, 127). Its 21 checklist items are substantial enough to critically analyze the quality of the reporting of research, but no so burdensome that they require expending unnecessary amounts of time and energy for limited additional insight into the reported quality of studies (or lack thereof).

In accordance with the principles of systematic reviews (35), quality assessment was performed to ensure that the included studies were both *credible* (coherent between respondents' views of their life ways and the inquirers' reconstructions and representations of the same; parallel to internal validity) and *dependable* (subject to an inquiry process that was logical, traceable, and documented; parallel to reliability) (128). To do so, two independent reviewers (M.H.T. and E.M.D.) independently evaluated each of the 19 candidate studies against the 21 criteria of the *SRQR* tool. For every criterion of the tool, each reviewer assigned "yes", "no" or "somewhat", and justified the decision with a reference to the study and/or why the decision was made. At the end of this process, the reviewers met and compared results. Differences in assessment were resolved

through discussion and consensus. Studies determined to be of weaker dependability and/or credibility were *not* immediately excluded from the review, as is typically the case with quality assessments of quantitative reviews and meta-analyses (129, 130). Instead, these articles subject to a sensitivity analysis at the completion of the thematic synthesis to determine if results of the synthesis changed when articles of lower credibility were introduced. This process is described in *Stage 9*.

Stage 5: Data extraction

For the purposes of this investigation, "data" was considered to be all of the text labelled as 'results' or 'findings' in every study (36). Data from each study – already in electronic form – were entered verbatim into NVivo 12 software (QSR) for coding and analysis.

Stage 6: Coding text and developing descriptive themes

The process of coding and analysis proceeded according to the thematic synthesis protocol of Thomas and Harden (36). Specifically, this process involved three stepwise strategies: a line-by-line coding of the results sections of each included study, assigning these codes into shorter descriptive themes, and developing larger analytical themes that were organized in a hierarchical and interconnected manner (36).

Coding proceeded according to the hybrid approach described previously (109). Before the coding of texts began, the 14 macroscopic themes derived from the theoretical framework for care coordination (105) were uploaded into the "Nodes" section of NVivo. Sometimes, within these "first level" themes, "second level" sub-themes were clearly identified in the framework (for example, "Administrative Operational Processes" are clearly differentiated between "Impersonal

Methods", "Personal Methods" and "Group Methods" by Van Houdt et al.) (105). By contrast, the majority of these "first level" themes were not subdivided into further sub-themes. The decision *not* over-populate the "second level" of sub-themes reflected a commitment to the inductive aspect of this "hybrid" (deductive-inductive) analysis. While the "first level" themes derived from the framework were used as a starting point for the coding of text (to establish a range of possible themes, and to force the primary reviewer to consider themes that were not intrinsically 'obvious' or 'eye-catching'), the remainder of the coding process remained inductive. Ultimately, this emphasis on inductive coding reflected a strong desire on behalf of the researchers to identify barriers and facilitators that originated from the *real perspectives* of healthcare professionals *doing case management* in primary care (instead of simply confirming or validating the initial conceptual framework).

The primary researcher independently coded each line of text according to its meaning and content. These lines were condensed and consolidated into shorter themes, under which several excerpts from multiple texts could be amalgamated. Every time a new theme was created, the code was sorted within, adjacent to, above or beyond the pre-established "first level" themes (with some "second level" sub-themes). As a result, some themes could be structured in a hierarchical "tree" form, while others could remain "free" (uncategorized) themes. The scope of themes was not limited to the initial 14 themes of the framework. Similarly, there was no expectation nor obligation to develop sub-themes for every "first level" theme. Examples of themes included "case manager position not understood by peers" (under "Roles"), "financial restrictions on care provision" (under "External Factors"), and "case managers must initiate relationships with physicians" (under "Quality of Relationships"). One line of text could correspond to different codes under different themes.

The process of coding primarily involved "translating" of concepts from one report to another (36, 44). When a line of text from a study resembled, meant, and referred to phenomenon that was coded from a different text, despite using different words, these lines were combined into the same theme (36, 44). As a result, almost every theme had more than one line of text associated with it. This process of translation is simultaneously part of the coding and synthesis process. Periodically throughout the coding process, all of the lines of text associated with a certain theme were re-examined to ensure that the theme was being interpreted consistently. Where required, themes were broken down into additional levels of sub-themes to ensure coherence of ideas. As a final step, sub-themes were re-arranged and re-sorted into multi-level themes to create a resultant final hierarchy of themes. At the end of this analysis, the resultant hierarchy of themes was validated by two members of the thesis committee (I.V. and C.H.) and one research assistant (M.L.B.) who independently extracted, coded and arranged themes from six of the 19 included studies. The six articles validated by additional members – Al Sayah (2014), Iliffe (2011), Netting (1999), Sargent (2008) and You (2016), Young (2009) – were purposively selected by the primary researcher (M.H.T.) because they collectively represented the variance in context, breadth and depth of all the included articles. Moreover, these six studies were specifically selected to collectively address or highlight the majority of first and second level themes generated by the primary researcher (M.H.T.). Differences in themes generated by reviewers, as well as the positions of themes relative to one another in the hierarchy, were debated among reviewers. The iterative process of collecting text into codes that are arranged in thematic hierarchies is evidenced in the Figure 2, below.

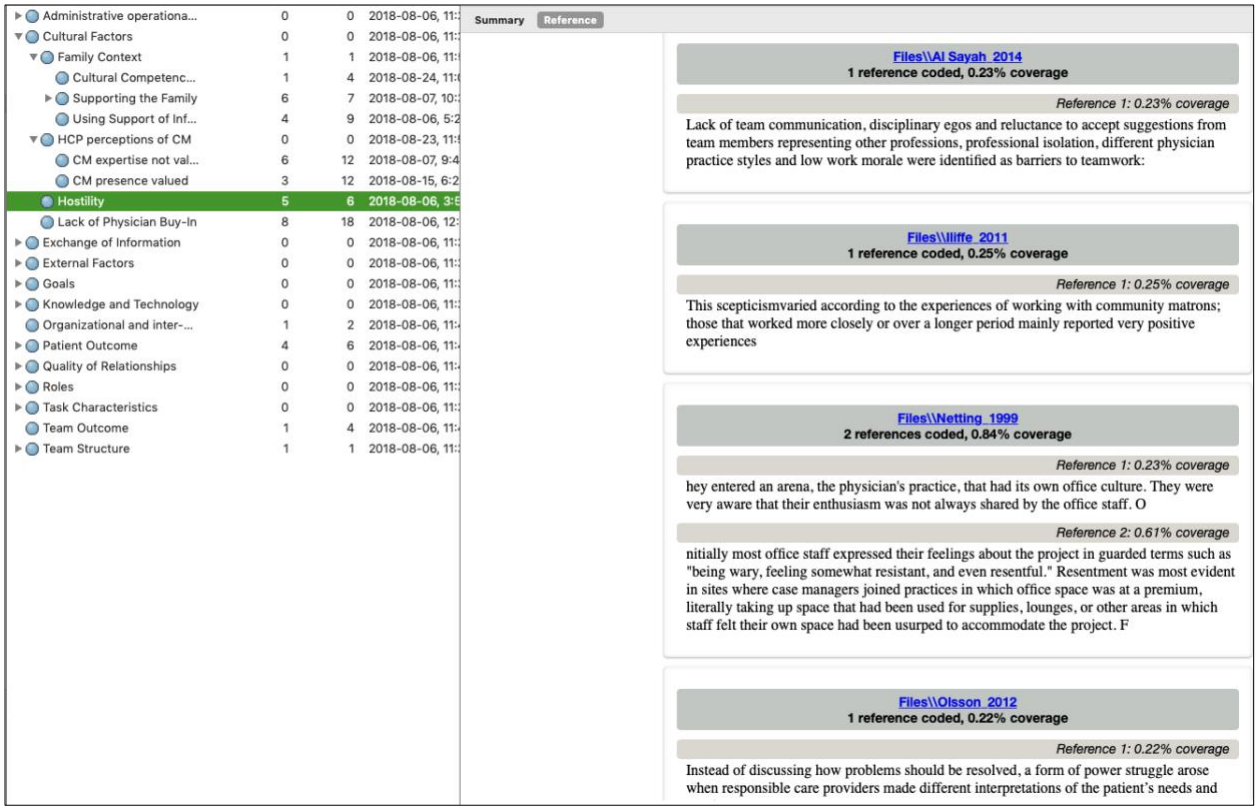

Figure 2: The hierarchy of sub-themes for the "Cultural Factors" theme, and a subset of collected lines of text associated with the "Hostility" sub-theme.

Stage 7: Generating conceptual definitions

In order to improve the usefulness of this thesis, the primary researcher (M.H.T.) generated a short summary table containing concise definitions of each barrier and/or facilitator to case management in primary care. These definitions were established by (1) re-examining individual codes contained in the NVivo file; (2) summarizing key points from the thematic synthesis; and (3) refining definitions for clarity with a supervisor (I.V.). While this process is not explicitly part of the thematic synthesis method defined by Thomas and Harden (36), it is the hope of the researchers the collection of these definitions will serve as an accessible summary of findings to the reader.

Stage 8: Generating analytical themes

The final stage of the analysis involved "going beyond" the original findings of included studies to generate additional concepts, understandings and hypotheses through an interpretive analysis of the hierarchy of themes generated in the previous stage (36). Here, the primary researcher (M.H.T.) developed, through consultation and debate with two supervisors (I.V. and C.H.), a set of "third order interpretations" – understandings of the data that could be inferred from the collection of evidence, despite never appearing in any individual study (36, 44). This extension piece allowed the researchers to ponder and posit potential relationships between the data-driven factors drawn from the thematic synthesis. Moreover, by re-reviewing included studies and examining the hierarchy of themes, researchers were able to identify overarching themes or factors that were associated with the ability of primary care teams to conduct case management. At the conclusion of this process, a representative schematic – which presents findings in an interconnected and hierarchical way – was established. This schematic, comprised of data-driven conclusions from the thematic synthesis and higher-level themes, is presented near the conclusion of the results section below.

Stage 9: Sensitivity analysis and confirmation of findings

To determine if any of the studies of lower methodological dependability, as determined by the quality assessment in *Stage 4*, played strong roles in advancing barriers and facilitators that were not validated by more credible findings, a sensitivity analysis was performed. Although traditional sensitivity analyses are highly quantitative in nature, the general principle of the approach – "to ascertain how a given model (numerical or otherwise) depends on its input factors" (131) was applied to a qualitative review setting. As a general principle, sensitivity analysis involves

monitoring local response of the output(s) of an analysis as input factors are varied (added or subtracted) (131). Following in this principle, studies of apparently poor methodological dependability were temporary deleted from the analysis in NVivo to determine if any pertinent themes were supported primarily or exclusively with this data. Specifically, results the three studies determined to be of lowest methodological dependability or credibility – Netting (1996), Netting (1999) and Bowers (2016) – were deleted from the NVivo file containing data from all other studies. In doing so, codes associated from the data of these studies were erased and removed from the hierarchy of themes. Next, a side-by-side comparison of NVivo files *with* and *without* the three studies was conducted. Themes that were supported by findings from the studies of lower methodological credibility were identified. Finally, the primary researcher (M.H.T.) strove to determine whether the identified themes were predominantly supported by excerpts from studies of lower methodological credibility, or whether codes from these studies were simply reinforcing themes that were well-established with more credible evidence.

Lastly, special attention was paid to a fourth study – You (2016) – which reported directly on the perspectives and experiences of healthcare professionals, but failed to explicitly identify barriers and/or facilitators to case management function in primary care. Instead, these barriers and facilitators needed to be *inferred* from the text. While including the You (2016) study is highly compatible with the thematic synthesis methodology that encourages thematic inference and "reading between the lines" (*Stage 8: Generating analytical themes),* the decision was made to code and analyze the You (2016) article *at the conclusion* of the thematic synthesis. Accordingly, the You (2016) study was used to confirm or validate findings, but not to generate additional themes inductively. To ensure that findings were not exclusively derived from this report (rending them vulnerable to interpretive bias by the researchers), a similar "delete and check" process was

conducted. The results of all sensitivity analyses are presented after the summary table and schematic.

Results

Search Results and Study Selection

The combined search strategy (adapted and executed in Ovid MEDLINE, CINAHL and Embase, see Appendices B, C and D for complete and database-specific search strategies) yielded a total of **1952** citations in English or French. 899 of these citations appeared in MEDLINE, 574 appeared in Embase, and 479 appeared in CINAHL. After removing duplicates, **1572** unique candidate articles remained. After title and abstract screening, **255** (**16.2%** of unique citations) records were determined to be viable for full-text screening. Of these, just **19** (**7.5%** of full texts, **1.2%** of unique citations) remained. Figure 3, below, shows the prevalence of, and reasons for, article exclusion. Note that the search retrieved an additional 32 records written in Chinese, German, Japanese, Portuguese, Spanish, and Swedish. These records were immediately excluded.

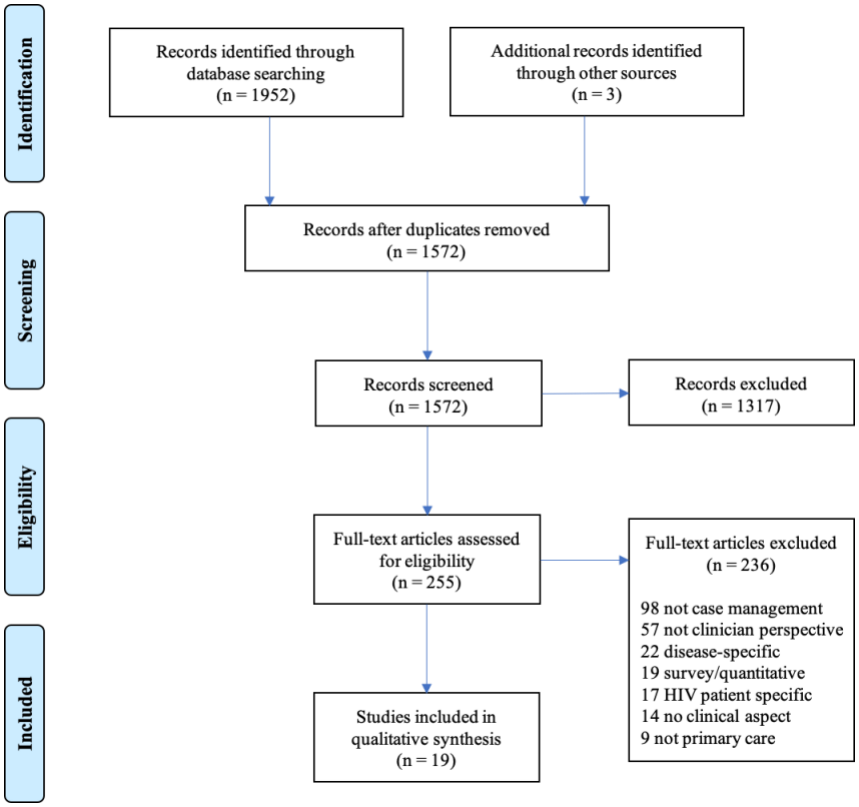

Figure 3: Flowchart of studies from search to inclusion

Characteristics of Included Studies

All 19 articles included in this study described healthcare professionals' perspectives on the process of doing case management in primary care. Barriers and facilitators to case management function in primary care were present in all studies, although they were not always explicitly identified as barriers or facilitators by participants or authors. Information about each of the 19 included studies (authors, year published, country of origin, qualitative design, data collection methods, study population and setting, intervention population, and main areas of questioning) is outlined in Table 5, below. A more comprehensive analysis of included studies is provided in the following section, entitled "Description of Included Studies."

