

THE ROLES OF MIDWIVES IN HEALTH SYSTEMS

UNDERSTANDING THE ROLES OF MIDWIVES IN
POLITICAL AND HEALTH SYSTEMS

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Lay abstract

Midwives who are educated and regulated according to international standards can play important roles in the provision of maternal and newborn care. Yet, there is significant variation within and across countries in whether, to what extent and how the profession has been integrated in most health systems. A lack of understanding regarding these roles likely contributes to this variation. This dissertation addresses gaps in understanding through: 1) a framework, which can be used as a tool by policymakers to identify policy levers that would be needed to enhance to roles of midwives within any given health system; 2) supportive quantitative evidence on birth-experience satisfaction among women in Ontario's health system who received care from midwives; and 3) examining in two reform efforts why many women continue to experience unmet midwifery needs in Ontario's health system even though the government is generally supportive of the profession.

Abstract

There is a lack of conceptual clarity regarding the drivers of midwives' roles within health systems, which has contributed to the significant variability both within and across countries in whether, to what extent and how midwives are integrated in these systems. This dissertation incorporated a mix of methodological approaches to address this gap. First, a critical interpretive synthesis was used to develop a theoretical framework that identifies the different types of policy levers that would be required to enhance to roles of midwives within any given health system, and an exploratory network analysis was used to analyze relationships among the 'health system arrangements' part of the framework and to identify gaps in the literature. Second, a logistic regression was used to examine the correlates of birth-experience satisfaction – as a patient experience component of the health system 'triple aim' – among women receiving care from midwives, family physicians and/or obstetricians in Ontario's health system. Third, an embedded single-case study design and Kingdon's agenda setting and the 3i+E theoretical frameworks were used to qualitatively assess how and under what conditions the Ontario health system has assigned roles to midwives. The research chapters build on each other and make substantive, methodological and theoretical contributions. Specifically, insights gained from the theoretical framework informed variable selection and definition for the quantitative analysis and were tested in the embedded single-case study. Substantively, the dissertation provides a rich understanding of the roles of midwives in health systems through a mix of qualitative and quantitative research evidence, adding to the evidence base that policymakers can draw from when making decisions regarding midwifery care.

Methodologically, the dissertation introduces a novel combination of a critical interpretive synthesis and exploratory network analysis. Lastly, the dissertation advances the theoretical understanding of the roles of midwives within health systems through a new theoretical framework.

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List of all abbreviations

3i+E – Institutions, interests, ideas, and external factors

CIS – Critical interpretive synthesis

HICs – High-income countries

HiREB – Hamilton Integrated Research Ethics Board in Hamilton, Ontario, Canada

KI – Key informant

LMICs – Low- and middle-income countries

MES – Maternity Experiences Survey

MeSH – Medical Subject Heading

MoHLTC – Ministry of Health and Long-Term Care

PI – Principal investigator

SRMNCH – Sexual, reproductive, maternal, newborn and child health

UNFPA – United Nations Population Fund

US – United States

WHO – World Health Organization

Declaration of academic achievement

This thesis presents three original research studies (chapters 2-4), as well as an introductory (chapter 1) and concluding chapter (chapter 5). I, Cristina Mattison, am the lead author of the co-authored chapters presented in the dissertation. I was responsible for conceptualizing the area of focus of the thesis and for its design, as well as for executing the data collection, analysis and preparing the written chapters. My supervisor, Dr. John N. Lavis, contributed to analysis and synthesis, and provided feedback on the written chapters. Committee members - Dr. Michael G. Wilson, Dr. Eileen K. Hutton and Dr. Michelle L. Dion - provided feedback on various drafts, which were incorporated into the final version of the thesis.

Chapter 1. Introduction

This chapter introduces a Ph.D. dissertation that consists of three original research chapters. The introduction begins with an overview of the current state of midwifery in health systems as well as evidence on midwifery-led care. I then outline the overarching aims of the thesis, which link to the rationale for each of the individual studies. The thesis objectives are then presented, followed by a summary of the approaches used in the individual research chapters. Finally, I conclude the chapter with a discussion of the substantive, methodological and theoretical gaps addressed by the dissertation.

Midwifery and its roles in health systems

Midwives who are educated and regulated according to international standards have the competencies to provide 87% of a population's essential maternal and newborn care, yet for the most part, the profession has not been widely embraced by health systems.(1) There is a lack of conceptual clarity regarding the drivers of midwives' roles within health systems, ranging from their regulation and scope of practice, to their involvement in care. The lack of understanding of these drivers is reflected in the significant variability both within and across countries in how midwives are integrated into health systems. For example, national or sub-national maternity care policies often do not include the midwifery workforce or account for the professions' role in the provision of quality care.(2)

Current research evidence supports midwifery-led care and has demonstrated that the profession delivers high-quality maternal and newborn healthcare services.(2-4) Care provided by midwives who are trained, licensed and regulated according to international

standards is associated with improved health outcomes.(1; 4-6) One high-quality systematic review found that midwifery-led continuity models of care were associated with fewer interventions such as epidurals and episiotomies, a 23% decrease in the likelihood of women giving birth preterm, and a 19% decrease in the likelihood of having a pregnancy loss before 24 weeks gestation.(7) Research on midwifery care in Canada suggests that it leads to fewer interventions—including lower rates of induction, caesarean and instrumental deliveries—and women are more likely to experience birth medication-free.(8)

Aims of the thesis and rationale for the three studies

The overarching aims of the thesis are to develop an understanding of the roles of midwives within health systems through: 1) a theoretical framework describing the political and health system factors that influence the roles of midwives within health systems; 2) an empirical assessment of the factors – including whether care is provided by a midwife or other provider – associated with birth-experience satisfaction; and 3) understanding the conditions under which midwifery has been assigned roles in a health system.

As background to the first aim, looking across political and health systems, there is extreme variability in the roles of midwives and it is not clear why these differences exist. The roles of midwives are often dichotomised by the development status of the jurisdiction of focus. In high-income countries (HIC) in general, the roles of midwives are focused on primary care to low-risk pregnant women through pregnancy, labour and a limited post-partum period. However, even within HICs there is a lot of variability. For

example, Canada was the last HIC with no formal provision of midwifery care and the profession was not regulated until 1994 in Ontario.(6; 9) Midwifery is regulated in the majority of provinces and territories, with the exception of Yukon, Prince Edward Island, and Newfoundland and Labrador.(10) New Brunswick has only recently regulated midwifery in 2016.(11) In low- and middle-income countries (LMIC), midwives' scope of practice can be broader and extend to aspects of sexual and reproductive health.(12-15) Of the 73 LMICs profiled in United Nations Population Fund's *The State of the World's Midwifery*, only 35 (48%) had legislation that recognized midwives as a regulated profession.(1) International organizations (e.g., World Health Organization, United Nations Population Fund and the International Confederation of Midwives) support an expanded approach to midwifery roles to include provision of sexual and reproductive health services (e.g., prevention of mother-to-child HIV transmission, prevention and treatment of sexually transmitted infections, and provision of safe abortion where legal).(1) There is a need to better understand the roles of midwives within health systems, as it is a key component in the delivery of safe and effective health services to women and newborns, and important to strengthening health systems. The thesis addresses the knowledge gap by developing a theoretical framework of the political and health system factors that influence the roles of midwives within health systems, as well as understanding the relationships among health system arrangements and identifying areas that have not been explored in the literature.

Turning to the background for the second aim, given that satisfaction is a key component of the care experience and part of the health system 'triple aim',

understanding satisfaction with midwifery-led care is an important component alongside evidence on improving population health and reducing per capita healthcare costs (the two other parts of the ‘triple aim’).(16-18) Health systems are increasingly dealing with the challenges of delivering services with limited resources and policymakers are attempting to incorporate satisfaction into decision-making because of its association with quality outcomes such as patient safety and clinical effectiveness.(16-18) Research on satisfaction specific to the birth experience suggests that satisfaction is associated with health and wellbeing outcomes among mothers and babies.(19; 20) Patient experience is an often-neglected part of the health system ‘triple aim’ and there is limited research evidence on satisfaction with maternity care, particularly as it relates to satisfaction with maternity care providers.(21; 22) The thesis addresses this gap by examining the factors associated with birth-experience satisfaction by healthcare provider.

Finally, turning to the background for the third aim, even though Ontario was the first province in Canada to regulate midwifery and has a government that is supportive of the profession, midwifery continues to have a very limited role within the health system. Ontario has the largest and most established midwifery workforce in the country, with 817 practicing midwives in 2016.(23) In addition, the workforce has grown substantially, increasing by 34% between 2013 and 2016.(23; 24) Despite having the largest midwifery workforce in the country, with demand for midwifery services as high as it is, many midwifery practices have waitlists.(25; 26) While midwifery care aligns well with broader healthcare reforms in the province, many pregnant woman continue to experience unmet needs, which suggests a policy gap between a government that is supportive of

midwifery-led care and a health system in which the profession continues to be marginalized. The thesis uses two political science frameworks, Kingdon's agenda-setting framework and the 3i+E framework, to examine the roles of midwifery in low-risk maternal health service delivery in Ontario, in the context broader efforts to transfer the province's health system.(27; 28)

Approaches taken in the three studies

The gaps mentioned above are addressed in the thesis through three original scientific contributions, which collectively take an interdisciplinary approach to analysis drawing on the political sciences, health systems research and statistical analyses. Compared to other scholarship in the area, the dissertation is unique in how studies one and three focus specifically at the health systems level and incorporate political system factors to understand the roles of midwives in the health system. The objectives of the thesis are to:

1. develop a theoretical framework to understand the roles of midwives within health systems; (Chapter 2)
2. model the factors that influence birth-experience satisfaction by healthcare provider; (Chapter 3) and
3. understand the conditions under which midwives have been assigned roles within a health system (Chapter 4).

The three research chapters presented in the dissertation build on each other. Specifically, insights gained from the theoretical framework (Chapter 2) informed variable selection and definition for the quantitative analysis (Chapter 3). In addition, the

political factors presented in the theoretical framework (Chapter 2) guided the analysis of the political system factors in a provincial health system through an embedded single-case study (Chapter 4).

The thesis incorporates a mix of methodological approaches to address the thesis objectives. Chapter 2 does this by using a critical interpretive synthesis, which is an inductive approach to literature analysis that uses conventional systematic review processes while incorporating qualitative inquiries to examine both empirical and non-empirical literature.⁽²⁹⁾ The approach draws on a diverse body of literature that is not clearly defined and is best suited to developing theoretical frameworks.⁽³⁰⁾ In addition to the critical interpretive synthesis, an exploratory network analysis was completed to analyze relationships among the key health system components that emerged in the theoretical framework. Chapter 3 moves from a broader conceptual understanding of the roles of midwives within health systems, to focusing on one provincial health system through a quantitative analysis. Specifically, a logistic regression analysis is used to assess birth-experience satisfaction among women in Ontario, Canada, who received care from midwives, family physicians and/or obstetricians. Chapter 4 focuses even further on the Ontario health system, which has the largest supply of midwives in the country. An embedded single-case study design is used to examine two recent key policy directions that presented opportunities for the integration of midwives, to explore whether, how and under what conditions these decisions facilitated or limited the integration of midwifery into the health system.

Substantive, methodological and theoretical gaps addressed by the dissertation

A rich understanding of the roles of midwives in health systems has to date been elusive. Substantively, the dissertation provides a better understanding of the roles of midwives in health systems through a mix of qualitative and quantitative evidence. The critical interpretive synthesis in chapter 2 incorporates a broad range of documents to systematically review the literature, which was used to inform the theoretical framework of the political and health system factors that influence the roles of midwives within the health system. Chapter 3 presents quantitative evidence about satisfaction with midwife-led care compared to care led by obstetricians, which is an important addition to the evidence base that policymakers could draw from when making decisions regarding maternity care. Chapter 4 provides a rich qualitative analysis of “how” and “why” midwives have been assigned roles within the Ontario health system.

Methodologically, the three studies provide a combination of mixed, quantitative and qualitative methods. In chapter 2, the critical interpretive synthesis is a relatively new approach to reviewing the literature, which allowed for the creation of a theoretical framework. The coupling of the critical interpretive synthesis with an exploratory network analysis is novel. The network analysis allowed for statistical measures of centrality, which yielded important insights into the networks’ structures, showing the key ‘health system arrangements’ found in the literature, which helped to explain what is understood about the roles of midwives within health systems, while also identifying gaps in the literature. The Maternity Experience Survey used in the quantitative analysis in

chapter 3 is a one-time Statistics Canada survey that is representative of a large random sample of women. The dataset is underutilized and there is only one other published study that utilized the dataset to focus specifically on outcomes related to midwifery-led care.(8) The quantitative analysis presented is the first to focus on satisfaction with birth experience by healthcare provider in Ontario. The embedded single-case study used in chapter 4 is an established research design, however, the approach has not been used before to examine the case of midwifery in health systems.(31) The method incorporates data from multiple sources allowing for insights to be drawn from a range of sources.

The dissertation provides theoretical contributions to the understanding of the roles of midwives within health systems. The theoretical framework presented in chapter 2 identifies the different types of policy levers – political and health system factors – that would be required to enhance to roles of midwives within any given health system. The theoretical framework was applied in the subsequent research chapters (3 and 4). There is limited national and international evidence on the outcomes of midwifery clients related to the patient experience domain of the health system ‘triple aim’, which is an often-neglected part. The theoretical framework informed variable selection and definition in the quantitative analysis presented in chapter 3, as evidence on birth experience is an important consideration alongside evidence on effectiveness in improving population health and keeping per capita costs manageable. In chapter 4, the conceptual framework is tested using data from interviews and documents. The robust approach to sampling the cases allowed for analysis of the policy puzzle to understand why a government that has been supportive of midwifery-led care has a health system in which the profession

continues to be marginalized. Discussed in the following chapter is the theoretical framework, which can be thought of as a heuristic that could be used by policymakers to identify the facilitators that can be leveraged as well as the barriers that could be addressed to support change in the roles of midwives within health systems.

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Chapter 2. Preface

This chapter takes a broad approach to examining the roles of midwives within health systems through the novel application of a critical interpretive synthesis methodology combined with an exploratory network analysis. Insights gained from the critical interpretive synthesis led to the development of a theoretical framework, which identifies the different types of political and health system policy levers that would be required to enhance to roles of midwives, and is broadly applicable across health systems. The exploratory network analysis was used to analyze relationships among the 'health system arrangements' part of the framework and to identify gaps in the literature.

I was responsible for conceptualizing the area of focus of the study and for its design, as well as for executing the data collection and analysis. The included studies were identified from September 2015 to May of 2016 and the analysis was completed and framework developed between March 2016 to December 2016. Tommaso D'Ovidio assisted with assessing documents for eligibility during the third phase of screening and also contributed extracting data from 20% of the documents included in the network analysis. My supervisor (Dr. John N. Lavis) contributed to analysis, synthesis and development of the theoretical framework, which was an iterative process. I drafted the thesis chapter and committee members (Dr. Michael G. Wilson, Dr. Eileen K. Hutton and Dr. Michelle L. Dion) provided feedback on various drafts, which were incorporated into the final version of the chapter.

**Understanding the roles of midwives in health systems:
A critical interpretive synthesis and ‘research concept’ network analysis**

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Abstract

Introduction: Midwives’ roles in sexual, reproductive, maternal, newborn and child health (SRMNCH) continues to evolve, and understanding their roles and how they can be integrated into health systems is essential to create evidence-informed policies. However, the lack of conceptual clarity regarding the drivers of midwives’ roles within health systems, ranging from their regulation and scope of practice to their involvement in care, has resulted in significant variability both within and across countries in how midwives are integrated into health systems. Our objective was to develop a theoretical framework of how political system factors and health systems arrangements influence the roles of midwives within the health system.

Methods: A critical interpretive synthesis was used to develop the theoretical framework followed by a network analysis, which was used to analyze relationships and connections among the key components that emerged in the theoretical framework. A range of electronic bibliographic databases (CINAHL, EMBASE, Global Health database, HealthSTAR, Health Systems Evidence, MEDLINE, and Web of Science) were searched,

as well as policy and health systems-related SRMNCH and midwifery organization websites. A coding structure was created to guide the data extraction and a combination of Excel, NVivo for Mac and Gephi was used for coding and analysis.

Results: A total of 3,171 unique documents were retrieved through electronic searches, of which 2,970 were excluded using explicit criteria, leaving 201 potentially relevant records, in addition to the 28 records that were purposively sampled through grey literature. A total of 117 documents were included in the network analysis, of which 57 of the highest-value documents were included in the critical interpretive synthesis. The resulting theoretical framework identified the range of political and health system components that can work together to facilitate the integration of midwifery into health systems or act as barriers that restrict the roles of the profession. An example of a facilitator was regulatory frameworks that allow midwives to practice autonomously, whereas as barriers included inconsistent standards of education and professional regulation which limit the ability to implement full scope of practice. Within health system factors, delivery arrangements were the largest and densest network in the network analysis, and the most central arrangements to the roles of the midwife within the health system were: performance management at the system level, continuity of care, availability of care, timely access to care, need/demand/supply at the system level, skill mix (role performance), and site of service delivery.

Discussion: Any changes to the roles of midwives in health systems need to take into account the political system where decisions about their integration will be made as well as the nature of the health system in which they are being integrated. The theoretical

framework, which can be thought of as a heuristic helps to inform such changes by identifying the range of political and health system components that facilitate or constrain such integration.

Introduction

Midwives' roles in sexual, reproductive, maternal, newborn and child health (SRMNCH) continue to evolve, and understanding their role in health systems is essential to create evidence-informed policies. Countries face challenges to providing quality maternal and newborn care among other aspects of SRMNCH, as birth in many jurisdictions is a medicalized process as seen by increasing rates of birth by non-medical caesarean procedures.(1-4) National or sub-national maternity care policies often do not include the midwifery workforce or account for the professions' role in the provision of quality care.(5) The lack of conceptual clarity regarding the drivers of midwives' roles within health systems, ranging from their regulation and scope of practice to their involvement in care, has resulted in significant variability both within and across countries in how midwives are integrated into health systems.

Research on midwifery care has demonstrated that the profession delivers high-quality maternal and newborn healthcare services.(5-7) Care provided by midwives who are trained, licensed and regulated according to international standards is associated with improved health outcomes.(7-10) A high-quality systematic review found that midwifery-led continuity models of care – compared to other models of care – were associated with fewer interventions such as epidurals and episiotomies, a 23% decrease in the likelihood of women giving birth preterm, and a 19% decrease in the likelihood of having a pregnancy loss before 24 weeks gestation.(11) While midwifery care is associated with positive outcomes, it is an area that is under-researched, particularly in relation to how political and health system factors influence its role in health systems. As such, the roles

of midwives in health systems is not clearly understood, which continues to challenge the profession's ability to work effectively in collaborative/interprofessional environments.

Midwifery research is often dichotomised by the development status of the jurisdiction of focus; high-income countries (HIC) compared to low- and middle-income countries (LMIC). In HICs in general, midwives' roles are focused on primary care to low-risk pregnant women through pregnancy, labour and a limited post-partum period.⁽¹²⁾ In comparison, in LMICs midwives' scope of practice can be broader and extend to aspects of sexual and reproductive health.⁽¹³⁻¹⁶⁾ International organizations (e.g., World Health Organization, United Nations Population Fund and the International Confederation of Midwives) support an expanded approach to midwifery roles to include provision of sexual and reproductive health services (e.g., prevention of mother-to-child HIV transmission, prevention and treatment of sexually transmitted infections, and provision of safe abortion where legal).⁽⁸⁾

Arguably the most crucial component of a health system is its health workforce. While midwifery is recognized as key to SRMNCH, there is a global shortage of the midwifery workforce.⁽⁸⁾ Midwives who are educated and regulated according to international standards can provide 87% of a population's essential maternal and newborn care, yet only 36% of the midwifery workforce is made up of such fully trained midwives, with a range of other health workers also delivering midwifery services.⁽⁸⁾ The latter has been made possible by the range of roles that non-midwife health workers are playing in providing midwifery services.⁽⁸⁾

The lack of understanding of the roles of midwifery in health systems has led to significant disparities within and across countries. Better understanding the roles of midwives within the health system is desirable as they are a key component in the delivery of safe and effective health services to women and newborns, and could possibly improve the cost-effectiveness of delivering SRMNCH services.(17-19) There is growing recognition that in order to strengthen health systems, decisions must be based on the best available research evidence.(20-23) Using the available research evidence to understand the roles of midwives across health systems – and its political and health system drivers – will yield important insights, with the aim of adding to the evidence base that policymakers can draw from.

The chapter presents a theoretical framework to explain how political and health system factors influence the roles of midwives within the health system. It defines the political system as consisting of three main components: institutions, interests and ideas.(24) ‘Health system arrangements’ are made up of governance, financial and delivery arrangements as well as implementation strategies.(25) Given the lack of theoretical development in the area, this chapter, through a critical interpretive synthesis of the available literature and a novel application of an exploratory network analysis, fills conceptual gaps by identifying the key political and health system factors that act as barriers or facilitators to the roles of midwives within health systems.

Methods

Design

A critical interpretive synthesis was used to develop the theoretical framework, followed by an exploratory network analysis, which was used to examine the relationships among health system arrangements as well as identify the conceptual gaps in the literature. Critical interpretive syntheses are an inductive approach to literature analysis, using conventional systematic review processes while incorporating qualitative inquiries to examine both empirical and non-empirical literature.(22) The approach is best suited to developing theoretical frameworks that draw on a wide range of relevant sources and is particularly useful when there is a diverse body of literature that is not clearly defined, as is the case with literature related to the roles of midwives in health systems. Conventional systematic reviews have well formulated research questions at the outset, while a critical interpretive synthesis employs a compass question, which is highly iterative and responsive to the findings generated in the review process.(26) Our compass question asked: “Across health systems, what are the factors that influence the roles of midwives within the health system?”

Following the critical interpretive synthesis, a network analysis was used as a way to conceptualize and analyze relationships among the key health system components that emerged in the theoretical framework.(27-29) A network refers to a set of nodes and edges. Nodes are the entities or in this case health system arrangements, while edges are the interactions or relationships between the nodes.(27; 28; 30) Centrality is one of the key principles of network analyses and measures how central a node is within the

network.(27; 28; 30; 31) There are four different types of centrality: 1) degree centrality refers to the number of direct connections (degrees) the node has to other nodes; 2) closeness centrality measures how close a node is to the other nodes in the network; 3) eigenvector centrality measures the importance of a node in relation to the importance of the nodes around it; and 4) betweenness centrality measures the importance of a node to the shortest path through the network.(27; 28; 30; 31) The approach allows for the analysis of the structure of the network as well as measuring the relationships among ‘health system arrangements’ and ‘implementation strategies’. Specifically, it helps to explain how and what ‘health system arrangements’ are related to the roles of midwives within health systems, while also identifying the conceptual gaps within the literature.

Literature search

The selection of the literature was carried out in phases (Figure 1). The first phase consisted of a systematic search of electronic bibliographic databases. The searches were executed in consultation with a librarian, who provided guidance on developing keywords (along with Boolean operators) and MeSH (Medical Subject Heading), refining the search strategy, identifying additional databases, and executing the searches. After testing and fine-tuning the search strategies, we searched the following electronic databases:

CINAHL, EMBASE, Global Health database, HealthSTAR, Health Systems Evidence, MEDLINE, and Web of Science. The search strategy was first developed in the MEDLINE database, using keywords and MeSH. Similar search strings were used across databases, with minor adjustments made to ensure search optimization. The searches in MEDLINE included: midwi* AND (roles OR scope), midwi* AND delivery of health

care (MeSH), midwi* AND patient satisfaction (MeSH), midwi* AND quality of health care (MeSH), and midwi* AND standards (MeSH).

The second phase, complementary to the bibliographic database search, was a search of policy and health systems-related SRMNCH and midwifery organization websites for relevant documents (e.g., World Health Assembly resolutions and United Nations Population Fund's State of the World's Midwifery reports). In addition, hand searches of reference lists from key publications were used to identify additional relevant literature (e.g., 2014 Lancet series on midwifery). The final step in the literature search process was a purposive search to identify literature to fill conceptual gaps that emerged. The searches were executed from September to November of 2015, with additional documents added throughout the analysis to fill the conceptual gaps (up until May 2016).

Article selection

For inclusion, the documents had to relate specifically to trained midwives, with leeway in terms of title (e.g., certified nurse-midwives and certified midwives in the US). Articles were included that in addition to providing insight into the compass question also: 1) incorporated a range of perspectives across different countries; 2) integrated different concepts into one document; and 3) included perspectives on the compass question from other disciplines (e.g., geographic information system and other techniques to map the distribution of the midwifery workforce). In order to incorporate a broad range of documents, there were no limits placed on the searches, such as language or publication year.

An explicit set of exclusion criteria were developed by the research team to remove the documents that were not relevant to the aims of the study and did not link to the compass question. Exclusion criteria included documents: 1) with a clinical focus (e.g., clinical guidelines, pharmacology, diagnostics, devices, surgery and/or treatment of shoulder dystocia, diabetes, hypertensive disorders, in pregnancy), unless the focus was on scope of practice (e.g., midwives performing abortions); 2) focused on models of care that were specific to individual practices or hospitals and included those that were related to health system approaches; 3) relating to unskilled workers providing maternal and newborn health services were excluded (e.g., traditional birth attendants); 4) focused on implementation of a program or evaluation of the program (e.g., prenatal and postnatal programs), unless the focus was on the roles of midwives providing care within the health system; 5) focused on midwifery education, unless the focus was on accreditation, training and licensure requirements; and 6) focused on site of service delivery (e.g., outcomes of hospital and home births), unless the focus was on the roles of the midwives within the different settings.

Once the series of searches were completed, an Endnote database was created to store and manage the results. All the duplicates were removed from the database and an initial review of the titles and abstracts was performed for each entry by the principal investigator (C. Mattison) and records were classified as “possibly include” or “exclude”. In the first stage of screening, records were marked as “possibly include” if they provided insight into the study’s compass question. Full-text copies of the remaining records were retrieved and uploaded to Covidence, an online tool for systematic reviews, for final

screening.(32)

The last stage of screening involved two phases and consisted of full-text review by two members of the investigative team (C. Mattison and T. D'Ovidio). Using Covidence, each reviewer examined the records independently to assess inclusion. Any discrepancies were discussed and resolved. The reviewers prioritized the inclusion of empirical articles where possible, which includes empirical qualitative studies and are the types more likely to address political and health system components. All the included records ($n=117$) were used in the exploratory network analysis. In the second phase of the final screening, the two reviewers once again examined the included records independently to assess the high value articles, ones that yielded the most insight into the compass question, which were then used in the critical interpretive synthesis.

