Defining health services management research priorities in primary health care: reaching consensus through the Delphi method

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This thesis is dedicated to

Sister Monique Bourget

Former *Dean of Health Management* and *Medical Director*

of ***Atenção Primária à Saúde Santa Marcelina***,

São Paulo, Brazil

for her pioneering work at Santa Marcelina,
her enthusiasm, commitment, and deep passion
for serving poor and disadvantaged populations

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Preface

Preface Regarding Thesis Format

This thesis has been written in a manuscript-based format.

Contribution of Authors

Amanda Marcinowska (AM), principal investigator and M.Sc. student, completed this thesis under the supervision of Dr. Tibor Schuster (TS) and Dr. Yves Bergevin (YB).

TS connected AM with the Brazilian partners from APS Santa Marcelina, Sr. Monique Bourget (MB), Dr. Julie Silvia Martins (JSM) and Dr. Samuel Soares-Filho (SSF). Since the initial stages of this research, close cooperation and communication with the partners was maintained through Zoom meetings and email exchanges.

AM designed the study and all study instruments under the guidance of TS and YB. JSM and SSF subsequently reviewed all study documents and helped with translation of surveys and letters to participants. AM collected and analyzed the data and wrote this thesis and manuscript.

TS helped in facilitating AM's field trip to APS Santa Marcelina, São Paulo, where AM presented the study design to the Brazilian collaborators and together with the partners discussed the feasibility of conducting this project and planned for its implementation. TS also assisted AM during the qualitative data analysis.

TS, together with YB, provided feedback on the drafts of the thesis and the manuscript.

JSM recruited potential participants, coordinated research activities at APS Santa Marcelina, and together with SSF facilitated meetings with participants including training in the formulation of research questions. Both JSM and SSF, with active presence of AM and TS, facilitated the conduction of the pilot study. JSM and SSF assisted with the translation of verbal presentations and documents into Portuguese.

AM wrote all the chapters of the thesis and the manuscript.

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List of Abbreviations and Acronyms

PHC	Primary Health Care
APS	*Atenção Primária à Saúde* or Primary Health Care (PHC)
APS Santa Marcelina	Santa Marcelina PHC
SUS	*Sistema Único de Saúde* or Unified Health System
BHU or UBS	Basic Health Unit or *Unidade Básica de Saúde*
BHUs	Basic Health Units
FHS or ESF	Family Health Strategy or *Estrategia Saúde da Familia*
WHO	World Health Organization

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ABSTRACT

Background: The demand for more effective and efficient management of healthcare institutions in Brazil is growing due to constrained resources for healthcare, continuous changes of the healthcare landscape, complexity of the system and the need to deliver higher quality of]services to communities. This places pressure on leaders and managers to adapt to the current challenges and respond to the growing demands and emerging issues. Research in health services management can support leaders and managers in their decision-making regarding the organization and delivery of high quality healthcare services. Therefore, the identification of research priorities in health services management is essential, especially where research funding is limited.

Objectives: To identify health services management research priorities within the Santa Marcelina Primary Health Care network that could lead to the improvement of the organization and management of primary health care and the delivery of healthcare services to the vulnerable populations of Eastern São Paulo.

Method: A two-round Delphi process was employed to elicit the opinion of managerial staff of the Santa Marcelina Primary Health Care network and reach a consensus on the most important areas of research within health services management. Prior to the start of the Delphi process, panelists attended an in-person meeting, during which they were informed about the study and received a survey demo, followed by a research question formulation workshop. In Round 1 of the Delphi survey, each panelist listed five research questions of importance to health services management. The Round 1 data was used to develop the Round 2 questionnaire, which was sent

to the respondents who completed Round 1. In Round 2, panelists evaluated the importance of each research question using a five-point Likert scale. The mean and standard deviation were produced for each research question as well as the consensus percentage. The validation of research questions during the future face-to-face meeting with stakeholders will constitute the final step of this project.

Results: The Delphi process had input from sixteen health services management experts. In Round 1 of the Delphi process, experts provided a total of 64 priority research questions which were subsequently compiled and organized under the following eight categories: education and training; manager profile and recruitment; primary health care team; quality of primary health care services; administrative procedures; coordination of healthcare services; healthcare management; and tools and technology. Round 2 resulted in the identification of the ten highest priority research questions, which related to comprehensive healthcare; coordination of care within the healthcare network and clinics; effective communication strategies and assistance processes; use of data of health indicators as an effective tool in care management; strategies to alleviate maternal mortality; application of Information Technology (IT) resources and other technological tools in management and monitoring; and managerial competencies.

Conclusion: This study provides a basis for future research in the area of health services management for primary health care tailored specifically to the local context of Eastern São Paulo, Brazil.