Table 5: Table of characteristics of included studies, ordered by primary author's last name, showing year, country, qualitative design, patient population/setting and main areas of investigation

Author(s)	Year	Country	Qualitative Design	Data Collection Method(s)	Study Population and Setting	Intervention Population	Main areas of questioning
Al Sayah et al. (123)	2014	Canada	Focused ethnography	Semi-structured interviews	Nurse-case managers (n=20) working in three Primary Care Networks (PCNs) across Alberta	Patients with "medically complex problems", especially chronic illness (age not specified)	Nurses asked about (1) personal experience in PCN; (2) role of nurse in PCN team; (3) barriers and facilitators to teamwork in PCN
Balard et al. (135)	2016	France	Inductive qualitative grounded theory analysis	Open-ended, semi-structured interviews (n=35)	Older patients (age 60+) (n=19); their informal caregivers (n=11); and case managers (n=5)	Frail, community-dwelling, older persons (age 60+)	Case managers asked about (1) conceptions of role and work; (2) relationships with patients; (3) motivations to practice; (4) perceived successes and limitations of intervention
Bowers & Jacobson (138)	2002	USA	Grounded dimensional analysis (grounded theory and dimensional analysis)	Interviews	"Best" case managers (n=6), selected from "multiple informant sources"	"Frail, chronically ill, and disabled individuals living in the community"	Case managers asked questions to help researchers understand what "excellent" case managers think about the nature and quality of their work
Carrier (65)	2012	Canada	Qualitative exploratory embedded case study	Document analysis, interviews, direct observation	Case managers interviewed (n=14) and shadowed (n=6) at three Health and Social Service Centers (one mega-urban, one urban, one semi-rural)	Frail, elderly individuals	Case managers interviewed and shadowed to rendering explicit the coordination processes and professional practices of case managers
de Stampa et al. (29)	2014	France	Grounded theory analysis	Focus groups	Case managers (n=59) working at 14 multidisciplinary health centers across France	Frail, elderly patients with Alzheimer's disease	Case managers asked about (1) motivations for becoming a case manager; (2) activities of case managers; (3) team of case managers and partnering; (4) implementation of CM
Dick & Frazier (124)	2006	USA	Qualitative descriptive study	Focus groups (n=3), individual in-depth interviews (n=10), participant observation (n=2)	36 Boston-based nurse practitioners (NPs) who provided primary care to homebound elders. NPs worked in clinical health centers, community-based programs and certified home care agencies	Frail, homebound, elderly individuals	NPs asked to (1) identify and classify care activities; and (2) describe perceptions of the outcomes of their care activities
Egan (140)	2009	Canada	Qualitative descriptive study *	Focus groups and individual interviews	Case managers (n=30) from Ontario Community Care Access Centres (CCACs) who provided home-care to older adults	Elderly individuals in need of homecare services	Case managers asked questions about general experience and patient needs assessment

Feltes (93)	1994	USA	Qualitative descriptive study	Open-ended, in-depth interviews	Case managers (n=7) purposively selected from statewide CM agency in Connecticut	Frail, elderly individuals suffering from mental health and/or other chronic illness	Case managers asked open-ended questions designed to elicit "stories" about doing CM
Gimm, Polk & Nichols (30)	2016	USA	Qualitative descriptive study *	Focus groups (n=13) and in-depth telephone interviews (n=37)	Healthcare professionals in Maryland Patient Centred Medical Home (PCMH) physicians (n=82), nurse practitioners (n=6) and administrators (n=5)	High-risk Medicare patients suffering from multiple chronic conditions	Healthcare professionals asked about (1) motivation for joining PCMH program; (2) perception of various PCMH Program elements
Hoff & Scott (132)	2017	USA	Qualitative descriptive study *	Semi-structured interviews (n=51)	Six primary care PCMH (patient centered medical home) practices, varying in in clinic size, number of patients, urbaneness, sickness of patient. Physicians (n=21), nurses (n=14) and administrators (n=5)	General patient panel across urban, suburban and rural PCMHs	Healthcare professionals asked about (1) types of activities staff engaged in; (2) staff perspectives on PCMH activities
Illffe et al. (64)	2011	UK	Qualitative case study	Semi-structured individual interviews, by telephone (n=41), face-to-face (n=29), plus stakeholder analysis	Community nurse managers from 10 English strategic health authorities and two Welsh health boards (n=41), plus nurse case managers (n=12), GPs (n=12) and NHS community service managers (n=15), all from primary care trusts (PCTs) and caring for older people	Patients with long-term conditions and complex co-morbidities (younger or frail and elderly)	Healthcare professionals asked about (1) motivations for introducing nurse case managers; (2) models of CM used; (3) working relationships between nurse case managers and other healthcare professionals; (4) perceptions of CM; (5) perceived contribution and impact of nurse CM; (6) factors supporting or inhibiting nurse CM
Netting & Williams (94)	1996	USA	Qualitative descriptive study *	Semi-structured interviews, all face-to-face (n=105), plus informal dialogues with participants	Physicians (n=40), case managers (n=32), care assistants (n=2), office staff (n=23), administrators and managers (n=8), from nine urban sites across the U.S.	Frail, elderly individuals	Healthcare professionals asked about (1) relationships among healthcare professionals; (2) roles played by various professionals; and (3) professional identity
Netting & Williams (139)	1999	USA	Qualitative descriptive study *	Semi-structured interviews, all face-to-face (n=89)	Physicians (n=44), RNs (n=12), office staff (n=8), nurse practitioners (n=7), MSW-level social workers (n=5), care assistants (n=5), paraprofessionals (n=3), managers (n=3), physician assistants (n=2), from nine urban sites across the U.S.	Frail, elderly individuals	Healthcare professionals asked (1) how much and in what ways did CM become integrated into practice; and (2) what were the critical factors that led to integration?
Olsson et al. (136)	2012	Sweden	Qualitative content analysis	Focus groups (n=2)	Registered Nurses (RNs) (n=10) working in outpatient clinics, with three years' experience with CM	"Patients with complex and extensive care needs"	RNs asked about (1) care planning process; (2) communication with caregivers; (3) patient assessment

Peckham (134)	2014	Canada	Mixed methods sequential explanatory study	In-depth qualitative key informant interviews	Case managers (n=10), who previously performed a "Balance of Care" (BoC) simulation	Frail, elderly individuals	Case managers asked about (1) the "unit of care"; (2) the services required by caregivers and care recipients; and (3) the impact of ethno-racial diversity
Sargent (112)	2008	UK	Grounded theory analysis *	Individual interviews (n=46)	Community matrons, active case managers, advanced primary nurses and advanced practice practitioners in six Primary Care Trusts (PCTs), scattered across the UK (n=46), plus clinical and program leads (n=11)	Older individuals with chronic conditions	Healthcare professionals asked about (1) professional background; (2) descriptions of care models; (3) day-to-day case manager activities; (4) caseloads; (5) collaboration; (6) concerns
Yamashita (141)	2005	Canada	Grounded theory analysis	Two-time (repeated) interviews	Registered nurses (RNs) who had worked as case managers for a minimum of four months (n=16)	Individuals with chronic mental illness	RNs asked about (1) establishing and maintaining relationships with patients and agencies; and (2) advocating for patient needs
You (53)	2016	Australia	Qualitative descriptive study *	Individual interviews (n=23) and group interviews (n=10),	Diverse healthcare professionals, primarily trained in social work, allied health, and nursing, working as case managers (n=47)	Frail, elderly, community-dwelling individuals	Healthcare professionals asked to describe the roles do case managers fulfill in their practice
Young (137)	2009	USA	Qualitative content analysis	In-depth personal interviews (n=20) plus qualitative content analysis	Nurse (n=15) and social work (n=5) case managers, working in public housing and university-affiliated community nursing centers	Vulnerable populations (poor physical, psychological, and/or social health), often racial and ethnic minorities, uninsured, elderly, chronically ill or disabled	Healthcare professionals asked about (1) how to nurse and social work case managers conceptualize and practice advocacy; and (2) how to professional relationships facilitate advocacy

** denotes when design is not specified, but has been deduced by the primary researcher (M.H.T.)*

Description of Included Studies

Methods, population and country of origin

While a diverse range of healthcare professionals participated in included studies, 88% of combined participants were associated with just three distinct groups: case managers (42.7% of total participants), physicians (28.5%), and nurses (including nurse practitioners, nurses and nurse case-managers) (16.8%). The most common patient population served by case management in the included studies were frail and elderly patients (63.2% of studies), but other studies address case management in the context of caring for poor or otherwise vulnerable populations (36.8%). Six countries were represented among the 19 studies: USA (8 studies), Canada (5), France (2), the United Kingdom (2), Australia (1) and Sweden (1). Lastly, the most popular study designs used were qualitative descriptive study (42.1% of studies), grounded theory analysis (21.1%), qualitative case study (10.5%) and qualitative content analysis (10.5%). The most frequently used method was individual interviews (89.5% of studies), with focus groups (36.8%), observation (15.8%) and document analysis (5.3%) also being used to collect data. Six of these studies used multiple methods. Table 6 shows a more detailed breakdown of these metrics.

Table 6: Summarizing description of study characteristics, including the number of studies containing participants of different professions, from different countries of origins, and different qualitative methods

Participant Profession*	Number of Studies	Number of Participants (% total)
Case managers	12	298 (42.7%)
Physicians	5	199 (28.5%)
Nurse practitioners	3	49 (7.0%)
Office staff/administrators	3	40 (5.7%)
Nurses	3	36 (5.2%)
Nurse-case managers	2	32 (4.6%)
Managers	4	27 (3.9%)
Care/physician assistants	3	9 (1.3%)
Social workers	1	5 (0.7%)
Paraprofessionals	1	3 (0.4%)
Country	Number of Studies	% Total
USA	8	42.1%
Canada	5	26.3%
France	2	10.5%
UK	2	10.5%
Australia	1	5.3%
Sweden	1	5.3%
Study Design	Number of Studies	% Total
Qualitative Descriptive	8	42.1%
Grounded Theory	4	21.1%
Qualitative Case Study	2	10.5%
Qualitative Content Analysis	2	10.5%
Methods**	Number of Studies	% Total
Individual Interviews	17	89.5%
Focus Groups	7	36.8%
Ethnography / Observation	3	15.8%
Document Analysis	1	5.3%

**Note that the professional identities of some participants could have been classified into multiple categories (e.g. "registered nurses or social workers working as a case manager"). In these cases, the most pertinent or current job title was assigned (e.g. "case manager")*

***Note that some studies used multiple methods*

Publication dates

Publication years of included studies ranged from Feltes (93) in 1994 to Hoff & Scott (132) in 2017. 12 of 19 studies were published in the last decade (since 2009), and seven have been published in the past five years (since 2014). The four oldest studies (1994, 1996, 1999, 2002) were all based in the United States, whereas the most recent studies represented a wide range of healthcare systems and patient populations: at least one study representing the United States,

Canada, France, the United Kingdom, Australia and Sweden has been published in the past eight years (since 2011). The timeline (Figure 4) and bar graph (Figure 5), both below, show that more studies have been published recently than have been published in previous decades (the distribution of studies is shifted to the right).

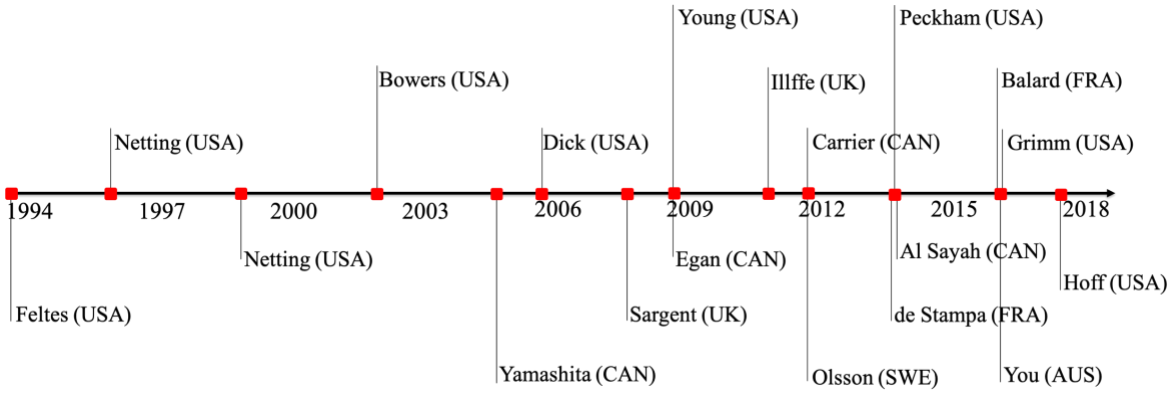

Figure 4: Timeline of published studies (and countries of origin)

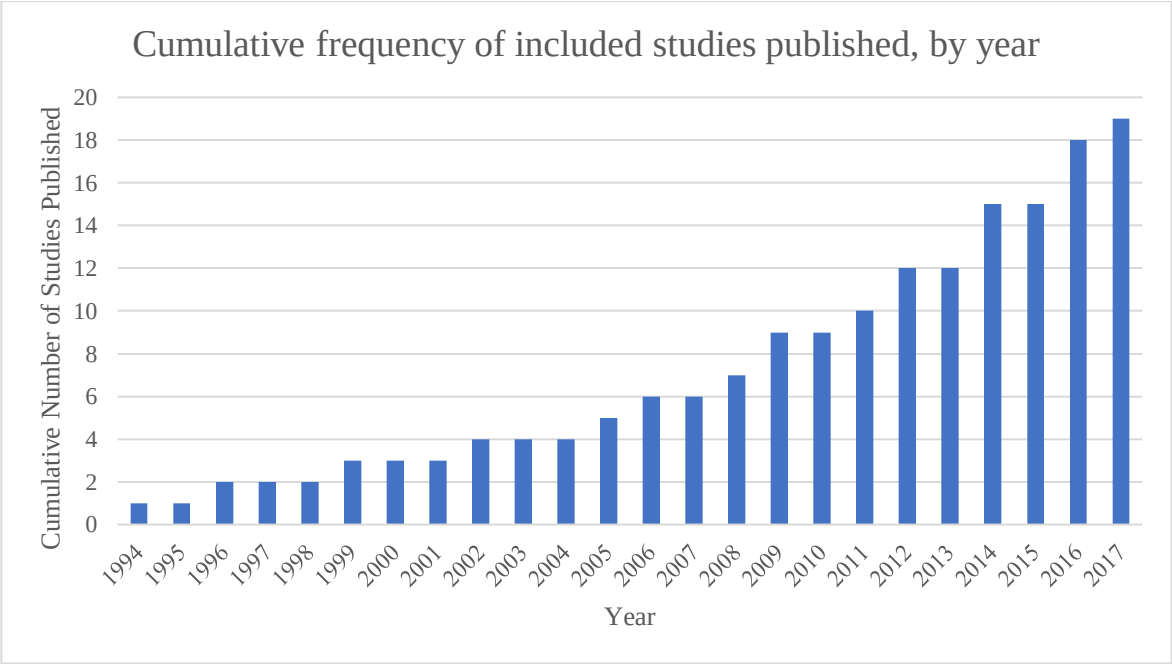

Figure 5: The cumulative number of included studies published every year

Quality Assessment

Table 7: An assessment of the quality of included studies, assessed with the *Standards for Reporting Qualitative Research (SRQR)* tool. Red boxes indicate that a criterion is not satisfied.

	Al Sayah (2014)	Ballard (2016)	Bowers (2016)	Carrier (2012)	De Stampa (2014)	Dick (2006)	Egan (2009)	Feltes (1994)	Gimm (2016)	Hoff (2017)	Iliffe (2011)	Netting (1996)	Netting (1999)	Olsson (2012)	Peckham (2014)	Sargent (2008)	Yamashita (2005)	You (2016)	Young (2009)
Title/Abstract																			
Title	●	●					●	●	●	●				●	●		●	●	●
Abstract	●	●			●	●	●	●	●	●	●			●	●	●	●	●	●
Introduction																			
Problem	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Purpose/Question	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Methods																			
Qualitative Approach	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Researcher Reflixivity		●						●	●		●			●	●			●	
Context	●		●	●	●	●	●	●	●	●	●			●	●	●	●	●	●
Sampling Strategy	●	●	●		●		●	●	●	●	●			●	●	●		●	●
Ethical Issues	●	●			●	●	●		●	●				●	●	●		●	
Data Collection Methods	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Data Collection Instruments	●	●		●	●		●	●	●	●	●			●	●	●			
Units of Study	●	●	●	●	●	●	●		●	●	●			●	●	●	●	●	●
Data Processing	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Data Analysis	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trustworthiness					●	●	●	●			●	●	●	●	●	●	●	●	
Results/Findings																			
Synthesis/Interpretation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Link to Empirical Data	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Discussion																			
Integration with Prior Work, Transferability and Contribution(s)	●	●			●	●	●	●	●	●	●	●		●	●	●	●	●	●
Limitations	●	●			●	●	●	●	●	●	●	●		●			●	●	
Other																			
Conflicts of Interest	●	●			●				●	●	●								
Funding	●	●	●	●	●	●	●		●	●	●	●	●	●		●			

The quality of included studies was assessed with the *Standards for Reporting Qualitative Research (SRQR)* checklist. While the authors of this checklist intentionally do not suggest a "threshold" or "scoring" system, valuable information about the quality of included studies can still be gleaned from the analysis. Many of the criteria in the checklist are associated with the

quality of *reporting* of the studies. In the introductions of studies, the quality of reporting was strong: all but one study (Young, 2009) identified a problem or gap in the literature, and every study advanced a clear aim, purpose or research question. The results/findings sections of articles were even stronger, as every study clearly synthesized findings and supported such syntheses with empirical data (quotes or descriptions from participants). Conversely, studies were less likely to convey clear titles that referenced a qualitative approach, to provide complete and formatted abstracts, or to disclose funding and conflicts of interest (or a lack thereof).