Data analysis and synthesis

A coding structure was created to guide the data extraction. The areas of expertise of the authors (health systems and health policy, clinical practice and political science) informed the selection of frameworks guiding the data extraction. The political system factors were informed through the 3i framework, which is a broad typology. In political science there is growing recognition that there is a complex interplay among institutions, interests and ideas and the 3i framework provides a way of organizing the many factors that can influence policy choices. (24; 33-35) Institutions are made up of government structures (e.g., federal vs. unitary government), policy legacies (e.g., the roles of past policies) and policy networks (e.g., relationships between actors around a policy issue). Interests can include a range of actors who may face (concentrated or diffuse) benefits

and costs with particular courses of action, whereas ideas relate to peoples' beliefs (including those based on research evidence) and values.

'Health system arrangements' were informed through an established taxonomy that includes: 1) governance arrangements (e.g., policy authority, organizational authority and professional authority); 2) financial arrangements (e.g., how systems are financed and providers remunerated); 3) delivery arrangements (e.g., how care meets consumers' needs, who provides the care and where its provided); and 4) implementation strategy (consumer or provider targeted strategies).(25) The components of the framework for quality maternal and newborn care (practice categories, organization of care, values, philosophy, and care providers) were incorporated into the health system arrangements coding structure to yield insights specific to midwifery care.(7) Finally, the concept of values was present across frameworks and was treated as a subset of the ideas component of the 3i framework.

In addition to the frameworks that guided the coding of the records, additional data was collected on: publication year, study design, and jurisdiction(s) of focus. A data extraction form was developed based on all of the concepts covered in the frameworks as well as the additional descriptive items (Appendix 1).

The critical interpretive synthesis was conducted on the high value articles; those that yielded the most insight into the compass question. The reviewers prioritized the inclusion of empirical articles that were conceptually rich or integrated different concepts, filled disciplinary gaps, captured a breadth of perspectives across different countries, or applied approaches outside of health (e.g., geographic information systems). The articles

were read by the principal investigator (C. Mattison) and one-to-two page detailed summaries were created for each article. The summaries were coded using the qualitative software NVivo for Mac, which facilitates the organization and coding of the data.(36) Coding was informed by the three key frameworks guiding the analysis: components of the framework for quality maternal and newborn care, ‘health system arrangements’ and implementation strategies and 3i framework.

Three steps were involved in the analysis for the critical interpretive synthesis. First, the summaries of the articles were coded based on the coding structure outlined in the data extraction form. Using a constant comparative method, emerging data were compared to previously collected data to find similarities and differences.(37; 38) This approach included observations on the terms and concepts used to describe midwifery within the health system, as well as relationships between the concepts (e.g., how the roles of midwives within the health system is influenced by policy legacies (i.e., institutions) which is related to problems with collaborative/interprofessional environments (i.e., delivery arrangements – skill mix and interprofessional teams). Second, all the data collected under each code was reviewed and more detailed notes of the concepts that emerged were included in the analysis. Lastly, themes were created for the concepts that emerged throughout the analysis.

Completeness of the findings was ensured through ongoing consultation with members of the research team. Central concepts and emerging themes of the study were discussed as a team and applied to current scholarship within in the field of health systems and policy.

All the included records also underwent data extraction for the exploratory network analysis. The study principal investigator (C. Mattison) analysed all the records and the second reviewer (T. D'Ovidio) analysed 20% of the sample, which were then reconciled by the two reviewers to achieve consensus. The data extraction form was used to create a database in Excel in order to capture the key findings based on the health system arrangements taxonomy, which included the components framework of quality maternal and newborn care. In total, there were 133 columns for data extraction created in the database which included: 1) 33 columns for governance arrangements (five sub-categories and 27 third-level headings); 2) 39 columns for financial arrangements (five sub-categories and 33 third-level headings); 3) 43 columns for delivery arrangements (four sub-categories and 38 third-level headings); and 4) 18 columns for implementation strategies (sub-categories and 14 third-level headings). Reviewers marked a '1' in the appropriate column as concepts emerged in the records. Each record was an individual row and each concept a column within the database.

The coding in the database formed the basis for the network analysis. Gephi, an open-source free software package and visualization tool, was used for the network analysis.⁽³⁹⁾ Two comma-separated values (CSV) files, one for nodes and the other for edges, were created from Excel and imported into Gephi. The Yifan Hu layout was used in Gephi and the network diameter was calculated (the maximum number of steps required to cross the network), using an undirected network. The nodes were ranked by closeness centrality. The lower closeness centrality nodes are indicated by a lighter colour while the higher closeness centrality nodes are a darker colour.

The focus of the exploratory network analysis was on the data collected on the ‘health system arrangements’ and ‘implementation strategies’. The taxonomy lends itself to a network analysis because of its level of specificity, which captures the range and breadth of policy levers available to health systems.(25) The network analysis did not include the political system factors because the 3i framework is a much broader typology that lacks the type of specificity needed to draw conclusions from the approach. The analysis represents the relationship between the compass question and ‘health system arrangements’ and ‘implementation strategies’. The thickness of the lines (edges) represents the strength of the relationship across articles to the ‘health system arrangements’ and ‘implementation strategies’ (nodes). Because the taxonomy is hierarchical (i.e., in order to select a third-level heading, the sub-category and main category are also selected), the analysis was broken down to the individual levels (e.g., full governance arrangements and governance arrangements by third-level headings). The analysis was also separated to examine the arrangements and implementation strategies separately, as analyzing all the arrangements yielded too large a network.

Results

Search results and article selection

A total of 5,558 records were identified through the searches of electronic bibliographic databases. Once duplicates were removed ($n=2,387$), the remaining records ($n=3,171$) were screened based on title, abstract and the explicit set of exclusion criteria outlined above, leaving 201 potentially relevant records. In addition to the electronic database search, 28 records were purposively sampled for inclusion through grey

literature and hand searches. The remaining 201 documents from the electronic database searches and 28 documents from the grey literature and hand searches were assessed by both reviewers for inclusion using the full text. A total of 117 documents were selected to be included in the network analysis and of those, 57 were included in the critical interpretive synthesis (Figure 1).

Nearly three quarters (72%) of the documents were published after 2010 and more than one quarter (28%) were published between 2000-2009, with only one document published prior to 2000. Of the 117 documents, the majority were empirical ($n=84$, 72%). The empirical papers were primarily observational studies ($n=33$, 28%), followed by the ‘other’ category ($n=21$, 18%) (e.g., mixed methods and geographic information systems research), qualitative research ($n=19$, 16%), and systematic reviews ($n=10$, 9%) while one (1%) was a randomised control trial. The remaining documents were categorized as non-research ($n=33$, 28%), meaning that the approaches taken in the documents were either not systematic or that the methods were not reported transparently. Of the non-research documents, 14 (12%) were reviews (non-systematic), 10 (9%) were ‘other’ (e.g., World Health Assembly resolutions, toolkits, etc.), five (4%) were theoretical papers and the remaining four (3%) were editorials. Almost half ($n=57$, 49%) of the documents focused on HIC settings, followed by 38% ($n=44$) on LMIC settings, 12% ($n=14$) focused on both HIC and LMIC settings, and 2% ($n=2$) did not specify (Figure 2).

Critical interpretive synthesis results

The results of the critical interpretive synthesis focused on the political and health system factors that influenced the roles of midwives within health systems. Appendix 2

focuses on the political system factors and presents the relevant themes that emerged from the literature reviewed, relationships with other factors, and key examples from the literature of the factors that acted as either barriers or facilitators to the roles of midwives within the health system. Similarly, Appendix 3 focuses on the health system factors and presents the relevant themes, relationships with other factors, and key examples from the literature on the ‘health system arrangements’ that either acted as barriers or facilitators to the roles of midwives.

Three main findings emerged from the analysis on political system factors. First, within institutions, the effects of past policies regarding the value of midwives created interpretive effects, shaping the way midwifery care is organized in the health system. The legacies created by these policies created barriers which include maternity care policies that reinforced gender inequality (given most midwives are female), as well as in a medical model, payment systems privileged physician-provided and hospital-based services.(1; 14; 16; 40-54)

Second, interest groups played an important role in either supporting or opposing the integration of midwifery in the health system. These groups can have direct or indirect influence and policies that provide concentrated benefits and diffuse costs for groups are more likely to move forward.(24) In LMICs, bilateral and multilateral donors worked alongside local governments to integrate midwifery into the health systems by creating partnerships to improve maternal and newborn health, setting standards, policies and guidelines.(53; 55; 56) In HICs, professional associations played a strong role in political lobbying and advocacy.(57; 58)

Third, the most relevant themes related to ideas that emerged from the analysis pertained to societal values regarding gender (women's roles within society) as well as the medical model (medicalization of the birth process and associated valuing of physician and hospital-based care). Barriers created by societal values included: 1) social construction of gender and the status of midwives in a given jurisdiction often reflected the value placed on women within the society;(14; 40; 42; 52) 2) some cultures and beliefs did not allow women to receive care from men yet there are few healthcare providers who are women due to lack of educational opportunities and societal values that restrict women from participating in the paid labour force;(53) and 3) health system priorities and shifting societal values favoured the medical model.(1; 2; 42; 43; 52; 59; 60) Examples of facilitators included maternity care systems that value non-medical models and female dominated professional groups,(61) which respect women's rights to informed choice.(62)

Within health system factors, the main themes that emerged from the literature are presented according to 'health system arrangements'. First, within governance arrangements, regulation and scope of practice were central to how midwives are integrated into health systems. Regulatory frameworks ranged from lack of regulation to, once regulation was in place, the regulatory process in general and whether the profession was self-regulated in particular.(42; 44; 51; 54; 59; 62-64) Scope of practice linked to regulation and included establishing, expanding and/or restrictions scope of practice.(58; 60; 65; 66) Within financial arrangements, the literature relating to the roles of midwives focused primarily on how systems are financed as well as the remuneration of

midwives.(5; 10; 16; 67; 68) Lastly, the main themes relating to delivery arrangements focused on: 1) accessing midwifery care ranging from availability and timely access to workforce supply, distribution and retention; 2) how care is provided (e.g., task-shifting, interprofessional teams); and 3) where care is provided (e.g., hospital-based, integration of services and continuity of care).(2; 7; 8; 10-16; 40; 42-47; 49; 51; 53; 54; 56-59; 61; 62; 64; 66; 69-80)

Theoretical framework

Figure 3 brings together the main findings from the critical interpretive synthesis and presents a theoretical framework, which can be thought of as a heuristic that can be used to identify the drivers of midwives' roles in a particular political and health system. The political and health system drivers presented in the model are not weighted but rather present the range of variables influencing the integration of midwives into a health system. Some of the variables and examples presented in the framework have context specificity to reflect findings from the critical interpretive synthesis (e.g., self-regulated profession, Indigenous self-government and payment systems privileging physician-provided and hospital-based services).

Similar to the concept of the World Health Organization's health system building blocks, the political system factors form the bottom building block or the foundation for the 'health system arrangements'. The political system factors act as either barriers or facilitators to the 'health system arrangements'. For example, favourable institutional factors (e.g., policy legacies that value midwives), interests (e.g., collaborative interest groups coming together for a common goal) and ideas (e.g., societal values centering on

gender equality and birth as a natural process) act as facilitators to ‘health system arrangements’ that support the integration of midwifery. Together, supportive political and health system factors lead to health systems where midwives have increased roles (i.e., trained, licensed and regulated according to international standards, working in collaborative/interprofessional environments with an established workforce). Conversely, health systems that have many political and health system barriers will in turn have a limited midwifery workforce that is often siloed and working in environments where midwives are not integrated into the health system.

Network analysis results

Due to both the size of the ‘health systems arrangements’ and ‘implementation strategies’ taxonomy as well as its hierarchical nature, the network analysis was broken down by broad arrangement/strategy and by level. The full network was presented for the entire arrangement to provide an overall representation of the network within the arrangement, followed by a more detailed analysis of the third-level headings, which included reporting on the: 1) graph density - measures the level of connected edges in the network (the closer to 1, the more dense the graph is); 2) average degree – value reflects how many links a typical item in the network has; and 3) measures of centrality (degree, closeness, eigenvector, and betweenness).(27; 28; 30; 31) Full results for each of the arrangement/strategy analyses of third-level headings are presented in Appendix 4. Equally important to the analysis was capturing the components of the taxonomy that were not included in the literature reviewed, suggesting gaps in the literature, which is listed for each health system arrangement and implementation strategy.

The network analysis for the full governance arrangements consisted of 20 nodes (of a possible 32 nodes in the taxonomy) and 128 edges (Figure 4). The network analysis for the third-level headings within governance arrangements consisted of 16 nodes (of a possible 26 third-level headings in the taxonomy) and 66 edges (Figure 5). The graph density was 0.55 and the average degree was 8.25. The nodes with the highest betweenness centrality (measures the importance of a node to the shortest path through the network) were: training and licensure requirements (20.70), accountability of the state sector's roles in financing and delivery (15.68) and quality and safety (6.70). Governance arrangements that were included in the taxonomy but were missing from the literature review included: stewardship of the non-state sector's roles in financing and delivery, commercial authority (e.g., licensure and registration requirements), consumer participation in system monitoring, and consumer participation in service delivery.

The financial arrangements network was the smallest of all the networks and consisted of 15 nodes (of a possible 38 nodes in the taxonomy) and 36 edges (Figure 6). The third-level headings within financial arrangements network consisted of 11 nodes (of a possible 33 nodes) and 11 edges (Figure 7). The graph density was 0.2 and the average degree was 2. The nodes with the highest betweenness centrality were: taxation (7.50), donor contributions (6.67) and targeted payments/penalties (remunerating providers) (4.50). Many of the taxonomy's financial arrangements were not covered in the literature reviewed and range from third-level headings in: funding organizations (e.g., global budgets), remunerating providers (e.g., capitation), purchasing products and services

(e.g., caps on coverage/reimbursement for organizations, providers, services, and products), and incentivizing consumers (e.g., cost sharing).

Health system delivery arrangements made up the largest of the networks in the analysis and consisted of 39 nodes (of a possible 42 nodes in the taxonomy) and 626 edges (Figure 8). Of the third-level headings, there were 35 nodes (of a possible 38 nodes) and 483 edges (Figure 9). The graph density was 0.81 and the average degree was 27.6. The highest betweenness centrality nodes were: performance management at the system level (11.44), continuity of care (11.44), skill mix (interprofessional teams) (8.92), and staff (training) (7.34). In contrast to the other networks, the majority of the delivery arrangements were captured in the literature reviewed and only three of the third-level headings in the taxonomy were missing from the literature (group care, self-management and electronic health records).

Similar to financial arrangements, implementation strategies were a small network. Of the possible 20 nodes in the taxonomy, there were 12 nodes and 38 edges in the full implementation strategies network (Figure 10). There were 9 nodes (of a possible 17 in the taxonomy) and 17 edges within the third-level headings analysis (Figure 11). The graph density is 0.47 and the average degree is 3.78. The nodes with the highest betweenness centrality were: support (personal) (6.17), educational material (provider-targeted) (3.33) and information or education provision (consumer-targeted) (1.17). Concepts that were included in the taxonomy but were missing from the literature review included: system participation (consumer) and a number of provider-targeted strategies (e.g., local consensus process, peer review and reminders and prompts).

Discussion

Principal findings

The theoretical framework arising from the critical interpretive synthesis identified the drivers of midwives' roles in a particular political and health system. Presented in the framework are the range of political and health system components that can facilitate integration of midwifery into health systems or act as barriers by restricting the roles of the profession. Supportive political system factors that act as facilitators to midwifery-supportive health system arrangements and augment the integration of midwifery include: 1) policy legacies that value midwives (institutions); 2) interest groups working together collaboratively towards a common goal (interests); and 3) societal values supporting gender equality and birth as a natural process (ideas). Combining supportive political and health system factors leads to health systems where midwives have a significant role in provision of maternity care services and are trained, licensed and regulated according to international standards, and working in an established workforce. On the other hand, barriers such as the policy legacies of payment systems in a medical model that privilege physician-provided care, as well as marginalization created in the context of perceived rivalries between physician and midwifery related interest groups could restrict the opportunities available to midwives. Significant political and health system barriers limit the options available to the midwifery workforce and is most often reflected in siloed work environments with midwives not integrated into the health system.

The findings of the network analysis suggest that within the literature reviewed,

the most explored area on the roles of midwives within the health system was within delivery arrangements, with a more limited understanding of the governance arrangements involved, and much more limited understanding of the necessary financial arrangements and implementation strategies. Delivery arrangements made up the densest network and the most central arrangements were: 1) performance management at the system level - how organizations and midwives are managed in efforts to ensure optimal performance; 2) continuity of care – responsibility for the client’s care; 3) availability of care - how the scale of the geographical area or population that is to be covered for midwifery services is defined; 4) timely access to care - how efforts that address the amount of time required to access or receive midwifery services are managed; 5) need/demand/supply at the system level - how many midwives are needed/demanded and the distribution of their supply across a health system; 6) skill mix (role performance) - how midwives’ performance in their current roles are optimized; and 7) site of service delivery - alternative physical locations in which services are delivered.

Equally important to the concepts covered in the network analysis, was the identification of health system arrangements that were missing, which helps to identify gaps in the literature and inform areas for future research. The coverage of governance arrangements, financial arrangements and implementation strategies was limited in the literature reviewed. Many of the concepts related to health system financial arrangements were not covered (e.g., funding organizations, some aspects of remunerating providers, purchasing products and services, and incentivizing consumers). Similarly, many implementation strategies were not covered in the literature including: system

participation (consumer) and provider-targeted strategies (e.g., local consensus process, peer review and reminders and prompts).

Strengths and limitations of the study

There were three main strengths of the study. First, the critical interpretive synthesis is a relatively new systematic review methodology, which combines a rigorous systematic review of electronic bibliographic databases with iterative and purposive sampling of the literature to fill conceptual gaps. The approach incorporated a range of documents (empirical and non-empirical), which broadened the scope of the literature used to inform the theoretical framework. Second, the network analysis provided a visualization of the relationships across health system arrangements. Statistical measures of centrality yield important insights into the networks' structures, offering insight into the key arrangements found in the literature that help to explain the roles of midwifery within health systems. Third, to our knowledge this is the first study to couple a critical interpretive synthesis with a 'research concept' network analysis. The combined approach is unique and offers further insights into the research question by analyzing relationships among the 'health system arrangements', while also identifying the gaps in the literature.

The main limitation of the critical interpretive synthesis was that search strategy may not have fully covered the diverse terminology used to refer to midwifery. However, the principal investigator (CM) consulted with a librarian and team members to ensure that the search strategy was as inclusive as possible, which is also reflected by the high proportion of articles that were later excluded during the screening process. Meanwhile, the majority of articles retrieved from the searches were published after 2000, which

could be related to the release of the Millennium Development Goals and wider attention given to maternal and child health as a result.

The main limitation of the network analysis was that it only examined what is known about the research question within the literature reviewed. While this is a study limitation, it is helpful because it identifies potential areas for future research. A second limitation of the network analysis is that due to the overall size of the ‘health system arrangements’, each of the three arrangements and implementation strategy was treated as a separate network, which means that comparisons could not be made across networks.

Implications for policy and practice

Any changes to the roles of midwifery in health systems need to take into account the political system where decisions about their integration will be made as well as the nature of the health system in which they are being integrated. The theoretical framework is a heuristic that helps to inform such changes by identifying the drivers of midwives’ roles that facilitate or constrain such integration. The study results have implications for policymakers as, firstly, the theoretical framework can be used to conduct an assessment of the drivers midwives’ roles in order to strengthen their roles by identifying the facilitators that can be leveraged as well as the barriers that could be addressed to support change. For example, Sweden has favourable political system conditions (e.g., policy legacies of professionalization of midwives dating back to 18th century and an equitable alliance between midwifery and physician groups), which is reflected in the health system arrangements where midwives are the primary healthcare providers for low-risk pregnant women. In contrast, the US has policy legacies of payment systems valuing physician-

provided and hospital-based care, strong physician and hospital interest groups that have created a monopoly over maternity care, as well as existing tensions within the profession between nurse midwives and midwives. Moving forward, an implication for practice is that changes to further enhance the role of midwives would require different types of policy levers. In the example of the US, change would require spending political capital to modify existing structures within the health system. Funding and regulatory levers would need to be pulled; yet strong policy legacies and entrenched interests present significant barriers to change. The framework presented helps to explain why midwives play such a small role in maternity care service delivery in the US.

Implications for future research

While research evidence on the role of midwives in the provision of quality SRMNCH has increased, and the Lancet's 2014 Midwifery Series was key to raising the profile of midwifery research, significant gaps in the literature persist. The exploratory network analysis identified that the literature related to the roles of midwives within health systems is relatively saturated in terms of delivery arrangements and surprisingly little is known about governance and financial arrangements and about implementation strategies, which are key to effectively integrating midwifery and pushing the field forward in meaningful ways. In addition, future testing of the theoretical framework should involve a multiple-case study. The cases would consist of at least four different health systems, with diversity in terms of country classification (LICs to HICs) and geographical distribution. The design would allow for testing of the tool to investigate if it accurately maps the integration of midwives within the particular health system, while

also identifying the appropriate political and health system levers used to increase the roles of midwives within the health system.

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Figure 1. Literature search and study selection flow diagram

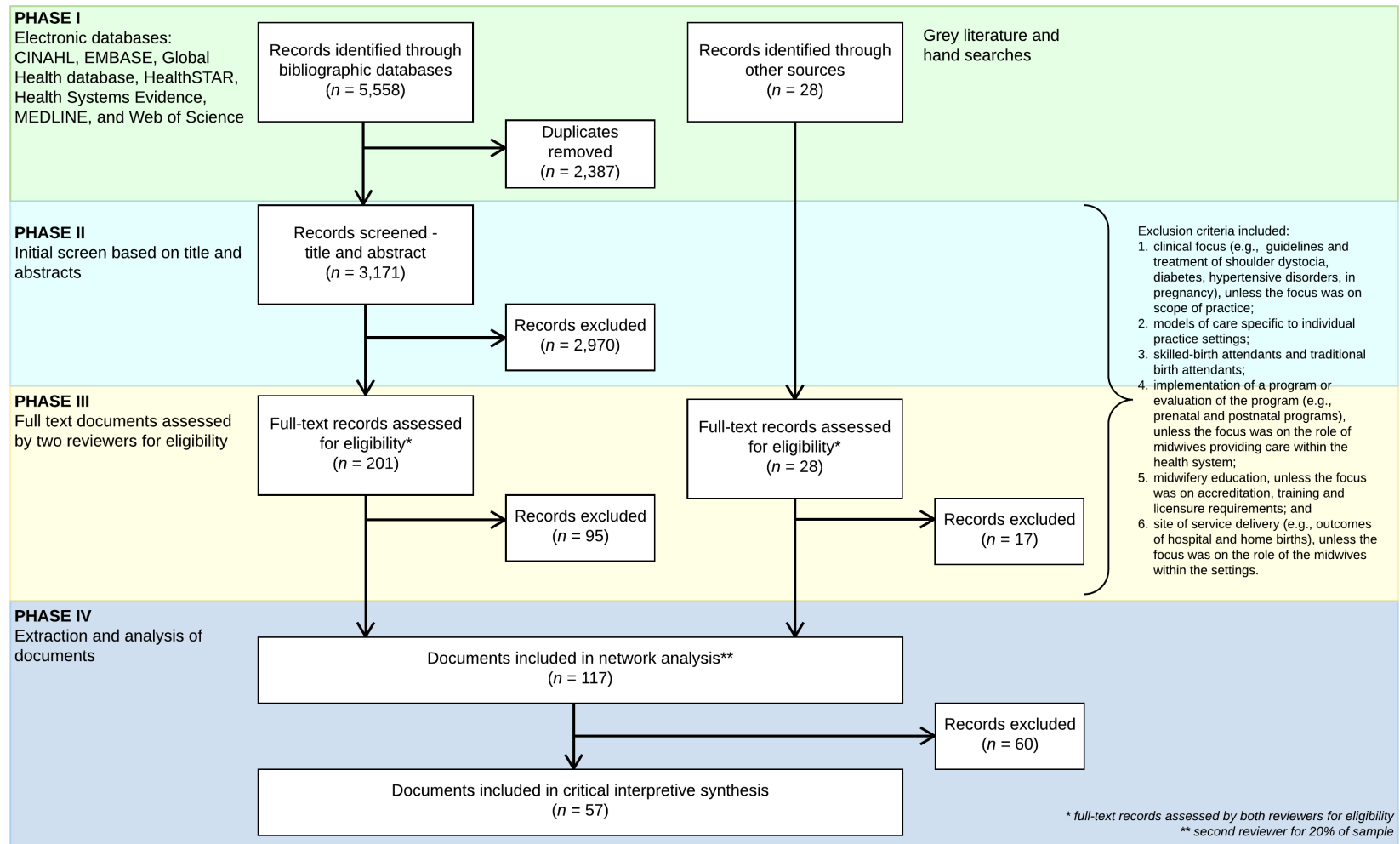


Figure 2. Country of focus of included documents

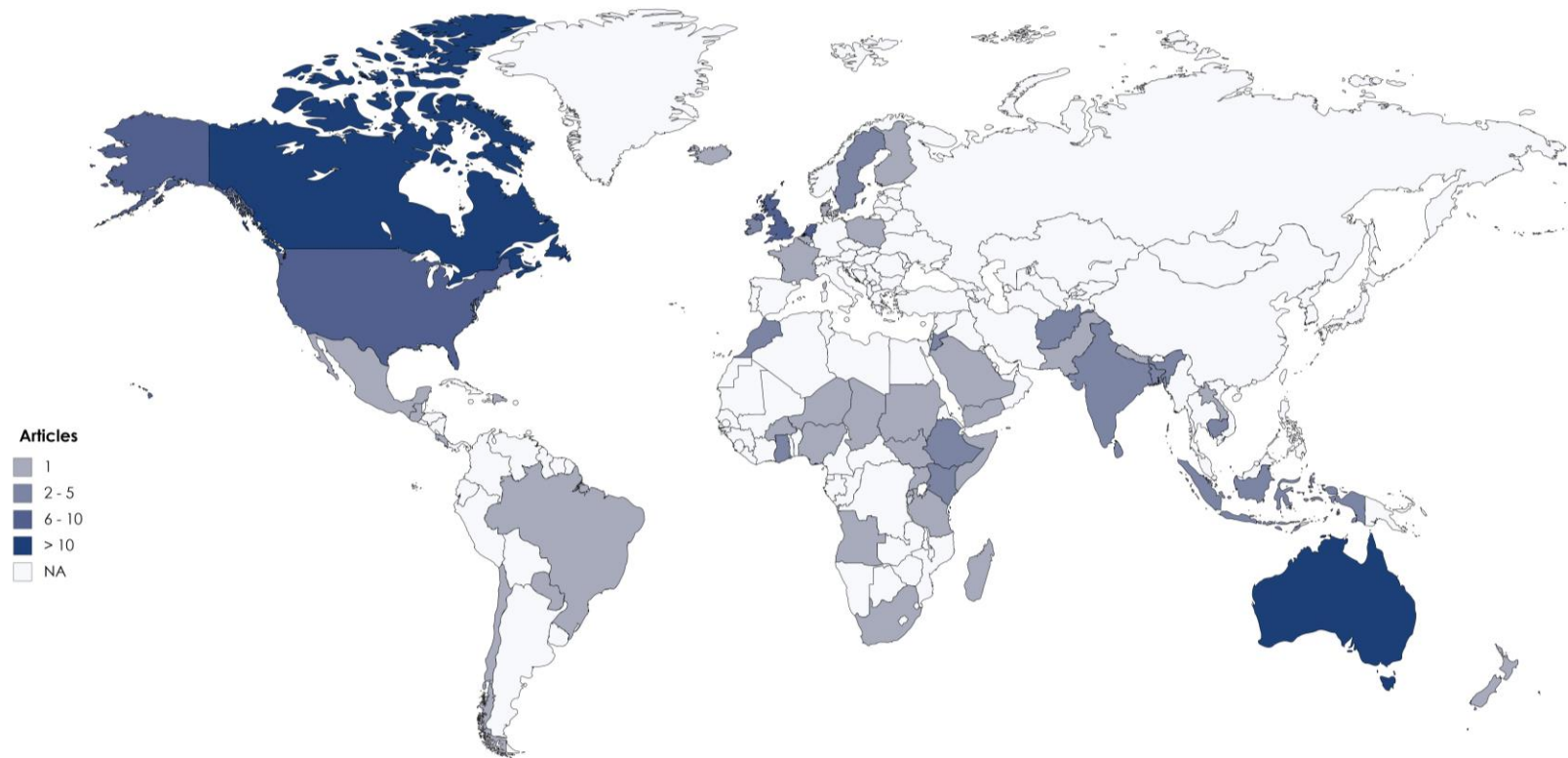


Figure 3. Theoretical framework of the political and health system factors that influence the roles of midwives within the health system