RÉSUMÉ

Contexte: La demande pour une gestion meilleure et plus efficace des établissements de santé au Brésil augmente en raison des ressources limitées pour les soins de santé, des changements continus du paysage des soins de santé, de la complexité du système et de la nécessité de fournir des services de meilleure qualité aux communautés. Cela met de la pression sur les dirigeants et les gestionnaires pour s'adapter aux défis actuels et répondre aux demandes croissantes et aux problèmes émergents. La recherche en gestion des services de santé peut aider les dirigeants et les gestionnaires dans leur prise de décision concernant l'organisation et la prestation de services de santé de haute qualité. L'identification des priorités de recherche dans la gestion des services de santé est essentielle, surtout lorsque le financement de la recherche est limité.

Objectifs: Identifier les priorités de recherche en gestion des services de santé au sein du réseau de soins de santé primaires de Santa Marcelina qui pourraient conduire à l'amélioration de l'organisation et de la gestion des soins de santé primaires et de la prestation de services de santé aux populations vulnérables de l'est de São Paulo.

Méthode: Un processus Delphi en deux étapes a été utilisé pour obtenir l'opinion des cadres du réseau de soins de santé primaires de Santa Marcelina et parvenir à un consensus sur les domaines de recherche les plus importants dans la gestion des services de santé. Avant le début du processus Delphi, les panélistes ont assisté à une réunion en personne, au cours de laquelle ils ont été informés de l'étude et ont reçu une démonstration de l'enquête, suivie d'un atelier de formulation de questions de recherche. Dans la première ronde de l'enquête Delphi, chaque panéliste a énuméré cinq questions de recherche importantes pour la gestion des services de santé. Les données de la ronde 1 ont été utilisées pour élaborer le questionnaire de la ronde 2 qui a été envoyé aux répondants qui ont rempli la ronde 1. Dans la ronde 2, les panélistes ont évalué

l'importance de chaque question de recherche en utilisant une échelle de Likert à cinq points. La moyenne et l'écart type ont été produits pour chaque question de recherche ainsi que le pourcentage de consensus. La validation des questions de recherche lors de la future rencontre en face à face avec les parties prenantes constituera la dernière étape de ce projet.

Résultats: Le processus Delphi a reçu la contribution de seize experts en gestion des services de santé. Au cours de la première phase du processus Delphi, les experts ont fourni un total de 64 questions de recherche prioritaires qui ont ensuite été compilées et organisées selon les huit catégories suivantes: éducation et formation; profil et recrutement des gestionnaires; équipe de soins de santé primaires; qualité des services de soins de santé primaires; procédures administratives; coordination des services de santé; la gestion des soins de santé; et les outils et la technologie. La deuxième ronde a permis d'identifier les dix questions de recherche les plus prioritaires, qui concernaient les domaines des soins de santé complets; coordination des soins au sein du réseau et des unités de santé; stratégies de communication et processus d'assistance efficaces; l'utilisation des données des indicateurs de santé comme outil efficace de gestion des soins; stratégies pour réduire la mortalité maternelle; l'application des ressources informatiques et d'autres outils technologiques dans la gestion et la surveillance; et compétences en gestion.

Conclusion: Cette étude fournit une base pour de futures recherches dans le domaine de la gestion des services de santé pour les soins de santé primaires spécialement adaptées au contexte local de l'est de São Paulo, au Brésil.

RESUMO

Antecedentes: A demanda por uma gestão melhor e mais eficaz das instituições de saúde no Brasil é crescente devido a recursos limitados para a saúde, mudanças contínuas no cenário da saúde, complexidade do sistema e necessidade de oferecer serviços de melhor qualidade às comunidades. Isso pressiona os líderes e gerentes a se adaptarem aos desafios atuais e a responder às crescentes demandas e questões emergentes. A pesquisa em gerenciamento de serviços de saúde pode apoiar líderes e gerentes na tomada de decisões em relação à organização e prestação de serviços de saúde de alta qualidade. A identificação de prioridades de pesquisa na gestão de serviços de saúde é essencial, especialmente quando o financiamento da pesquisa é limitado.

Objetivos: Identificar as prioridades de pesquisa em gestão de serviços de saúde na rede de atenção primária à saúde Santa Marcelina que possam levar à melhoria da organização e gestão da atenção primária à saúde e à prestação de serviços de saúde às populações vulneráveis da zona leste de São Paulo.