An examination of the "methods" section of the assessment rubric shows global and study-specific trends. Overall, studies were especially deficient in three criteria: reporting researcher reflexivity (7 of 19, 36.8%), conveying trustworthiness (12 of 19, 63.2%), and describing the data collection instruments (12 of 19, 63.2%). For example, authors almost never acknowledged that they, as inquirers, were part of – and thus may have influenced – the setting, context, and social phenomenon they sought to understand ("reflexivity") (133). Similarly, whereas some authors acknowledged attempts to ensure trustworthiness *within the research team* (e.g. coding and consensus building through team meetings and debate), very few employed concrete strategies to ensure trustworthiness of the *data* (e.g. audit trails, member checking, or triangulation). Finally, data collection methods were almost always revealed, but further descriptions of instruments used in these methods (e.g. questionnaires, interview guides, devices) were less frequently articulated.

Of the 11 methodological criteria, three studies satisfied fewer than half: Netting (1996), Netting (1999) and Bowers (2016). Netting (1996) and Netting (1999) both failed to describe the context of the investigation, how participants were recruited, the characteristics of recruited participants, and how or why they collected data (e.g. questions asked in interview guides). Bowers (2016) also failed to describe data collection procedures and analytic processes. While less

indicative of dependability or credibility, these articles additionally all failed to communicate a descriptive title or formatted abstract, and to disclose ethics approval or conflicts of interest. Netting (1999) and Bowers (2016) also failed to integrate findings with prior work, and to acknowledge limitations of their studies. Overall, for the reasons stated above, these studies appeared to substantially less credible than other articles included in this synthesis. Their names are highlighted in yellow in the quality assessment figure above to signify this. Appendix E contains the complete quality assessment, including explanations for each criterion.

Thematic Synthesis

The first phase of the thematic synthesis involved extracting and coding the results sections from each of the 19 included studies. Line-by-line coding generated 468 descriptive codes that were organized into 84 centralized ("third-level") themes. These third-level themes were regrouped into 40 "second-level" themes. These were regrouped into nine "first-level" themes that each representing a distinct factor (barrier and/or facilitator) that influences the ability of primary care teams to conduct case management. These nine themes constitute the findings from this synthesis. They are described below. At the conclusion of this section, each theme if formally defined in Table 8. Finally, the themes are arranged in a schematic to represent their interconnectedness.

Theme 1: Family Context

Several studies emphasize the influential role that family plays on the capacity of case managers and primary care teams to facilitate case management. The presence of family is described as both an asset and an obstacle to the provision of case management. First, family members are depicted as valued teammates of the case manager and primary care team. Family members provide constant surveillance of patients with complex needs (65, 134); they provide nuanced information about the patient or their environment (65); they contact the case manager when acute problems arise (135); they help patients with daily tasks (meals, banking, personal care) when professional care in unavailable (134); and they keep deteriorating patients socially connected (134).

By contrast, these same studies also demonstrate that family members require a unique level of support from case managers and primary care teams. One study depicts family members who, upon learning about case management, are quick to dissociate from the patient and offload unreasonable responsibilities onto the primary care team (135). Another study finds that case

managers may be required to resolve family disputes surrounding finance and patient care (53). Even in situations where family members remain active in the care of a patient, these members require caregiver-specific supports like counselling, education, and opportunities to engage with other caregivers experiencing similar challenges (53, 136). Cultural sensitivity to the ideas and value of each patient's family is imperative (134). Finally, team members of especially complex or high-need patients benefit from resources to ease the burden of daily tasks (i.e. meal preparation or financial management and from scheduled respite care (53, 134).

Whether the family be viewed as an asset or hindrance to the provision of case management, most of the studies that discuss family involvement insist that case managers and primary care teams should view the family – not just the patient – as the client, and that family members should be incorporated into the care plans designed by case managers or primary care teams (53, 134, 136, 137).

Theme 2: Policy and Available Resources

Constantly changing policy surrounding case management is a barrier to case management function. When changes in policy and protocol – including responsibilities of case managers, expected caseloads, and communication channels – rapidly evolve, case managers are unable to maintain critical relationships with physicians and allied healthcare professionals (64). Ultimately, this prevents the primary care team from embedding services into the care plans for patients with complex needs (64).

Even with stable policy, primary care teams struggle to facilitate the required case management services to patients without adequate financial resources (93, 136). Even if a patient meets the criteria for receiving a care intervention like case management, these interventions are

not always financially viable (e.g. they are not covered by the local healthcare administration) (136). Case managers feel particularly constrained by limited budgets coupled with pressure to meet the combined expectations of patients, patients' families, organizations, and governments, all of whom have different expectations and demands (53). This pressure is exacerbated when case managers lack the autonomy to manage their budgets and are forced to seek physician or administrative approval for minor or procedural changes to budgets (53).

Theme 3: Physician Buy-in and Understanding of the Case Manager Role

One of the more ubiquitous findings across papers is the critical role that physicians play in fostering – or stifling – the team-based collaboration that case management requires. When physicians are supportive and facilitating of case management, the intervention is successful (138). When physicians remain wary, resistant and/or resentful to the changing healthcare model, case managers find it difficult to properly do their jobs (30, 123, 124, 139). The reluctance of physicians to adapt to the case management model is grounded in several factors: physicians are concerned about reduced remuneration (reduced fee-for-service incentives) under the new intervention (94); they struggle to understand the role or value of the case manager (93); they believe that the case manager is a redundant position that redistributes tasks that physicians are already performing (64, 132); or they believe that case managers are not able to achieve the theoretical goals of case management (i.e. reduced physician workload and improved patient outcomes) (64). The consequences of a lack of physician buy-in are notable: case managers are not trusted or "taken seriously" by the team (64, 137) and they are unable to access crucial resources, often controlled by physicians, to do their jobs (93).

In addition to "buying-in" to case management, it is important to delineate the roles and responsibilities of the case manager. While case managers often have clear ideas about their role, they report that other members of the primary care team, especially physicians, do not understand the case manager role (30, 53, 64, 93, 123, 139). Case managers define their role in many ways: they advise, advocate, assess, build relationships, educate, engage families, empower, ensure continuity of care, manage medication, monitor quality of life, motivate patients, negotiate with patients and healthcare professionals, plan, prevent, provide direct services (e.g. taking blood samples), translate (e.g. medical jargon into lay terms), be visible (e.g. being the main point of contact in a community) and visit homes (30, 53, 65, 123, 124, 132, 134-141). Furthermore, case managers must have a comprehensive understanding of the options and services that exist in a community to best help their patients (93, 137, 139-141). Recognition of these capacities and roles of the case manager leads to a greater degree of collaboration among healthcare professionals, and to improved coordination of patient care (93, 123). This process can be aided by clearly defining the expectation and responsibilities of case managers vis-à-vis other healthcare professionals (30). A clear reporting structure among team members is also essential (123). Without the explicit and clear division of labour (e.g. "who does what" and "how to communicate with one another"), teams are prone to internal conflict (123, 139) and gaps in patient care (64, 139).

Theme 4: Team Communication Practices

Personal, team-based methods of communication are most conducive to doing case management (94, 123, 132, 139). Sharing duties, face-to-face conversation and team huddles are all viewed as effective facilitators to case management by primary care teams (94, 123, 132, 139). Healthcare professionals value having regular team meetings, team-building activities and continuing professional education (29, 123). Despite best intentions, a commitment to personal and team-based meetings is not always feasible. One study reports that while team huddles are "a nice idea in theory", there is never enough time to engage in systematic sit-down meetings (139). Another study suggests that, even in the presence of team meetings, healthcare professionals may be unable to achieve cross-discipline decision-making (123). This may be because of poor communication, disciplinary egos, different practice styles, low work morale and a reluctance to accept suggestions from team members representing other professions (123).

In addition to team meetings, physical proximity to one another is key. Even in the presence of more formal communication systems, informal conversations in hallways tend to be the most efficient and effective for coordinating services (139). This finding highlights the value of "co-location" (housing diverse healthcare professionals in the same physical workspace) to stimulate interaction (132, 139). By contrast, impersonal methods, like telephone calls from the field, are less likely to facilitate good communication, especially if messages from these calls are never heard by the require personnel (139). Without proper communication, it is difficult to make informed decisions about, and to coordinate service for, patients (29, 139).

Theme 5: Training in Technology

Technology use can be a facilitator to case management, but only when it is accessible to all team members, and when those team members are aware of, and trained in, the use of such technologies (30, 123, 139). For example, when case managers and other healthcare professionals are able to view and input information into Electronic Medical Records (EMRs), the primary care team is able to work together to assess and coordinate care for patients (123, 139). Overall, standardized methods of data entry (including common forms and shared key words) are preferable to an unregulated system of data entry (136). Patient assessment is also aided by technology (30, 65). Assessment tools are especially helpful in case management if they interact with or link to EMRs (30). Streamlined and easy-to-use technology is preferable, although healthcare professionals, especially physicians, likely require specific training in any technology for it to be used most effectively (30).

Theme 6: Relationships with Physicians

Case management involves human connection, and every member of the primary care team – especially case managers – spend tremendous amounts of time nurturing relationships with supervisors, colleagues, patients, patients' families, and other providers (137-139, 141). Case managers and other healthcare professionals are particularly concerned with maintaining relationships with "gatekeepers", who are individuals that can ease the process of navigating healthcare systems for case managers and patients (137, 139). The most important "gatekeeper" is the physician, who other healthcare professionals view as a major facilitator to case management and overall teamwork (64, 93, 94, 123, 124, 132, 139). In many cases, physicians and other healthcare professionals form collaborative and mutually-beneficial relationships (64, 93, 124,

132, 139). Non-physicians consult physicians regarding medical issues, and physicians consult non-physicians regarding psychosocial or service issues (124, 132, 139). While relationships with physicians are clearly initiated by the *other* (i.e. non-physician) healthcare professional (94, 138, 139), the nature of this relationship is not well reported. The few studies that address this area suggest that non-physician healthcare professionals initiate relationships with physicians by (1) accommodating and adapting to individual personalities of physicians (139); (2) stressing that their roles are to "extend" or "enhance" the provision of care, but not to replace the role of the physician (94, 139); and by (3) being especially helpful or kind to "prove their worth to" or "win the hearts of" physicians and other staff (138, 139). Establishing amicable and professional relationships with physicians allows non-physician healthcare professionals to negotiate for and adapt services in a way that more closely meets the needs of a particular patient (138).

Theme 7: Relationships with Patients

Healthcare professionals also recognize that forming quality relationships with patients is an equally essential component of their work (93, 124, 135-139, 141). Emphasis is made on healthcare professionals possessing an intimate knowledge of both the *patient* and the *person* (124, 138). By taking a holistic approach to understanding the patient (understanding patient health, psychosocial and environmental statuses), healthcare professionals are more able to assess the care needs of patients, "how much patients can handle", and the best ways to help patients (93, 136). These relationships are based in trust, visibility, responsibility, time commitment, communication and power (137). Listening is important (138). If clinics and healthcare professionals are located further away from patients, thus diminishing the frequency of contact between patients and healthcare professionals, the quality of case management deteriorates (137).

Theme 8: Time Pressure and Workload

Case managers and other healthcare professionals often feel burdened by a time pressure that does not allow them to do their jobs adequately (64, 65, 112, 123, 124, 138). Time pressure is caused by three factors: large caseloads (65, 112, 123), large amounts of time spent with each patient (124, 138), and time-consuming administrative duties (112, 123, 136, 138). Healthcare professionals stress that case management takes an especially long time because of the time it takes to *listen* to patients, which can't be rushed (124, 138). Listening can be challenging because powerful actors like physicians do not recognize it as "doing something" (138). Time pressure is also felt when nurse-case managers are expected to simultaneously uphold duties in case management and nursing (64). Administrative duties add additional demands to the time of healthcare professionals (112, 123, 136, 138). These duties include managerial duties, administration tasks, patient documentation, care planning, meeting attendance, informal sharing events with external organizations, mentorship, training, and study commitments (if simultaneously pursing an educational degree) (112, 136). Case managers and other healthcare professionals compensate for a lack of time by abandoning paperwork (138), which they view as poor uses of their high-level clinical skills (112). Overworked healthcare professionals also compensate by operating in a "standby" or reactive way (responding to acute exacerbations of health, instead of proactively managing chronic conditions) (65, 112). They often feel psychologically and physically "burned out" from their work, especially when such work involves homecare and travel (29, 124). Given the above information, one study finds that caseload risk stratification – balancing caseloads with low-risk, moderate-risk, and high-risk patients – is the most important variable in determining caseload manageability (112). High-risk patients are often either vulnerable, housebound, older

and suffering from multiple long-term conditions (112), or low-income, racial and ethnic minorities who have cogitative or physical developmental delays (137).

Theme 9: Autonomy of Case Manager

Despite this emphasis on teamwork, effective case managers are notoriously autonomous, creative and flexible in their day-to-day tasks (53, 93, 124, 136, 138, 140). Because access to many resources is restricted – by the approval of a physician, because of budgetary constraints, or because of unrealistic guidelines – case managers need to problem solve and "work around the system" to meet the needs of their patients (53, 93). To do this, personal attributes like compassion, humour and creativity are valued alongside clinical expertise (138). The self-reported "best" case managers are able to judge and make exceptions to local guidelines if they will ultimately help the patient (e.g. offering temporary interventions or extra visits at home during a limited period of time to prevent discontinuity for an unwell patient) (136, 140). This flexibility also manifests within the primary care clinic, where case managers "pitch in", "help out", or serve as "extra eyes, ears and hands" for busy clinical staff (139). Encouraging creativity, and allowing healthcare professionals the freedom to problem solve, is ultimately an important facilitator to achieving the goals of case management.

Definitions of Themes

In an attempt to make the findings of this thematic synthesis more accessible, the nine themes (barriers and/or facilitators) have been summarized in Table 8, below. A concise definition of each theme was generated by re-examining individual codes in the NVivo file, by extracting key themes from the thematic synthesis above, and through debate among researchers. This process is detailed in *Stage 7* of the methods.

Table 8: Summarized definitions of the nine themes from the thematic synthesis

Theme	Definition
Family Context	The nature, position, cultural preferences, and level of involvement of a patient's family in their care. Family members are vital allies of the case management process, but also require specific supports.
Policy and Available Resources	The suite of national and local health policy, economic factors, dependency on regulations and existing resources that influence the ability of primary care teams to do case management.
Physician Buy-In and Understanding of the Case Manager Role	The engagement of willingness of physician(s) to do case management. "Buy-in" includes availing resources required for case management, promoting a collaborative environment (through mandates and culture), and striving to understand the nuances of the case management paradigm.
Team Communication Practices	The ways in which healthcare professionals and administrators exchange information within a primary care clinic. Governs both formal communication processes (i.e. "team huddles"), but also informal interactions.
Training in Technology	The presence of, and instruction in, technologies (e.g. EMRs and assessment tools) that promote holistic patient understanding and collaboration among team members. Healthcare professionals must be aware of, and trained in, technologies for them to facilitate the case management process.
Relationships with Physicians	The process through which non-physician healthcare professionals form relationships with their physician colleagues, and the symbiotic relationship that results, leveraging the diverse expertise of different clinicians.
Relationships with Patients	The process through which healthcare professionals form trusting and compassionate relationships with patients. Requires a holistic view of the patient, and can result in coordination of more appropriate services.
Time Pressure and Workload	The stress, burden and exhaustion that healthcare professionals experience while doing case management. Caused by large caseloads, large amounts of time spent with patients, and time-consuming administrative duties.
Autonomy of Case Manager	The ability of a case manager to navigate the healthcare system in creative ways to ensure the provision of appropriate care (otherwise limited by budgetary constraints or unrealistic guidelines) to patients. Case managers who are not autonomous provide standard and equivalent resources to every patient.