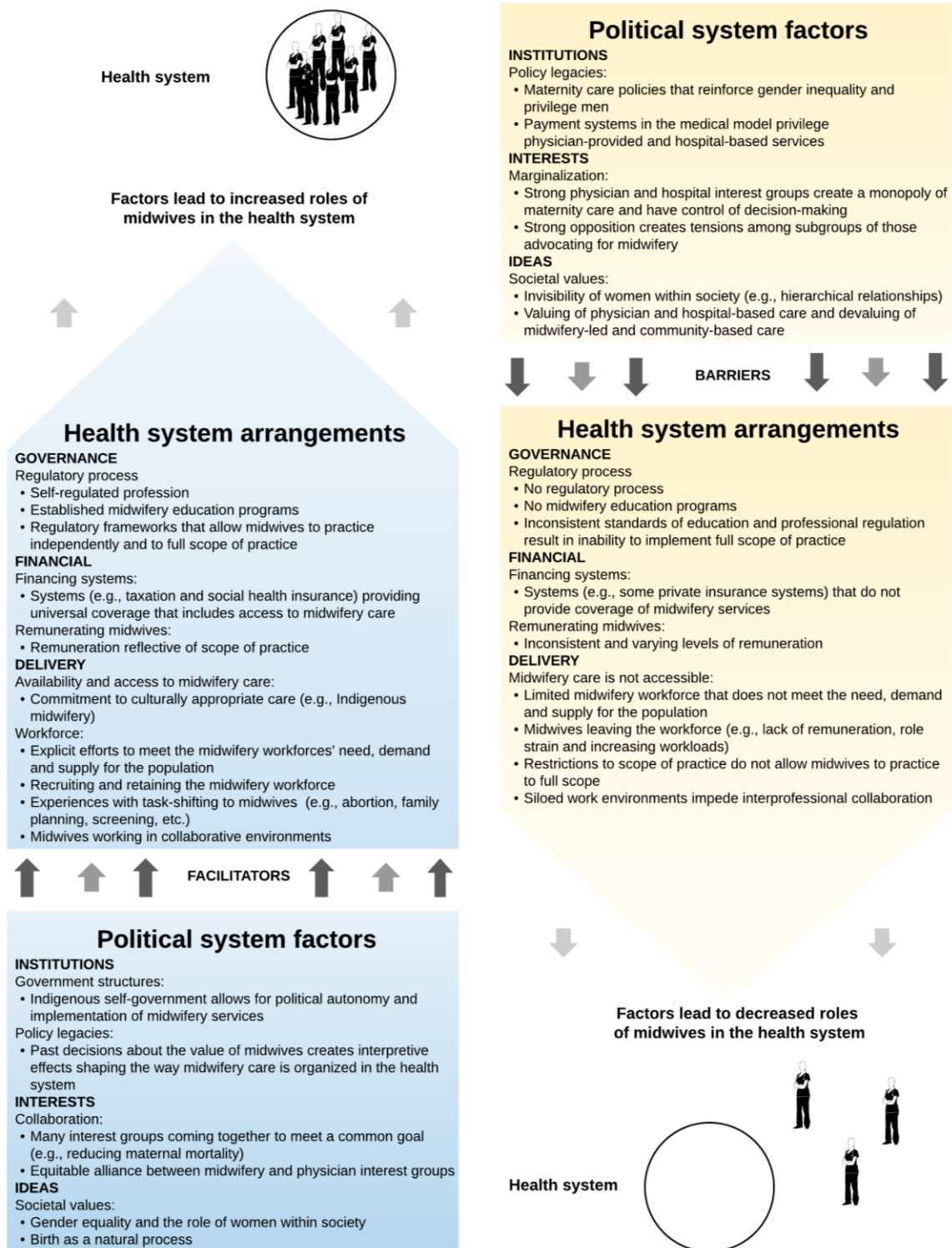


Figure 4. Network analysis of governance arrangements found in the literature on the roles of midwives in health systems

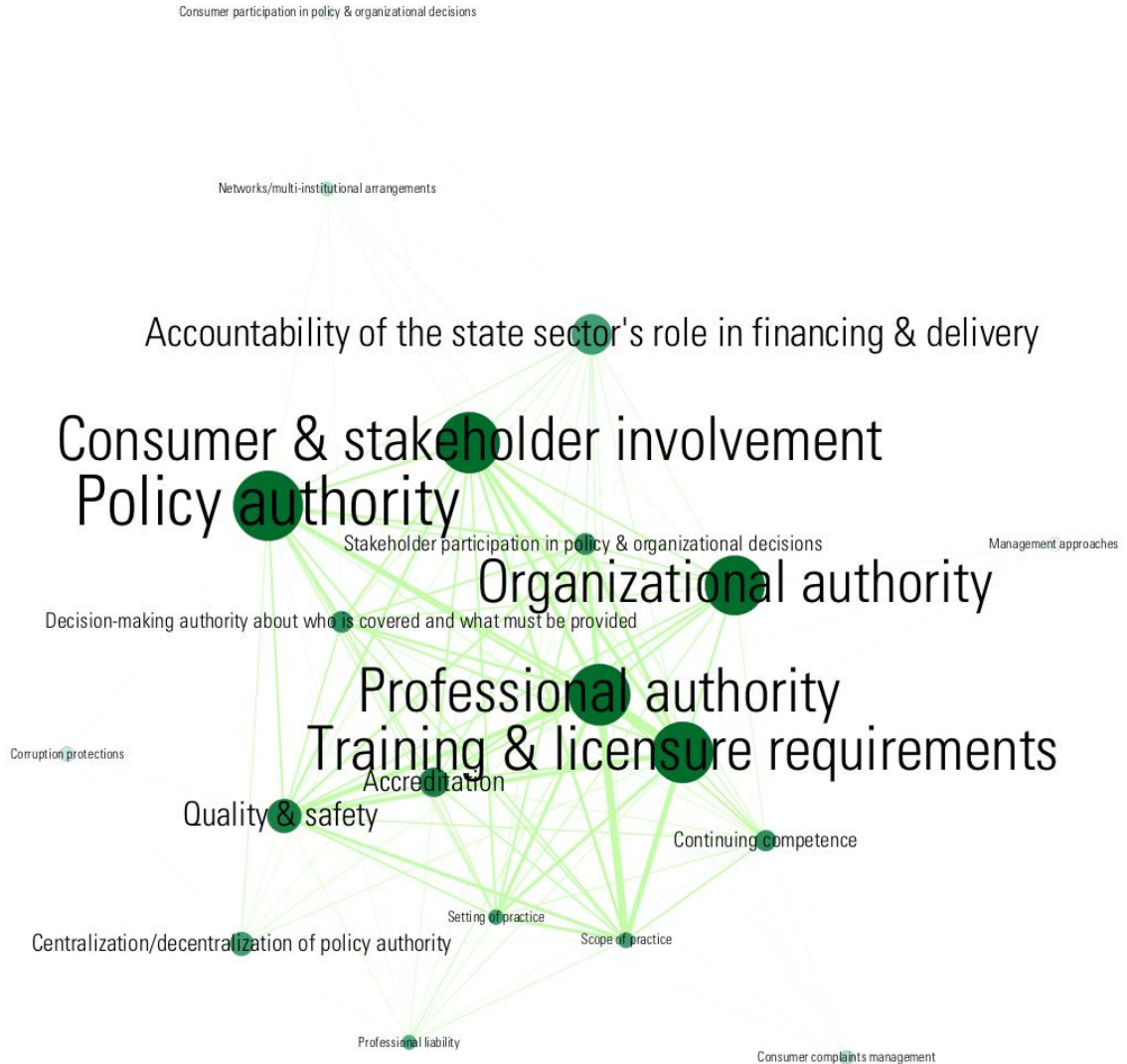


Figure 5. Network analysis of governance arrangements (third-level headings) found in the literature on the roles of midwives in health systems

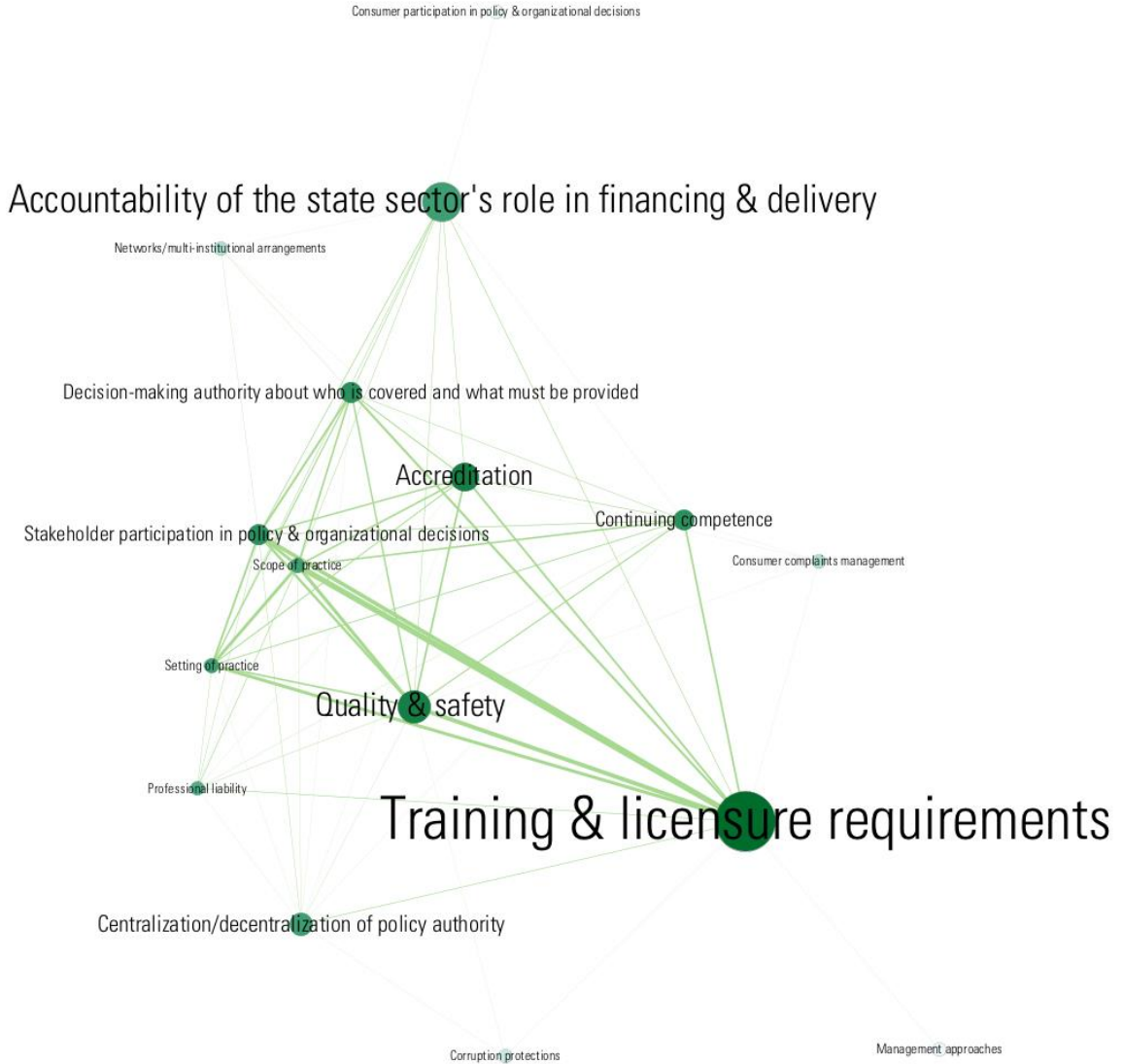


Figure 6. Network analysis of financial arrangements found in the literature on the roles of midwives in health systems

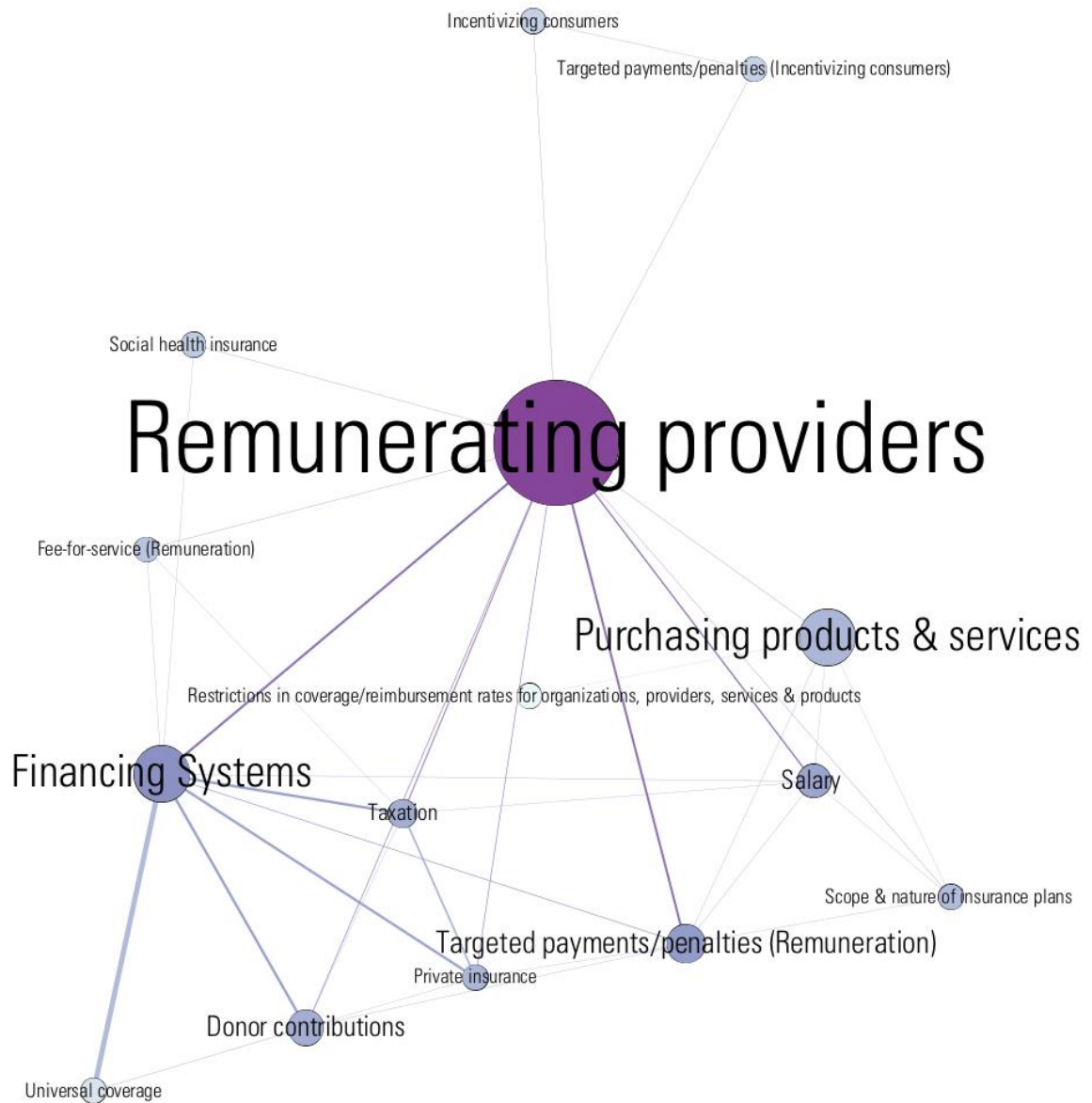


Figure 7. Network analysis of financial arrangements (third-level headings) found in the literature on the roles of midwives in health systems

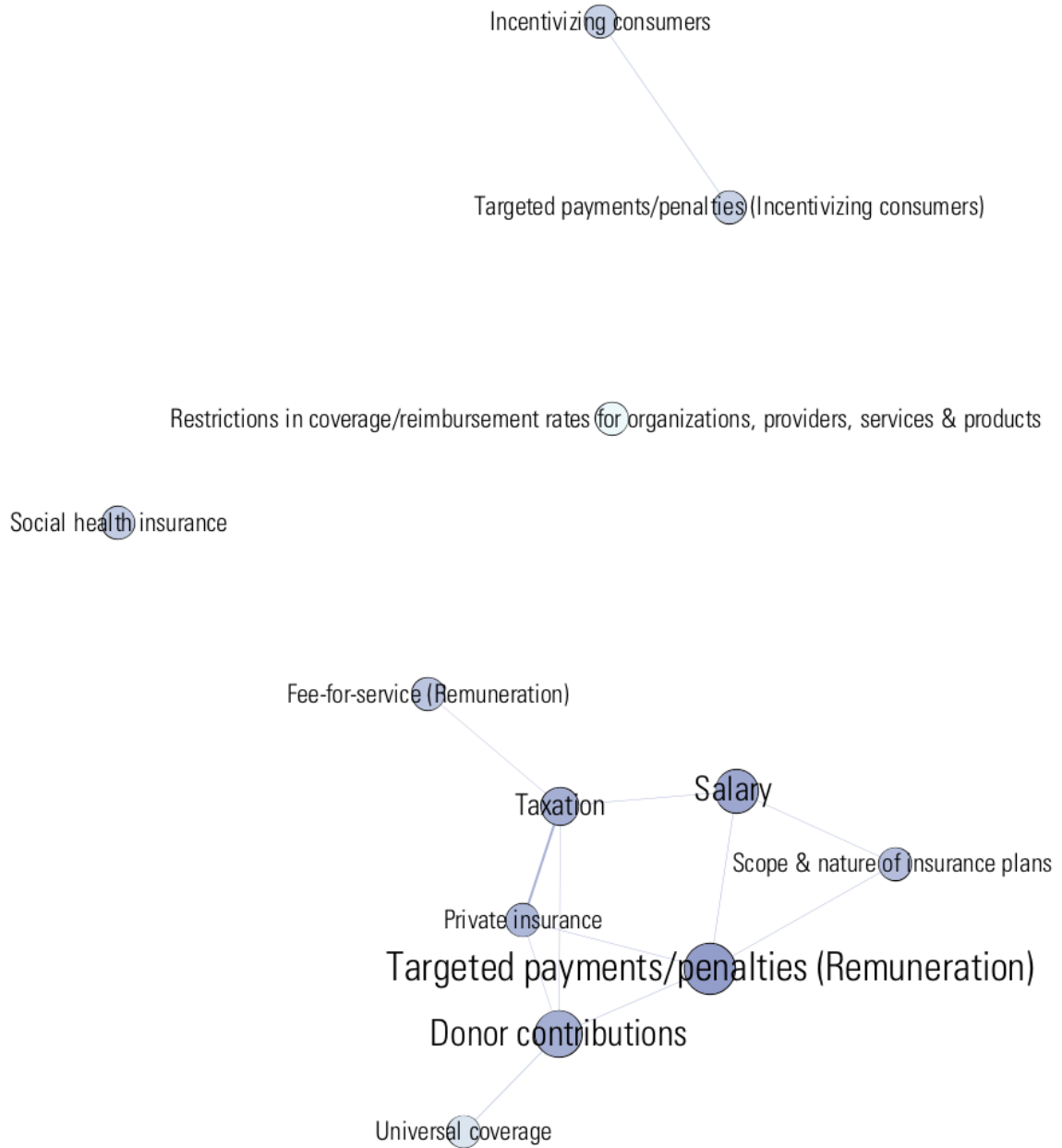


Figure 8. Network analysis of delivery arrangements found in the literature on the roles of midwives in health systems

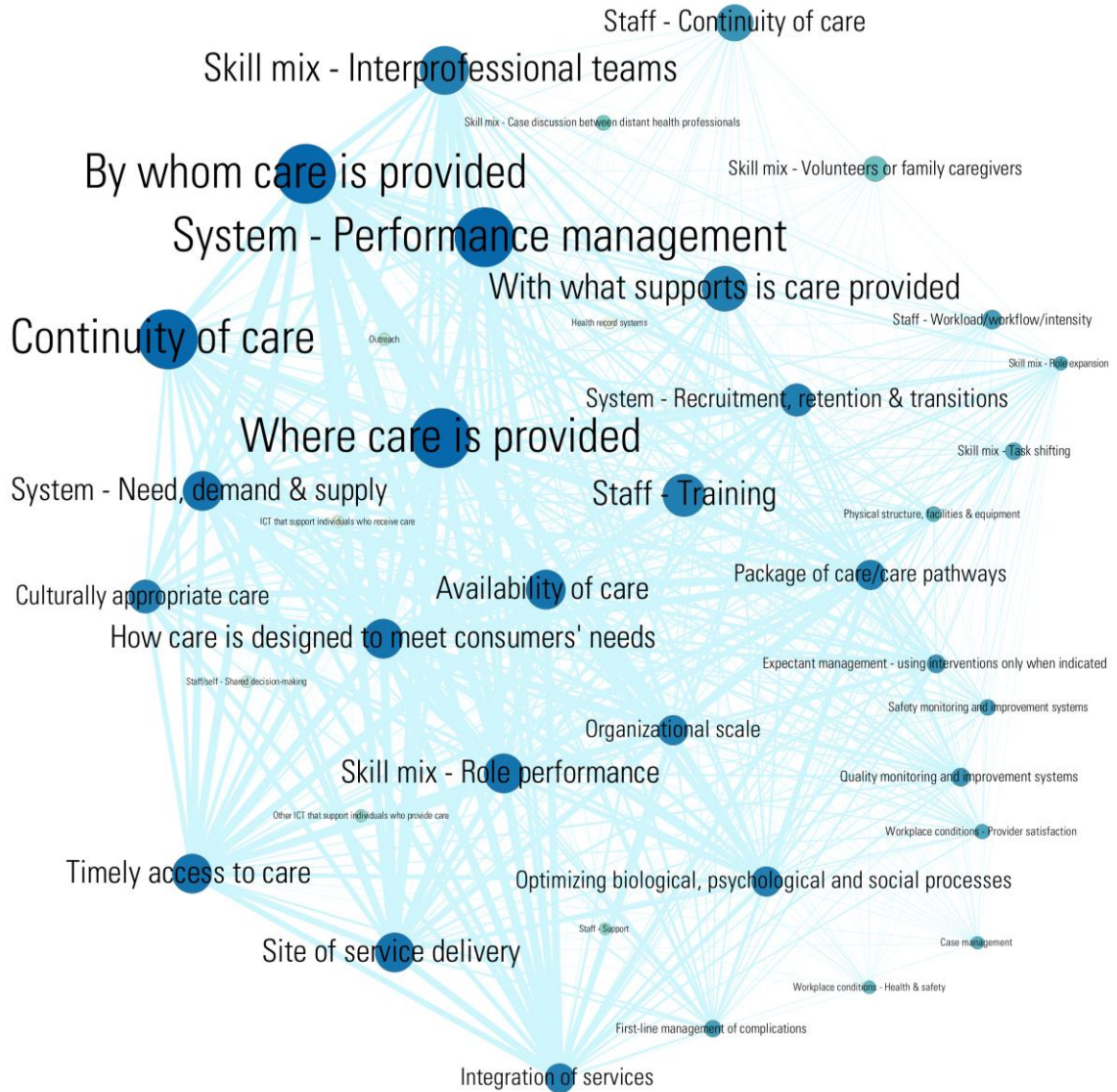


Figure 9. Network analysis of delivery arrangements (third-level headings) found in the literature on the roles of midwives in health systems