Método: Um processo Delphi de duas etapas foi empregado para obter a opinião da equipe gerencial da rede de atenção primária à saúde Santa Marcelina e chegar a um consenso sobre as áreas mais importantes de pesquisa na gestão de serviços de saúde. Antes do início do processo Delphi, os participantes do painel participaram de uma reunião pessoalmente, durante a qual foram informados sobre o estudo e receberam informações sobre a pesquisa, seguida de um workshop de formulação de perguntas de pesquisa. Na primeira rodada da pesquisa Delphi, cada membro do painel listou cinco questões de pesquisa importantes para a gestão dos serviços de saúde. Os dados da Rodada 1 foram utilizados para desenvolver o questionário da Rodada 2, que

foi enviado aos respondentes que completaram a Rodada 1. Na Rodada 2, os participantes avaliaram a importância de cada questão de pesquisa usando uma escala Likert de cinco pontos. A média e o desvio padrão foram calculados para cada questão de pesquisa, bem como a porcentagem de consenso. A validação das questões de pesquisa durante a futura reunião presencial com as partes interessadas constituirá a etapa final deste projeto.

Resultados: O processo Delphi teve participação de dezesseis especialistas em gerenciamento de serviços de saúde. Na primeira rodada do processo Delphi, os especialistas forneceram um total de 64 questões prioritárias de pesquisa que foram subsequentemente compiladas e organizadas nas oito categorias a seguir: educação e treinamento; perfil e recrutamento do gerente; equipe de atenção primária à saúde; qualidade dos serviços de atenção primária à saúde; procedimentos administrativos; coordenação de serviços de saúde; gestão em saúde; e ferramentas e tecnologia. A segunda rodada resultou na identificação das dez questões de pesquisa de maior prioridade, relacionadas às áreas de saúde integral; coordenação do cuidado dentro da rede e unidades de saúde; estratégias eficazes de comunicação e processos de assistência; uso de dados de indicadores de saúde como ferramenta eficaz na gestão do cuidado; estratégias para reduzir a mortalidade materna; aplicação de recursos de TI e outras ferramentas tecnológicas em gerenciamento e monitoramento; e competências gerenciais.

Conclusão: Este estudo fornece uma base para futuras pesquisas na área de gestão de serviços de saúde para atenção primária à saúde, adaptadas especificamente ao contexto local da zona leste de São Paulo, Brasil.

Chapter 1 INTRODUCTION

1.1 BACKGROUND

Over the last three decades, the health system in Brazil has been facing dynamic changes, including reforms in the reorganization of the healthcare system that led to improvements in healthcare provision and reduced inequalities (Barreto et al., 2014; Massuda et al., 2018), but also incurred challenges with the implementation of new polices, health strategies and integrated health services for the entire population (Massuda et al., 2018; Vargas et al., 2015).

Similarly to the trends observed in health systems globally (Budrevičiūtė et al., 2018; Figueroa et al., 2019; Glassman et al., 2018), the Brazilian healthcare system became increasingly complex, forcing healthcare administrators and health service managers to adapt to its complexity, dynamic changes, and growing demands for the delivery of high quality, effective and cost-efficient care in order to satisfy the increasing population needs (Lega et al., 2013; Robinson et al., 2019; Unger et al., 2003).

The pressure to improve leadership and management of health services is also on the rise (Barreto et al., 2014; Figueroa et al., 2019), especially in the face of the changing healthcare landscape, and the need for delivery of comprehensive and integrated services to overcome the fragmentation of the existing health system (Castro et al., 2019). The adoption of the new model of care, which emphasizes prevention of diseases, requires the undertaking of a new approach to the concept of health and disease, implementing new strategies, and cooperating with multiple agents in the provision of care.

The complexity of the Brazilian health system arises from many factors: demographic shifts, societal changes and epidemiological transitions that put pressure on the healthcare system to

implement new delivery models or make modifications in the provision of healthcare; need for more effective programs and interventions to combat existing, emerging and re-emerging diseases; growing demands for high quality care from the varied socioeconomic status population; increasing pressure for expertise, higher competency standards and better education of the healthcare workforce due to the growing scientific knowledge and technological advances requiring more skillful workers; and demand for better training and development of interpersonal skills among health workers in light of the need for interdisciplinary collaboration and cooperation within health networks. The complexity of the healthcare system in the Brazilian context also has another dimension: the urgent need to reduce profound health inequalities throughout regions and municipalities with varied socioeconomic indices and disease patterns.

Health services research can provide healthcare managers with the scientific knowledge necessary to deal with the myriad of issues and complexity of the healthcare system. Research in health services management can support leaders and managers in their decision-making in regards to the organization and delivery of high quality healthcare services (Schafer et al., 2011).

Consulting scientific evidence is vital for today's professional practice in healthcare management and should complement managerial experience, organizational data, goals and values when making decisions (Guo et al., 2017).