Schematic

Finally, the schematic below regroups the factors mentioned above into three conceptual and operational "levels" that interact in causal and hierarchical ways: *structural* factors (bottom), *intermediate* factors (middle), and *fundamental* factors (top). The presence or absence of these factors, and the interactions between them, ultimately govern whether or not case management will be viably practiced in a primary care setting (the final box at the top of the diagram).

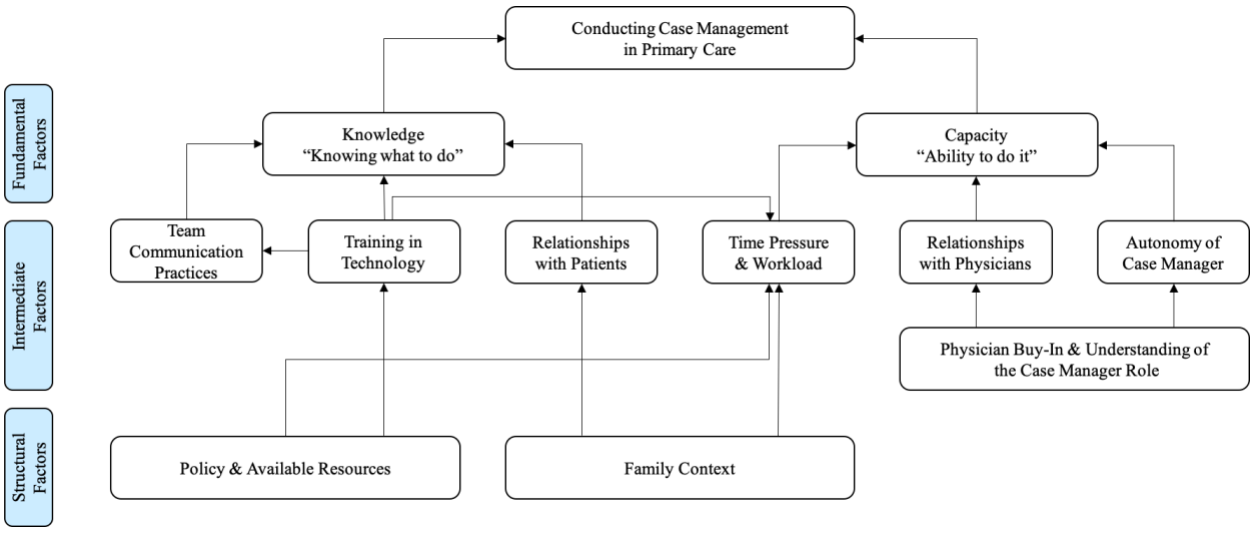

Figure 6: Schematic showing the relationships between factors described in the results section above.

At the base of this diagram (in green) are *structural* or *rigid* factors. These are barriers and facilitators that are vital to the success of case management, but are not easily influenced or modified by primary care team members. For example, individual clinicians or clinics seldom have the ability to design, customize or retain the resources at their disposal ("policy and available resources") (64, 93, 136). Furthermore, healthcare professionals cannot choose the families of patients that they will have to engage with ("family context") (53, 134).

These structural factors directly influence a suite of more *intermediate* or *malleable* factors associated with case management function in primary care. While these factors can be individually manipulated (for example, encouraging team meetings and co-location can, itself, improve communication (123, 139)), they are also impacted by *structural* factors that exist upstream of them. For example, if primary care teams are given effective funding and resources, they can rely on efficient technology like electronic medical records, which facilitate a different type of communication about patient care ("team communication practices") (123, 139). Available resources also influence the degree of burden that administrative duties place on individual healthcare professionals. For example, the presence of administrative staff or specially designated "administrative time" can ensure that healthcare professionals are not overly impeded in their provision of case management (112, 136, 138). When administrative duties are completed (i.e. not neglected), and done so efficiently, healthcare professionals can properly document patient health and care decisions while maximizing clinical time with patients (112, 138). By extension, relief from administrative duties, coupled with efficient and accessible technology (for example, patient assessment tools and electronic medical records) reduces the "time pressure and workload" that healthcare professionals experience in case management (30). Healthcare professionals who are well-trained in the use of efficient technology ("training in technology"), and who are not encumbered by monotonous and inefficient administrative tasks, are more likely to succeed in providing an engaged and proactive version of case management. Conversely, healthcare professionals that have to succeed *in spite of* technological and administrative inefficacies are more prone to burnout and reactive patient care.

Family context also influences *intermediate* factors. The nature of a patient's family, and whether or not they are actively involved in the management of a patient's complex conditions,

can equip healthcare professionals with nuanced information and provide daily support that allows healthcare professionals to better tailor care plans and coordination practices to the needs of patients ("relationships with patients") (65, 134). Conversely, family relationships fraught with debate or conflict markedly impede the ability of healthcare professionals to understand and address patient needs (53, 135). If healthcare professionals are forced to spend time and energy addressing the overwhelming needs of families in addition to those of their patients, time pressure and workload can become unmanageable.

Finally, the willingness of a physician or physicians to do case management and their understanding of the case manager role ("physician buy-in and understanding of the case manager role") is both an intermediate factor itself (it can be influenced by incentives and training) and it influences other intermediate factors (it governs the potential autonomy of the case manager, and affects the ability of non-physician healthcare professionals to build relationships with physicians). Since physicians often serve as "gatekeepers" to the resources that healthcare professionals need to do case management (137, 139), their commitment to case management is vital. This includes providing resources and allowing the case manager freedom to navigate the healthcare system and to coordinate care in creative and patient-centered ways ("autonomy of case manager") (53, 93). Furthermore, physicians who "buy-in" can form collaborative and mutually-beneficial relationships with healthcare professionals as the team works to deliver optimal care for patients ("relationships with physicians") (64, 124, 132). If physicians are disinterested in case management, a strong hierarchy is maintained, and other healthcare professionals cannot access resources or express opinions in ways that benefit the patient (30, 123, 124). This factor is especially binary – without physician "gatekeeper" engagement in case management, the objectives of collaborative healthcare models like case management cannot be achieved (137-139).

Whereas physician buy-in and understanding of the case manager role is not sufficient for case management function, it is often necessary. Given the dual "malleable-but-manipulating" nature of physician buy-in and understanding of the case manager role, this factor is represented in blue, but underneath the main set of *intermediate* variables.

Lastly, these intermediate factors feed into two *fundamental* factors that directly influence the ability of primary care teams to conduct case management: knowledge and capacity. For case management to be viable, team members need to *know what to do* (knowledge) and *have the ability to do it* (capacity). *Knowing what to do* entails not only understanding the goals and processes of case management, but also in knowing how to achieve them. This entails understanding one's role relative to colleagues, clarifying communication pathways and reporting structures, and leveraging a maximum amount of patient data to provide and coordinate care (30, 93, 123). *Having the ability to do it* involves possessing the time, support, and autonomy to do case management without fear of discipline, burnout, or any other negative consequences (53, 112, 124, 138).

Sensitivity Analysis & Confirmation of Findings

The quality assessment that precedes the thematic synthesis shows that while most of the included studies are of adequate reporting dependability, three studies – Netting (1996), Netting (1999) and Bowers (2016) – appear to be of substantially lower methodological credibility. Temporarily excluding these studies from the synthesis yields several interesting results. First, it is noteworthy that data the three studies under question were applicable to a substantially wider range of sub-themes (average 20.3 themes per study) than were the remaining 16 studies (15.2 sub-themes per study). This finding, confirmed by examination of the hierarchy of themes, shows that the Netting

and Bowers studies are especially present in many of themes identified in the thematic synthesis and concept map above.

More critically, however, the sensitivity analysis finds that while codes from these studies are widespread throughout the analysis, none of the themes identified in this analysis were identified solely or even primarily on the findings of these three studies. For example, while all three of the Netting and Bowers studies address the importance of physician buy-in to the case management process, at least five 'more credible' studies do so as well. Two of the three articles identify "relationships with physicians" and "relationships with patients" as important factors affecting the ability of primary care teams to do case management, as do six and seven 'more credible' studies, respectively. Finally, Bowers (2016) identifies "time pressure and workload" as a potent barrier to case management provision in primary care, but this finding is validated by five other studies. Subjecting the confirmatory You (2016) study to an identical sensitivity analysis finds that themes associate with this study, like with Netting (1996), Netting (1999) and Bowers (2016), not exclusively or predominantly supported by You (2016).

Overall, the sensitivity analysis finds that all three studies, even if they are less credible in their methodological designs, do not play any substantial role in swaying or skewing the results of this synthesis. Accordingly, this sensitivity analysis finds that every factor advanced in this synthesis is well supported by evidence in studies that report appropriate methodological credibility.

Discussion

The purpose of this systematic review with thematic synthesis was to delineate, from the perspectives of healthcare professionals, barriers and facilitators to case management function in primary care settings. The discussion that follows summarizes findings from this investigation, clarifies how various healthcare professionals are represented across the included studies, situates the findings within current empirical and normative literature surrounding case management implementation, comments on suggestions for future qualitative studies, highlights strengths and weaknesses of the review, and advances implications and directions for future research.

Factors Affecting Case Management

The thematic synthesis described in the results section advances nine factors (barriers and/or facilitators) to case management function in primary care that consistently emerged across the 19 empirical qualitative and mixed-methods studies that have examined this topic. This cross-study synthesis is, to the researchers' knowledge, the first review that amalgamates barriers and facilitators to case management function in primary care into one centralized text. Beyond listing, describing and defining these individual factors, the proposed schematic represents a first tentative to categorically group these factors based on their characteristics, and to situate them relative to one another with linkages. By arranging these factors into hierarchical groups, this review permits the audience to understand the interconnectedness of the factors, and how changes to one area of case management implementation might influence other aspects. Mapping these relationships is essential, since in the real world, factors like "team communication practices", "training in technology", and "time pressure and workload" do not exist in vacuums. Changes to policy, infrastructure, personnel or practice affect multiple domains in varying ways. Accordingly, the

proposed schematic moves beyond the overly simplistic understanding that factors do not influence one another. Furthermore, the schematic introduces the notion that factors governing the viability of case management in primary care do not exist on the same "level". Some aspects of case management – like "relationships with patients" and "autonomy of case manager" – can be more easily modified by individual healthcare professionals, whereas other factors, like "policy and available resources" or "family context" exist and are decided *above* or *a priori* to primary care team function and interfacing with patients. Understanding these different levels and factors may allow policymakers or primary care teams to manipulate certain factors instead of others, depending on the clinical context they find themselves in or the resources they have available to them.

Whose Perspectives of What?

The barriers and facilitators advanced in this thematic synthesis provide valuable insight into the perspectives and experiences of healthcare professionals doing case management on the front lines of primary care. Given the diverse members of multidisciplinary teams, however, it should be acknowledged that different healthcare professionals may have differing perspectives and expectations (142-144). In interpreting the results of this thematic synthesis, it is important to clarify *whose* perspectives are being shared. As the description of included studies shows, the voices represented in these studies are predominantly those of case managers, physicians, nurses (including nurse practitioners), and administrators. Social workers are barely included (0.7% overall). While physicians comprise 28.5% of overall participants, their perspectives are only represented in five of 19 studies (compared to 12 for case managers, and seven for nurses). Accordingly, it should be clarified that the barriers and facilitators articulated in this review are

frequently supported by perspectives of less powerful actors in the primary care team, specifically case managers and nurses. The reviewers have been careful to differentiate which healthcare professionals report experiencing each barrier and facilitator in the results section, but this nuance is lost in the schematic representation. Readers of this text should be aware of these nuances to extract the most value from this review.

Comparison with Initial Framework

Whereas this hybrid thematic synthesis analysis was initiated with the structure of Van Houdt et al.'s conceptual framework, *An in-depth analysis of theoretical frameworks for the study of care coordination* (105), the majority of this review relies on a data-driven inductive approach. Over the course of the analysis, the 14 themes of the initial framework were modified, subdivided, deleted and/or renamed to represent the findings from the studies included in this review. While none of the resultant nine themes are identical to the themes identified by Van Houdt et. al, several themes bear strong resemblances to the conceptual framework: "policy and available resources" is a re-named – and slightly more precise – version of the Van Houdt et. al's "external factors" theme; "team communication practices" is a broader representation of Van Houdt et al.'s "administrative operational processes"; and "training in technology" is a pivot away from Van Houdt et al.'s "knowledge and technology" theme. Other themes are more removed, but still derived from, the Van Houdt et al. framework. For example, "time pressure and workload" are identified by Van Houdt et al. as sub-factors of "task characteristics"; and "relationships with physicians" and "relationships with patients" are born out of Van Houdt et al.'s "quality of relationship" theme. Lastly, some of the themes identified in this review are completely novel. For example, "family context", and "autonomy of case manager" are not explored at al by the initial conceptual

framework. A full comparison of the themes of this review, and how they've been modified from Van Houdt et al.'s initial framework, is available in Appendix F.

Comparison with Current Literature

This thesis is, to the authors' knowledge, the first systematic review of barriers and facilitators to case management in primary care. Moreover, this review emerges as a synthesis of qualitative evidence in a field that is predominantly investigated by quantitative methods. For example, this systematic review joins a group of quantitative reviews that have analyzed patient outcomes associated with case management (25, 39-42). Qualitative reviews that have been conducted reveal barriers and facilitators to case management of *highly specialized* chronic illness (e.g. osteoporosis, cancer, rheumatoid arthritis, anxiety and depression) in *secondary care* or *disease-specific* (i.e. not primary care) contexts (145-149). Other reviews report specifically on the experiences of case managers and/or family physicians with professional development (150), family interactions (151), dual role obligations (care coordination and clinical service) (152), ethics (153), inter-professional working (154) and integrated care (155), although barriers and facilitators in these domains are not often articulated.

The findings from other qualitative reviews are simultaneously confirmatory and contrasting with the results of this thematic synthesis. On one hand, many of the reviews validate that while physician buy-in to case management is essential, it is often difficult to garner (similar to "physician buy in" and "relationships with physicians") (148, 149). Another review highlights the importance of standardized communication protocols and pathways ("training in technology" and "understanding of the case manager role") (149). Personal qualities of case managers, like charisma and creativity, are unanimously identified as important ("autonomy of case manager"),

and face-to-face interactions are favoured over impersonal methods ("team communication practices") (148, 149). Finally, time pressure and excessive caseload are listed as barriers to case management function in specialized settings as well ("time pressure and workload") (146). All of these findings are consistent with themes identified in this thematic synthesis (referenced in parentheses). By contrast, these reviews also identify barriers and facilitators that are *not* present in primary care settings. For example, specialized knowledge and confidence in specific diseases (like osteoarthritis) appears to be a factor specific to secondary or specialized care (145). Moreover, decision making power in these reviews appears to be especially exclusive to the physician (146, 148), which is not often the case in primary care. Lastly, several novel elements of this synthesis, like "family context", "policy and available resources" and "relationships with patients" do not appear to be validated by previous systematic reviews on case management in secondary care or specialized contexts.

Overall, while barriers and facilitators to case management can be inferred from several previously conducted systematic reviews, very few of these reviews treat the topic directly. Accordingly, this systematic review and thematic synthesis fills two important voids in the summarizing literature of case management implementation outcomes: it directly addresses a wider range of barriers and facilitator to case management function than have been considered, and it does so in the context of primary care, which has not been explored by previous reviews.