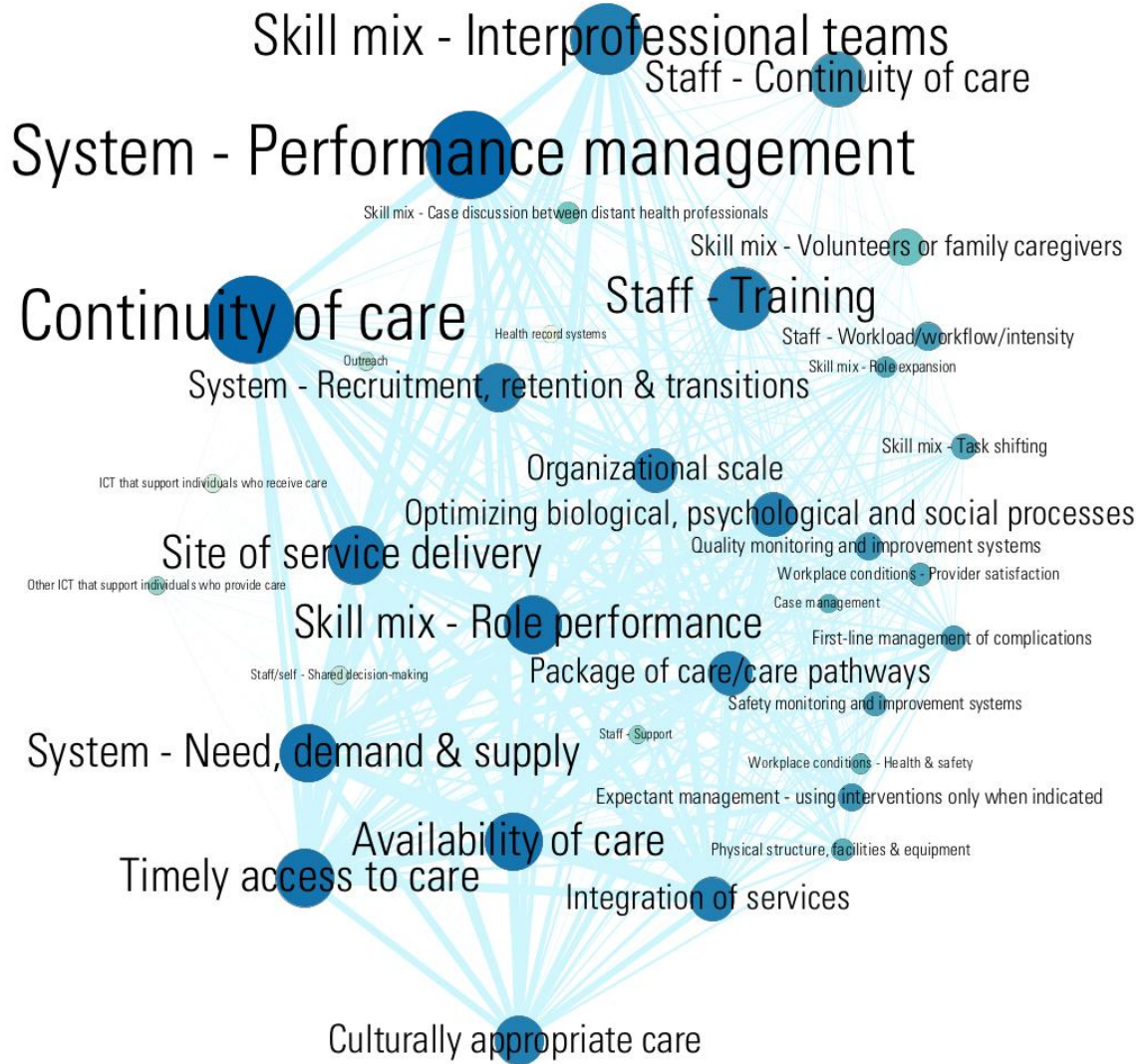
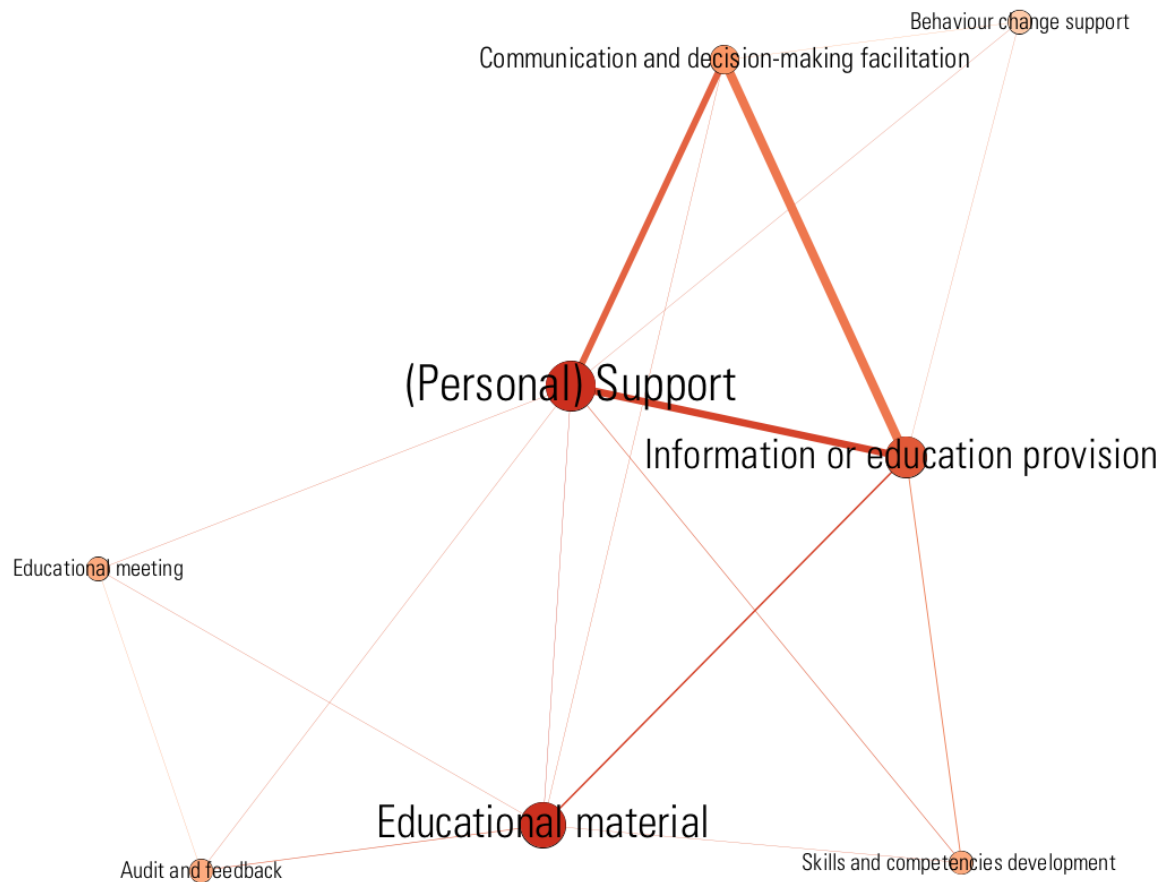


Figure 10. Network analysis of implementation strategies found in the literature on the roles of midwives in health systems



Figure 11. Network analysis of implementation strategies (third-level headings) found in the literature on the roles of midwives in health systems



Appendix 1. Data extraction and conceptual mapping form

RefID:**Global assessment**

Does the document provide insight into the role of midwifery in health systems?

- ☐ No (exclude)
☐ Yes

Modified HSE taxonomy**Study design – Modified from MW CIS**☐ **Primary research**

- ☐ Systematic review
☐ RCT
☐ Observational
 ☐ Cross-sectional
 ☐ Cohort study
☐ Qualitative study
 ☐ Case study
☐ Other (specify):

☐ **Non-research**

- ☐ Review (not systematic)
☐ Theory
☐ Editorial

Document type – OHSD taxonomy

- ☐ Health and health system data
☐ Health expenditure review
☐ Provincial health account
☐ Health system research priorities
☐ Situation analysis
☐ Jurisdictional review
☐ Performance review
☐ External evaluation
☐ Literature review
☐ Framework
☐ Toolkit
☐ Options framing
☐ Guidance
☐ Citizen/patient input
☐ Stakeholder input
☐ Stakeholder position paper
☐ Political party platform
☐ Government discussion paper
☐ Government position paper
☐ Government strategic plan for the health sector
☐ Government policy
☐ Government legislation
☐ Intergovernmental communiqué
☐ Intergovernmental accord
☐ Government/third party accord

Type of question – HSE taxonomy

<input type="checkbox"/> Not effectiveness	<input type="checkbox"/> Cost effectiveness
<input type="checkbox"/> Many	<input type="checkbox"/> Description
<input type="checkbox"/> Effectiveness	

☐ **Governance arrangement – HSE taxonomy**☐ **Policy authority**

- ☐ Centralization/decentralization of policy authority
☐ Accountability of the state sector's role in financing & delivery
☐ Stewardship of the non-state sector's role in financing & delivery
☐ Decision-making authority about who is covered and what can or must be provided to them

☐ **Organizational authority**

- ☐ Ownership
☐ Management approaches
☐ Accreditation
☐ Networks/multi-institutional arrangements

☐ **Commercial authority**

- ☐ Licensure & registration requirements
☐ Patents & profits
☐ Pricing & purchasing
☐ Marketing
☐ Sales & dispensing
☐ Commercial liability

☐ **Professional authority**

- ☐ Training & licensure requirements
☐ Scope of practice
☐ Setting of practice
☐ Continuing competence
☐ Quality & safety
☐ Professional liability
☐ Strike/job action

☐ **Consumer & stakeholder involvement**

- ☐ Consumer participation in policy & organizational decisions
☐ Consumer participation in system monitoring
☐ Consumer participation in service delivery
☐ Consumer complaints management
☐ Stakeholder participation in policy & organizational decisions (or monitoring)

☐ **Financial arrangement – HSE taxonomy**☐ **Financing Systems**

- ☐ Taxation
☐ Social health insurance
☐ Community-based health insurance
☐ Community loan funds
☐ Private insurance
☐ Health savings accounts (Individually financed)
☐ User fees
☐ Donor contributions
☐ Fundraising

☐ **Funding organizations**

- ☐ Fee-for-service (Funding)
☐ Capitation (Funding)
☐ Global budget
☐ Prospective payment (Funding)
☐ Indicative budgets (Funding)
☐ Targeted payments/penalties (Funding)

☐ **Remunerating providers**

- ☐ Fee-for-service (Remuneration)
☐ Capitation (Remuneration)
☐ Salary
☐ Prospective payment (Remuneration)
☐ Fundholding
☐ Indicative budgets (Remuneration)
☐ Targeted payments/penalties (Remuneration)

☐ **Purchasing products & services**

- ☐ Scope & nature of insurance plans
☐ Lists of covered/reimbursed organizations, providers, services & products
☐ Restrictions in coverage/reimbursement rates for organizations, providers, services & products
☐ Caps on coverage/reimbursement for organizations, providers, services & products
☐ Prior approval requirements for organizations, providers, services & products
☐ Lists of substitutable services & products

☐ **Incentivizing consumers**

- ☐ Premium (level & features)
☐ Cost sharing
☐ Health savings accounts (Third party contributions)
☐ Targeted payments/penalties (Incentivizing consumers)

☐ **Delivery arrangement – HSE taxonomy**☐ **How care is designed to meet consumers' needs**

- ☐ Availability of care
☐ Timely access to care
☐ Culturally appropriate care
☐ Case management
☐ Package of care/care pathways/disease management
☐ Optimizing biological, psychological and social processes
☐ Expectant management - using interventions only when indicated
☐ First-line management of complications
☐ Group care

☐ **By whom care is provided**

- ☐ System - Need, demand & supply
☐ System - Recruitment, retention & transitions

☐ **System - Performance management**

- ☐ Workplace conditions – Provider satisfaction
☐ Workplace conditions – Health & safety
☐ Skill mix – Role performance
☐ Skill mix – Role expansion or extension
☐ Skill mix – Task shifting/substitution Skill mix - Multidisciplinary teams
☐ Skill mix – Volunteers or informal/family caregivers
☐ Skill mix – Communication & case discussion between distant health professionals
☐ Staff - Training
☐ Staff - Support
☐ Staff - Workload/workflow/intensity
☐ Staff - Continuity of care
☐ Staff/self - Shared decision-making
☐ Self-management

☐ **Where care is provided**

- ☐ Site of service delivery
☐ Physical structure, facilities & equipment
☐ Organizational scale
☐ Integration of services
☐ Continuity of care
☐ Outreach

☐ **With what supports is care provided**

- ☐ Health record systems
☐ Electronic health record
☐ Other ICT that support individuals who provide care
☐ ICT that support individuals who receive care
☐ Quality monitoring and improvement systems
☐ Safety monitoring and improvement systems

☐ **Implementation strategy – HSE taxonomy**☐ **Consumer-targeted strategy**

- ☐ Information or education provision
☐ Behaviour change support
☐ Skills and competencies development
☐ (Personal) Support
☐ Communication and decision-making facilitation
☐ System participation

☐ **Provider-targeted strategy**

- ☐ Educational material
☐ Educational meeting
☐ Educational outreach visit
☐ Local opinion leader
☐ Local consensus process
☐ Peer review
☐ Audit and feedback
☐ Reminders and prompts
☐ Tailored intervention

- ☐ Patient-mediated intervention
- ☐ Multi-faceted intervention
- ☐ **Organization-targeted strategy**
- Values - Core values framework**
- ☐ **Values related to outcomes**
 - ☐ Excellent patient experience (patient, family, and community-centered)
 - ☐ Excellent health outcomes (population health)
 - ☐ Manageable per capita costs (resource sufficiency)
- ☐ **Values related to criteria about whether to proceed**
 - ☐ Effectiveness
 - ☐ Efficiency / value for money (resource stewardship)
 - ☐ Fairness (equity)
- ☐ **Values about the inputs needed to make judgments about these criteria**
 - ☐ Based on data and evidence (evidence-informed care and policy)
 - ☐ Based on citizens' values and preferences
- ☐ **Values related to ways to proceed**
 - ☐ Continuously improving (quality)
 - ☐ Trusting relationships between patients and doctors, among many others (solidarity)
 - ☐ Collaboration among patients, providers and organizations within the health system (collaboration)
 - ☐ Collaboration between the health system and other sectors (collaboration between sectors)
- ☐ **Other (highlight those that apply)**
 - ☐ Access, accountability, choice, competence/expertise, credibility, empowerment, innovation, privacy, stewardship, and trust
 - ☐ Respect
 - ☐ Communication
 - ☐ Understanding

Domain - HSE taxonomy

- ☐ **Diseases**
 - ☐ Infectious diseases
 - ☐ HIV/AIDS
 - ☐ Tuberculosis
 - ☐ Malaria
 - ☐ Diarrhoeal disease
 - ☐ Lower respiratory infections
 - ☐ Non-communicable diseases
 - ☐ Cancer
 - ☐ Cardiovascular disease
 - ☐ Diabetes
 - ☐ Alzheimer and other dementias

- ☐ Chronic obstructive pulmonary
- ☐ Other
 - ☐ Maternal and child health
 - ☐ Accidents
 - ☐ Mental health and addictions

Domain

☐ **Maternal and child health**

- ☐ Practice categories
 - ☐ Assessment, screening and care planning
 - ☐ Sexual and reproductive health
 - ☐ Family planning
 - ☐ Maternal and newborn health
- ☐ Practice categories - complications
 - ☐ Medical obstetric neonatal services

☐ **Technologies**

- ☐ Drugs
- ☐ Devices
- ☐ Diagnostics
- ☐ Surgery

☐ **Sectors**

- ☐ Primary care
- ☐ Home care
- ☐ Hospital care
- ☐ Rehabilitation
- ☐ Long-term care
- ☐ Public health

☐ **Providers**

- ☐ Physician
 - ☐ Generalist
 - ☐ Specialist
- ☐ Midwife
- ☐ Skilled birth attendant
- ☐ Traditional birth attendant
- ☐ Nurse
- ☐ Pharmacist
- ☐ Allied health professional
- ☐ Lay/community health worker
- ☐ Informal/family caregivers

Age - HSE taxonomy

- ☐ Neonates (birth to 1 month)
- ☐ Children (>1 month to <13 years)
- ☐ Adolescents (13 years to <19 years)
- ☐ Adults (19 to <60)
- ☐ Older adults (≥60)
- ☐ Not applicable

Theme- HSE taxonomy

- ☐ Healthy aging
- ☐ Health promotion/ disease prevention/ prevention of complications

Country focus - OHSD taxonomy

- ☐ HIC
- ☐ LMIC
- ☐ List countries:

Level of intervention focus - HSE taxonomy

- ☐ Individual
- ☐ System
- ☐ Group/community/population

Key messages from the document:

3i framework - policy choices (i.e., how midwifery is incorporated into health systems)**

The document offers insight into midwifery as it relates to:

☐ **Institutions**

- ☐ Government structures (e.g., federal vs. unitary government)
- ☐ Policy legacies (e.g., past policies ~~~~~ Canada Health Act)
- ☐ Policy networks (e.g., executive council-appointed committees that involve key stakeholders)

☐ **Interests**

- ☐ Societal interest groups
- ☐ Elected officials
- ☐ Public servants
- ☐ Researchers
- ☐ Policy entrepreneurs

☐ **Ideas**

- ☐ Beliefs about "what is"
- ☐ Values about "what ought to be"
- ☐ Combination of beliefs and values

Central points on how the document offers insight into midwifery and 3i:

Appendix 2. Political system factors that influence the roles of midwives within the health system

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
Institutions					
Government structures	<ul style="list-style-type: none">•Indigenous self-government allows communities to make decisions and implement midwifery services	<ul style="list-style-type: none">•Variation in government structures can lead to differences in midwifery policy – relates to policy instruments (legislation and regulation)		<ul style="list-style-type: none">• Self-government and political autonomy in Nunavik helped Inuulitsivik implement midwifery services during a time where midwifery was not a regulated profession (Canada) (54; 76; 80)	(54; 61; 70; 76; 79; 80)
Policy legacies	<ul style="list-style-type: none">•Past policies about the value of midwives creates interpretive effects, shaping the way midwifery care is organized in the health system•Values include maternity care policies that reinforce gender inequality and in a medical model, payment systems privilege	<ul style="list-style-type: none">•Policy legacies ties closely to <i>ideas</i> as the values/mass opinion about ‘what ought to be’ are shaped by legacies of gender equality/inequality and vice versa	<ul style="list-style-type: none">• The lack of recognition of midwifery is consistent with gender inequality and women’s low societal status (Morocco) (52)• Destruction of health system as a result of conflict and forbidden education for women resulted in a significant loss of midwifery workforce (Afghanistan) (53) and societal	<ul style="list-style-type: none">• Policy legacies that value midwives and home births, influencing the way the maternity care system is organized (Netherlands) (1)• Midwifery as a tool to empower women and advance gender equality (40)• Professionalization of midwifery began in the 18th century (Sweden) (44)	(1; 14; 16; 40-54)

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
	physician-provided and hospital-based services		<p>reconstruction post conflict (Cambodia) (16)</p> <ul style="list-style-type: none"> • Policies that support the medicalization of birth, including hospital-based and physician-led care (USA, Flanders) (1; 41-43; 46) • Historical prioritisation of training physicians over other healthcare providers (14; 45) • Loss of Indigenous midwifery as a result of colonization and assimilation policies (e.g., evacuation of pregnant women out of the community and the residential school system) (Canada and Australia) (45; 47; 48; 50; 51; 54) • Caste system devalued midwifery because 		

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
			they are traditionally led by women caring for women (India) (49)		
			<ul style="list-style-type: none"> Midwives face structural barriers to their greater integration into the health system – not a recognized profession and did not have a budget code until 2011 (Mexico) (70) 		
Interests	<ul style="list-style-type: none"> Interests include: societal interest groups (e.g., consumer and religious groups), researchers, professional and international associations, and donor agencies Policies are influenced by interests that have concentrated benefits and diffuse costs 	<ul style="list-style-type: none"> Interests are closely related to <i>institutions (policy networks)</i> as well as <i>ideas</i> as interest groups often reflect and/or can influence societal values Interest groups play a roles in advancing midwifery in the health system by: 1) creating partnerships to 	<ul style="list-style-type: none"> Strong physician and hospital interest groups created a monopoly over maternity care (USA, Canada, Australia, and Mexico) (46; 47; 61; 66; 70; 75) and impede midwives from practicing to their full scope (60; 78) Tensions within the profession between nurse midwives and midwives (USA) (81) Marginalization of midwifery through 	<ul style="list-style-type: none"> Creation of interest groups to participate in the policymaking process (8) and strengthening existing groups in order to participate in the policymaking process (Nepal) (63) Consultations with interest groups to create culturally appropriate midwifery care (Canada) (48; 50; 51; 54) Professional obstetrical interest groups coming 	(5; 8; 10; 14; 15; 40; 41; 43; 46; 47; 49-51; 53; 54; 56; 57; 60-62; 64; 66; 70; 72; 75-77; 81-83)

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
	<ul style="list-style-type: none"> • Interest groups play a roles in supporting or opposing the integration of midwifery in the health system • In LMICs, bilateral and multilateral donors work alongside local governments • In HICs, professional associations play a strong roles in political lobbying 	improve maternal and newborn health;(53) 2) setting standards, policies and guidelines;(55; 56) 3) lobbying governments/ advocacy (57; 58)	dominant stakeholder groups (43)	<p>together to reduce maternal mortality in LMICs through: 1) awareness campaigns; 2) lobbying (agenda-setting); and 3) training advocacy and coalitions of interested stakeholders (14; 55)</p> <ul style="list-style-type: none"> • Midwifery organizations using counter social movements to influence public opinion (1) • Researchers advocating for evidence-informed policies on midwifery (41) • Collaborative networks of healthcare professional groups to raise awareness of rising caesarean rates (Latin America) (67) • Professional associations and donor agencies advocating for scale-up and capacity building of midwifery (40; 57) and 	

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
				supporting local governments in the development of policies, education and guidelines (14; 52; 53; 55; 56; 62)	
				<ul style="list-style-type: none"> Equitable alliance between midwifery and physician groups (Sweden) (44) and collaborative professional development (UK) (75) 	
Ideas	<ul style="list-style-type: none"> Societal values regarding gender (e.g., women's roles within society) as well as the medical model (e.g., the medicalization of the birth process and associated valuing of physician and hospital-based care) 	<ul style="list-style-type: none"> Ideas relate to both political and health system factors by influencing the values of citizens and either valuing or devaluing gender and the medical model 	<ul style="list-style-type: none"> Social construction of gender - the status of midwives in a given jurisdiction often reflects the value placed on women within the society (14; 40; 42; 52) Some cultures do not allow women to receive care from men yet there are few healthcare providers that are women due to lack of educational opportunities (53) 	<ul style="list-style-type: none"> Nordic maternity care systems' non-medical models and women dominated professional groups (61); respecting women's rights to informed choice (62) Increasing consumer demand for midwifery-led care (66) Reclaiming Indigenous midwifery and bringing birth back to the community (76) 	(1; 2; 5; 7; 10; 11; 13-16; 40-45; 47; 48; 50-53; 55; 59-62; 64; 66; 67; 69; 70; 74; 76; 77; 83)

Political system factors	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
			<ul style="list-style-type: none"> • Health system priorities as well as changing values are based on the medical model and normalization of medical interventions, which favours care by physicians and within hospital settings (1; 2; 42; 43; 52; 59; 60) 		

Appendix 3. Health system arrangements that influence the roles of midwives within the health system

Health system arrangements	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
Governance arrangements					
	<ul style="list-style-type: none"> •The regulatory process (or lack thereof) of the profession is central to the roles of midwives within the health system and many references covered regulation as well as barriers to regulation •Scope of practice - expanding scope or restrictions to practicing to full scope 	<ul style="list-style-type: none"> •Within <i>governance arrangements</i>, regulatory process overlaps with: <ul style="list-style-type: none"> ○ organizational authority – accreditation ○ professional authority – training and licensure requirements and scope of practice •Regulatory process overlaps with <i>ideas</i> and in some cases self-regulation was a response to growing consumer demand for midwifery services (7) 	<ul style="list-style-type: none"> •Midwives are unable to practice to full scope of because of inconsistent standards of education and professional regulation (60; 65) •Midwives are not practicing to their legislated full scope of practice (Canada), barriers include: 1) hospitals - scope restrictions; 2) capping of the number of midwives granted hospital privileges; 3) capping the number of births attended by midwives; and 4) inconsistent midwifery policies across hospitals (66) •No regulatory process for midwifery (42; 51; 54; 63; 64), not a 	<ul style="list-style-type: none"> •Combination of regulatory processes and health systems that promote birth as a natural process; favouring professional midwifery care (Netherlands, Sweden) (44; 59; 62) •Environments that allow midwives to practice independently and to full scope of practice (58) •Expanding scope of practice from providing skilled delivery care to include sexual and reproductive health ranging from abortion, family planning, screening (diabetes and several forms of cancer), public health and promotion (13-16; 47; 58; 64; 84) 	(2; 5-8; 10; 13-16; 41-44; 47-49; 51; 53-56; 58-60; 62-68; 70-72; 74; 76; 77; 79; 81-84)

Health system arrangements	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
			<p>recognized profession (70) or an autonomous profession (81)</p> <ul style="list-style-type: none"> Healthcare reforms increased centralization of decision-making, which created barriers to change (Australia) (83) 		
Financial arrangements					
Financing systems	<ul style="list-style-type: none"> Financing systems: 1) medicare has been funded by a mix of federal government cash payment to provinces, province- specific taxes and federal government (Canada);(10) 2) mixed health system - public and private financing, health insurance, and service delivery 	<ul style="list-style-type: none"> Relates to <i>governance arrangements</i> (accountability in the state sector's roles in financing and delivery) 	<ul style="list-style-type: none"> Marginalization of midwifery by reframing maternity care by focusing on patient safety and costs of medical malpractice (USA) (43) Changes in the 1970s to the Canadian northern health services resulted in the evacuation of women from remote communities to southern hospitals for childbirth (76) 	<ul style="list-style-type: none"> Supportive policies were implemented through community based and institutional healthcare services, which expanded across the country and are free (reaching most remote and rural areas) (Sri Lanka) (56) The Government Midwifery Incentive Scheme, a nationwide results-based financing initiative, increased: 1) health system performance; 2) facility deliveries; and 3) skilled birth attendance 	<p>(5; 6; 10; 13; 16; 40; 43; 47-51; 56-58; 67-70; 75; 76; 79; 81; 83; 84)</p>