Scarce resources for the provision of primary health care (PHC) in Brazil (Massuda et al., 2018) and for health services management research call for conducting studies that focus on the most pressing needs (Schafer et al., 2011). Identifying research priorities is helpful in defining the

crucial areas for research. Addressing identified areas of need through research can increase the evidence-base and lead to the implementation of solutions that can overcome existing challenges and contribute to the advancement of PHC (Orlandin et al., 2017).

Although Brazil has established national research agendas, they are not specific to PHC (Orlandin et al., 2017) which has distinct research needs (Lau et al., 2016). Furthermore, the advancement of healthcare in resource-limited regions requires evidence that is relevant to the local context (Zicker et al., 2018). This is vital since there are discrepancies in health inequalities and healthcare needs between Brazilian regions and within municipalities (Massuda et al., 2018; Brant et al., 2017; Brazil Collaborators, 2018).

Few studies have identified research priorities for PHC in Brazil (Gregório et al., 2012; Orlandin et al., 2017). One of the studies set priorities for mental health research in PHC (Gregório et al., 2012) and indicated the need for evaluation of healthcare services and policies in order to reduce inequities and increase access to healthcare services (Gregório et al., 2012). In another study, Orlandin and colleagues (2017) identified research priorities for PHC in the state of São Paulo. The findings revealed multiple problems that hinder effective functioning of PHC in this region and identified the existence of research needs in management organization, training and professional development of managers and health professionals, cooperation between healthcare teams and computerization of resources (Orlandin et al., 2017). While these studies defined PHC research priorities in Brazil, none specifically identified priorities for health services management, whose decisions and work effectiveness affect the performance and functioning of the PHC system.

Involving health services managers in setting priorities is paramount for eliciting opinions about the most urgent research needs in their area of work. Health services managers can constitute experts in a Delphi process and can fill the knowledge gap by providing the foundation for future research in this area (Rubenstein et al., 2020). The Delphi method has been recognized as an optimal technique for obtaining the opinion of experts on a particular topic, especially when the aim is to identify priorities (Keeney et al., 2011).

1.2 PURPOSE AND AIMS OF THE STUDY

Using the International Participatory Research Framework (Pinto et al., 2011), the purpose of this study was to actively engage and empower local stakeholders (health administrators and managers of the Santa Marcelina PHC network) throughout the research process and involve them in setting priorities for health services research, in order to build health research capacity and promote research and development in health services management for Eastern São Paulo, Brazil.

The primary aim was to reach consensus on research priorities for health services management in the field of PHC for the underserved regions of Eastern São Paulo using the Delphi method combined with face-to-face meetings.

The secondary aim was to ensure the sustainability of the research partnership between the McGill University Department of Family Medicine and the Santa Marcelina PHC network through providing research direction for future Santa Marcelina-McGill University projects to address the PHC needs of the Eastern Region of São Paulo.

1.3 RESEARCH QUESTION

The study investigates the following question: What are the top ten priority research questions in health services management that should be addressed through research according to healthcare managers and administrators of the Santa Marcelina PHC network in Eastern São Paulo, Brazil?