Comparison with Normative Texts

One of the most used and cited normative texts on case management function is *The Case Manager's Textbook*, by Catherine M. Mullahy (156). A cursory analysis of this text suggests that elements of the normative literature are compatible with the themes identified in this thematic

synthesis. First, Mullahy's text underscores the *complexity* of case management operations, and the *diversity* of barriers and facilitators that exist to case management function. The text emphasizes the roles that policy, technology, multiculturalism, leadership, problem solving, communication, risk-stratification, patient and family engagement, and physician buy-in all play in case management practice (156). All of these themes emerged in the thematic synthesis, indicating a congruency between the empirical findings of this analysis and the normative literature on case management. Moreover, this normative text, like the empirical studies included in this analysis, depicts specific patient-types that appear to benefit from the case management intervention: frail and elderly persons (often community-dwelling), those suffering from behaviour or mental health challenges, and patients suffering from other chronic conditions. Mullahy's text devotes specific chapters to each of these patient populations, wherein specific challenges to and strategies for care are revealed (156). This reflects the nature of the empirical literature included in this synthesis: studies almost always focus on one of these patient types, instead of the general population. This consistency is significant, in that it reflects an understanding that the provision of case management involves tailoring core competencies and resources to the specific needs of patients. Finally, *The Case Manager's Textbook* advances that case management is influenced on multiple levels: the individual qualities of the case manager, the "microsystem level" (e.g. communication among healthcare teams and with patients), and the "macrosystem level" (e.g. policy, leadership and management) (156). This hierarchical structure is reflective of the logic behind the schematic presented at the conclusion of the results section. Both the normative text and this thematic synthesis acknowledge that barriers and facilitators to case management must be considered on multiple levels, and that individual factors are influenced by one another.

The contents of *The Case Manager's Textbook* and this review differ in two principle ways: the textbook advances additional barriers and/or facilitators to case management that are not present in this review, and there are nuanced differences between barriers and facilitators presented in this review versus in the normative text. First, the normative textbook discusses elements of case management that do not emerge in this review. Specifically, the text addresses (1) ethical responsibilities of healthcare professionals; (2) challenges with health literacy and adherence among patients; and (3) reimbursement resources and challenges for healthcare professionals (156), none of which appear in the empirical literature collected. This finding indicates that further analysis may be required on these topics in primary care settings. Finally, whereas barriers and facilitators are present in both this review and the normative textbook, each source provides nuanced insight that cannot be garnered from the other text. For example, while both texts examine the role that technology plays in case management, only this review provides specific insight into the imperativeness of training in such technologies, especially for physicians. Furthermore, the textbook does not encourage the usage of standardized language in intra-team communication tools (like electronic medical records), which is identified as a strong facilitator to teamwork and communication in this review. By contrast, the textbook engages in a discussion on the modern implications of text messaging and telemedicine as ways to engage and monitor patients remotely (156). This facilitator to case management is not identified in the review (likely because the majority of studies were published in previous decades). Similar nuances are applicable to other themes like initiating contact with physicians (only this review provides common reasons why physicians may be reluctant to "buy-in"), and building relationships with patients (the normative text discusses the merits of specific strategies like motivational interviewing, which are not identified by the review).

Overall, the comparison of this review to the most popular normative textbook in the case management field highlights that while the contents of both texts are well-aligned with one another, each one provides nuanced and complementary information to the other. While a more thorough investigation of the similarities and discrepancies between these two texts is warranted, an initial comparison suggests that both texts are valuable in understanding common barriers and facilitators to case management function. By extension, this finding reinforces the merit of an empirical synthesis of data in this domain, which provides novel and otherwise undocumented information about barriers and facilitators to case management in primary care.

Implications for Policy and Practice

Ultimately, the findings from this review will only be impactful if they reach the hands of stakeholders who have the potential to change the way that case management is practiced at the clinical level. Policymakers may facilitate case management in primary care by providing healthcare professionals with the opportunities and resources to do case management. This includes, but is not limited to, (1) developing infrastructure that encourages healthcare professionals to work in common spaces ("colocation"), which may improve communication processes important for case management; (2) facilitating the training in and use of efficient technologies for patient assessment and care coordination; and (3) working *with* healthcare professionals to determine the resources required to meet the needs of patients and staff. Physicians may facilitate case management by (1) championing case management and serving as leaders to other members of the primary care team; (2) building genuine two-way relationships with other healthcare professionals that promote collaboration and teamwork; and (3) trusting case managers, and providing them with the resources and autonomy to best care for patients with complex needs.

Other healthcare professionals may contribute by (1) building personal connections with patients and colleagues; (2) being accessible and flexible in daily tasks; and (3) maintaining proactive care for patients by staying current with administrative duties and other tasks. Overall, these nine strategies and more may help primary care teams do case management in a more effective, comprehensive and sustainable way.

Improvements to Future Qualitative Studies Study Quality

In addition to advancing a suite of barriers and/or facilitators to case management function in primary care, this review highlights several realities about the current state of research related to implementation science and case management in primary care. First, there appears to be a relative paucity of qualitative research in this domain – just 19 studies using qualitative methods have been published on the subject in over three decades. While it appears that the frequency of publication on this subject is increasing (Figures 4 and 5), efforts to understand the perspectives of healthcare professionals *actually doing* case management in primary care should be sustained. Second, the studies that do exist remain quite general. Targeted inquiries on specific elements of case management – for example on ethics, cultural competency, collaboration, training and technology – would be of value. Lastly, subsequent qualitative studies should be conducted to the highest standards of qualitative rigour. Special attention should be paid to reflection on *who* is conducting the inquiry ("research characteristics"), *what* their impact is ("reflexivity"), and *which* strategies – like audit trails, member checking and triangulation of different data sources – are being employed to ensure that data collected is credible and dependable ("techniques to ensure trustworthiness").

Strengths and Limitations

This review advances a novel and valuable synthesis of barriers and facilitators to case management function in primary care. In doing so, the review has several noteworthy strengths. First, this review examines barriers and facilitators to case management function by giving a voice to the ideas and perspectives of healthcare professionals. Understanding the perspectives of healthcare professionals is critical in the context of case management since healthcare professionals stand between the development of the intervention and its adoption into practice (82, 83). Said differently, although there is value in understanding the practice of case management, and the benefits that case management provides to patients and caregivers, case management can only be accepted into practice if those who do it (termed "users" or "adopters") choose to do so (84, 85). Whereas many studies and reviews have focused on the design (15, 54) and outcomes (39, 41, 42) of case management in primary care, little research has focused on the perspectives of *healthcare professionals* who do it. Accordingly, this review fills and important void by synthesizing the perspectives from healthcare professionals (not those of policymakers, patients, or third-party observers) that are especially critical to understanding what fosters or impedes case management function in primary care. Second, the wide range of literature identified in this review advances barriers and facilitators to case management function that emerged in a diverse array of healthcare settings, systems and contexts. In response to the identified problem that chronic illness management and the care of patients with complex needs is universally poor and unspecific to healthcare models or iterations (5), this review proposes a suite of barriers and facilitators to case management that are equally general and applicable in an international setting. Finally, and perhaps most critically, this review is strong because it allows for the confirmation or validation of barriers and facilitators to case management function across multiple contexts and settings.

Without this cross-context comparison, anyone reading individual studies (presumably with the desire to implement or adapt case management in their own context) may be hard-pressed to distinguish whether the factors advanced in a study are tied to case management function, or simply to the unique care context of a clinic, region or system. Instead, this review advances with reasonable trustworthiness a series of barriers and facilitators to case management function that consistently emerge across individual contexts and studies. Centralizing these barriers and facilitators allows interested parties to examine the state of this field in a succinct way, instead of having to locate and read multiple unconnected and uncorroborated studies.

Despite these strengths, this review undoubtedly emerges with limitations or weaknesses. First, while the search strategy used was comprehensive in searching empirical studies located in databases, this review failed to search grey literature, or to use hand searching of included studies. This limitation emerged because it was not possible to review grey literature and to conduct hand searching within the timeframe of a master's thesis. Moreover, studies written in languages other English or French were not analyzed in this review, because of the linguistic limitations of the primary researcher (M.H.T.). While the researchers remain satisfied with the breadth and reach of included studies in this review, it is possible that eligible studies with valuable insight were not detected and, therefore, inappropriately excluded from this systematic review. Second, while the diversity of health systems and clinical settings represented in the included studies is a strength, such heterogeneity may also be problematic. Policymakers or interested parties looking to develop a case management program in a specific context may not benefit from literature synthesized across 34 years and six countries. Barriers and facilitators identified in the 1990s in the United States (93, 94, 139) may not be pertinent to modern case management interventions in non-U.S. countries. Reviews with more stringent temporal or geographic restrictions may, in fact, be more

valuable to those working to develop or modify case management programs in specific contexts. This limitation may be justified given the paucity of qualitative research on the subject of inquiry (just 19 total studies from around the world). Comprehensiveness was favoured over precision, since focusing on research from just one country would likely result in the inclusion of too few studies that would not allow for conceptual saturation to be achieved. Finally, while this review advances a series of general barriers and facilitators affecting case management function, these barriers and facilitators may not be presented with enough context or depth required for tailored policy development. A profound understanding of these barriers and facilitators, how they emerge and how they can be remedied or leveraged, would require a more in-depth examination of individual studies, which this review does not provide.

Future Research

In light of these limitations, steps could be taken to improve the quality of this review, and to further extend knowledge in this field. First, this review would have benefitted from a hand searching of references from each of the nineteen included studies. Locating additional studies on the topic of case management function in primary care might allow the researchers to identify new barriers or facilitators, or to strengthen those already discovered. Additional literature may be especially useful in understanding the relationships between barriers and facilitators, as represented in the schematic. Next, a "subgroup analysis", which aims to analyze *which* types of participants (e.g. physicians vs. case managers) said *what*, could be conducted. As has already been explored in this discussion section (see: "Whose Perspectives of What?"), barriers and facilitators to participation in case management are likely not consistent across different professions in healthcare. Understanding these differences might allow for the development of

tailored and profession-specific policy approaches engaging healthcare professionals in case management. A similar approach could be taken by separating studies according to their countries of origin or health system designs (e.g. “private” vs. “public”). It would be interesting to know whether certain barriers and/or facilitators would be more or less prevalent in certain cultures or systems. Finally, a more thorough comparison of the findings from this review (derived from healthcare professionals’ experiences) with the normative literature on case management (practice guidelines for healthcare professionals) is merited. The most comprehensive understanding of barriers and facilitators to case management in primary care involves considering both the competencies of primary care teams (evidenced in the normative literature) and the real-world experiences of healthcare professionals (evidence in this review). Understanding where guidelines and practices converge and diverge may best illuminate the next steps for improving case management function in primary care.

References

1. Sutherland D, Hayter M. Structured review: evaluating the effectiveness of nurse case managers in improving health outcomes in three major chronic diseases. Journal of Clinical Nursing. 2009;18(21):2978-92.
2. Hudon C, Chouinard M-C, Couture M, Brousselle A, Couture EM, Dubois M-F, et al. Partners for the optimal organisation of the healthcare continuum for high users of health and social services: protocol of a developmental evaluation case study design. BMJ Open. 2014;4(12).
3. Manning E, Gagnon M. The complex patient: A concept clarification. Nursing & Health Sciences. 2017;19(1):13-21.
4. Hudon C, Chouinard M-C, Bayliss E, Nothelle S, Senn N, Shadmi E. Challenges and next steps for primary care research. The Annals of Family Medicine. 2018;16(1):85-6.
5. Schoen C, Osborn R, Squires D, Doty M, Pierson R, Applebaum S. New 2011 survey of patients with complex care needs in eleven countries finds that care is often poorly coordinated. Health Affairs. 2011;30(12):2437-48.
6. Hansagi H, Olsson M, Sjöberg S, Tomson Y, Göransson S. Frequent use of the hospital emergency department is indicative of high use of other health care services. Annals of Emergency Medicine. 2001;37(6):561-7.
7. Hudon C, Sanche S, Haggerty JL. Personal characteristics and experience of primary care predicting frequent use of emergency department: a prospective cohort study. PLOS one. 2016;11(6):e0157489.
8. Blumenthal D, Chernof B, Fulmer T, Lumpkin J, Selberg J. Caring for high-need, high-cost patients—an urgent priority. New England Journal of Medicine. 2016;375(10):909-11.
9. Byrne M, Murphy AW, Plunkett PK, McGee HM, Murray A, Bury G. Frequent attenders to an emergency department: A study of primary health care use, medical profile, and psychosocial characteristics. Annals of Emergency Medicine. 2003;41(3):309-18.
10. American Diabetes Association. Economic costs of diabetes in the US in 2012. Diabetes Care 2013; 36: 1033–1046. Diabetes Care. 2013;36(6):1797.
11. O'connell J. The economic burden of heart failure. Clinical Cardiology. 2000;23(S3):III6-III10.
12. Cooper BJ, Roberts DDY. National Case Management Standards in Australia—purpose, process and potential impact. Australian Health Review. 2006;30(1):12-6.
13. Moore S. Case management and the integration of services: How service delivery systems shape case management. Social Work. 1992;37(5):418-23.
14. Ferlie EB, Shortell SM. Improving the quality of health care in the United Kingdom and the United States: a framework for change. The Milbank Quarterly. 2001;79(2):281-315.
15. Mueser KT, Bond GR, Drake RE, Resnick SG. Models of community care for severe mental illness: a review of research on case management. Schizophrenia Bulletin. 1998;24(1):37-74.
16. Case Management Society of America. What is A Case Manager? Little Rock, AR, USA2017
17. Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the chronic care model, Part 2. JAMA. 2002;288(15):1909-14.
18. Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the chronic care model in the new millennium. Health Affairs. 2009;28(1):75-85.
19. American Associationo of Family Physicians. Joint principles of the Patient-Centered Medical Home. Delaware Medical Journal. 2008;80(1):21.
20. Tsutsui T, Muramatsu N. Japan's universal long-term care system reform of 2005: containing costs and realizing a vision. Journal of the American Geriatrics Society. 2007;55(9):1458-63.

21. Safran DG. Defining the future of primary care: what can we learn from patients? Annals of Internal Medicine. 2003;138(3):248-55.
22. Gilbody S, Bower P, Fletcher J, Richards D, Sutton AJ. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. Archives of Internal Medicine. 2006;166(21):2314-21.
23. Mays N, Pope C. Qualitative research: rigour and qualitative research. BMJ. 1995;311(6997):109-12.
24. Okin RL, Boccellari A, Azocar F, Shumway M, O'brien K, Gelb A, et al. The effects of clinical case management on hospital service use among ED frequent users. American Journal of Emergency Medicine. 2000;18(5):603-8.
25. Norris SL, Nichols PJ, Caspersen CJ, Glasgow RE, Engelgau MM, Jack Jr L, et al. The effectiveness of disease and case management for people with diabetes: a systematic review. American Journal of Preventive Medicine. 2002;22(4):15-38.
26. Halcomb EJ, Davidson PM, Griffiths R, Daly J. Cardiovascular disease management: time to advance the practice nurse role? Australian health review : a publication of the Australian Hospital Association. 2008;32(1):44-53.
27. Bambling M, Kavanagh D, Lewis G, King R, King D, Sturk H, et al. Challenges faced by general practitioners and allied mental health services in providing mental health services in rural Queensland. Australian Journal of Rural Health. 2007;15(2):126-30.
28. Billings J, Raven MC. Dispelling an urban legend: frequent emergency department users have substantial burden of disease. Health Affairs. 2013;32(12):2099-108.
29. De Stampa M, Vedel I, Trouvé H, Ankri J, Saint Jean O, Somme D. Multidisciplinary teams of case managers in the implementation of an innovative integrated services delivery for the elderly in France. BMC Health Services Research. 2014;14(1):159.
30. Gimm G, Want J, Hough D, Polk T, Rodan M, Nichols LM. Medical Home Implementation in Small Primary Care Practices: Provider Perspectives. J Am Board Fam Med. 2016;29(6):767-74.
31. Fleury M-J. Integrated service networks: the Quebec case. Health Services Management Research. 2006;19(3):153-65.
32. de Stampa M, Vedel I, Bergman H, Novella J-L, Lechowski L, Ankri J, et al. Opening the Black Box of Clinical Collaboration in Integrated Care Models for Frail, Elderly Patients. The Gerontologist. 2013;53(2):313-25.
33. Peters-Klimm F, Olbort R, Campbell S, Mahler C, Miksch A, Baldauf A, et al. Physicians' view of primary care-based case management for patients with heart failure: a qualitative study. International Journal for Quality in Health Care. 2009;21(5):363-71.
34. Cooper H, Hedges LV. Cooper, Harris, and Larry V. Hedges, eds., The Handbook of Research Synthesis. New York: Russell Sage Foundation, 1994. 1994.
35. Green S, Higgins J. Cochrane handbook for systematic reviews of interventions. 2005.
36. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Medical Research Methodology. 2008;8(1):45.
37. Chalmers I. Trying to do more good than harm in policy and practice: the role of rigorous, transparent, up-to-date evaluations. The Annals of the American Academy of Political and Social Science. 2003;589(1):22-40.
38. Oakley A. Social science and evidence-based everything: the case of education. Educational Review. 2002;54(3):277-86.