Health system arrangements	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
	and the public system is supported by the National Health Fund, which covers almost 75% of the population (Chile); (67) and 3) effective coverage - the proportion of the population who need the intervention and receive it (5)			(Cambodia) (68) <ul style="list-style-type: none"> • Incentivizing facility deliveries through governmental initiatives to remunerate midwives and providing incentives to both the provider and the client (Cambodia) (16; 68) • Maternity care reform enabled midwives to access Medicare and the Pharmaceutical Benefits Scheme (Australia) (98) 	
Delivery arrangements					
	<ul style="list-style-type: none"> • The roles of midwives in health services delivery • Delivery arrangements relate to: 1) access to midwifery care (e.g., workforce 	<ul style="list-style-type: none"> • Delivery arrangements link with <i>institutions, interests, and ideas</i> in that they influence the delivery of healthcare 	<ul style="list-style-type: none"> • Midwives experiencing roles strain to due increasing workloads (42) and also need supports to practice autonomously (69) • Medical model prioritizes physician-led care in hospitals and creates friction between 	<ul style="list-style-type: none"> • Collaborative care involves interprofessional groups (e.g., midwives working with physicians and nurses) (2; 13; 47; 54; 58; 71) • Based on statistical modeling, the projected affect of scaling-up midwifery will delivery 	(2; 7; 8; 10-16; 40; 42-47; 49; 51; 53; 54; 56-59; 61; 62; 64; 66; 69-80)

Health system arrangements	Relevant themes	Relationships with other factors	Key examples from the literature		Sources
			Barriers	Facilitators	
	supply, distribution and retention); 2) how care is provided (e.g., task-shifting, interprofessional teams); and 3) where care is provided (e.g., hospital-based, integration of services and continuity of care)		<p>midwives and physicians,(43; 70) also minimizing the roles of midwives in primary care (59)</p> <ul style="list-style-type: none"> • When compared with eight HICs, midwifery in Canada plays a relatively minor roles in the provision of maternity services (10) • Rising caesarean rates in Latin America and medically induced labours (67) 	<p>the most effect maternal, newborn and child health (6; 57)</p> <ul style="list-style-type: none"> • Task-shifting of HIV and tuberculosis,(72) abortion (15; 73) services to midwives • Midwifery (led by Indigenous midwives) is returning culturally safe and appropriate maternity services to Inuit communities (Canada) (45; 54; 76; 80) 	

Appendix 4. Network analysis results for third-level headings

Governance arrangements	Eccentricity	Degree	Weighted degree	Closeness centrality	Eigenvector centrality	Betweenness centrality
Policy authority						
Centralization/decentralization of policy authority	3	10	32	0.71	0.89	2.61
Accountability of the state sector's roles in financing and delivery	2	10	58	0.75	0.85	15.68
Decision-making authority about who is covered and what can or must be provided to them	2	11	158	0.79	0.95	2.94
Corruption protections	3	3	5	0.52	0.34	0
Organizational authority						
Management approaches	3	1	4	0.48	0.21	0
Accreditation	2	12	144	0.83	0.99	5.94
Networks/multi-institutional arrangements	3	4	12	0.54	0.47	0
Professional authority						
Training and licensure requirements	2	13	321	0.88	0.99	20.70
Scope of practice	2	10	267	0.75	0.92	0.50
Setting of practice	2	10	166	0.75	0.92	0.50
Continuing competence	2	11	99	0.79	0.96	2.50
Quality and safety	2	12	220	0.83	0.98	6.70
Professional liability	3	9	37	0.68	0.87	0
Consumer and stakeholder involvement						
Consumer participation in policy and organizational decisions	3	1	3	0.44	0.20	0
Consumer complaints management	3	4	7	0.56	0.48	0
Stakeholder participation in policy and organizational decisions (or monitoring)	2	11	228	0.79	0.95	2.94

Financial arrangements	Eccentricity	Degree	Weighted degree	Closeness centrality	Eigenvector centrality	Betweenness centrality
Financing systems						
Taxation	2	4	8	0.70	0.67	7.50
Social health insurance	0	0	0	0	0.29	0
Private insurance	2	3	7	0.64	0.63	0.67
Donor contributions	2	4	5	0.70	0.66	6.67
Universal coverage	3	1	2	0.44	0.24	0
Remunerating providers						
Fee-for-service (Remuneration)	3	1	1	0.44	0.40	0
Salary	3	3	3	0.58	0.67	2.67
Targeted payments/penalties (Remuneration)	3	4	4	0.64	0.76	4.50
Purchasing products and services						
Scope and nature of insurance plans	3	2	2	0.50	0.46	0
Restrictions in coverage/reimbursement rates for organizations, providers, services and products	0	0	0	0	0.08	0
Incentivizing consumers						
Targeted payments/penalties (Incentivizing consumers)	0	0	0	0	0.19	0

Delivery arrangements	Eccentricity	Degree	Weighted degree	Closeness centrality	Eigenvector centrality	Betweenness centrality
How care is designed to meet consumers' needs						
Availability of care	2	33	961	0.97	0.99	5.99
Timely access to care	2	33	813	0.97	0.99	5.99
Culturally appropriate care	2	32	629	0.94	0.98	4.78
Case management	2	27	86	0.83	0.88	0.21
Package of care/care pathways/disease management	2	32	763	0.94	0.98	3.64
Optimizing biological, psychological and social processes	2	32	652	0.94	0.98	3.64
Expectant management - using interventions only when indicated	2	30	443	0.89	0.95	1.34
First-line management of complications	2	29	345	0.87	0.93	1.01
By whom care is provided						
System - Need, demand and supply	2	33	831	0.97	0.99	5.99
System - Recruitment, retention and transitions	2	32	505	0.94	0.98	4.57
System - Performance management	1	34	578	1.00	1.00	11.44
Workplace conditions- Provider satisfaction	2	28	184	0.85	0.91	0.59
Workplace conditions - Health and safety	2	26	64	0.81	0.86	0.24
Skill mix - Roles performance	2	33	817	0.97	0.99	5.99
Skill mix - Roles expansion or extension	2	28	263	0.85	0.91	0.43
Skill mix - Task shifting/substitution	2	28	194	0.85	0.90	1.04
Skill mix - Interprofessional teams	2	32	577	0.94	0.96	8.92
Skill mix - Volunteers or informal/family caregivers	2	25	57	0.79	0.81	3.24
Skill mix - Communication and case discussion between distant health professionals	2	24	42	0.77	0.80	0.60
Staff - Training	2	32	258	0.94	0.97	7.34
Staff - Support	2	21	64	0.72	0.72	0
Staff - Workload/workflow/intensity	2	29	146	0.87	0.92	1.44

Delivery arrangements	Eccentricity	Degree	Weighted degree	Closeness centrality	Eigenvector centrality	Betweenness centrality
Staff - Continuity of care	2	30	107	0.89	0.93	5.99
Staff/self - Shared decision-making	2	14	20	0.63	0.50	0
Where care is provided						
Site of service delivery	2	33	825	0.97	0.99	5.99
Physical structure, facilities and equipment	2	27	266	0.83	0.88	0.66
Organizational scale	2	32	663	0.94	0.98	3.64
Integration of services	2	32	814	0.94	0.98	3.64
Continuity of care	1	34	666	1.00	1.00	11.44
Outreach	2	16	22	0.65	0.55	0.04
With what supports care is provided						
Health record systems	2	6	6	0.55	0.26	0
Other ICT that support individuals who provide care	2	20	26	0.71	0.70	0.04
ICT that support individuals who receive care	2	10	10	0.59	0.41	0.00
Quality monitoring and improvement systems	2	30	312	0.89	0.95	1.34
Safety monitoring and improvement systems	2	29	197	0.87	0.93	0.82

Implementation strategies	Eccentricity	Degree	Weighted degree	Closeness centrality	Eigenvector centrality	Betweenness centrality
Consumer-targeted strategy						
Information or education provision	2	5	56	0.78	0.81	1.17
Behaviour change support	2	3	3	0.64	0.55	0
Skills and competencies development	2	3	6	0.64	0.59	0
(Personal) Support	1	7	46	1.00	1.00	6.17
Communication and decision-making facilitation	2	4	47	0.70	0.71	0.33
Provider-targeted strategy						
Educational material	2	6	11	0.88	0.90	3.33
Educational meeting	2	3	3	0.64	0.53	0
Audit and feedback	2	3	4	0.64	0.53	0
Multi-faceted intervention	0	0	0	0	0	0

Chapter 3. Preface

At the time of writing, the paper presented in this chapter is under review at a journal. This chapter moves away from the broader conceptual understanding of the roles of midwives within health systems presented in chapter 2, and focuses on one provincial health system through a quantitative analysis. The theoretical framework presented in chapter 2 informed variable selection and definition in the analysis. A logistic regression analysis is used to assess birth-experience satisfaction among women in Ontario, Canada, who received care from midwives, family physicians and/or obstetricians. There is limited national and international evidence on the outcomes of midwifery clients related to the patient experience domain of the health system ‘triple aim’, which is an often-neglected part. The chapter addresses an important empirical gap by providing evidence on birth-experience satisfaction with midwife-led care, which is an important consideration alongside evidence on effectiveness in improving population health and keeping per capita costs manageable (the two other areas of the ‘triple aim’).

I was responsible for the study design, variable selection and definition, and data analysis. Data analysis was completed in early 2016. Dr. Michelle Dion contributed to the analysis through feedback on model output. I drafted the manuscript and as co-authors, all thesis committee members provided feedback on numerous drafts, which were incorporated into the manuscript.

**Midwifery and obstetrics:
Factors influencing mothers' satisfaction with the birth experience**

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Abstract

Objective: To examine birth-experience satisfaction among women in Ontario, Canada, who received care from midwives, family physicians and obstetricians.

Methods: We used Statistics Canada's 2006 national Maternity Experiences Survey. The sample includes 1,900 Ontario women and is, with appropriate weighting, representative of the roughly 30,000 women who gave birth in Ontario to a singleton baby during the study period. Information was collected on respondents' satisfaction with their healthcare providers, demographic characteristics and a range of pregnancy, labour, birth, and

postpartum experiences. We used logistic regression analysis to assess differences in patient/client satisfaction by type of healthcare provider.

Results: Midwifery clients experience significantly higher levels of satisfaction when compared to obstetrician-led care. Depression, having to travel outside of the respondents' community to give birth and some ethnocultural groups are associated with lower levels of satisfaction.

Conclusions: Evidence about satisfaction with care (in this case, birth experience) is one of the three dimensions of the 'triple aim' of any health system. The evidence presented on greater satisfaction with midwife-led care needs to be considered alongside evidence on effectiveness in improving population health and keeping per capita costs manageable.

Introduction

Health systems are increasingly dealing with the challenges of delivering services with limited resources. The health system ‘triple aim’ centres on improving a system’s performance by enhancing the care experience (e.g., satisfaction) and improving population health, while keeping per capita costs manageable.¹ Satisfaction is recognized as a key component of the care experience; policymakers are attempting to incorporate it into health system decision-making both on its own and because of its association with quality outcomes such as patient safety and clinical effectiveness.²⁻⁴

Research on satisfaction specific to the birth experience suggests that satisfaction is associated with health and wellbeing outcomes among mothers and babies.^{5, 6} However, satisfaction is a multidimensional concept and one that is difficult to measure, particularly as it relates to maternity care.^{7, 8} Women in general report high levels of satisfaction with maternity care, yet there are key differences between groups.^{7, 9} For example, differences in satisfaction based on ethnocultural factors are important to recognize, as certain groups (e.g., women from minority ethnic groups) may face barriers to care and decreased satisfaction as a result.¹⁰⁻¹² This is particularly relevant to health systems, such as Canada’s provincial and territorial health systems, where culturally appropriate care is important given its highly ethnoculturally diverse population.^{13, 14}

Many pregnant women in Canada have a choice in healthcare providers, but the choices available are highly dependent on their location and the services available in the community. In the Canadian province of Ontario, the maternity-care system is changing, with an increasing variety of options being offered to low-risk pregnant women, those

that are having a healthy pregnancy with no known risk factors. Between 2013 and 2014, 86% of maternity care in Ontario was physician-led, primarily by obstetrician followed by family physicians.¹⁵ Midwifery is a relatively new option, with midwives becoming regulated health professionals in Ontario in 1994. Midwifery services are publicly funded through the Ministry of Health and Long-Term Care's Ontario Midwifery Program,¹⁶ and these services were accessed by 14% of pregnant women in the province in 2013.^{15, 17}

Ontario was the first province in Canada to regulate midwifery and it has a reasonably large workforce (the largest in Canada, with 600 midwives registered in 2013) and a rapidly growing workforce (increasing by 35% between 2009 and 2013).¹⁸ The scope of practice for midwives in Ontario includes the provision of primary care services to low-risk pregnant women throughout pregnancy, labour and six weeks postpartum.¹⁹ Demand is high and many midwifery practices have waitlists, which has resulted in up to 40% of women seeking this type of care being unable to access it.²⁰

Canadian research on the benefits of midwifery care is consistent with the findings from a high-quality systematic review that examines midwifery-led continuity models of care, like those in Canada. The review found that compared to other models of care, midwifery-led continuity models of care was associated with fewer interventions such as epidurals and episiotomies, a 23% decrease in the likelihood of women giving birth preterm, and a 19% decrease in likelihood of having a pregnancy loss before 24 weeks gestation.²¹ Other research on Canadian midwifery care suggests that it leads to fewer interventions—including lower rates of induction, caesarean and instrumental deliveries—and women are more likely to experience birth medication-free.²² While these

are useful findings relating to midwifery care in the country, it is difficult to interpret Canada-wide results, as there is variability in the regulation and integration of midwifery across provinces and territories, with some jurisdictions yet to regulate midwifery.

In Ontario, the government has increased its efforts to improve the health system through interdisciplinary care and moving away from hospital-based services in favour of services provided in community-based settings.²³ The Excellent Care for All Act (2010) mandates that organizations collect information on patient satisfaction and use it in their decision-making processes.²⁴ Understanding satisfaction, particularly as it relates to healthcare providers from disciplines other than medicine, such as midwives, has important policy implications not just for the province of Ontario but also for other jurisdictions as they move to scale up the role of midwifery in maternity care. We recognize the more inclusive terminology of childbearing person and for the purposes of the article use women and mothers in keeping with the language used in the survey. This study focuses on Ontario, the Canadian province with the largest and most established midwifery workforce in Canada and examines whether there is a difference in birth-experience satisfaction between women who received care from midwives compared to obstetricians, as well as family physicians compared to obstetricians.

Methods

Sample

Our analysis uses the 2006 confidential master data file of the Maternity Experiences Survey (MES), the first Canadian survey devoted to pregnancy, labour, birth and postpartum experiences.²⁵ The MES is an initiative of the Canadian Perinatal

Surveillance System and provides representative, pan-Canadian data on experiences from pregnancy to the post-partum period.²⁶ A random cross-sectional sample of women who recently gave birth was drawn from the May 2006 Canadian Census, with eligibility criteria consisting of women who were at least 15 years of age, gave birth in Canada to a singleton live infant, and were living with their infant at the time of interview. The 309 question computer-assisted interview was conducted over the telephone by trained female Statistics Canada interviewers on behalf of the Public Health Agency of Canada.

Analyses are based on the province of residence of the respondent, which in this case is Ontario ($n = 1,900$), weighted to represent an estimated population of 29,700 women who gave birth in Ontario to a singleton baby during the study period. All estimates are presented in accordance with Statistics Canada weights and rounding.²⁷

Model development of maternal satisfaction

To examine the relationship between maternity care provider and patient/client satisfaction, we used three categories of providers: midwives, family physicians and obstetricians. We compare satisfaction with midwives to obstetricians as well as satisfaction with family physicians to obstetricians. In addition the model controls for variables that may potentially confound these relationships (e.g., maternal age, parity and partnered) and relevant factors that may interact (e.g., care by midwife and ethnocultural group).

Dependent variable

The dependent variable, satisfaction, was initially measured using six items (Table 1). Respondents were asked to think about their entire pregnancy, labour birth, and

immediate postpartum experience and answered on a five-point Likert scale regarding how satisfied or dissatisfied they were with six aspects of their care.²⁵ Satisfaction was then modelled by first creating an additive index ranging from six to 30 units, which was then converted to an index ranging from one to 24 units. The additive index was significantly negatively skewed with a natural breakpoint (or cutoff) at 19, which was used to create a dichotomous measure for those who are highly satisfied (20 and over).¹

Independent variables

The key explanatory variable is healthcare provider type. The survey collected data on healthcare providers at different points of care. As labour and delivery is unpredictable and at times appropriately requires transfer from primary to secondary care, we focus on who provided the majority of prenatal care. Respondents were asked which type of healthcare provider they received most of their prenatal care from (obstetrician, family physician/general practitioner (includes nurse/nurse practitioner) or midwife).

A series of independent variables were added to the model to control for characteristics known to influence satisfaction with the birth experience (Table 1). The data collected did not allow for a full determination of risk status of the respondent - no question about whether the woman was considered high risk was included in the survey. In order to address this, a variable was included in the model (pre-existing medical condition or health problem before pregnancy) to serve as a proxy for risk status, which is consistent with other published research that utilizes MES data.²²

¹ A principle component analysis was conducted to ensure that satisfaction was unidimensional. The eigenvalues from the factor analysis indicate that they are all loading on one dimension.

Other independent variables in the model include ethnocultural characteristics. This was primarily captured in the survey as country of birth, and we use a combination of a Statistics Canada classification (which groups countries based on geography) and a broad-based assessment of ethnocultural expectations of birth (e.g., including Mexico as part of Central and South America as opposed to North America) to group the countries. For Canadian-born mothers, we only treated Indigenous peoples separately (22% of Indigenous peoples in Canada reside in Ontario, representing the highest number of Indigenous peoples residing within a province or territory).²⁸

Analytical strategy

The relationship between the independent variables described above and satisfaction were analysed using a logistic regression. The model includes the independent variables which were added in groups: 1) explanatory variable (midwives and family physicians); 2) first group of potential confounders (older, multiparous, partnered, educated, working, income, urban, travel, depression, and high-risk) and second group of potential confounders (ethnocultural groups); and 3) interactions between provider (midwives) and ethnocultural groups.

Results

Descriptive statistics

The majority of respondents had an obstetrician (66%) as their healthcare provider, followed by a family physician (25%) and midwife (9%) (Table 2). The majority of the sample was under the age of 35, multiparous, partnered, educated,

working, living in an urban setting, and Canadian born. Almost one quarter (23%) of the respondents had to travel to another city, town or community to give birth.

Logistic regressions

The odds of having high levels of satisfaction were more than three times higher for those who received care from a midwife compared to an obstetrician (Table 3). The magnitude of the association increased as covariates were added. Maternal age (over 35), multiparous, and having a partner were associated with higher probabilities of satisfaction. Traveling out of the community to give birth and depression were associated with lower probabilities of satisfaction. The East Asian ethnocultural group was associated with lower levels of satisfaction, while those born in South Asia were associated with higher levels of satisfaction. While the remainder of the ethnocultural groups are not statistically significant, there is variation in the satisfaction of midwifery clients by group (Table 3).

Conclusions

Main findings

Our findings are consistent with past research in that respondents were in general satisfied with their maternity care, however there are important distinctions between groups.^{7,9} There are differences in levels of satisfaction based on healthcare provider, such that respondents who had a midwife were significantly more satisfied with their pregnancy, labour and birth, and immediate postpartum experience when compared to obstetricians, even after controlling for a large number of potential confounders.

Depression and having to travel outside of the respondents' community to give birth was associated with significantly lower levels of satisfaction.

Findings in relation to other studies

One other study has used the MES to examine midwifery care and compares a range of midwifery outcomes (e.g., induction of labour, use of medication and breastfeeding) with those of other providers.²² Our findings are similar in terms of overall levels of increased satisfaction with midwifery care. Other research that utilizes the MES to compare maternity experiences between Canadian-born and recent and non-recent immigrant women show that experiences vary between groups, suggesting that length of time in Canada plays a role in immigrant women's maternity experiences.²⁹

Research on Canadian maternity care providers' attitudes towards birth shows that: 1) obstetricians were more likely to favour the use of technology in labour and delivery and oppose out-of-hospital births; 2) midwives used approaches that relied less on technology; and 3) family physicians' attitudes varied depending on whether they provided antepartum or intrapartum care.³⁰ Providers' approaches to birth influence a patient/clients views on the process and suggest that reconciling views is important not only to interprofessional collaboration but also for patient/client experience.³⁰

Strengths and limitations

The MES is a one-time survey that presents a rare opportunity to measure maternity care experiences between healthcare providers. While evidence supporting midwifery-led care is growing, there is limited national and international evidence on the outcomes of midwifery clients related to the domains of the health system 'triple aim'

(patient experience, population health and cost-effectiveness). Within the ‘triple aim’, patient experience is an often-neglected part and the results presented are census driven and once weighted, representative of a large random sample of women in Ontario, Canada. Even when controlling for a variety of factors associated with satisfaction, the odds of having high levels of satisfaction were more than three times higher for those that received midwifery care when compared to obstetrician-led care.

The MES is cross-sectional, which limits analyses to correlations and associations. The main challenge in our analysis is selection bias, as choice in healthcare provider was not random; individual preferences, risk status, and healthcare provider characteristics may influence this choice. The model controls for risk status by using the best available proxy for risk in the survey, which is consistent with other published research that utilizes MES data.²² A second challenge is the small sample cell sizes in some of the ethnocultural groups and, with only 9% of the sample using midwives as their healthcare provider, the confidence intervals around estimates of the ethnocultural interaction terms are large.

Policy implications

Satisfaction with care is one of the three dimensions of the health system ‘triple aim’ and the evidence presented on greater satisfaction with midwife-led care is an important consideration alongside evidence on effectiveness in improving population health and keeping per capita costs manageable. Patient experience, birth experience in this case, is particularly important to health systems that are responsive to changing populations and in providing culturally appropriate care. Our results suggest that ethnocultural differences

were present and warrant further exploration. Canadian projections indicate that the proportion of foreign-born persons will reach 25-30% by 2031 and almost one of every two Canadians (over 15) will be foreign-born or have at least one foreign-born parent, and this will be magnified in metropolitan areas.¹⁴ These differences in satisfaction based on ethnocultural characteristics are relevant to policy decisions, not just now but as the number of foreign-born persons grows.

As the proportion of births attended by midwives continues to increase in Canada, evidence on midwifery care, particularly as it relates to the ‘triple aim’ is becoming increasingly important.¹⁵ Understanding patient experience is relevant to policymakers, as current health system reforms in the province are moving certain services out of hospitals and into community based settings, which includes offering midwifery services outside of traditional hospital settings (e.g., birth centres and along-side units).

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Table 1. Variable definitions and hypothesised effects

Dependent variables	Description	
Highly satisfied (versus not highly satisfied = 0) (assigned a value of 1 if the value of the additive index for satisfaction was 20 and over)	<p>“How satisfied are you with [insert type of satisfaction] given/ shown by your healthcare provider?”</p> <p>Satisfaction:</p> <ol style="list-style-type: none"> 1. Information 2. Compassion and understanding 3. Competency 4. Privacy and dignity 5. Respect 6. Involvement with decision-making <p>Likert scale*:</p> <p>1 = “very dissatisfied”</p> <p>2 = “somewhat dissatisfied”</p> <p>3 = “neither satisfied nor dissatisfied”</p> <p>4 = “somewhat satisfied”</p> <p>5 = “very satisfied”</p>	
Independent variables	Description	Hypothesized impact on DV
Healthcare provider		
• Midwife (versus obstetrician =0)	Midwife was the healthcare provider for most of their care	+
• Family physician (versus obstetrician =0)	Family physician (includes nurse/ nurse practitioner) was the healthcare provider for most of their care	-/+
Older (versus 35 or younger=0)	Maternal age greater than 35 years	-
Multiparous (versus had never given birth or had given birth once=0)	Given birth more than once	+
Partnered (versus not married or living common law=0)	Married or living common law	+

Educated (versus less than high school=0)	Completed at least high school	+
Working (versus not working at a paid job=0)	Working at a paid job	+
Income (ordinal)	Total household income (before taxes) of all household members: 1 = < \$10,000 2 = \$10,000 to less than \$15,000 3 = \$15,000 to less than \$20,000 4 = \$20,000 to less than \$30,000 5 = \$30,000 to less than \$40,000 6 = \$40,000 to less than \$50,000 7 = \$50,000 to less than \$60,000 8 = \$60,000 to less than \$80,000 9 = \$80,000 to less than \$100,000 10 = \$100,000 to less than \$150,000 11 = \$150,000 to less than \$200,000 12 = > \$200,000	+
Urban (versus northern or rural=0)	Population greater than 100,000	- / +
Travel (versus gave birth in own community=0)	Travelled to another city, town or community to give birth	-
Depression (versus scoring less than 13 on the Edinburgh Post-Partum Depression Scale =0)	Scoring greater than 13 on the Edinburgh Post-Partum Depression Scale	-
High-risk (versus no medical conditions or health problems before pregnancy=0)	Medical conditions or health problems before pregnancy that required medication for more than two weeks, special care or additional tests during pregnancy	-

Ethnocultural groups (versus Canada=0)	Canadian born-Indigenous United States of America Central and South America (includes Mexico and the Caribbean) Europe Africa (sub-Saharan Africa) Middle East East Asia South Asia	- / +
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Table 2. Sample characteristics

Characteristic	<i>n</i> ¹	%
Healthcare provider		
Midwife	2,700	9.3
Obstetrician	19,400	66.2
Family physician	7,200	24.5
<i>Sub-total</i>	<i>29,300</i>	
Older (> 35 years)	7,500	25.2
Multiparous	16,400	55.6
Partnered	27,000	91.8
Educated (high school)	27,300	92.9
Working	20,900	71.2
Income		
< \$10,000	700	2.5
\$10,000 to less than \$15,000	800	2.8
\$15,000 to less than \$20,000	1,000	3.8
\$20,000 to less than \$30,000	1,800	6.7
\$30,000 to less than \$40,000	2,700	9.8
\$40,000 to less than \$50,000	2,600	9.5
\$50,000 to less than \$60,000	2,500	9.2
\$60,000 to less than \$80,000	4,800	17.5
\$80,000 to less than \$100,000	3,800	13.6
\$100,000 to less than \$150,000	4,800	17.4
\$150,000 to less than \$200,000	1,300	4.8
> \$200,000	700	2.6
<i>Sub-total</i>	<i>27,600</i>	<i>100</i>
Urban	17,600	62.3
Travel	6,800	22.8
Depression	2,300	7.9
High-risk	4,600	15.5
Ethnocultural groups		
Canada	18,700	63.6
Canadian born-Indigenous	700	2.3
United States of America	400	1.3
Central and South America	1,600	5.4
Europe	2,000	6.9
Africa	500	1.6
Middle East	1,200	3.9
East Asia	2,100	7.2
South Asia	2,300	7.9
<i>Sub-total</i>	<i>29,400</i>	<i>100</i>

¹ Frequencies are weighted as per Statistics Canada guidelines and rounded to the nearest hundred units.