1.4 STUDY SETTING: THE SANTA MARCELINA PRIMARY HEALTH CARE NETWORK

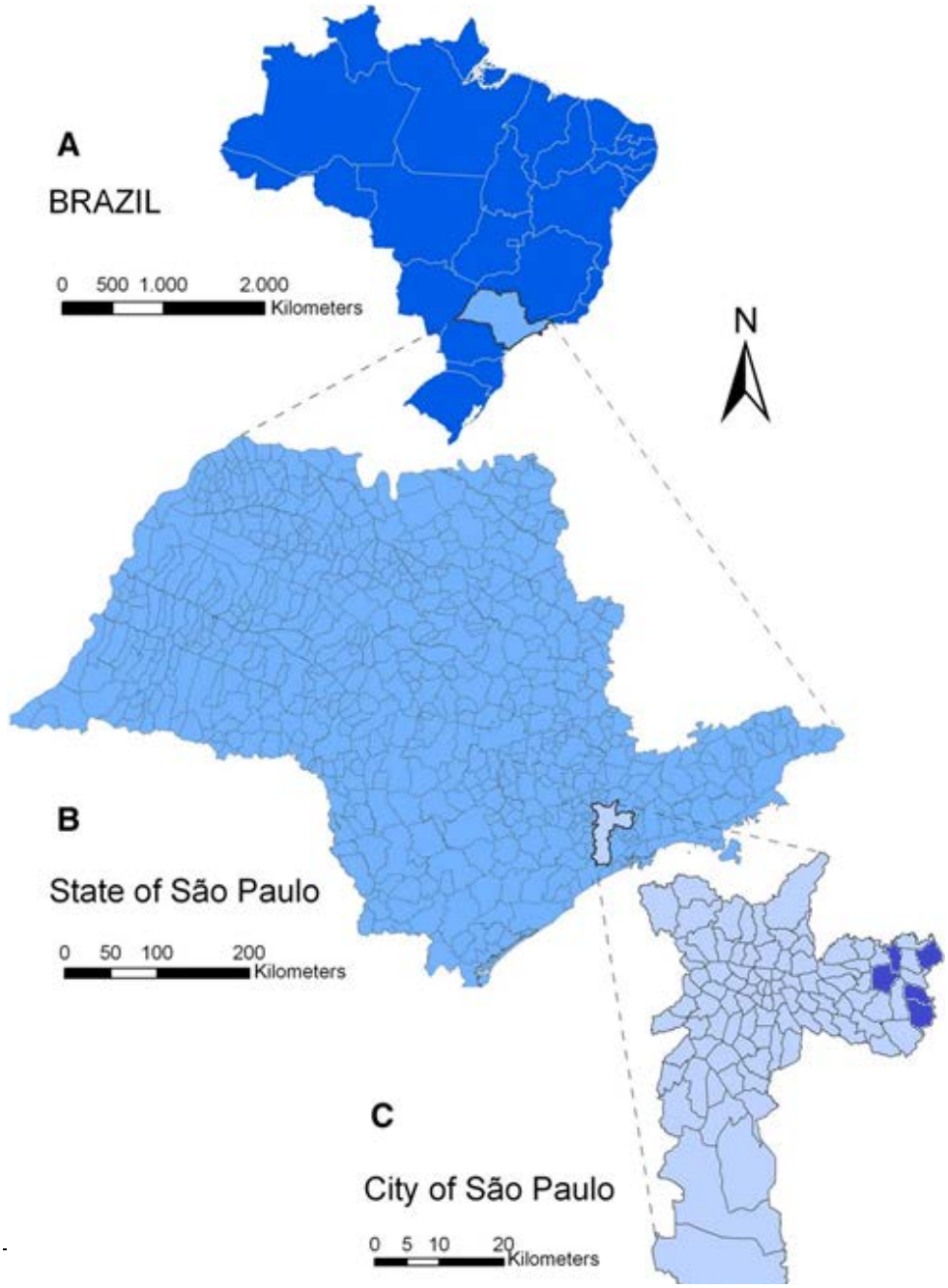
The Santa Marcelina Primary Health Care network (*Atenção Primária à Saúde Santa Marcelina*, *APS Santa Marcelina*) has been in operation since 1996 in the Eastern Region of São Paulo, Brazil and serves over 1.8 million people in five subprefectures: Itaim Paulista, Itaquera, Cidade Tiradentes, Guaianases and São Miguel Paulista (Figure 1-1).

The network provides 146 primary health care services through: Basic Health Units (BHUs) within the Family Health Strategy (FHS); Traditional BHUs; Ambulatory Medical Assistance (AMAs); Specialized Outpatient Clinics; Emergency Rooms; Integrated Rehabilitation Centers; Psychosocial Care Centers; Mental Health Centers; Centers for Elderly; Health Programs for People with Disabilities; Dental Specialties Centers; Therapeutic Residence; and home care assistance (APS Santa Marcelina Serviços; da Silva et al., 2018).

The Santa Marcelina PHC network employs over 260 doctors, 240 nurses, 1,200 community health workers and hundreds of other allied health professionals in its 104 community clinics (Ji, 2019). 255 family health teams work within 50 BHUs, as a part of the main PHC model of Brazil, the Family Health Strategy (The APS Santa Marcelina. Área do Gestor).

Figure 1-1

Study setting: Itaim Paulista, Itaquera, Cidade Tiradentes, Guaianases and São Miguel Paulista within the Eastern region of the City of São Paulo in the State of São Paulo, Brazil



Source: Adapted from Bando et al. (2012). Suicide rates and income in São Paulo and Brazil: a temporal and spatial epidemiologic analysis from 1996 to 2008

1.5. PARTNERSHIP

The McGill University Department of Family Medicine established a research partnership with the Santa Marcelina PHC network in cooperation with the Santa Marcelina Research Capacity Building Group in order to increase the research capacity in Eastern São Paulo with the overall aim to advance PHC in this region. This is one of the initiatives that are conducted in close cooperation between McGill University researchers involving graduate students and the Santa Marcelina PHC network. This study constitutes a first part of a larger project that aims to identify research priorities for PHC in the underserved areas of Eastern São Paulo.