39. Kumar GS, Klein R. Effectiveness of case management strategies in reducing emergency department visits in frequent user patient populations: a systematic review. The Journal of Emergency Medicine. 2013;44(3):717-29.
40. McAlister FA, Lawson FM, Teo KK, Armstrong PW. Randomised trials of secondary prevention programmes in coronary heart disease: systematic review. BMJ. 2001;323(7319):957-62.
41. Burns T, Catty J, Dash M, Roberts C, Lockwood A, Marshall M. Use of intensive case management to reduce time in hospital in people with severe mental illness: systematic review and meta-regression. BMJ. 2007;335(7615):336.
42. Gensichen J, Beyer M, Muth C, Gerlach F, Von Korff M, Ormel J. Case management to improve major depression in primary health care: a systematic review. Psychological Medicine. 2006;36(1):7-14.
43. Oeseburg B, Wynia K, Middel B, Reijneveld SA. Effects of case management for frail older people or those with chronic illness: a systematic review. Nursing Research. 2009;58(3):201-10.
44. Britten N, Campbell R, Pope C, Donovan J, Morgan M, Pill R. Using meta ethnography to synthesise qualitative research: a worked example. Journal of Health Services Research & Policy. 2002;7(4):209-15.
45. Thorne S, Jensen L, Kearney MH, Noblit G, Sandelowski M. Qualitative metasynthesis: reflections on methodological orientation and ideological agenda. Qualitative Health Research. 2004;14(10):1342-65.
46. Drummond D, Girioux D, Pigott S, Stephenson C. Commission de la réforme des services publics de l'Ontario. Toronto (Ontario), Imprimeur de la Reine pour l'Ontario. 2012.
47. Cohen SB, Yu W. Statistical Brief# 354: The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the US Population, 2008–2009, vol March 29, 2012. Agency for Healthcare Research and Quality, Rockville, MD. 2012.
48. McGinnis JM, Stuckhardt L, Saunders R, Smith M. Best care at lower cost: the path to continuously learning health care in America: National Academies Press; 2013.
49. Weil M, Karls J. Historical origins and recent developments. Case management in human service practice. 1985:1-28.
50. Zander K. Nursing case management: strategic management of cost and quality outcomes. The Journal of Nursing Administration. 1988;18(5):23-30.
51. Knollmueller RN. Case management: What's in a name? Nursing Management. 1989;20(10):38-43.
52. Couturier Y, Belzile L, Bonin L. L'intégration des services en santé: une approche populationnelle: Les Presses de l'Université de Montréal; 2016.
53. You E, Dunt D, Doyle C. What is the role of a case manager in community aged care? A qualitative study in Australia. Health & Social Care in the Community. 2016;24(4):495-506.
54. Vanderplasschen W, Wolf J, Rapp RC, Broekaert E. Effectiveness of different models of case management for substance-abusing populations. Journal of Psychoactive Drugs. 2007;39(1):81-95.
55. Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? Effective Clinical Practice: ECP. 1998;1(1):2.
56. Robbins CL, Birmingham J. The social worker and nurse roles in case management: Applying the three Rs. Professional Case Management. 2005;10(3):120-7.
57. Barlow J, Wright C, Sheasby J, Turner A, Hainsworth J. Self-management approaches for people with chronic conditions: a review. Patient Education and Counseling. 2002;48(2):177-87.

58. Freund T, Peters-Klimm F, Rochon J, Mahler C, Gensichen J, Erler A, et al. Primary care practice-based care management for chronically ill patients (PraCMan): study protocol for a cluster randomized controlled trial [ISRCTN56104508]. Trials. 2011;12(1):163.
59. Vanderplasschen W, Rapp RC, Wolf JR, Broekaert E. The development and implementation of case management for substance use disorders in North America and Europe. Psychiatric Services. 2004;55(8):913-22.
60. Woodside MR, McClam T. Generalist case management: A method of human service delivery: Nelson Education; 2016.
61. Stahler G, Shipley Jr TE, Bartelt D, Ducette J, Shandler IW. Evaluating alternative treatments for homeless substance-abusing men: outcomes and predictors of success. Journal of Addictive Diseases. 1996;14(4):151-67.
62. Hromco JG, Lyons JS, Nikkel RE. Mental health case management: Characteristics, job function, and occupational stress. Community Mental Health Journal. 1995;31(2):111-25.
63. Khanassov V, Vedel I, Pluye P. Barriers to implementation of case management for patients with dementia: a systematic mixed studies review. The Annals of Family Medicine. 2014;12(5):456-65.
64. Iliffe S, Drennan V, Manthorpe J, Gage H, Davies SL, Massey H, et al. Nurse case management and general practice: implications for GP consortia. British Journal of General Practice. 2011;61(591):e658-65.
65. Carrier S. Service Coordination for Frail Elderly Individuals: An Analysis of Case Management Practices in Québec. Journal of Gerontological Social Work. 2012;55(5):392-408.
66. Challis D, von Abendorff R, Brown P, Chesterman J, Hughes J. Care management, dementia care and specialist mental health services: an evaluation. International Journal of Geriatric Psychiatry. 2002;17(4):315-25.
67. Coleman EA. Falling Through the Cracks: Challenges and Opportunities for Improving Transitional Care for Persons with Continuous Complex Care Needs. Journal of the American Geriatrics Society. 2003;51(4):549-55.
68. Starfield B. Primary care: concept, evaluation, and policy: Oxford University Press, USA; 1992.
69. Epstein NE. Multidisciplinary in-hospital teams improve patient outcomes: A review. Surgical Neurology International. 2014;5(Suppl 7):S295.
70. Boult C, Green AF, Boult LB, Pacala JT, Snyder C, Leff B. Successful Models of Comprehensive Care for Older Adults with Chronic Conditions: Evidence for the Institute of Medicine's "Retooling for an Aging America" Report. Journal of the American Geriatrics Society. 2009;57(12):2328-37.
71. Campbell NC, Ritchie L, Thain J, Deans H, Rawles J, Squair J. Secondary prevention in coronary heart disease: a randomised trial of nurse led clinics in primary care. BMJ Heart. 1998;80(5):447-52.
72. Hébert R, Durand PJ, Dubuc N, Tourigny A, Group P. Frail elderly patients. New model for integrated service delivery. Canadian Family Physician. 2003;49(8):992-7.
73. Hyland B, Judd F, Davidson S, Jolley D, Hocking B. Case managers' attitudes to the physical health of their patients. Australian & New Zealand Journal of Psychiatry. 2003;37(6):710-4.
74. Shumway M, Boccellari A, O'brien K, Okin RL. Cost-effectiveness of clinical case management for ED frequent users: results of a randomized trial. The American Journal of Emergency Medicine. 2008;26(2):155-64.

75. Wilson W, Ary DV, Biglan A, Glasgow RE, Toobert DJ, Campbell D. Psychosocial predictors of self-care behaviors (compliance) and glycemic control in non-insulin-dependent diabetes mellitus. Diabetes Care. 1986;9(6):614-22.
76. Chouinard M-C, Hudon C, Dubois M-F, Roberge P, Loignon C, Tchouaket É, et al. Case management and self-management support for frequent users with chronic disease in primary care: a pragmatic randomized controlled trial. BMC Health Services Research. 2013;13(1):49.
77. Hudon C, Chouinard M-C, Dubois M-F, Roberge P, Loignon C, Tchouaket É, et al. Case management in primary care for frequent users of health care services: a mixed methods study. The Annals of Family Medicine. 2018;16(3):232-9.
78. Gensichen J, Güthlin C, Kleppel V, Jaeger C, Mergenthal K, Gerlach F, et al. Practice-based depression case management in primary care: a qualitative study on family doctors' perspectives. Family Practice. 2011;28(5):565-71.
79. Unützer J, Katon W, Callahan CM, Williams Jr JW, Hunkeler E, Harpole L, et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. JAMA. 2002;288(22):2836-45.
80. Malla AK, Norman RM, McLean TS, Cheng S, Rickwood A, McIntosh E, et al. An integrated medical and psychosocial treatment program for psychotic disorders: Patient characteristics and outcome. The Canadian Journal of Psychiatry. 1998;43(7):698-705.
81. Eccles MP, Mittman BS. Welcome to implementation science. BioMed Central; 2006.
82. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Science. 2009;4(1):50.
83. Burnes B. Emergent change and planned change–competitors or allies? The case of XYZ construction. International Journal of Operations & Production Management. 2004;24(9):886-902.
84. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. Milbank Quarterly. 2004;82(4):581-629.
85. Rogers EM. Diffusion of innovations: Simon and Schuster; 2010.
86. Dearing JW, Meyer G, Kazmierczak J. Portraying the new: communication between university innovators and potential users. Science Communication. 1994;16(1):11-42.
87. Denis J-L, Hébert Y, Langley A, Lozeau D, Trottier L-H. Explaining diffusion patterns for complex health care innovations. Health Care Management Review. 2002;27(3):60-73.
88. Bruner EM. Experience and its expressions. The Anthropology of Experience. 1986;3:32.
89. Risser J. Hermeneutic experience and memory: Rethinking knowledge as recollection. Research in Phenomenology. 1986:41-55.
90. Schwandt TA. The Sage dictionary of qualitative inquiry: Sage Publications; 2014.
91. Oxford English Dictionary. "factor, n.1": Oxford University Press.
92. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. The Lancet. 2003;362(9391):1225-30.
93. Feltes M, Wetle T, Clemens E, Crabtree B, Dubitzky D, Kerr M. Case managers and physicians: communication and perceived problems. Journal of the American Geriatrics Society. 1994;42(1):5-10.
94. Netting FE, Williams FG. Case manager-physician collaboration: implications for professional identity, roles, and relationships. Health & Social Work. 1996;21(3):216-24.
95. Hoff T, Weller W, DePuccio M. The patient-centered medical home: a review of recent research. Medical Care Research and Review. 2012;69(6):619-44.

96. Kitson A, Harvey G, McCormack B. Enabling the implementation of evidence based practice: a conceptual framework. BMJ Quality & Safety. 1998;7(3):149-58.
97. Armstrong R, Hall BJ, Doyle J, Waters E. 'Scoping the scope' of a cochrane review. Journal of Public Health. 2011;33(1):147-50.
98. Pluye P, Hong QN, Bush PL, Vedel I. Opening-up the definition of systematic literature review: the plurality of worldviews, methodologies and methods for reviews and syntheses. Journal of Clinical Epidemiology. 2016;73:2-5.
99. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information & Libraries Journal. 2009;26(2):91-108.
100. Oakley A, Gough D, Oliver S, Thomas J. The politics of evidence and methodology: lessons from the EPPI-Centre. Evidence & Policy: A Journal of Research, Debate and Practice. 2005;1(1):5-32.
101. Smith ML, Glass GV. Meta-analysis of psychotherapy outcome studies. American psychologist. 1977;32(9):752.
102. Dixon-Woods M, Bonas S, Booth A, Jones DR, Miller T, Sutton AJ, et al. How can systematic reviews incorporate qualitative research? A critical perspective. Qualitative Research. 2006;6(1):27-44.
103. Sandelowski M, Barroso J. Handbook for synthesizing qualitative research: Springer Publishing Company; 2006.
104. Pope C, Mays N. Qualitative Research: Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. BMJ. 1995;311(6996):42-5.
105. Van Houdt S, Heyrman J, Vanhaecht K, Sermeus W, De Lepeleire J. An in-depth analysis of theoretical frameworks for the study of care coordination. International Journal of Integrated Care. 2013;13(2).
106. Harrod JB. Defining case management in community support systems. Psychosocial Rehabilitation Journal. 1986;9(3):56.
107. Randall S, Daly G, Thunhurst C, Mills N, Guest DA, Barker A. Case management of individuals with long-term conditions by community matrons: report of qualitative findings of a mixed method evaluation. Primary Health Care Research & Development. 2014;15(1):26-37.
108. You EC, Dunt D, Doyle C. Important case management goals in community aged care practice and key influences. Care Management Journal. 2016;17(1):47-60.
109. Fereday J, Muir-Cochrane E. Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. International Journal of Qualitative Methods. 2006;5(1):80-92.
110. Noblit GW, Hare RD, Hare R. Meta-ethnography: Synthesizing qualitative studies: Sage Publications; 1988.
111. Higgins J, Green S. Handbook for systematic reviews of interventions version 5.1. 0 [updated March 2011]. The Cochrane Collaboration. 2011.
112. Sargent P, Boaden R, Roland M. How many patients can community matrons successfully case manage? Journal of Nursing Management. 2008;16(1):38-46.
113. Conn VS, Valentine JC, Cooper HM, Rantz MJ. Grey literature in meta-analyses. Nursing Research. 2003;52(4):256-61.
114. Doyle LH. Synthesis through meta-ethnography: paradoxes, enhancements, and possibilities. Qualitative Research. 2003;3(3):321-44.

115. Chalmers I, Hedges LV, Cooper H. A brief history of research synthesis. Evaluation & The Health Professions. 2002;25(1):12-37.
116. Jüni P, Altman DG, Egger M. Assessing the quality of controlled clinical trials. BMJ. 2001;323(7303):42-6.
117. Fleiss JL, Cohen J. The equivalence of weighted kappa and the intraclass correlation coefficient as measures of reliability. Educational and Psychological Measurement. 1973;33(3):613-9.
118. McHugh ML. Interrater reliability: the kappa statistic. Biochemia medica: Biochemical Medicine. 2012;22(3):276-82.
119. Carroll C, Booth A. Quality assessment of qualitative evidence for systematic review and synthesis: Is it meaningful, and if so, how should it be performed? Research Synthesis Methods. 2015;6(2):149-54.
120. Brunton G, Thomas J, Harden A, Rees R, Kavanagh J, Oliver S, et al. Promoting physical activity amongst children outside of physical education classes: A systematic review integrating intervention studies and qualitative studies. Health Education Journal. 2005;64(4):323-38.
121. Thomas J, Harden A, Oakley A, Oliver S, Sutcliffe K, Rees R, et al. Integrating qualitative research with trials in systematic reviews. BMJ. 2004;328(7446):1010-2.
122. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Academic Medicine. 2014;89(9):1245-51.
123. Al Sayah F, Szafran O, Robertson S, Bell NR, Williams B. Nursing perspectives on factors influencing interdisciplinary teamwork in the Canadian primary care setting. Journal of Clinical Nursing. 2014;23(19-20):2968-79.
124. Dick K, Frazier SC. An exploration of nurse practitioner care to homebound frail elders. Journal of American Academy of Nurse Practitioners. 2006;18(7):325-34.
125. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International Journal for Quality in Health Care. 2007;19(6):349-57.
126. Long AF, Godfrey M. An evaluation tool to assess the quality of qualitative research studies. International Journal of Social Research Methodology. 2004;7(2):181-96.
127. Majid U, Vanstone M. Appraising qualitative research for evidence syntheses: a compendium of quality appraisal tools. Qualitative Health Research. 2018:1049732318785358.
128. Lincoln YS, Guba EG. Naturalistic inquiry: Sage; 1985.
129. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Annals of Internal Medicine. 2009;151(4):264-9.
130. Whiting P, Rutjes AW, Reitsma JB, Bossuyt PM, Kleijnen J. The development of QUADAS: a tool for the quality assessment of studies of diagnostic accuracy included in systematic reviews. BMC Medical Research Methodology. 2003;3(1):25.
131. Saltelli A, Tarantola S, Chan K-S. A quantitative model-independent method for global sensitivity analysis of model output. Technometrics. 1999;41(1):39-56.
132. Hoff T, Scott S. The strategic nature of individual change behavior: How physicians and their staff implement medical home care. Health Care Management Review. 2017;42(3):226-36.
133. Alvesson M, Sköldberg K. Reflexive methodology: New vistas for qualitative research: Sage; 2017.
134. Peckham A, Williams AP, Neysmith S. Balancing Formal and Informal Care for Older Persons: How Case Managers Respond. Canadian Journal on Aging. 2014;33(2):123-36.