Table 3. Results of model predicting satisfaction with healthcare provider

	Model 1	Model 2	Model 3
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Healthcare provider (reference: obstetrician)			
Midwife	3.226***(2.206-4.719)	3.315*** (2.263-4.856)	3.979***(2.483-6.377)
Family physician	1.265 (0.999-1.601)	1.247 (0.981-1.585)	1.253 (0.986-1.593)
Older (> 35 years)	1.210 (0.951-1.539)	1.277* (1.000-1.630)	1.288* (1.007-1.647)
Multiparous	1.361** (1.094-1.692)	1.356** (1.087-1.691)	1.359** (1.088-1.696)
Partnered	1.711* (1.010-2.662)	1.623* (1.036-2.543)	1.646* (1.046-2.589)
Educated (high school)	1.244 (0.784-1.973)	1.241 (0.788-1.954)	1.260 (0.799-1.986)
Working	1.048 (0.815-1.345)	1.060 (0.819-1.372)	1.061 (0.820-1.374)
Income	0.949* (0.908-0.992)	0.956 (0.914-1.002)	0.953* (0.910-0.998)
Urban	0.865 (0.692-1.081)	0.871 (0.695-1.097)	0.871 (0.692-1.095)
Travel	0.709** (0.550-.914)	0.707** (0.547-0.913)	0.701** (0.541-0.907)
Depression	0.413*** (0.269-0.635)	0.409*** (0.263-0.636)	0.397*** (0.254-0.621)
High-risk	0.778 (0.585-1.034)	0.772 (0.581-1.028)	0.770 (0.578-1.026)
Ehtnocultural groups (reference: Canadian born non-Indigenous)			
Canadian born-Indigenous		0.713 (0.315-1.615)	0.975 (0.424-2.245)
United States of America		0.730 (0.308-1.727)	0.802 (0.311-2.069)
Central and South America		0.825 (0.508-1.341)	0.866 (0.521-1.437)
Europe		0.763 (0.513-1.134)	0.733 (0.476-1.129)
Africa		0.946 (0.374-2.390)	0.835 (0.303-2.301)
Middle East		0.856 (0.465-1.573)	0.927 (0.509-1.690)
East Asia		0.596* (0.379-0.937)	0.632* (0.403-0.992)
South Asia		1.857** (1.1998-2.874)	1.904** (1.224-2.962)

Interactions	
Midwife x Canadian born-Indigenous	0.220 (0.036-1.348)
Midwife x United States of America	0.585 (0.082-4.170)
Midwife x Central and South America	0.557 (0.121-2.570)
Midwife x Europe	1.282 (0.373-4.405)
Midwife x Africa	–
Midwife x Middle East	0.191 (0.012-3.047)
Midwife x East Asia	0.156 (0.010-2.393)
Midwife x South Asia	0.459 (0.043-4.864)
Constant	0.549

$p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

OR, odds ratio; CI, confidence interval.

- empty cell due to sample size limitations.

Chapter 4. Preface

This chapter continues its focus on a provincial health system and uses the theoretical framework presented in chapter 2 through an embedded single-case study. The chapter qualitatively assesses how and under what conditions the Ontario health system has assigned roles to midwives. Although Ontario was the first province in Canada to regulate midwifery and has a government that is supportive of the profession, midwifery continues to have a limited role within the health system, which represents an interesting policy puzzle. Kingdon's agenda setting and the 3i+E theoretical framework are used to analyze two instances of policy reform in Ontario (decision to fund freestanding midwifery-led birth centres in 2014 and Patients First primary care reform) that presented opportunities for the integration of midwives into the health system. The chapter builds a theoretical understanding of the integration process of healthcare professions within health systems and how policy legacies shape service delivery options.

I conceived the study design with my supervisor, Dr. John N. Lavis, and I was responsible for all data collection and analysis, which took place between August 2016 and April 2017. The members of my supervisory committee each provided feedback on drafts of the chapter, which were incorporated into the paper.

**Understanding the conditions that influence the roles of midwives in
Ontario's health system: An embedded single-case study**

Mattison CA, Lavis JN, Hutton EK, Dion ML, Wilson MG

Keywords: midwifery, case study, political system, health systems, qualitative research, Ontario, Canada

Word count: 6,651 (main text) – 13,241 (includes abstract, references and exhibits)

Abstract

Introduction: Despite the significant variability in the role and integration of midwifery across provincial and territorial health systems, there has been limited scholarly inquiry into whether, how and under what conditions midwifery has been assigned roles and integrated into Canada's health systems. Our study examines Ontario's response to maternity care needs in the context of broader efforts to transform the province's health system.

Methods: We use Yin's (2014) embedded single-case study design to qualitatively assess how, since the regulation of midwives in 1994, the Ontario health system has assigned roles to and integrated midwives as a service delivery option. Kingdon's agenda setting and the 3i+E theoretical framework are used to analyze two recent key policy directions (decision to fund freestanding midwifery-led birth centres and the Patients First primary care reform) that presented opportunities for the integration of midwives into the health system. Data were collected from key informant interviews and documents (newspaper articles, published literature, policy documents, and grey literature). Key informants were

sampled purposively based on whether they have been involved in or affected by the policy directions.

Results: 19 key informant interviews were conducted and 49 documents were reviewed in addition to field notes taken during the interviews. Our findings suggest that while midwifery was created as a self-regulated profession in 1994, health-system transformation initiatives have restricted their integration into Ontario's health system. Our analysis identified institutional and ideational factors as well as interests groups that shaped midwifery as a service delivery option. In both policy directions, policy legacies within institutions explain why midwives were not integrated into interprofessional maternity care. Birth centres have constrained midwifery practice by further siloing the profession, and the marginalization of midwifery within primary care reform was not a result of conscious decision-making, but rather the unintended consequences of policy legacies.

Discussion: This is the first study to explain why midwives have not been fully integrated into the Ontario health system, as well as the limitations placed on their roles and scope of practice. The study also builds a theoretical understanding of the integration process of healthcare professions within health systems and how policy legacies shape service delivery options.

Introduction

Although midwifery has a long tradition in Canada, the profession's role has shifted over time. Before the 20th century, the roles of midwives in Canada were informal, and midwives were most often women living in the community.(1) At the turn of the 20th century, the way in which maternity care services were delivered to pregnant women changed. Preferences for physician-led and hospital-based care grew, such that by the 1920s and 1930s, midwifery existed in the 'periphery' of the health system and primarily in rural and remote parts of the country.(2) More recently, there has been a resurgence of midwifery, attributed at least in part to the growth of feminist ideology and what began as a social movement spread to the mainstream.(3-5) By the 1980s, a new midwifery model emerged and centred on bringing the reproductive process back into the hands of the childbearing person.(1) Currently, midwifery philosophy emphasizes an egalitarian relationship between the client and the midwife.(1)

In Canada, significant jurisdictional variability in regulation of and health system delivery arrangements for midwifery services exists. Midwifery is regulated in the majority of provinces and territories, with the exception of Yukon, Prince Edward Island, and Newfoundland and Labrador.(6) New Brunswick has only recently regulated midwifery (2016), including a pilot program with four registered midwives.(7) The variability in health system delivery arrangements includes variation in terms of practice settings, the size of the workforce, integration within the health system, and percentage of births attended by midwives. For example, midwifery in the neighbouring provinces of Ontario and Quebec was regulated within five years of each other, yet practice settings

remain very different. Midwives in Ontario hold hospital privileges, while midwives in Quebec practice primarily in birth centres and have limited integration into hospital settings.⁽⁸⁾ Similarly, in 2015-2016, midwives attended 21% of the total births in British Columbia and 15% in Nunavut and Ontario, compared to 4% in Quebec and 3% in Saskatchewan and Nova Scotia.⁽⁶⁾

Ontario has the largest and most established midwifery workforce in the country, with 817 practicing midwives in 2016.⁽⁹⁾ The workforce has grown substantially, increasing by 34% between 2013 and 2016.^(9; 10) Ontario was the first province to regulate midwifery (1994), and the profession is regulated by the College of Midwives of Ontario.^(11; 12) In Ontario, the midwifery model of care focuses on informed choice and continuity of care, and midwives provide primary care to low-risk pregnant women throughout pregnancy and labour and birth, and up to six weeks postpartum.⁽¹³⁾ Choice of birthplace is also central to the midwifery model of care, with clients having the option to birth at home, in a birth centre (where available) or in a hospital setting. Midwifery services are publicly funded through the Ministry of Health and Long-Term Care's (MoHLTC) Ontario Midwifery Program.^(14; 15)

Despite having the largest midwifery workforce in the country, the demand for midwifery services in Ontario is high, and, as a result, many practices have waitlists. Since regulation, midwives have increasingly become recognized in Ontario as a service delivery option in low-risk maternity care services, but many pregnant people are unable to access midwifery services. The Association of Ontario Midwives reports that 40% of clients seeking this type of care are unable to access it due to midwifery shortages.^{(16;}

17) The MoHLTC estimates that up to 27% of potential clients are unable to access midwifery services, which accounts for midwifery shortages as well as under-utilization in the ‘courses of care’ allocated to practice groups.(18)

These challenges are part of a broader set of issues that the province is addressing related to improving patient-centred care. Recent healthcare reforms in Ontario have focused on improving the health system by providing faster access to interprofessional care within community-based settings, marking a departure from traditional hospital-based care.(19) These broader health reforms have included midwives as primary care providers and birth centres as non-hospital settings involving midwifery-led care. The MoHLTC launched two freestanding midwifery-led birth centres in 2014, which are in Ottawa (Ottawa Birth and Wellness Centre) and Toronto (Toronto Birth Centre). Although the Ottawa and Toronto birth centres are a recent MoHLTC initiative, the Tsi Non:we Ionnakeratstha Ona:grahsta’ Maternal and Child Centre has operated in Ontario since 1996 on the Six Nations reserve. It is staffed by Indigenous midwives who provide both traditional and contemporary midwifery care to the Six Nations community southwest of Hamilton and is funded through the province’s Aboriginal Healing and Wellness Strategy.(20; 21)

While midwifery care aligns well with the goals of broader healthcare reforms in Ontario and the province has the largest supply of midwives in the country, many continue to experience unmet needs. This suggests a policy puzzle, with a gap between a government that is supportive of midwifery-led care and a health system in which the profession is relatively marginalized. Therefore, this study asks: Since the regulation of

midwives (1994), in what ways and under what conditions has the Ontario health system assigned roles to the profession of midwifery as a service delivery option? These questions are answered using Kingdon's agenda setting and the 3i+E theoretical framework to analyze two instances of policy reform in Ontario.(22; 23)

Methods

Study design

Yin's embedded single-case study design was used to address the research question as the approach is suited to answer explanatory questions, such as the "how" and "why" (i.e., under what conditions) a particular phenomena occurs.(24) Case studies are often used in health policy analyses, when the phenomena is happening in real time and not controllable by the researcher.(24) Within the embedded single-case study design, two or more embedded units of analysis are positioned within the case and context (Figure 1). The single-case study design was selected over a multiple-case study design, as the approach allows for more extensive analysis of the embedded units, which yields greater insights into the single case.(24)

Defining and sampling the cases

Specifically, the embedded single-case approach captures the circumstances and conditions with which the Ontario health system has assigned roles to the profession of midwifery as a service delivery option. The context of the study is the Ontario health system and the case is health policy-making that involves frontline maternal healthcare service providers, with a specific focus on the roles of midwives in low-risk maternal health service delivery (Figure 1). The two embedded units of analysis consist of recent

key policy directions that presented opportunities for an increase to the roles of midwives in the health system, which are discussed below.

The first embedded unit of analysis is the decision to fund freestanding midwifery-led birth centres in 2014. Birth centres provide an opportunity and additional practice setting for midwives, yet they may also constrain the roles of midwives within the broader health system (e.g., by limiting integration of the profession into other maternity care settings). This unit of analysis explains why the MoHLTC chose to implement birth centres in 2014, as opposed to options that could have been used to integrate midwives into acute care environments, like hospitals.

The second embedded unit of analysis is the Patients First primary care reform, which focuses on strengthening patient-centred care.(19; 25) At the time of data collection, the MoHLTC had released a discussion paper (*Patients First: A proposal to strengthen patient-centred health care in Ontario*) outlining the goals of the reform and soliciting input from key stakeholders including the public about implementation.(25) The proposal was driven by four policy goals: 1) integration of services, 2) timely access to primary care services through linkages to interprofessional teams, 3) strengthening home and community care, and 4) better integration of public health.(25) While the discussion paper focused on improving patient experience through better integration and access to interprofessional primary care services, midwives were not included explicitly as part of this proposal, nor were birth centres cited as an example of community-based primary care. This unit of analysis examines why, given their scope of practice, midwives were not included as part of the Patients First primary care reform.

Sources of evidence, sampling and recruitment

Data for each embedded unit of analysis included key informant interviews and documents (newspaper articles, published literature, policy documents, and grey literature). A multi-stage sampling approach was used to identify and recruit key informants.(24; 26) The first stage included identifying participants in the following five categories with experience in one or both of the units of analysis: 1) policymakers (e.g., MoHLTC staff); 2) managers (e.g., managers of birth centres, College of Midwives of Ontario and Better Outcomes Registry & Network Ontario); 3) healthcare providers that were involved with the policy process (e.g., midwives, primary care physicians and obstetricians); 4) consumers of midwifery services who were knowledgeable on either of the units of analysis; and 5) researchers with expertise in midwifery and/or primary care reform. During the first stage of sampling, members of the research team identified potential participants. The second stage was driven by respondents, and consisted of purposive sampling by asking research participants to identify additional key informants.(26)

Prior to data collection, ethics approval was obtained from the Hamilton Integrated Research Ethics Board (HiREB, protocol #1266) at McMaster University in Hamilton, Ontario. Written informed consent was obtained from each participant (Appendix 1). Invitations to participate were sent by email (Appendix 1), with follow-up phone calls and/or emails one week after the initial invitation (Appendix 2). Semi-structured interviews were either face-to-face, via Skype, or over the phone (Appendix 3). The semi-structured interview guide evolved over the course of interviewing to allow for

clear prompts and segmentation between agenda setting (Kingdon's framework) and policy development (3i+E framework), which is described in the subsequent section. For interviews completed over Skype or phone, signed consent was obtained electronically prior to the interview. Depending on their experience with the units of analysis, participants were asked about one or both, and the interview script was adjusted accordingly. All interviews were conducted by the principal investigator (PI) (C. Mattison) and audio recorded. The study PI also took field notes during the interviews.

As is common in qualitative inquiry, analysis and interpretation overlapped with sampling and data collection. Throughout the iterative process, as transcripts and documents were analyzed, themes emerged and informed subsequent sampling and data collection. The PI transcribed the audio files and transcripts were coded based on variables included in the theoretical frameworks below. The qualitative software, NVivo for Mac, was used for the organization and coding of qualitative data.(27) Data were collected until saturation was reached, when insights drawn from the analysis stages became exhausted.

The selection of the documents (newspaper articles, published literature, policy documents, and grey literature) consisted of three steps for each unit of analysis. First, a search of the LexisNexis Academic online database was used to execute the media analysis.(28) The search string for the first unit of analysis (birth centres) included: "birth centre" AND "Ontario" in major Canadian newspapers (e.g., The Globe and Mail, The Toronto Star, and National Post). Similarly, the search string for the second unit of analysis (Patients First) included: "primary care reform" OR "patients first" AND

“Ontario” in major Canadian newspapers (e.g., The Globe and Mail, The Toronto Star and National Post). Second, a search of published literature using the MEDLINE bibliographic database included the search strings “birth centre” AND “Ontario” for the first case and “primary care reform” AND “Ontario” for the second. Filters were set on publication date for articles published between 1994 (year of regulation) and May 1, 2017. Third, the grey literature search focused on policy documents, press releases, and other relevant documents. The documents were identified through Google searches using the same search strings as outlined above as well as public documents identified through the key informant interviews.

Theoretical frameworks

Data analysis was driven by the theoretical frameworks underpinning the study related to government agenda setting and policy development. First, Kingdon’s agenda setting framework was used to understand how the units of analysis did or did not make it to the government’s decision agenda.(22) Second, the complementary 3i+E framework was used to understand the range of factors influencing the policy choice.(23) More emphasis was placed on the 3i+E analysis as it has greater explanatory power in terms of understanding the likelihood of factors influencing policy choices.

Kingdon’s agenda setting framework recognizes the complexity of the public policymaking process and explains the process by which items move from the governmental agenda (i.e., topics that are receiving interest) to the decision agenda (i.e., topics up for active decision).(22) Given all the potential topics that policymakers could pay attention to, the framework explains how and why policy issues either rise up or fall

away from the agenda. The framework includes three streams: problems, policies and politics. Problems are identified as coming to attention through focusing events (e.g., crisis or disaster), changes in indicator (e.g., rising cost of healthcare) and/or feedback from current programs (e.g., feedback specific to a problem or a program). Under the policy stream, possible policies to address the problem emerge from diffusion of ideas in a policy arena (i.e., natural selection), communication and/or persuasion (i.e., items that receive greater interest or are novel) and feedback from current programs (e.g., feedback on a policy or program). Within the politics stream, events considered as political include swings in national mood (e.g., changes in the political climate, public opinion and/or social movements), changes in the balance of organized forces (e.g., interest group pressure campaigns) and events within government (e.g., elections and turnover in government). The governmental agenda is influenced by the problem and politics streams, while the decision agenda is influenced when there is a coupling of all three streams, which is often accomplished by a policy entrepreneur who is able to influence each of the streams. In addition to the streams, the framework also considers the role of participants in agenda setting, which can be either hidden (e.g., academics, civil servants or political staff) or visible (e.g., heads of state and other politicians), as well as policy entrepreneurs.

The 3i+E framework focuses on the role of institutions, interests, ideas, and external factors on policy choices.⁽²³⁾ Broadly, the typology considers institutions to be government structures (e.g. federal vs. unitary government), policy legacies (e.g. the roles of past policies), and policy networks (e.g. relationships between actors around a policy

issue). Interests can include a range of actors who may face (concentrated or diffuse) benefits and costs with particular courses of action. Ideas refer to peoples' beliefs (including those based on research evidence) and values (e.g., cultural norms). External factors are outside of the policy choice being analysed but manifest themselves as institutions, interests and ideas (e.g., release of major reports or economic change). The 3i+E framework was applied to the two policy choices to explain how the Ontario health system assigned roles to the profession of midwifery as a service delivery option.

Results

Thirty-seven individuals were invited to participate in the study and a total of 19 key informant interviews were completed (eight declined, nine did not reply and one could not participate due to scheduling conflicts). Participants fell into the following categories, according to their current professional role: 1) policymakers ($n=3$); 2) managers ($n=3$); 3) providers ($n=6$); 4) consumers of midwifery services ($n=5$); and 5) researchers ($n=2$). While participants were categorized according to their current professional role, 47% ($n=9$) of participants fell within two or more categories. The majority of the participants ($n=15$, 79%) informed both of the units of analysis and 15% ($n=3$) addressed exclusively the birth centre questions, while 10% ($n=2$) focused only on the Patients First primary care reform. The interviews ranged from 25-68 minutes in length, with an average duration of 44 minutes. Various personal emails and field notes (book 1 – 80 pages and book 2 – 30 pages) were also used as sources of evidence for the interviews.

A total of 49 documents were reviewed, in addition to the key informant interviews, accompanying personal emails and field notes (Table 1). The following documents were included in the analysis of the decision to fund two freestanding midwifery-led birth centres: 1) newspaper articles ($n=10$); 2) published literature ($n=2$); 3) policy documents ($n=7$); and 4) grey literature ($n=10$). The following documents were included in the analysis of Patients First primary care reform: 1) newspaper articles ($n=3$); 2) published literature ($n=2$); 3) policy documents ($n=10$); and 4) grey literature ($n=6$).

Main findings on how and under what conditions the Ontario health system has assigned roles to the profession of midwifery as a service delivery option

First embedded unit of analysis: Decision to fund freestanding midwifery-led birth centres

Factors that affected government agenda setting

Attention was drawn to the problem primarily through changes in key indicators (increased rates of medical interventions in maternity care) and feedback from the operation of existing programs (e.g., restricting midwife involvement in hospital-based care). First, a change in indicators was signaled with reference to the rising rates of medical interventions in maternity care and the associated increases in healthcare costs. Since the 1990s there has been a global trend in the increase of caesarean procedures and in Canada the rate has increased from 18% in 1997 to 28% in 2015.(29-32) The second factor attracting attention to the problem was hospital barriers to midwifery practice. These included capping the number of midwives holding hospital privileges, the number of births attended by midwives and restrictions to midwives' scope of practice (e.g., transfer of care criteria to an obstetrician for inductions and epidurals).(17; 33; 34)

The midwifery-led birth centre model rose to prominence as a viable policy option to consider through policy diffusion and from feedback from existing programs in other provinces. First, the dispersion of ideas in the policy arena means that the policy proposal circulates and is revised until it rises in prominence.⁽²²⁾ Plans for the birth centres dated back to 1979, when the proposal for a birth centre was originally created.⁽³⁵⁾ In 1994, the original birth centre project received approval, but just before opening in 1995 the plan was cancelled by the newly elected Progressive Conservative government.⁽³⁵⁾ One key informant described the policymaking process and subsequent cancellation of the program as “a very painful experience.”(Key informant, 8 September 2016) Because the original birth centre proposals and plans were available from the 1990s, midwives were later able to draw from these for the new birth centre initiative. Second, feedback from existing programs in other provinces (e.g., Alberta and Manitoba) along with supportive evidence on midwifery-led birth centre outcomes for low-risk pregnant woman, further enhanced the prominence of the birth centre proposal as a viable policy option.^(8; 36-43)

Changes in the political climate primarily influenced the politics stream. While the original birth centres were cut due to a change in government, the call for applications for the new birth centres was an initiative of a supportive majority Liberal government under the leadership of Dalton McGuinty. In 2012, the call for birth centre applications was released with a deadline for submissions that fall.⁽⁴⁴⁾ Given past experience with developing and proposing a birth centre model, midwifery practice groups were able to mobilize quickly and draw heavily from the original applications.

In addition to the factors outlined in the three streams, visible and hidden participants played an important role in moving the funding of free-standing birth centres onto the decision agenda. ‘Visible’ participants included effective lobbying from the then president of the Association of Ontario Midwives, which had resources to campaign to support the proposal (e.g., posters and blogs).(16) Political elites were also central to promoting midwifery-led care and birth centres. For example, then Minister of Health and Long-Term Care, Deb Matthews, was a long-time supporter of midwifery and instrumental in the implementation strategy of the birth centres, and she was photographed holding a newborn while surrounded by midwives in numerous press releases.(45; 46) Premier Wynne, who took office in 2013, also supported midwifery and discussed with the media that she used midwives (in the Netherlands) for both her births.(47) ‘Hidden’ participants included: 1) a consumer campaign which sent 10,000 electronic postcards to their Ministers of Provincial Parliament (MPP) in support of birth centres; and 2) midwives meeting with their local MPPs.(48)

Birth centres ascended the decision agenda due to: 1) the appearance of a compelling problem; 2) a viable policy option; 3) events within the political stream; and 4) supportive visible and hidden participants. The then president of the Association of Ontario Midwives acted as a policy entrepreneur, taking advantage of a window of opportunity by coupling the streams. When the window of opportunity opened, midwifery practice groups were able to quickly mobilize to submit applications for the Ottawa Birth and Wellness Centre and the Toronto Birth Centre.