1.6. OVERVIEW OF THE THESIS

The remainder of this thesis is organized as follows:

Chapter 2 contains a relevant literature review to describe a broader context in which this study takes place and introduces the basic concepts related to the organization of the Brazilian PHC model, functions and role of managers within a healthcare organization, followed by a description of the function and challenges of health services management in the Brazilian context. The chapter ends with a discussion of the role of health services management research and the importance of setting research priorities in this field.

Chapter 3 describes the research methodology including background information on the method used and its suitability to define the research priorities for health services management, then describes the participatory approach implemented in this study. The chapter also presents the detailed study design and describes the knowledge translation plan.

Chapter 4 is written in the form of a manuscript, which contains background information and pertinent information about the research approach and method implemented in this study, information about the participants and study procedure, including the pilot study. The second part of manuscript presents the main research findings, followed by the analysis of results in relation to the literature in the global and Brazilian context, then the main methodological limitations and conclusion remarks.

Chapter 5 summarizes the study and discusses the themes and their topics, making inferences to the existing body of knowledge. This chapter also analyzes strengths and limitations of the study and implications of the study findings. The thesis concludes with a summary of the main points, implications of this research for PHC organization and health services management as well as suggestions for future work.

Chapter 2 LITERATURE REVIEW

This chapter is composed of five subsections. Subsection 2.1 describes the history, principles, achievements and challenges of the Brazilian public healthcare system. Subsection 2.2 introduces the concept of the healthcare network. Subsection 2.3 describes the comprehensive PHC model in Brazil. Subsection 2.4 introduces and defines the concept of healthcare system management and leadership, then presents the functions and competencies of managers, followed by the description of the role of health services management in the Brazilian context and its challenges. The last subsection of this chapter highlights the role of health services research and the importance of setting research priorities in this scientific research area.

2.1 SUS: THE BRAZILIAN PUBLIC HEALTHCARE SYSTEM

Over the last three decades, Brazil has undergone tremendous reforms in the organization of healthcare system, aiming to provide comprehensive and universal care (Paim et al., 2011). The Constitution of 1988 (Brazil, 1988) established '*health as a fundamental right'* and mandated the State to deliver health for all through the provision of the Unified Health System (*Sistema Único de Saúde,* SUS), which was created in 1988 and regulated by Laws 8080/90 and 8142/90 (Castro et al, 2019).

The Standard Operating Base of the SUS, introduced in 1993, initiated the process of decentralization by defining the responsibilities of three levels of government (federal, state and municipal) and forms of funding (de Arruda Leite & Carneiro, 2015). As such, the Ministry of Health became responsible for formulating national public health polices, while the role of states

and municipalities was to implement them. In regards to financing, the Constitutional Amendment of 2000 (*Emenda Constitucional 29*) established that the SUS must be financed by three levels of government and social contributions (Couttolenc et al., 2013). State and municipal governments have been required to pay a minimum of 12% and 15% of their tax revenue, respectively, while the federal government funding became dependent on the gross domestic product growth (Castro et al., 2019), which for example, in 2017, accounted for 15% of net revenue. However, the *Constitutional Amendment 95*, passed in 2016, limited the federal healthcare spending to the 2017 amount for the next twenty years (Castro et al., 2019).

The municipalities were granted autonomy to distribute the resources and implement healthcare services within their boundaries (Coelho et al., 2017). Indeed, the SUS now operates in a decentralized manner with the provision of services allocated to the municipal government. Responsibility for the overall direction is with the federal government, which together with the state governments, oversee the health system and support the SUS financially. Both, the Ministry of Health at the federal level and the state health secretariats, take lead roles. The management of healthcare services and execution of all the health programs is the responsibility of the municipal level, which has power to allocate the resources based on local needs (Macinko et al., 2015).

The SUS currently provides services to approximately 162 million people of Brazil's population of 209 million (Massuda et al., 2018) and operates based on ethical and doctrinal principles, and organizational principles (de Lima, 2013).

The ethical and doctrinal principles include: *universality*, providing free of charge access to health services; *integrality,* ensuring a full range of preventive and treatment services; and *equity,* guaranteeing equality in service provision regardless of SUS users' level of income. The organizational principles include: *regionalization and the establishment of hierarchy* in order to address each region's needs; *political and administrative decentralization*, in order to shift power to the municipal level; and *democratic community participation*, which entails the inclusion of community representatives (health councils at different levels of the SUS) (de Lima, 2013).

The SUS aims to deliver comprehensive, preventive and curative health services to all citizens, ensuring continuity of care at the community and hospital levels (Macinko & Harris, 2015; Macinko & Lima Costa, 2012; Paim et al., 2011).