135. Balard F, Gely-Nargeot MC, Corvol A, Saint-Jean O, Somme D. Case management for the elderly with complex needs: cross-linking the views of their role held by elderly people, their informal caregivers and the case managers. BMC Health Services Research. 2016;16(1):635.
136. Olsson M, Larsson LG, Flensner G, Back-Pettersson S. The impact of concordant communication in outpatient care planning - nurses' perspective. Journal of Nursing Management. 2012;20(6):748-57.
137. Young S. Professional relationships and power dynamics between urban community-based nurses and social work case managers: advocacy in action. Professional Case Management. 2009;14(6):312-20.
138. Bowers BJ, Jacobson N. Best practice in long-term care case management: how excellent case managers do their jobs. Journal of Social Work in Long-Term Care. 2002;1(3):55-72.
139. Netting FE, Williams FG. Geriatric case managers: integration into physician practices. Care Management Journal. 1999;1(1):3-9.
140. Egan M, Wells J, Byrne K, Jaglal S, Stolee P, Chesworth BM, et al. The process of decision-making in home-care case management: implications for the introduction of universal assessment and information technology. Health & Social Care in the Community. 2009;17(4):371-8.
141. Yamashita M, Forchuk C, Mound B. Nurse case management: negotiating care together within a developing relationship. Perspectives in Psychiatry Care. 2005;41(2):62-70.
142. Thomas EJ, Sexton JB, Helmreich RL. Discrepant attitudes about teamwork among critical care nurses and physicians. Critical Care Medicine. 2003;31(3):956-9.
143. Grundstem-Amado R. Differences in ethical decision-making processes among nurses and doctors. Journal of Advanced Nursing. 1992;17(2):129-37.
144. Oberle K, Hughes D. Doctors' and nurses' perceptions of ethical problems in end-of-life decisions. Journal of Advanced Nursing. 2001;33(6):707-15.
145. Egerton T, Diamond L, Buchbinder R, Bennell K, Slade S. A systematic review and evidence synthesis of qualitative studies to identify primary care clinicians' barriers and enablers to the management of osteoarthritis. Osteoarthritis and Cartilage. 2017;25(5):625-38.
146. Lamb BW, Brown KF, Nagpal K, Vincent C, Green JS, Sevdalis N. Quality of care management decisions by multidisciplinary cancer teams: a systematic review. Annals of Surgical Oncology. 2011;18(8):2116-25.
147. Molcard S. History of multidisciplinary team care for rheumatoid arthritis and review of literature. Rheumatologie. 1998;50:203-7.
148. Overbeck G, Davidsen AS, Kousgaard MB. Enablers and barriers to implementing collaborative care for anxiety and depression: a systematic qualitative review. Implementation Science. 2016;11(1):165.
149. Wood E, Ohlsen S, Ricketts T. What are the barriers and facilitators to implementing Collaborative Care for depression? A systematic review. Journal of Affective Disorders. 2017;214:26-43.
150. Lillyman S, Saxon A, Rawstorne D. University of life or academia? A review of community matrons/case managers continuing professional development; accessing a post-graduate programme without meeting the current academic entry criteria. Journal of Nursing Management. 2008;16(6):643-8.
151. Schoenmakers B, Buntinx F, Delepeleire J. What is the role of the general practitioner towards the family caregiver of a community-dwelling demented relative? A systematic literature review. Scandinavian Journal of Primary Health Care. 2009;27(1):31-40.

152. Tarzian AJ, Silverman HJ. Care coordination and utilization review: clinical case managers' perceptions of dual role obligations. Journal of Clinical Ethics. 2002;13(3):216
153. Corvol A, Moutel G, Somme D. What ethics for case managers? Literature review and discussion. Nursing Ethics. 2016;23(7):729-42.
154. Trivedi D, Goodman C, Gage H, Baron N, Scheibl F, Iliffe S, et al. The effectiveness of inter-professional working for older people living in the community: a systematic review. Health & Social Care in the Community. 2013;21(2):113-28.
155. Threapleton DE, Chung RY, Wong SY, Wong E, Chau P, Woo J, et al. Integrated care for older populations and its implementation facilitators and barriers: A rapid scoping review. International Journal for Quality in Health Care. 2017;29(3):327-34.
156. Mullahy CM. The case manager's handbook: sixth edition. Burlington, MA: Jones & Bartlett Learning; 2017.

Appendices

Appendix A: Different Models of Case Management

Characteristics	Brokerage/Generalist Case Management	ACT/Intensive Case Management	Strengths-Based Case Management	Clinical Case Management
Discriminating characteristic	Coordination	Comprehensive	Stress on strengths & empowerment	Psychotherapy
Coordination or service provision	Coordination (little service provision)	Service provision	Coordination & service provision	Coordination & service provision
Primary goal for patients	Stabilization	Growth	Growth	Stabilization & growth
Empowering or paternalistic	Empowering	Paternalistic	Empowering	Empowering & paternalistic

***This table is adapted from the work of Vanderplasschen, Wolf, Rapp and Broekaert (54). The authors of this review do not claim it as their own original work**

Appendix B: Search Strategy for OVID Medline

#	Searches
1	(case manage* or care manage* or care navigat* or patient centered medical home or managed care programs or patient care team).ti,ab.
2	(interprofessional relations or "Attitude of Health Personnel" or Communication Barriers or Interdisciplinary Communication or Workload or Social Work).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	exp Qualitative Research/
4	(mixed adj (method* or studies)).ti,ab,kf.
5	exp Interviews as Topic/
6	exp Questionnaires/
7	interview*.ti,ab,kf.
8	focus group*.ti,ab,kf.
9	((action or participatory) and research).ti,ab,kf.
10	exp Community-Based Participatory Research/
11	grounded theory.ti,ab,kf.
12	phenomenolog*.ti,ab,kf.
13	exp Narration/
14	narrat*.ti,ab,kf.
15	conversation*.ti,ab,kf.
16	discourse*.ti,ab,kf.
17	(ethnograph* or ethnomethodolog* or ethno methodolog* or autoethnograph*).ti,ab,kf.
18	hermeneutic*.ti,ab,kf.
19	constructivis*.ti,ab,kf.
20	((case or field) adj (study or studies)).ti,ab,kf.
21	((participant* or field) adj observ*).ti,ab,kf.
22	((purpos* or theoretical or judgement or "maximum variation" or convenience or "critical case" or "deviant case" or "key informant" or snowball or cluster) adj sampl*).ti,ab,kf.
23	(experience* or perspective* or perception* or meaning* or view? or viewpoint*).ti.

24	((lived or life or personal* or patient? or patients? or survivor*) adj3 (experience* or perspective* or perception* or meaning*)).ti,ab,kf.
25	((thematic or content) adj analys*).ti,ab,kf.
26	"group discussion*".ti,ab,kf.
27	(cope or copes or coping or thrive or thrives or thriving).ti,ab,kf.
28	or/3-27
29	1 and 2 and 28

Appendix C: Search Strategy for Embase

#	Searches
1	(case manage* or care manage* or care navigat* or patient centered medical home or managed care programs or patient care team).ti,ab.
2	(interprofessional relations or attitude of health personnel or communication barriers or interdisciplinary communication or workload or social work).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]
3	qualitative research*.mp.
4	qualitative stud*.mp.
5	action research.mp.
6	Participatory Research/
7	participatory research.mp.
8	case stud*.mp.
9	ethno*.mp.
10	grounded theory.mp.
11	phenomeno*.mp.
12	Narrative/
13	narrative*.mp.
14	biograph*.mp.
15	Autobiograph*.mp.
16	documentar*.mp.
17	qualitative synthes*.mp.
18	active feedback.mp.
19	conversation*.mp.
20	discourse*.mp.
21	thematic.mp.
22	qualitative data.mp.
23	key informant*.mp.
24	focus group*.mp.
25	case report*.mp.

26	exp Interview/
27	interview*.mp.
28	exp Observational method/
29	observer*.mp.
30	visual data.mp.
31	(audio adj record*).mp.
32	Cultural Anthropology/
33	experience*.mp.
34	or/3-33
35	exp clinical study/
36	exp Methodology/
37	randomization/
38	Placebos/
39	Crossover procedure/
40	or/35-39
41	(clinic* adj25 trial*).mp.
42	random*.mp.
43	control*.mp.
44	(latin adj square).mp.
45	placebo*.mp.
46	or/41-45
47	exp Comparative Study/
48	comparative stud*.mp.
49	Validation Study/
50	validation stud*.mp.
51	evaluation research/
52	evaluation stud*.mp.
53	Follow-Up/
54	followup.mp.
55	follow-up.mp.
56	cross over.mp.

57	crossover.mp.
58	prospective*.mp.
59	volunteer*.mp.
60	or/47-59
61	singl*.mp.
62	doubl*.mp.
63	trebl*.mp.
64	tripl*.mp.
65	or/61-64
66	mask*.mp.
67	blind*.mp.
68	66 or 67
69	65 and 68
70	40 or 46 or 60 or 69
71	exp Health Survey/
72	Health Care Survey/
73	exp Risk/
74	exp Incidence/
75	exp Prevalence/
76	exp Mortality/
77	cohort*.mp.
78	case-control.mp.
79	cross sectional.mp.
80	(health* adj2 survey*).mp.
81	risk.mp.
82	incidence.mp.
83	prevalence.mp.
84	mortality.tw.
85	"case series".mp.
86	"time series".mp.
87	"before and after".mp.

88	prognos*.mp.
89	predict*.mp.
90	course*.mp.
91	or/71-90
92	(mixed adj5 method*).mp.
93	multimethod*.mp.
94	(multiple adj5 method*).mp.
95	or/92-94
96	qualitative.mp.
97	Qualitative Research/
98	quantitative.mp.
99	96 or 97
100	98 and 99
101	95 or 100
102	34 or 70 or 91 or 101
103	102 not (letter/ or editorial/)
104	103 not (animal not human).sh.
105	1 and 2 and 34

Appendix D: Search Strategy for CINAHL

(TI (case manage* OR care manage* OR care navigat* or patient centered medical home or managed care programs or patient care team) OR AB (case manage* OR care manage* OR care navigat* or patient centered medical home or managed care programs or patient care team)) AND TX (interprofessional relations OR attitude of health personnel Or communication barriers Or interdisciplinary communication or workload or social work) AND TX (qualitative OR ethnol* OR ethnog* OR ethnonurs* OR emic OR etic OR leininger OR noblit OR "field note*" OR "field record*" OR fieldnote* OR "field stud*" or "participant observ*" OR "participant observation*" OR hermaneutic* OR phenomenolog* OR "lived experience*" OR heidegger* OR husserl* OR "merleau-pont*" OR colaizzi OR giorgi OR ricoeur OR spiegelberg OR "van kaam" OR "van manen" OR "grounded theory" OR "constant compar*" OR "theoretical sampl*" OR glaser AND strauss OR "content analy*" OR "thematic analy*" OR narrative* OR "unstructured categor*" OR "structured categor*" OR "unstructured interview*" OR "semi-structured interview*" OR "maximum variation*" OR snowball OR audio* OR tape* OR video* OR metasynthes* OR "meta-synthes*" OR metasummar* OR "meta-summar*" OR metastud* OR "meta-stud*" OR "meta-ethnograph*" OR metaethnog* OR "meta-narrative*" OR metanarrat* OR " meta-interpretation*" OR metainterpret* OR "qualitative meta-analy*" OR "qualitative metaanaly*" OR "qualitative metanaly*" OR "purposive sampl*" OR "action research" OR "focus group*" or photovoice or "photo voice" or "mixed method*)

Appendix E: Full Quality Assessment (with explanations)

	Al Sayah	Explanation?	Balard	Explanation?	Bowers	Explanation?
Title and Abstract						
Title	yes	no method mentioned, but "perspectives"	yes	no method mentioned, but "views"	no	descriptive title, but no mention of methods or qualitative
Abstract	yes	well-formatted	yes	well-formatted	no	not formatted in appropriate way, insufficient information
Introduction						
Problem Formulation	yes	significance conveyed, purpose and problem are clear	yes	problem conveyed (page 3)	yes	problem (distinguishing quality) is briefly mentioned
Purpose/Research Question	yes	purpose stated in last sentence of introduction	yes	aims described (page 2),	yes	purpose for research is clear
Methods						
Qualitative Approach	yes	focused ethnography & theory. No mention of research paradigm	yes	grounded theory, identified as qualitative	yes	grounded dimensional analysis. Good description of method
Researcher Reflexivity	no	no reflexivity demonstrated	yes	no description of researcher, but reflection of impacts of researcher characteristics, analysis team described	no	no reflexivity demonstrated
Context	yes	clear context, rationale not provided, but is obvious	no	no context provided	yes	context well described (Wisconsin LTC)
Sampling	yes	recruitment described, no explanation of inclusion criteria or justification	yes	clear definition of participants, inclusion and exclusion criteria	yes	sampling (informal recruitment) is rare, but justified
Ethics	yes	IRB approval + ethical guidelines followed	yes	excellent acknowledgement of ethics, both formally and informally	no	no discussion of ethics
Data Collection Methods	yes	adequate description of data collection process; sample questions; general content	yes	process of data collection thoroughly described	no	insufficient detail, although deviation from protocol is noted
Data Collection Instruments	yes	description of interviews w/ sample questions	yes	open ended then guided interview	no	inadequate description of interview tools, other than general objectives
Units of Study	yes	number and characteristics of participants well-reported	yes	table 1 reported	yes	adequately described
Data Processing	yes	transcription, coding, consensus processes all described	yes	transcription to NVivo described	yes	processing adequately described
Data Analysis	yes	thematic synthesis (weak description but adequate	yes	framework, analytic process, analysis team all described,	no	analysis not described
Trustworthiness	no	no relevant processes are included or described	no	thoughtful protocol, but no trustworthiness achieved	no	no trustworthiness addressed
Results/Findings						
Synthesis and Interpretation	yes	extensive thematic synthesis	yes	clear thematic synthesis	yes	standard thematic analysis
Link to Empirical Data	yes	citations from participants included to justify themes	yes	inclusion of "user terminology" in theme descriptions	yes	quotations used to justify themes
Discussion						
Integration with Prior Work, etc.	yes	summary; situate findings in context of prior research;	yes	summary of findings, comparison to previous work (Sandberg)	no	no real attempt to link to prior work
Limitations	yes	limitations explored	yes	limitations explored	no	limitations not explored
Other						
Conflicts of Interest	yes	COI declared	yes	COI declared	no	COI not declared
Funding	yes	Funding declared	yes	Funding declared	yes	Funding declared