Factors influencing the likelihood of the decision (3i+E framework)

Within institutions, policy legacies emerged as the key explanatory factors that influenced the decision to fund freestanding midwifery-led birth centres. Four main policy legacies (i.e., how past decisions serve to influence and constrain the policies that are possible today) emerged from the data collected.⁽⁴⁹⁾ First, in a medical model, payment systems privileged physician-provided and hospital-based services, restricting the options for growth of midwifery services within primary care and hospital settings.^(17; 33; 34) In particular, hospital barriers to midwifery practice outlined in the previous section (e.g., capping of hospital privileges) constrained midwives, and birth centres allowed midwives to alleviate some of the pressure created by these barriers by providing an alternate practice setting. Second, the midwifery model of care limited interprofessional collaboration in hospital settings and birth centres emerged as a response to these limitations.⁽¹⁾ The midwifery model of care has presented some limitations to interprofessional collaboration. An example given was that two midwives must be present at a birth. Also, nurses cannot act as the second attendant, which has segregated midwives from other staff in hospital settings. Other key informants disagreed and thought that midwives holding hospital privileges facilitated interprofessional collaboration through the visibility of midwives in hospital settings.^(13; 17) Third, increases to the number of midwifery education seats (90 total) in 2008/09 led to more new registrants looking for hospital privileges, which were actively being restricted. Birth centres alleviated some of the pressure created by offering an additional practice setting.⁽⁵⁰⁾ Fourth, the way in which birth centres were regulated may restrict their

visibility and potential for growth. In order for birth centres to be created, they had to fit under existing legislation (*Independent Health Facilities Act, 1990*), and as a result, they are the only Independent Health Facilities that were not physician-led. Within the legalisation, birth centres were not named or defined, which may limit future options as the legislation is physician-centred.(51; 52)

While policy legacies are central to understanding the factors that influenced the decision to fund two freestanding midwifery-led birth centres, strong interest group participation was key to lobbying efforts. As mentioned in the agenda setting analysis, political elites (e.g., Deb Matthews - Minister of Health and Long-Term Care and Premier Wynne), consumer campaigns and midwives meeting with local MPPs were central to raising awareness of the birth centres initiative.(16; 45-48; 53) The Association of Ontario Midwives was a powerful interest group that unified the profession to focus on strategic goals. For example, one interviewee shared the following regarding the role of the Association of Ontario Midwives in lobbying for birth centres:

I think the fact that we have birth centers is the result of some heavy lobbying that was done by the Association of Ontario Midwives. There have been people who have been trying to get birth centers set up for a very long time in Ontario. I think partially there is just a window there where the Association of Ontario Midwives had the resources to work hard on campaigning and there was a government that was willing to give a kick on what was a bit of a feel good option or a feel good policy that would make people feel happy. (Key informant, 27 September 2016)

Ideas influenced the decision to fund freestanding midwifery-led birth centres through values preferring a less medicalized approach to birth and supportive research evidence of midwifery-led units. An increasing number of people value a less medicalized approach to maternity care, which is reflected in the high demand for

midwifery services.(16-18; 31; 42; 43; 48; 53-55) However, not all childbearing clients wanted to deliver at the hospital nor did they feel comfortable delivering at home, and birth centres provided an in-between setting. “Labour and birth is not an illness but it’s the point in time where a woman is at her utmost vulnerable” (Key informant, 16 September 2016). In addition, supportive evidence from other jurisdictions included the United Kingdom, which in 2014 released guidelines encouraging low-risk pregnant persons to give birth in midwifery-led units.(56; 57) Finally, ideas related to alternate settings being considered by the MoHLTC for the delivery of midwifery services emerged. The creation of an ‘along-side’ birth unit in Markham-Stouffville Hospital was an alternate approach being considered, which offered midwifery-led care within the hospital and facilitates transfer of care when necessary.

An external factor (pay equity) also played a role in shaping the policy choice and could have added to interprofessional tensions and also further marginalized and devalued the profession within the health system.(58-61) While not directly linked to birth centres, the issue of pay equity came up in many of the key informant interviews and birth centres provide a space where midwives can practice with complete autonomy and without interprofessional tensions. Since 2013, midwives have found little success within the healthcare sector and have gone outside in hopes of better remuneration. The Association of Ontario Midwives filed an application with the Human Rights Tribunal of Ontario against the Government of Ontario, citing that midwives experience a gender penalty in their remuneration (31.5%).(58) In early 2016, settlement talks with the MoHLTC ended

without resolution, and the Association of Ontario Midwives continues to present their case to the tribunal.

Second embedded unit of analysis: Midwifery as a service delivery option in Patients First primary care reform

Factors that affected government agenda setting

Despite its focus on patient-centred care, midwives were not included as part of the Patients First primary care reform. The analysis presented explains a ‘no go’ decision (midwifery integration) within the context of a ‘go’ decision (primary care reform focused on enhancing patient-centred care). Within the problems stream, policy feedback from existing primary care programs, not related to maternity care, was the main factor to emerge and consisted of three areas. First, while most Ontarians (94%) had a primary care physician, only 44% were able to see their physician the same- or next-day when they were sick.(62) These challenges to seeing a primary care physician in a timely manner resulted in an increased number of emergency department visits for minor illnesses, which has been associated with increased costs to the health system.(63; 64) Second, the health system has been traditionally focused on acute care, and reorienting the system to primary care delivered in the community was key to the Patients First initiative.(19; 25; 65) Stemming from the second point, the lack of coordination between primary care and other sectors such as home and community care and specialty care has led to fragmentation in the system.(19; 25) Third, many experienced long wait times for specialist care, which would likely continue to increase if changes were not made to the health system.(62; 63) The increases have been attributed to the growth in the older adult population as well as those with chronic conditions.(66; 67) Policy feedback from these

three areas highlights that primary care reform did not take into account feedback from existing maternity care programs but rather was focused on physician-led primary care, coordination between sectors and providers, and the aging population.

Supportive evidence regarding feedback from existing programs in the policies stream contributed to placing primary care reform on the governmental agenda.

Incremental primary care reforms since 2002 and feedback from existing programs, including Family Health Teams, had shown the value of team-based care.(64; 68)

Midwives were a natural fit to primary care reform, as they are primary care providers of maternity care services, even though they were ultimately excluded due to restrictions in payment mechanisms, which are discussed in the policy legacies section below. Finally, feedback from existing acute care based services informed health system priorities to expand home and community care, delivering high quality care closer to home in community-based settings in order to increase patient-centred care.(65)

Changes within the organizational structure at the MoHLTC failed to effectively shape the reform agenda within the politics stream. The midwifery program became part of the primary healthcare branch and furthered recognition of the roles of midwives as primary care providers.(69) While the change increased the visibility of midwifery services within primary care in the MoHLTC, it did not lead to midwives inclusion in Patients First.

The lack of prominence of midwifery in primary care reform could also be explained by the very limited involvement of visible participants. One ‘visible’ participant was the current Minister of Health and Long-Term Care, Eric Hoskins, who

was a midwifery consumer, with his son born at home.(70) ‘Hidden’ participants included analysts at the MoHLTC working towards reducing healthcare costs through reforming primary care. While not explicitly mentioned, the 2016 mandate letter suggested an opportunity for midwives to increase participation in primary care through the aim of recruitment and retention of interprofessional team members.(71)

Midwives were not integrated into Patients First primary care reform as a result of health system priorities that were focused on increasing availability and coordination of primary care services, delivered in the community by physicians and nurses. Midwives were not considered as part of the reform, most likely due to a lack of visibility within the policy arena. The lack of processes within the streams directly involving midwives, in combination with no ‘visible’ participants, acted as a constraint and dampened consideration of midwives within primary care reform.

Factors influencing the likelihood of the decision (3i+E framework)

Policy legacies emerged as the key explanatory factors that influenced the decision not to include midwives in Patients First primary care reform. Specifically, three factors related to the policy legacies of payment mechanisms decreased the likelihood of inclusion of midwifery as a service delivery option in recent primary care reform. First, midwifery payment mechanisms limited reform by acting as a barrier to practicing in interprofessional environments. During the 2005 primary care reforms, when Family Health Teams were first implemented, midwives were included in the call for applications. However, they were unable to participate because they were not eligible for alternate funding arrangements. For example, a key informant stated that: “Because we’re

funded differently, it's made us an interloper into the primary care system and this breaks my heart". (Key informant, 27 September 2016) Second, while not directly related to Patients First but rather broader challenges within primary care that provided context to Patients First discussions, midwifery payment mechanisms have acted as barriers to new registrants entering the workforce, as midwives can only bill for a completed course of care once the client has been discharged (typically following the six week postpartum visit). One key informant stated that, "there's no other care provider in the world that cares for someone over 10 months and receives no monetary value". (Key informant, 27 September 2016) Third, much like in the birth centre case, in the medical model, payment systems privileged physician-provided and hospital-based services, making reform difficult and an underlying barrier to change.

In addition to the policy legacies related to payment mechanisms, midwives were less likely to be included in primary care reform due to policy legacies that prioritize physician-led care; and physicians, until recently, were more likely to be men.(62) In comparison to the primary care physician workforce, the midwifery workforce was small, providing services for women by women. (1-3; 72) While at face value midwives seemed to be a feasible option given that the majority of family physicians were no longer providing maternity care due to the lack of flexible schedules and liability issues, midwives have traditionally been overlooked by other regulated healthcare professionals as primary care providers in the health system. This is reflected in that the majority of low-risk births in the province have been attended by specialist obstetricians as opposed family physicians or midwives.(33)

Interest group participation supportive of midwifery was limited, which led to a decreased recognition of the profession in Patients First. While the Association of Ontario Midwives was asked by the MoHLTC to provide input on Patients First, it was not until after the discussion paper was released, which provides further evidence that midwifery-led care was not a consideration at the outset of the reform. The Association Ontario Midwives did submit a position statement in response to the discussion paper and asked the MoHLTC include maternity care services in primary care reform.(33) However, the submission by the Association Ontario Midwives was one of many, and given the focus of Patients First on addressing the needs of older adults and/or those with chronic conditions coupled with a lack of a mobilized consumer group meant the submission was not prioritized. Advocacy groups for older adults as well as caregiver groups were larger and more established, having a greater voice in the reform.

Ideational factors show that while the research evidence on quality and outcomes of midwifery care had increased, health system priorities were focused on aging, chronic disease and/or people with complex conditions (e.g., Health Links) and not maternity care.(73-75) For the first time in the country's history, in 2016, there were more people aged over 65 than under 15 years.(67) Values were also related, in that maternity care was not on peoples' radar like the large numbers of those who were either aging themselves or caring for older adults.(66; 67; 76; 77) The final value that emerged was related to social norms that privilege physician-led care over midwifery-led care in the provision of maternity care services. While demands for midwifery care have increased over time, physicians and nurses still provide the majority of maternity care, and obstetricians

remain the most visible maternity healthcare provider within the health system.(6; 10; 78; 79)

Much like for the first case, the external factor related to pay equity applied to primary care reform and is outlined in the preceding section.(58-61)

Discussion

Principal findings

At the time of regulation, midwives were created as an autonomous profession yet health-system transformation initiatives have restricted further integration of midwives into Ontario's health system. As the policy puzzle highlights, while the government has been supportive of midwifery-led care, midwives continued to be marginalized within the health system. The application of the agenda setting and 3i+E frameworks in the embedded single-case study allowed for the systematic analysis of the two policy directions and identified the institutional variables, key interests groups, and ideational factors that either helped to bolster or hinder midwifery as a service delivery option. In both cases, policy legacies within the 'institutions' domain were the key explanatory factors. The marginalization of midwifery within primary care reform was not a result of conscious decision-making, but rather the unintended consequence of policy legacies, how past decisions constrain the policy options possible today.(80) The most important policy legacies to emerge from the analyses were related to payment mechanisms. In the medical model, payment mechanisms privilege physician-provided and hospital-based services, while payment mechanisms in the midwifery model have imposed unintended restrictions on the profession's ability to practice in interprofessional environments.

These findings are consistent with research on the integration of midwives into Ontario's health system during the regulation process, which found that the health system is dominated by the medical profession and that the policy legacies contributing to this continue to influence policy processes to this day.(1)

Primary care reform has failed to incorporate midwives as members of the primary care team. The omission of midwives from the Patients First initiative did not emerge in the analyses as purposeful but rather a reflection that midwives and maternity care are an often-overlooked component of primary care. Health system priorities are focused on the aging population, which is a high-needs group requiring significant healthcare resources. The Canada Health Transfer has come with strings attached in terms of identifying the priority areas of home and community care and mental health and addiction services, and Patients First aligns with these strategic goals.(19; 81) Ultimately, health system priorities were focused on responding to the perceived greater needs of the aging population and associated caregiver burden, and midwifery was overlooked in broader primary care reform.

Strengths and limitations of the study

There were three main strengths of the study. First, the embedded single-case study design allowed for the in-depth analysis of “how” and “why” midwives have been assigned roles within the Ontario health system. Second, the study design included the collection of data from multiple sources, which allowed for the identification of consistencies and inconsistencies across sources. Third, the robust approach to sampling the case allowed for analysis of a policy puzzle: why would a government that has been

supportive of the midwifery-led case not include the profession or birth centres in primary care reform? The embedded units of analysis were carefully selected in terms of their mapping to the study objectives. The selection of Patients First was particularly timely as ethics approval was sought within weeks of the discussion paper being released.

There was one main challenge to this study and it related to the recruitment of key informants. Thirty-seven individuals were invited to participate in the study and 18 did not participate (eight declined, nine did not reply and one could not participate due to scheduling conflicts). Of the eight participants who declined: three declined because they did not feel they had enough experience with the cases, one was unable to participate due to a confidentiality agreement, one was sick and unable to participate, and the remaining three were from a birth centre and, while they expressed interest in participating, they ultimately did not. Participation in the key informant interviews was sought from both birth centres, and only one of the birth centres was willing to participate in the study. For the birth centre that did not participate, we were able to capture related data through participants who were healthcare providers holding privileges and practicing at the birth centre.

Implications for policy and practice

As primary care reform continues in the province, we hope the study will be useful to policymakers and healthcare providers in understanding the key policy legacies that influenced policy directions. Despite a government that is supportive of midwifery services, they are often overlooked in policy decisions. The research findings suggest that midwives need an institutional voice in primary care policy conversations. Specifically,

meetings related to primary care policy choices that have representation from physicians and nurses should ideally not occur without midwives at the table. Identifying critical junctures, moments when substantial institutional change takes place thereby creating a ‘branching point’ from which historical development moves onto a new path, are key to moving midwifery forward and past the constraints created by policy legacies.(82)

Implications for future research

The cases presented are timely, as there is jurisdictional variability across provinces and territories, with midwifery remaining unregulated in a few jurisdictions. Ontario has emerged as a leader in midwifery as it was the first province to regulate the profession, has the largest and most established workforce, and trains the most midwives in the country. Understanding the conditions under which midwifery has been assigned roles within the Ontario health system is important not only to this particular policy puzzle, but has implications for other provinces and territories making policy decisions regarding midwifery care. Future research will address hospital-level barriers that are restricting midwives’ scope of practice (e.g., non-indicated midwife to obstetrician consultation and transfer of care). In addition, a similar case study methodology could be applied to other provinces. For example, in British Columbia midwives attended 21% of births in 2015-2016 and a comparative analysis would be beneficial to understand the explanatory institutional, interest group and ideational factors involved in the differences between jurisdictions.(6)

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Figure 1. Embedded single-case study design

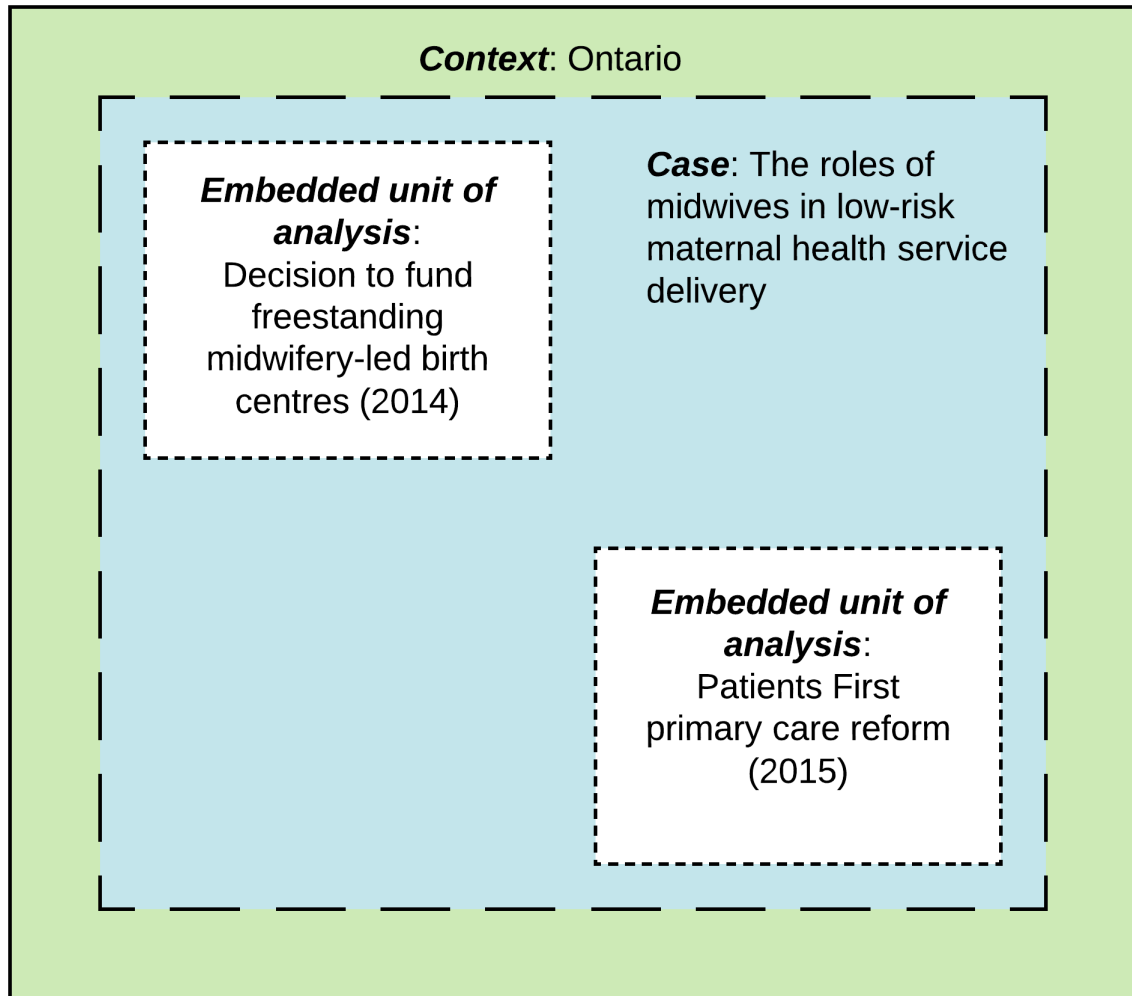


Table 1. Data collection for media, published literature and policy documents

Policy choice	Data source	Search terms and date searches executed	Documents selected for inclusion	Notes
Decision to fund freestanding midwifery-led birth centres (2014)	LexisNexis Academic for search of newspaper articles: • The Globe and Mail • The Toronto Star • National Post	“birth centre” AND “Ontario” Date: 2017-05-01	10 of 30 articles retrieved for inclusion	• 7 of the articles were opinion pieces
	MEDLINE search for published literature	“birth centre” AND “Ontario” Publication year: 1994 to present Date: 2017-05-01	2 of 4 articles retrieved for inclusion	• The other two articles were not related to birth centres in Ontario
	Policy documents, press releases and grey literature	Documents identified through: • key informant interviews and • Google searches	17	In addition to policy documents on birth centres, retrieved documents also included: • BORN Ontario presentation slides (1); • press releases (3) from Ministry of Health and Long-Term Care; and • data and reports from the Provincial Council for Maternal and Child Health (6).
Primary care reform, Patients First (2015)	LexisNexis Academic for search of newspaper articles:	“primary care reform” OR “patients first” AND “Ontario”	3 of 58 articles retrieved for inclusion	• Many of the articles were letters to the editor or opinions (20)

<ul style="list-style-type: none">• The Globe and Mail• The Toronto Star• National Post	Date: 2017-05-01		<ul style="list-style-type: none">• Most of the articles focused on negotiations between the Ministry of Health and Long-Term Care and the Ontario Medical Association
MEDLINE search for published literature	“primary care reform” AND “Ontario” Publication year: 1994 to present Date: 2017-05-01	2 of 30 articles retrieved for inclusion	<ul style="list-style-type: none">• The majority (27) of the articles focused on older adults, complex health needs, physician remuneration, or physician models of care• 1 article could not be accessed
Policy documents, press releases and grey literature	Documents identified through: <ul style="list-style-type: none">• key informant interviews and• Google searches	16	In addition to policy documents on Patients First, retrieved documents also included: <ul style="list-style-type: none">• mandate letters (2016 and 2017) from Premier to Minister of Health and Long-Term Care;• press releases (2) from Ministry of Health and Long-Term Care; and• documents (4) related to pay equity and the application by the Association of Ontario Midwives to the Human Rights Tribunal of Ontario.

Table 2. Factors that affect government agenda setting and the decision to fund freestanding midwifery-led birth centres

Factors that affect government agenda setting	Description of how these factors influenced agendas and the decision to fund freestanding midwifery-led birth centres	Sources of evidence
Problems	<p>Rising rates of medical interventions and associated increases in healthcare costs</p> <ul style="list-style-type: none"> Increasing rates of non-medical caesareans and induction practices <p>Hospital barriers to midwifery practice</p> <ul style="list-style-type: none"> Capping the number of midwives who have hospital privileges and the number of births attended by midwives Restrictions to scope of practice (e.g., transfer of care criteria to an obstetrician for inductions and epidurals) 	<p>KIs;(29-31)</p> <p>KIs;(17; 33; 34)</p>
Policies	<p>Birth centre proposals and plans already existed</p> <ul style="list-style-type: none"> Original birth centre proposals and plans were available from the 1990s, which midwives were able to draw from <p>Supportive evidence</p> <ul style="list-style-type: none"> Evidence on midwifery-led birth centre outcomes for low-risk pregnant woman in other jurisdictions in Canada (e.g., Quebec, Alberta and Manitoba) 	<p>KIs;(35; 83)</p> <p>KIs;(8; 36-43)</p>
Politics	<p>Change in government</p> <ul style="list-style-type: none"> Two original freestanding birth centres (located in St. Jacobs and Toronto) were created in the 1990s but were shelved just before doors opened due to change in government (Conservative government led by Mike Harris) when the call went out for the new birth centres, midwives were able to draw from the original applications 	<p>KIs;(35)</p>
Participants	<p>Visible</p> <ul style="list-style-type: none"> Heavy lobbying from the then president of the Association of Ontario Midwives, which had resources to campaign (e.g., posters and blogs) Deb Matthews, Minister of Health and Long-Term Care, was supportive of midwifery and daughter used midwives Premier Kathleen Wynne was supportive of midwifery and used midwives for both births (in the Netherlands) 	<p>KIs;(16; 44; 53; 84-86)</p>

Hidden	KIs;(48)
<ul style="list-style-type: none">• Consumers sent 10,000 electronic postcards to their MPPs, promoted birth centres on social media and at special events to promote• Midwives meeting with their local MPPs	

Table 3. Factors influencing the likelihood of the decision to fund freestanding midwifery-led birth centres

Factors affecting policy choice	Influence on policy choice*	Description of how the factors influenced the decision to fund freestanding midwifery-led birth centres	Sources of evidence
Institutions		Policy legacies	
	↑	<p>Payment systems in the medical model privilege physician-provided and hospital-based services, restricting the options for growth of midwifery services</p> <ul style="list-style-type: none"> Hospital barriers to midwifery practice include: capping the number of midwives who have hospital privileges, number of births attended by midwives and restrictions to scope of practice (e.g., transfer of care criteria to an obstetrician for inductions and epidurals) Birth centres allow midwives to circumvent barriers in hospital setting by providing an alternate practice setting 	KIs;(17; 33; 34)
	↑	<p>Midwifery model of care is inflexible, acting as a barrier to integration and birth centres emerged as a response to these limitations (<i>other key informants presented an alternative interpretation, which is captured below</i>)</p> <ul style="list-style-type: none"> Midwives had to fight hard for regulation but as time has passed, the model (two midwives attending births) has become a barrier to integration in hospital settings as nurses cannot be second, which segregates midwives from other healthcare professionals While autonomy is central to the model, it can limit interprofessional collaboration 	KIs;(1)
	↔	The midwifery model of care facilitates integration into the health system as midwives hold hospital privileges, which strengthens interprofessional collaboration through the visibility of midwives in hospital settings	KIs;(13; 17)

	↑	The 2008/09 increases to the number of midwifery education seats (90 total) mean that there are more new registrants looking hospital privileges and birth centres alleviate some of the pressure created by hospital barriers (e.g., capping of privileges) by offering an alternate practice setting	KIs;(50)
	↓	For birth centres to be created they had to fit under existing legislation (<i>Independent Health Facilities Act, 1990</i>), as a result they are the only Independent Health Facilities that are not physician-led and birth centres are not named under the legislation or defined, which may restrict their visibility and potential for growth	KIs;(51; 52)
Interests	↑	Interest groups <ul style="list-style-type: none"> The Association for Ontario Midwives is a strong interest group and was key to lobbying for the creation of birth centres 	KIs;(16; 53)
Ideas	↑	Knowledge about ‘what is’ <p>Increasing evidence on the quality and outcomes of midwifery-led birth centres</p> <ul style="list-style-type: none"> The National Institute for Health and Care Excellence released guidelines encouraging women in the United Kingdom to give birth in midwifery-led units 	KIs;(56; 57)
	↔	Birth centres offer one possible approach to improved care for childbearing clients and there are other settings being considered by the Ministry of Health and Long-Term Care for the delivery of midwifery services <ul style="list-style-type: none"> Midwifery-led care within the hospital and facilitates transfer of care when necessary (e.g., along-side birth unit in Markham-Stouffville Hospital) 	KIs

	↑	<p>Values about ‘what ought to be’</p> <p>Many women value a less medicalized approach to maternity care, as reflected by the demand for midwifery services</p> <ul style="list-style-type: none"> • Many practices have wait lists for midwifery services • Not all women want to deliver at the hospital and also do not feel comfortable delivering at home, birth centres provide a an alternate setting/in-between option • Many women have positive experiences midwifery care or know someone that has 	KIs;(16-18; 31; 42; 43; 48; 53-55)
External factors	↔	<p>Professional groups finding little success within the healthcare sector have increasingly gone outside in hopes of better remuneration</p> <ul style="list-style-type: none"> • In 2013 the Association of Ontario Midwives filed an application with the Human Rights Tribunal of Ontario against the Government of Ontario, citing that midwives experience a gender penalty in their remuneration (31.5%) • In early 2016 settlement talks with the Ministry of Health and Long-Term care ended without resolution and the association continues to present their case to the tribunal 	KIs;(58-61)

* Direction of arrows indicates influence on policy choice and bidirectional arrows suggest the factor neither increased nor decreased the likelihood of the policy choice.