The establishment of the SUS changed the traditional healthcare model towards comprehensive PHC services (Castro et al., 2019) with its main strategy, the Family Health Program (*Programa Saúde da Família*), renamed in 1994 to the Family Health Strategy (FHS) (*Estratégia Saúde da Família, ESF*). This strategy aimed to provide prevention and delivery of basic health services at the family/community level, through the use of interdisciplinary healthcare teams, composed of a physician, a nurse, at least one nurse assistant, and up to 12 community health workers (Ministério da Saúde, 2015). Each FHS team is assigned a geographically defined area, called *territory,* and serves as a gateway to the healthcare system for its population (Peres, 2006).

FHS teams are responsible for the provision of services to communities within their spatial boundaries and conduct monthly visits to better familiarize with their needs, detect problems,

promote good health habits and develop awareness of publicly available health services (Brentani et al., 2016).

This approach allowed for inclusion of a large segment of poor and disadvantaged populations by reaching remote and underserved areas (Macinko et al, 2012; Macinko & Harris, 2015). It was also a shift from the *centralized model of care,* concentrated on hospitals (biomedical approach and specialized care provided on demand) towards the *decentralized model,* which promotes health and prevention of diseases at the community level with PHC as the main access point to healthcare (Ferrer et al., 2016).

SUS Achievements and Challenges

Family health teams became the pillar of PHC (Castro et al., 2019). Major expansion of the FHS took place over the last two decades; revealed through a number of deployed FHS teams in Brazil from about 2000 in 1998 to 42 975 in 2018 (Castro et al., 2019) and increased coverage of basic healthcare services from 7 million (4% of the population) to 130 million people (62% of the population) (Castro et al., 2019).

The main focus was on the delivery of healthcare services to the poorest communities first (Macinko et al, 2012; Macinko & Harris, 2015). Indeed, since the year 1994, the poor areas of the North and Northeast of Brazil and small towns were prioritized. From the year 2000 onwards, the program expanded to towns on the outskirts of metropolitan areas and small municipalities. This led to the greater deployment of the FHS in municipalities with a low Human Development Index, which takes into consideration three dimensions: life expectancy,

access to education and standard of living (Roser, 2014). As a result, in 2004, high coverage was observed in the Brazilian Northeast (55%), mid-West (41%) and South (38%) regions, while much lower coverage in the North (34%), and Southeast regions (30%) (dos Reis Moreira & O'Dwyer, 2013). Furthermore, the Southeast region experienced the least growth in coverage, despite the phase of the program's expansion (dos Reis Moreira & O'Dwyer, 2013).

Expansion of PHC coverage has led to a decrease in the under the five and neonatal mortality rates due to diarrheal disease and lower respiratory tract infections (Aquino et al., 2009; Macinko et al., 2006; Macinko et al., 2007).

A large body of literature documents achievements in the reduction of morbidity and mortality (Rasella et al, 2014), decline in complications from some chronic diseases and hospitalization rates (Bastos et al., 2017; Ceccon et al., 2014; Dourado et al., 2010; Macinko et al., 2010) and improvements in health outcomes (Andrade et al., 2018; Rasella et al., 2014) after the FHS was deployed. Evidence also suggests that the expansion of the FHS reduced inequities in access to care (Macinko & Harris, 2015), decreasing healthcare inequities (Mullachery et al., 2014).

Increased immunization coverage led to reductions in vaccine-preventable diseases (e.g. pertussis, measles), and eradication of some diseases (e.g. poliovirus, neonatal tetanus, rubella) (Teixeira et al., 2018). It also brought success in decreasing mortality rates due to vaccine-preventable diseases, especially measles (Teixeira et al., 2018).

While expanded access to healthcare services led to the reduction of inequalities in the population health indicators (Ministério da Saúde, 2008), disparities between municipalities still exist, especially in access to effective health services (Franca et al., 2016; Facchini et al., 2008), available infrastructure, human resources and management capacity (Castro et al., 2019). The quality of services also varies, depending on staff qualifications, available equipment, and access to specialized services provided to the public (Moraes dos Santos et al, 2019).

In 2013, the More Doctors program (*Programa Mais Medicos*) was initiated to combat the shortage of physicians especially within the dynamic expanding FHS in remote areas (Castro et al., 2019; Macinko & Harris, 2015). Approximately 18 000 doctors' positions were added within 4058 municipalities, expanding coverage to about 20 million people, and subsequently increasing the quality of care in these areas (Castro et al., 2019; Santos et al, 2017). The program however was cancelled in the year 2018, leaving a substantial number of vacant positions.

Fulfillment of the SUS agenda has been hindered by many additional organizational and financial challenges.