	Carrier	Explanation?	**De Stampa**	Explanation?	**Dick**	Explanation?
Title and Abstract						
Title	**no**	descriptive but no qualitative or method identified	**no**	descriptive but no qualitative or method mentioned	**no**	descriptive but not qualitative or methods
Abstract	**no**	not formatted in appropriate way	yes	well-formatted	yes	not perfect but adequate information
Introduction						
Problem Formulation	yes	uncertainty about coordination process (bottom page 4)	yes	problem = don't know a lot about collaboration with case managers	yes	clear problem
Purpose/Research Question	yes	objectives beginning page 5	yes	purpose in last paragraph before methods	yes	clear purpose section
Methods						
Qualitative Approach	yes	qualitative exploratory study/embedded case study	yes	focus group & grounded theory, (light) justification for such usage	yes	"three-phase descriptive" study (ambiguous)
Researcher Reflexivity	**no**	no reflexivity demonstrated	**no**	clear division of contributions, but no reflexivity demonstrated	**no**	no reflexivity demonstrated
Context	yes	context well described	yes	MAIAs thoroughly described	yes	NPs caring for homebound, metro Boston
Sampling	**no**	justification for sampling strategy or recruitment is ambiguous	yes	recruitment described (last paragraph before study population), inclusion and exclusion clear	**no**	contact is explained, but no real inclusion/inclusion criteria
Ethics	**no**	no discussion of ethics	yes	ethics identified	yes	ethics identified
Data Collection Methods	yes	adequate description of methods (case study)	yes	methods described, interview guide prep articulated and justified (data collection)	yes	adequate description of methods
Data Collection Instruments	yes	adequate description of instruments	yes	clear description of interview guide	**no**	interview guides not explained or detailed
Units of Study	yes	participants described (last paragraph before results)	yes	characteristics well described	yes	table 2
Data Processing	yes	transcribed and coded in NVivo	yes	coding and analysis	yes	coding process well described
Data Analysis	yes	thematic analysis described	yes	see: last paragraph before results)	yes	not thorough, but adequately referenced (grounded theory)
Trustworthiness	**no**	no trustworthiness addressed	yes	within research team, but not with participants	yes	triangulation ("data verification") described
Results/Findings						
Synthesis and Interpretation	yes	thematic synthesis is extensive, new model proposition	yes	thematic synthesis	yes	thematic synthesis
Link to Empirical Data	yes	supported by empirical data	yes	supported by quotations	yes	supported by quotations
Discussion						
Integration with Prior Work, etc.	**no**	no link to prior work, no attempt to situate in context	yes	summary; situate findings in context of prior research;	yes	summary; situate findings in context of prior research;
Limitations	**no**	limitations not explored	yes	limitations explored	yes	limitations explored
Other						
Conflicts of Interest	**no**	COI not declared	yes	COI declared	**no**	COI not declared
Funding	yes	Funding declared (hidden, but Enraciner project)	yes	Funding declared (hidden in acknowledgements)	yes	Funding declared

	Egan	Explanation?	**Feltes**	Explanation?	**Gimm**	Explanation?
Title and Abstract						
Title	yes	not explicit but "the process of decision making" = qualitative	yes	not explicit but obviously qualitative	yes	not explicit but "perspectives
Abstract	yes	no subheadings but all info present	yes	well-formatted	yes	well-formatted
Introduction						
Problem Formulation	clear problem statement	problem = old people don't receive homecare they need	yes	clear problem statement	yes	problem located at end of introduction
Purpose/Research Question	yes	objective listed in first paragraph	yes	clear purpose statement	yes	purpose at end of introduction
Methods						
Qualitative Approach	yes	focus groups	yes	qualitative field study & in-depth interviews	yes	identified as qualitative at beginning of methods, focus groups later
Researcher Reflexivity	**no**	no reflexivity demonstrated	yes	research team reflexively described (top of page 6)	yes	multidisciplinary team described
Context	yes	context clearly described for all participants	yes	CCC Inc.	yes	PCMH well contextualized
Sampling	yes	recruitment procedures well-defined, justified accordingly	yes	clearly described (multi-stage purposeful)	yes	recruitment well-described
Ethics	yes	REB approved	**no**	no discussion of ethics	yes	GMU institutional review board approval
Data Collection Methods	yes	methods well-described	yes	methods well-described	yes	methods well-described
Data Collection Instruments	yes	types of questions in focus groups explained	yes	types of questions explained	yes	types of questions explained
Units of Study	yes	yes, although not in table form	**no**	not nearly enough information	yes	ok if the "unit" is the panel, not individual participants
Data Processing	yes	taped and transcribed verbatim	yes	see: data analysis	yes	processing adequately described
Data Analysis	yes	analysis adequately described	yes	grounded theory, well-referenced	yes	conceptual framework described
Trustworthiness	yes	within team, but not with participants	yes	reliability through paired interviewing	**no**	team meetings to discuss emerging themes
Results/Findings						
Synthesis and Interpretation	yes	thematic synthesis	yes	thematic synthesis	yes	thematic synthesis
Link to Empirical Data	yes	citations support themes	yes	citations support themes	yes	citations support themes
Discussion						
Integration with Prior Work, etc.	yes	see: end of discussion	yes	integration with prior work	yes	integration with prior work
Limitations	yes	limitations explored	yes	not called "limitations", but still explored at beginning of discussion	yes	see: final paragraph of discussion
Other						
Conflicts of Interest	**no**	COI not declared	**no**	COI not declared	yes	COI declared
Funding	yes	Funding declared	**no**	Funding not clearly stated	yes	Funding declared

	Hoff	Explanation?	**Illffe**	Explanation?	**Netting ('96)**	Explanation?
Title and Abstract						
Title	yes	not explicit but clearly qualitative	**no**	ambiguous title	**no**	not explicit, no method
Abstract	yes	well-formatted	yes	well-formatted	**no**	Abstract not present
Introduction						
Problem Formulation	yes	clear problem statement	yes	located in title "how this fits in" box	yes	not explicit enough, but very robust
Purpose/Research Question	yes	clear purpose statement	yes	clear purpose statement	yes	under "generalist physician initiative"
Methods						
Qualitative Approach	yes	"qualitative" (beginning of methods), interviews stated later, well justified	yes	two-stage qualitative, interview then case study	yes	interviews
Researcher Reflexivity	**no**	no reflexivity demonstrated	yes	identified in limitations section	**no**	no reflexivity demonstrated
Context	yes	Upstate NY primary care practices, good justification	yes	setting is described (health boards then primary care trusts)	**no**	no real context provided for interviews, difficult to follow
Sampling	yes	recruitment well-described	yes	recruitment well-described	**no**	sampling and recruitment not well defined
Ethics	yes	ethics identified	**no**	no discussion of ethics	**no**	no discussion of ethics
Data Collection Methods	yes	methods well-described	yes	methods well-described	yes	methods well-described
Data Collection Instruments	yes	interview, examples provided	yes	interview questions well described	**no**	interview guides not explained
Units of Study	yes	PCMH described (not individuals, but PCMH is unit of analysis)	yes	adequate description	**no**	no description of interviewees, except professions
Data Processing	yes	batches of 10, iterative process	yes	see: last paragraph before results	yes	processing adequately described
Data Analysis	yes	thematic analysis described	yes	appropriately referenced (imperfect but adequate)	yes	see: last paragraph before results
Trustworthiness	**no**	no trustworthiness addressed	yes	Stakeholder analysis plus last paragraph before results	yes	intra-team trustworthiness described
Results/Findings						
Synthesis and Interpretation	yes	thematic synthesis	yes	thematic synthesis	yes	thematic synthesis
Link to Empirical Data	yes	citations support themes	yes	citations support themes	yes	well-supported with citations
Discussion						
Integration with Prior Work, etc.	yes	integration with prior work	yes	see: "comparison with existing literature"	yes	integration with prior work
Limitations	yes	limitations explored	yes	limitations explored	yes	limitations explored
Other						
Conflicts of Interest	yes	COI declared	yes	COI declared	**no**	COI not declared
Funding	yes	Funding declared	yes	Funding declared	yes	Funding declared

	Netting ('99)	Explanation?	**Olsson**	Explanation?	**Peckham**	Explanation?
Title and Abstract						
Title	**no**	not explicit, no method	yes	no methods per se, but "perspectives" in title is positive	yes	no methods per se, but "how case managers respond" is good
Abstract	**no**	incomplete but passable	yes	well-formatted	yes	well-formatted
Introduction						
Problem Formulation	yes	clear problem statement	yes	twice: top of page 2 & immediately before "aim"	yes	not explicit enough, but quite extensive
Purpose/Research Question	yes	clear purpose statement	yes	clearly labelled "aim" section	yes	not explicit enough, but quite extensive
Methods						
Qualitative Approach	yes	interviews	yes	inductive qualitative description. Focus groups justified	yes	creative simulation & key informant interviews
Researcher Reflexivity	**no**	no reflexivity demonstrated	yes	implicit acknowledgement of researcher bias, but no formal reflection on reflexivity	yes	first paragraph under "in-depth interviews" = researcher conscious of role!
Context	**no**	no real context provided for interviews, difficult to follow	yes	fairly well described	yes	well described, bottom of p126
Sampling	**no**	sampling and recruitment not well defined	yes	recruitment well-described	yes	no mention of recruitment, but population is obvious and well-justified (hidden under bullet points on p127, left side)
Ethics	**no**	no discussion of ethics	yes	formal and informal ethical consideration	yes	last sentence before "balance of care simulation"
Data Collection Methods	yes	methods well-described	yes	focus groups are justified	yes	interview + BoC simulation, both well justified
Data Collection Instruments	**no**	interview guides not explained	yes	example questions/topics	yes	both BoC and interviews very clearly explained
Units of Study	**no**	no description of interviewees, except professions	yes	adequate description ("participants")	yes	participants not well described, but adequate
Data Processing	yes	processing adequately described	yes	processing adequately described	yes	see: last paragraph, page 127
Data Analysis	yes	see: last paragraph before results	yes	appropriately described	yes	deductive content analysis approach
Trustworthiness	yes	intra-team trustworthiness described	yes	directly addressed (right above "ethical considerations")	yes	triangulation of results with interviews and BoC
Results/Findings						
Synthesis and Interpretation	yes	new model of questions built	yes	standard thematic analysis	yes	thematic synthesis
Link to Empirical Data	yes	well-supported with citations	yes	citations support	yes	citations support themes
Discussion						
Integration with Prior Work, etc.	**no**	synthesis of findings, but not more	yes	very strong synthesis and integration	yes	very strong synthesis and integration
Limitations	**no**	limitations not explored	yes	limitations explored	**no**	one limitation, does not appear to be highly profound or reflective
Other						
Conflicts of Interest	**no**	COI not declared	**no**	COI not declared	**no**	COI not declared
Funding	yes	Funding declared	yes	Funding declared	**no**	funding implied, but not stated

	Sargent	Explanation?	**Yamashita**	Explanation?
Title and Abstract				
Title	yes	descriptive title but not clear re method	yes	no method explicit, but clearly qualitative
Abstract	yes	well-formatted	yes	well-formatted
Introduction				
Problem Formulation	yes	see section, "yet there is limited evidence"	yes	clear problem statement
Purpose/Research Question	yes	purpose in "aim" section (under methods)	yes	purpose is hidden under methods
Methods				
Qualitative Approach	yes	yes and justified	yes	interviews
Researcher Reflexivity	**no**	no reflexivity demonstrated	**no**	no reflexivity demonstrated
Context	yes	explained and justified	yes	"setting and sample"
Sampling	yes	clear inclusion/exclusion criteria	**no**	recruitment not described, justification is obvious but not stated
Ethics	yes	top of page 3	**no**	no discussion of ethics
Data Collection Methods	yes	methods explained	yes	methods explained
Data Collection Instruments	yes	interview guide pilot-tested; example questions explained	**no**	no insight into questions or value of interview guides
Units of Study	yes	caseloads described, should be more	yes	see: "setting and sample"
Data Processing	yes	see: beginning of data analyses	yes	processing adequately described
Data Analysis	yes	constant comparative method & grounded theory	yes	well-described
Trustworthiness	yes	triangulation mentioned	yes	triangulation mentioned
Results/Findings				
Synthesis and Interpretation	yes	thematic synthesis	yes	thematic synthesis
Link to Empirical Data	yes	citations support themes	yes	citations support themes
Discussion				
Integration with Prior Work, etc.	yes	synthesis and integration	yes	integration with prior work
Limitations	**no**	limitations quietly explored, but not directly addressed	yes	limitations explored
Other				
Conflicts of Interest	**no**	COI not declared	**no**	COI not declared
Funding	yes	Funding declared	**no**	Funding not declared

	You	Explanation?	**Young**	Explanation?
Title and Abstract				
Title	yes	Qualitative method directly in title!	yes	not explicit but "relationships"
Abstract	yes	well-formatted	yes	well-formatted
Introduction				
Problem Formulation	yes	clear problem statement	**no**	problem statement not formulated
Purpose/Research Question	yes	section on aims & research question explicitly stated	yes	vague, but present: "this study focused on…" 3x (purpose later in methods)
Methods				
Qualitative Approach	yes	yes and justified	yes	yes and justified
Researcher Reflexivity	yes	reflexivity demonstrated	**no**	never explicitly stated, although consideration is made to epistemology
Context	yes	"setting and population"	yes	explained under "research sampling method"
Sampling	yes	well defined; purposive	yes	site selection justified
Ethics	yes	ethics identified	**no**	no discussion of ethics
Data Collection Methods	yes	methods explained	yes	well justified
Data Collection Instruments	**no**	no insight into nature of interview guide	**no**	no explanation of nature of interview guide
Units of Study	yes	see: "sample"	yes	described in paragraph form; imperfect but satisfactory
Data Processing	yes	processing adequately described	yes	processing adequately described
Data Analysis	yes	thematic analysis described	yes	very extensively described
Trustworthiness	yes	triangulation mentioned	**no**	"repeated review of the data", but insufficient
Results/Findings				
Synthesis and Interpretation	yes	thematic synthesis	yes	thematic synthesis
Link to Empirical Data	yes	citations support themes	yes	citations support themes
Discussion				
Integration with Prior Work, etc.	yes	integration with prior work	yes	integration with prior work
Limitations	yes	limitations (and strengths) explored	**no**	limitations explored
Other				
Conflicts of Interest	**no**	COI not declared	**no**	COI not declared
Funding	**no**	thanks organizations for support, but no reference to funding	**no**	funding not declared

Appendix F: Comparing Results with Initial Framework

Initial Theme	Details	Changes	New Theme Name
External Factors	How care coordination was affected by national health policy, economic factors, and dependency on regulations and existing resources	As is. Renamed to represent policy and resources (driving factors)	Policy and Available Resources
Structure	Factors that influenced the structure of a team: number of participants, specializations, ways participants were grouped, number of linkages between participants, amount of information required to manage care of patient, existing mechanisms for coordinating care	N/A	-
Task Characteristics	Factors that influenced care coordination: degree of variability or standardization of the tasks, degree of team member interdependency, simplicity or complexity of tasks, degree of certainty in outcome, importance and length of task, workload and time pressure	Narrowed scope to just encompass "workload" and "time pressure". Additional sub themes of "complexity" and "length of task"	Time Pressure & Workload
Cultural Factors	Attitudes, beliefs, norms and values	N/A	-
Knowledge and Technology	Available skills, expertise, training, and information technology	Data focuses on training *in the use* of technology, rather than *in addition to* technology. Technology viewed as especially important factor	Training in Technology
Need for Coordination	Importance of the need to exchange information and/or the need to provide and coordinate care	N/A	-
Administrative Operational Processes	Three kinds of methods of administration and communication with varying degrees of feedback: impersonal methods, personal methods, group methods	Distinction of impersonal, personal and group methods expanded to all inter-professional communication	Team Communication Practices
Exchange of Information / Communication	Ideas and opinions among the members of a team, with an organization or between organizations	Combined with "Administrative Operational Processes", above	Team Communication Practices
Goals	Importance of setting common goals, sharing these goals, and assuring collective ownership of these goals	Modified to accentuate desire to set goals and achieve them, most critical in physician(s)	Physician Buy-In and Understanding of the Case Manager Role
Roles	Definition of roles and awareness of each other's roles	Modified to include "recognition" instead of "definition" (knowing, but also appreciating). Combined with "Goals", above	Physician Buy-In and Understanding of the Case Manager Role
Quality of Relationship	Promoting mutual respect and high-quality collaboration	Divided into sub-themes to recognize differences between collegial relationships and relationships with patients	Relationship with Physicians // Relationship with Patients
Patient Outcome	Patient's perception or evaluation of healthcare professional performance. Base on satisfaction, continuity of care, patient safety, efficiency, efficacy, availability, accessibility, compatibility	N/A	-
Team Outcome	Team behavior and team satisfaction	N/A	-
Organizational and Inter-Organisational Outcome	Comprehensiveness, accessibility, compatibility, conflict and efficiency of the organization	N/A	-