Table 4. Factors that affect government agenda setting in Patients First primary care reform, with a focus on midwifery as a service delivery option

Factors that affect government agenda setting	Description of how these factors influenced agendas in Patients First primary care reform, with a focus on midwifery as a service delivery option	Sources of evidence
Problems	<p>Feedback from existing primary care programs</p> <ul style="list-style-type: none"> • While most Ontarians have a primary care physician, many encounter challenges to seeing their provider in a timely manner, which leads to increased number of emergency department visits • The health system is focused acute care and reorienting the system to primary care is important to maternal health • Primary care services are at times uncoordinated, which leads to fragmentation in the system • Many experience long wait times for specialist care, which will likely increase if changes are not made to the health system due to the growth in the older adult population and those with chronic conditions 	KIs; (19; 25; 62; 63; 87-89)
Policies	<p>Supportive evidence</p> <ul style="list-style-type: none"> • There has been incremental primary care reform since 2002 and feedback from existing programs, including Family Health Teams, has shown the value of team-based care • Midwives are a natural fit in primary care reform as they are primary care providers • Expanding home and community care by moving services out of hospitals and into community based settings 	KIs;(64; 68; 90)
Politics	<p>Changes within the government in terms of where midwifery is situated</p> <ul style="list-style-type: none"> • The midwifery program is now part of the primary healthcare branch at the Ministry of Health and Long-Term Care 	KIs;(69)
Participants	<p>Visible</p> <ul style="list-style-type: none"> • Current Minister of Health and Long-Term Care, Eric Hoskins is a midwifery consumer 	KIs;(70)

Hidden	KIs;(71)
<ul style="list-style-type: none">• Analysts at the Ministry of Health and Long-Term Care working towards reducing healthcare costs through reforming primary care• While not explicitly mentioned, the 2016 mandate letter suggests an opportunity for midwives to increase participation in primary care	

Table 5. Factors influencing the likelihood of inclusion of midwifery as a service delivery option in Patients First primary care reform

Factors affecting policy choice	Influence on policy choice*	Description of how the factors influenced likelihood of inclusion of midwifery as a service delivery option in Patients First primary care reform	Sources of evidence
Institutions		Policy legacies	
	↓	Midwifery payment mechanisms limit their ability to practice in interprofessional environments <ul style="list-style-type: none"> During the 2005 primary care reforms for Family Health Teams, the call went out to midwives but they were unable to participate because they were not eligible for alternate funding arrangements 	KIs
	↓	Midwifery payment mechanisms act as barriers to new registrants entering the workforce, as midwives can only bill for a course of care once the client has been discharged	KIs
	↓	Midwifery model of care is inflexible and limits the ability to be integrated into primary care teams <ul style="list-style-type: none"> How midwives were regulated constrains the practice options available to them and many levers (regulatory, funding and educational) are needed to further integrate midwives into primary care teams 	KIs
	↓	Payment systems in the medical model privilege physician-provided and hospital-based services, making reform difficult and an underlying barrier to change	KIs
	↓	Healthcare has been traditionally gendered, with priority given to physicians, which was until recently a majority male profession <ul style="list-style-type: none"> Midwifery is a small workforce, providing services for women by women, which has been traditionally overlooked by the health system 	KIs;(1-3; 72)
	↓	Midwives are primary care providers and are a feasible option given the majority of family physicians are no longer providing maternity care due to	KIs

		lack flexible schedules and liability issues; however midwives are often overlooked by other regulated healthcare professionals as primary care providers in the health system	
	↔	Policy networks <ul style="list-style-type: none"> While tenuous at present, historically the Ontario Medical Association has had a seat at the decision-making table while the Association of Ontario Midwives has not 	KIs;(91; 92)
Interests	↑	Interest groups <ul style="list-style-type: none"> The Association of Ontario Midwives prepared a position statement in response to the discussion paper, <i>Patients First: A proposal to strengthen patient-centred health care in Ontario</i> encouraging the Ministry of Health and Long-Term to include maternity care services in primary care reforms 	KIs;(33)
	↓	<ul style="list-style-type: none"> Advocacy groups for older adults are larger and more established but there is a lack of formal consumer groups advocating for maternity care and midwifery services 	KIs;(93)
Ideas	↑	Knowledge about ‘what is’ <ul style="list-style-type: none"> Increasing evidence on the quality and outcomes of midwifery care 	KIs;(73-75)
	↓	<ul style="list-style-type: none"> The health system is more focused on older adults and chronic disease than it is on maternity care 	
	↓	Values about ‘what ought to be’ <ul style="list-style-type: none"> There is a disconnect between who should receive midwifery care and who seeks it (e.g., midwives provide a range of supports that are particularly important to vulnerable and marginalized populations yet many clients are middle-class) Social norms act as barriers and privilege physicians over midwives in maternity care Maternity care is not on the radar like the large numbers of people dealing with caring for older adults 	KIs;(66; 67; 76; 77)

External factors	↔	<p>Professional groups finding little success within the healthcare sector have increasingly gone outside in hopes of better remuneration</p> <ul style="list-style-type: none"> • In 2013 the Association of Ontario Midwives filed an application with the Human Rights Tribunal of Ontario against the Government of Ontario, citing that midwives experience a gender penalty in their remuneration (31.5%) • In early 2016 settlement talks with the Ministry of Health and Long-Term care ended without resolution and the association continues to present their case to the tribunal 	KIs;(58-61)
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* Direction of arrows indicates influence on policy choice and bidirectional arrows suggest the factor neither increased nor decreased the likelihood of the policy choice.

Appendix 1. Recruitment email



Title of study: Understanding the role and integration of midwifery in Ontario's health system

Principal investigator: Cristina A. Mattison, MSc, PhD(c)

Co-investigator(s)/supervisors: Dr. John N. Lavis, MD, PhD

Funding sponsor:

[Insert date]

Dear [Insert name],

You are being invited to participate in a research study that examines Ontario's response to maternity care needs through midwifery. Specifically you are being invited to participate in an interview about how the Ontario health system has assigned roles to midwifery. Your involvement would mean participating in a 30-60 minute in person or telephone interview to be scheduled at your convenience. During the interview, we will ask you questions about one or two policy directions of interest: 1) the creation of two midwifery-led birth centres in 2014 and/or 2) the recent primary care reform discussion paper (*Patients First: A proposal to strengthen patient-centred health care in Ontario*), which does not explicitly include midwives as part of the reform. You will be asked about what factors led to the creation of these policies, what stakeholders were involved in the decision-making process, what are the goals of the policies and (if applicable) what are the results being achieved. You may find it helpful to review relevant file(s) prior to the interview however, we recognize that this is not always possible. During the interview we will also ask if you have any relevant documents to share on any of the topics we cover.

The research will not be of immediate benefit to you. We hope to learn more about the role of midwifery in low-risk maternal health service delivery in Ontario. We anticipate that what is learned as a result of this study will help us better understand the role of midwives within the health system. You may indirectly benefit from having had an opportunity to have your views heard and to know that you have made a contribution to improving the maternity care system.

Your participation in this research study is voluntary. If you do not want to answer any of the questions you do not have to, but you can still be in the study. You may decide not to continue to participate, refuse to answer any particular questions, or withdraw from the study at any time without consequence and the data you have provided will be destroyed if you so wish.

Your interview and any information provided in the form of documents that are not in the public domain will be treated as confidential. Interviews will be audio-recorded and transcribed and personal identifiers will be assigned to each digital file and transcript by research staff. The primary investigator will ensure that the transcript and any confidential documents are kept in a locked cabinet, the digital files containing the audio-recording and transcript are stored on a security protected computer, and the digital files, transcript and confidential documents are destroyed 10 years after the last publication of our findings.

Your anonymity as a research study participant will be safeguarded. We will ensure that the list of study participants and their participant numbers will be stored in a different locked cabinet or security protected computer from those where the digital files, transcripts and confidential documents are stored. Confidential information will not be reported in a way that could identify either individual respondents or individual departments or organizations. We will make the summary of our findings publicly available for use by others interested understanding the role and integration of midwifery in Ontario's health system.

Please check yes or no to the questions below to indicate whether you consent to participate in our study and, if so, whether you are willing to have your name and position appear in the study acknowledgements. We would be pleased to provide you with additional information about our study and your potential participation.

Request for consent	<i>Yes</i>	<i>No</i>
1. I am willing to participate in a 30-60 minute in person or telephone interview to be scheduled at my convenience.		
2. I am willing to have my name and position appear on the study acknowledgement list as one of the respondents.		
3. Please contact me. I would like additional information about the study and/or my participation.		

I will receive a signed copy of this form.

Signed: _____

Date: _____

Please email to mattisc@mcmaster.ca

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HIREB). The HIREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. If you have any questions about your rights as a research participant, please call the Office of the REB Chair, HIREB at +1 905 521 2100 extension 42013.

Sincerely,



Cristina A. Mattison, MSc
Doctoral Candidate
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Appendix 2. Follow-up telephone script

(to be used as a follow up to the email included in Appendix 1)

Understanding the role and integration of midwifery in Ontario's health system

1. PI: Hello [insert formal salutation of the potential interviewee], my name is Cristina Mattison, a doctoral candidate working with Dr. John Lavis at McMaster University. How are you today?
2. PI: Is this a convenient time for you to chat for a few minutes about a research study I am pursuing on the role of midwifery in low-risk maternal health service delivery in Ontario?
 - a. If yes: OK. A week ago, I sent you an email outlining a study I'm involved with investigating Ontario's response to maternity care needs through midwifery. Did you receive this letter/email?
 - i. If yes
PI: Have you had a chance to read the email?
 - If yes
PI: OK. This call is a follow-up to that letter to determine whether you'd be willing to participate in a 30-60 minute interview conducted by myself related to the study outlined in the email. Would you be interested in participating? If you'd like I can give you some time to review the letter and study outline before you make a decision, and then call you back at another time that is convenient for you (book interview or follow up as necessary).
 - If not interested
PI: Thank you for your time.
 - If no
PI: No problem. Do you have a few minutes now for me to briefly explain to you the contents of the letter/email?
 - If yes (briefly explain purpose of the study, and outline the request)
PI: Would you be interested in participating? If you'd like I can give you some time to review the letter and study outline before you make a decision, and then call you back at another time that is convenient for you (book interview or follow up as necessary)
 - If not interested
PI: Thank you for your time.
 - If no
PI: Is there a better time or way to contact you about this? (follow-up with preferred method).

Appendix 3. Interview guide

Understanding the role and integration of midwifery in Ontario's health system

Ethical considerations:

A description of the study will have been presented during the recruitment phase. A signed confirmation of commitment to participate will be obtained prior to engaging in the questions. Any ethical issues arising will be addressed prior to the first question and will be documented by the Interviewer.

Process:

Interviews will be recorded on a digital audio device, transcribed, and uploaded into NVivo for Mac, a qualitative software program. Hand written notes will also be made by the interviewer into her field notebook.

✓ Signals probes

Date:

Time:

Place:

Interviewer:

Interviewee:

Position of Interviewee:

Questions

1. Do you have any questions for me before proceeding to the interview?
2. Could you describe, in general, your experience related to the [policy focus: 1) creation of two midwifery-led birth centres in 2014, and/or policy issue 2: recent primary care reform discussion paper (*Patient First: A proposal to strengthen patient-centred health care in Ontario*)].
3. Based on your understanding of the issue, what do you think the policy [proposal] was designed to address?

4. How did the issue come to the attention of stakeholders and policymakers?
 - a. Why do you think the issue was placed on the agenda?
 - ✓ Keep it focused to the 3i's to probe for insights into institutions, interest groups, ideas, and external factors
 - b. How did it become a priority issue?

Question specific to midwifery-led birth centres:

- a. Birth centres offer a community based setting for the delivery of midwifery services. What other options were considered as part of the reform (e.g., midwives in acute care environments)?
 - ✓ Does this approach strengthen the role of midwives into the health system?
 - ✓ Why this approach, given all the other options?

Question specific to primary care reform:

- a. The Patients First (2015) discussion paper focuses on improving patient experience through better integration and access to interdisciplinary primary care services (e.g., community based care). What healthcare professions are being considered as a part of this reform?
 - b. What collaborative care models are being considered as a part of this reform?
 - ✓ Are midwives considered as part of this reform?
 - ✓ Are birth centres considered as part of this reform?
 - ✓ Why or why not?
-
5. What are the goals of the policy(ies)? How will they be achieved/Have they been achieved?
 - ✓ Improving patient experience
 - ✓ Efficiency
 - ✓ Cost-effectiveness
 - ✓ Community-based care

Chapter 5. Conclusions

The three original research studies presented in chapters 2-4 of this thesis contribute to an increased understanding of the roles of midwives within health systems. Compared to other scholarship in the area, my dissertation presents a unique approach by focusing specifically at the health systems level as opposed to the profession level. In addition, the application of political science frameworks compared to what have been traditionally sociological analyses, offers key insights about the ways in which midwives have been integrated into health systems. This chapter begins by summarizing the main findings of each of the studies presented in chapters 2-4. The chapter then focuses on the three studies as a package and presents the thesis' overall strengths and limitations, implications for policy and practice, and areas for future research.

Principal findings

The thesis incorporates a mix of methodological approaches to develop an understanding of the roles of midwives within health systems. Chapter 2 employs a critical interpretive synthesis methodology to develop a theoretical framework, which can be thought of as a heuristic that identifies the drivers of midwives' roles in a particular political and health system.(1-5) The theoretical framework presents factors that can facilitate integration of midwifery into health systems or act as barriers by restricting the roles of the profession. Supportive political system factors that act as facilitators to midwifery-supportive health system arrangements and augment the integration of midwifery include: 1) policy legacies that value midwives (institutions); 2) interest groups working together collaboratively towards a common goal (interests); and 3)

societal values supporting gender equality and birth as a natural process (ideas). A combination of supportive political and health system factors leads to health systems where midwives have a significant role in the provision of maternity care services and are integrated into the health system. Conversely, political system factors that act as barriers to midwifery-supportive health system arrangements and restrict the integration of midwifery include: 1) policy legacies of payment systems and a medical model that privilege physician-provided care (institutions); 2) marginalization created in the context of perceived rivalries between physician and midwifery related interest groups (interests); and 3) relative ‘invisibility’ of women within society (e.g., hierarchical relationships) (ideas). Significant political and health system barriers limit the options available to the midwifery workforce and is most often reflected in siloed work environments where midwives are not integrated into the health system, often working in the periphery or outside of what is widely understood to be the core of the health system.

In addition to developing a theoretical framework, chapter 2 uses an exploratory network analysis to analyze relationships among the key health system factors included in the theoretical framework.(6-8) The findings of the network analysis suggest that within the literature reviewed, the most explored area related to the roles of midwives within the health system is within delivery arrangements and the most central components are: 1) performance management at the system level; 2) continuity of care; 3) availability of care; 4) timely access to care; 5) need/demand/supply at the system level; 6) skill mix (role performance); and 7) site of service delivery. Equally important in the network analysis is the identification of gaps within the literature – these gaps show that there is a

much more limited understanding of the governance arrangements, financial arrangements and implementation strategies insofar as they implicate midwives. The findings of the exploratory network analysis show that the literature pertaining to the roles of midwives within health systems to date has focused on delivery arrangements. Understanding governance and financial arrangements and implementation strategies is central to the appropriate integration of the midwifery workforce into the health system.

Chapter 3 moves from a broader conceptual understanding of the roles of midwives within health systems, to focusing on one provincial health system through a quantitative analysis. Given that patient experience is a component of the health system ‘triple aim’, understanding satisfaction with midwifery-led care is an important consideration alongside evidence on improving population health and keeping per capita healthcare costs manageable (the two other areas of the ‘triple aim’).(9) Statistics Canada’s 2006 national Maternity Experiences Survey was used to examine birth-experience satisfaction among women in Ontario, Canada, who received care from midwives, family physicians and/or obstetricians.(10) The findings of the logistic regressions show that the odds of having high levels of satisfaction were more than three times higher for those who received care from a midwife compared to an obstetrician. Maternal age (over 35), being multiparous, and having a partner were associated with higher probabilities of satisfaction. Traveling out of the community to give birth and depression were associated with lower probabilities of satisfaction. In terms of ethnocultural characteristics, the East Asian ethnocultural group was associated with lower levels of satisfaction, while those born in South Asia were associated with higher

levels of satisfaction. While the remainder of the analyses by ethnocultural group were not statistically significant, most likely due to small cell sizes, there was variation in the satisfaction of midwifery clients by group. The findings are relevant as Canadian projections indicate that the proportion of foreign-born persons will reach 25-30% by 2031.(11) The differences in satisfaction based on ethnocultural characteristics are relevant to policy decisions, not just now but as the number of foreign-born persons grows in Canada.

Chapter 4 continues its focus on a provincial health system, to assess qualitatively in what ways and under what conditions has the Ontario health system assigned roles to the profession of midwifery as a service delivery option. Although midwifery care aligns well with the goals of broader healthcare reforms designed to support more patient-centred care in Ontario, and the province has the largest supply of midwives in the country, many childbearing clients continue to experience unmet needs. We answered these how and why questions using an embedded single-case study design and Kingdon's agenda setting and the 3i+E theoretical framework to analyze two instances of policy reform in Ontario (decision to fund freestanding midwifery-led birth centres in 2014 and Patients First primary care reform).(2; 3; 12) In both cases, policy legacies within the broad category of institutional variables were the key explanatory factors. The marginalization of midwifery within primary care reform was not a result of conscious decision-making, but rather the unintended consequences of policy legacies, particularly those related to payment mechanisms.(13) In keeping with a traditional medical model, payment mechanisms privileged physician-provided and hospital-based services, while

payment mechanisms for a midwifery model have imposed unintended restrictions on the profession's ability to practice in interprofessional environments. Primary care reform has failed to incorporate midwives as members of the primary care team and the omission of midwives from the Patients First initiative did not emerge in the analyses as purposeful but rather a reflection that midwives and maternity care are an often-overlooked component of primary care.

Study contributions

Together, the three original research studies presented in chapters 2-4 of this thesis begin to address gaps in scholarship by developing an understanding of the roles of midwives within health systems through: 1) a theoretical framework describing the political and health system factors that influence the roles of midwives within health systems; 2) an empirical assessment of the factors – including whether care is provided by a midwife or other provider – associated with birth-experience satisfaction; and 3) understanding the conditions under which midwifery has been assigned roles in a health system. Taken as a package, the dissertation makes substantive, methodological and theoretical contributions, which are discussed below.

Substantive contributions

To date, there has been limited scholarship on the roles of midwives in health systems. Substantively, the dissertation provides a rich understanding of the roles of midwives in health systems through a mix of qualitative and quantitative research evidence, thereby adding to the evidence base that policymakers can draw from when making decisions regarding maternity care. The theoretical framework presented in

chapter 2 was informed by a broad range of empirical and non-empirical literature and is applicable across health systems (high-income countries and low- and middle-income countries). Quantitative findings in chapter 3 show that birth-experience satisfaction was greater for those who received midwife-led care, which provides evidence for the patient experience domain of the health system ‘triple aim’. Chapter 4 provides a rich qualitative analysis that explains why within a political and health system that at first glance appears supportive of midwives does the profession continue to be marginalized. The policy legacies of past decisions constrained current policy options and emerged as the key explanatory factors.

Methodological

The dissertation adds a new methodological approach through the application of a critical interpretive synthesis combined with an exploratory network analysis. The critical interpretive synthesis is a relatively new systematic review methodology, which combines a rigorous review of electronic databases with iterative and purposive sampling of the literature. Statistical measures of centrality in the network analysis yielded important insights into the networks’ structures, revealing the key health system arrangements found in the literature as well as the relationships between the arrangements. Another key feature of the combined approach was the identification of gaps in literature, more specifically finding health system arrangements that have not been examined to date. The analysis showed the areas that have been relatively over studied (delivery arrangements) and those that have been understudied (governance arrangements) or not studied at all (most of the financial arrangements and implementation strategies). The literature related

to the roles of midwives within health systems is arguably saturated in terms of delivery arrangements and surprisingly little is known about governance and financial arrangements and about implementation strategies, which are key to effectively integrating midwifery.

Theoretical

The dissertation advances understanding of the roles of midwives within health systems through the creation of a theoretical framework. The theoretical framework is a heuristic that identifies the different types of policy levers – political and health system factors – that would be required to enhance to roles of midwives within any given health system. While a significant contribution in its own right, the framework also strengthened the work described in chapters 3 and 4. The theoretical framework was used to inform variable selection and definition for the quantitative analysis in chapter 3. Also, the political system factors from the theoretical framework were used to guide analysis in the embedded single-case study in chapter 4, which both provided the data from interviews and documents for an initial testing of the theoretical framework and supported the drawing of more robust conclusions.

Strengths and limitations

As a package, the studies presented in this dissertation have four main strengths. First, compared to other scholarship within the field of midwifery research, the studies taken together are the first to incorporate political system factors to the analytic approach and to focus on the roles of midwives at the health systems level. Research to date has tended to take a sociological approach to understanding the roles of the profession. The

use of political science frameworks helps to build a theoretical understanding of the integration process of midwifery within health systems and is applicable to other healthcare professions struggling with integration.

A second strength of the dissertation, as discussed in the methodological contributions, is the novel application of a critical interpretive synthesis combined with an exploratory network analysis. The network analysis extends the findings of the critical interpretive synthesis by using statistical measures to understand the relationships across health systems arrangements related to the roles of midwives within the health system, while identifying important conceptual gaps in the literature.

A third strength is the use of mixed methods across the three research studies. All of the methods presented in the dissertation, with the exception of the regression analyses, are the first time they have been applied to the midwifery-led care at the health system level. The mix of quantitative and qualitative research methods yields a more comprehensive and rich understanding through the application of a: 1) critical interpretive synthesis combined with an exploratory network analysis; 2) logistic regression in which results are representative of a large random sample of women in Ontario; and 3) embedded single-case study of two recent key policy directions incorporating data from qualitative interviews and document analysis.

The fourth strength of the dissertation is the interdisciplinary approach to analysis, which in addition to the range of research methods applied, yielded a deeper understanding of the political and health system drivers that influence midwives' roles. The interdisciplinary work in the dissertation is sensitive to professional concerns, health-

systems scholarship, and political-systems scholarship, and does not weight any one of these approaches in particular. The political science frameworks (Kingdon's agenda setting and the 3i+E theoretical framework) provided insights on the policy process and the factors influencing policy choices.(2; 3) In combination with political science frameworks, health systems research was applied through the use of an established taxonomy of 'health systems arrangements' and 'implementation strategies'.(5) Finally, statistical analyses through the use of cross-sectional survey data and a network analysis allowed for modeling of the factors that influence birth-experience satisfaction by healthcare provider, as well as data visualization and statistical measures of centrality on the relationships across 'health system arrangements'.

There are also three main challenges to the research studies presented in this dissertation that should be noted. First, within the international literature, there is diverse terminology used to refer to midwives, which is indicative of the lack of conceptual clarity regarding the roles of midwives and the range of health workers that contribute to the provision of midwifery services.(14; 15) There is the potential that some of the literature relevant to the roles of midwives could have been left out in the electronic searches in chapter 2. However the literature searches for the critical interpretive synthesis were carried out in consultation with a librarian with experience in midwifery research and committee members with expertise in midwifery and global health to ensure that the search strategy was as inclusive as possible.

A second limitation is selection bias in chapter 3, which uses the cross-sectional Maternity Experiences Survey.(10) Choice in healthcare provider (midwife, family

physician and obstetrician) was not random and individual preferences, risk status, and healthcare provider characteristics may have influenced the choice. The logistic regression model controlled for these factors through the following variables: age (over 35 years), parity, population size, and traveling to another community to give birth. Risk status was specifically controlled for by using the best available proxy for risk (pre-existing medical condition or health problem before pregnancy) in the survey, which is consistent with other published research that utilizes MES data.(16)

The third limitation of the dissertation is related to the recruitment of key informants for the embedded single-case study in chapter 4. While participation from key informants from both birth centres was sought, only one of the birth centres was willing to participate in the study. For the birth centre that did not participate, relevant data was collected through key informants who either: 1) held privileges at the birth centre; 2) were involved in the birth centre application process; or 3) were involved in the evaluation of the birth centre.

Implications for policy and practice

The thesis as a whole presents three main implications for policy and practice. First, policy decisions need to take into account the political system where decisions about the integration of midwives will be made as well as the nature of the health system in which they are being integrated. Only 36% of the midwifery workforce is made-up of fully trained midwives and not all countries have a dedicated midwifery workforce nor are they educated or regulated by according to international standards, which suggests that the roles of midwives are not well understood within health systems.(15) The

dissertation presents a theoretical framework that was developed through a critical interpretive synthesis, which was then used in an embedded single-case study.

Policymakers can use the theoretical framework as a tool to navigate the political and health system variables that can be leveraged to enhance to roles of midwives within any given health system.

The second implication for policy and practice relates to patient experience, as satisfaction with care is one of the three dimensions of the health system ‘triple aim’. Evidence presented on greater satisfaction with midwife-led care is an important consideration for policy makers as they seek to improve patient experience and population health, while keeping per capita costs manageable. The evidence presented on satisfaction with midwifery care is of particular relevance to health systems, such as those in Canada, where the midwifery workforce as well as the proportion of births attended by midwives is increasing over time.(17-19)

As primary care reform continues in Ontario, the third implication for policy and practice are specific to policymakers and healthcare providers within our provincial health system. Policy legacies related to payment mechanisms were the key explanatory factors that influenced policy directions in the case study analysis. Midwives lack an institutional voice in primary care policy conversations. Meetings related to primary care policy choices that have representation from physician and nursing associations should ideally not occur without midwifery associations at the table.

Future research

While the dissertation fills a number of conceptual gaps by deepening the understanding of the roles of midwives within health systems, two primary areas for future research emerged. First, there is a need to explicitly test the theoretical framework as a tool. Testing should involve a multiple-case study design for “theoretical replication” of the tool.(12) The cases would consist of at least four different health systems, with diversity in terms of country classification (high-income countries and low- and middle-income countries) and geographical distribution. Similar to the methodological approach used in chapter 4, data sources would include key informant interviews and documents (published literature and policy documents) and analysis the 3i+E theoretical framework. The multiple-case study design would allow for testing of the tool to investigate if it accurately maps the integration of midwives within the particular health system, while also identifying the appropriate political and health system levers used to increase the roles of midwives within the health system.

A second area for future research involves refining the novel methodological approach presented in chapter 2. Further testing of the critical interpretive synthesis combined with the network analysis methodology would include an analysis of the full suite of ‘health systems arrangements’, compared to the separate analyses of arrangements and implementation strategies presented in chapter 2. Treating the analysis as a whole as opposed to breaking it into separate arrangements would allow for comparisons to be made across arrangements. In addition, further testing of the methodology would also involve application to a different a research area to see if the method continues to add value. For example, testing the methodology on the roles of a

different healthcare profession (e.g., physician assistants) within the health system.

Overall this work has both filled and identified gaps important to the delivery high quality maternal and newborn care within the opportunities and constraints of political and health systems.

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