The SUS, since its inception, has been underfunded (Castro et al., 2019). A large discrepancy has been profound between the financing of the public and private sectors. The SUS serves 70% of Brazil's population and receives only 47% of the total health expenditure, while private services receive 53% in funding, who take care of only 30% of the population (Coelho et al., 2017). Moreover, despite the growing needs of this sector to sustain the progress in the reduction of health inequalities and regional disparities, funding for the system was further restricted by

Constitutional Amendment 95, introduced in the year 2016, which imposed an austerity measure limiting expenditure for healthcare up to the year 2036 (Castro et al., 2019).

The performance of the SUS is also threatened by many other factors, including the migration of people from rural to urban areas, leading to uncontrolled and unorganized urbanization and development of municipalities with poor and unsafe housing and limited infrastructure (Barreto et al., 2014; Castro et al., 2019).

Brazil also observed large demographic changes resulting from increased life expectancy and reduced fertility (Castro et al., 2019). Over the last forty years, life expectancy had a 40% increase and the elderly population doubled (Zitkus & Libanio, 2019). Existing trends predict that Brazil's population of elders may grow to be among the largest in the world by the year 2025 (Zitkus & Libanio, 2019). This significantly affects the Brazilian healthcare system, especially that older adults are a group of the population predominantly affected by non-communicable diseases (NCDs). NCDs are also a major cause of mortality and morbidity (Schmidt et al., 2011).

In addition, the triple burden of disease: increased NCDs, infectious diseases and external causes (mainly accidents and homicides), creates a large challenge for the already weak and underfunded Brazilian healthcare system (Machado & Silva, 2019; Ribeiro et al, 2016).

Fragmentation and segmentation of healthcare systems are prevalent in low- and middle-income countries (LMICs) and Brazil in this matter remains no different (Juliani et al., 2017; Pasternak,

2018). Fragmented healthcare systems are characterized by the existence of isolated points of care, with lack of coordination and communication between primary, secondary and tertiary care (Mendes, 2011). Fragmentation of healthcare services hinders continuity of care (Mendes, 2011) and is one of the barriers for the development of comprehensive/integrative services, affecting health outcomes (Vargas et al., 2015).

2.2 HEALTHCARE NETWORKS

In attempt to address health inequalities and eliminate segmentation and fragmentation within the healthcare system, Brazil pursued the implementation of healthcare networks, which could enhance the coordination of care and cooperation between managers, healthcare professionals and communities (de Arruda Leite & Carneiro, 2015) and ensure *integrality*, *universality* and *equity* of healthcare to meet the needs of the Brazilian population (Ministério da Saúde, 2012).

Healthcare networks are composed of a network of organizations, defined as*: "a set of actions and health services, articulated at levels of increasing complexity, with the aim of ensuring the integral delivery of healthcare"* (Presidência da República 2011, as cited in Vargas, 2015, p.708).

The advantage of healthcare networks also lies in the fact that they can integrate preventive and curative medicine delivered at the entry level by PHC, with secondary care offered within outpatient clinics, and tertiary care provided by hospitals. According to Mendes (2011):

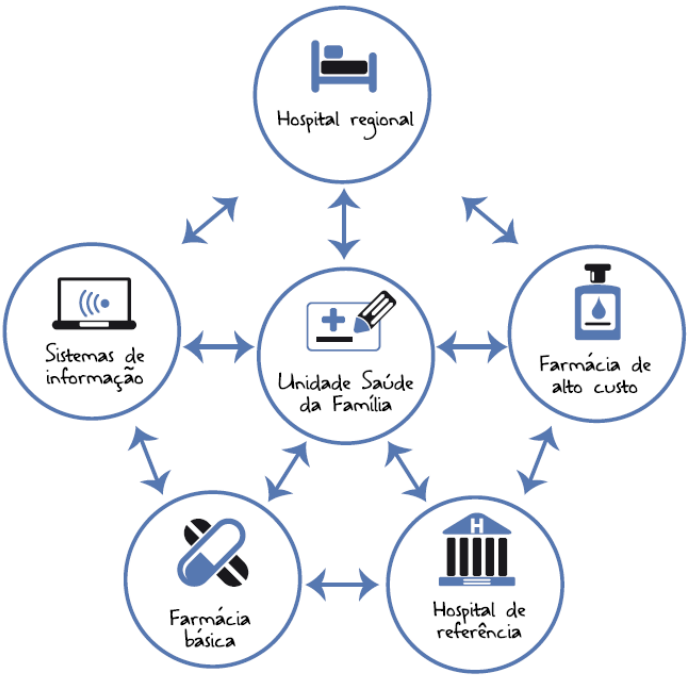
> healthcare networks are polyarchic organizations of sets of health services, linked together by common objectives and by a cooperative and interdependent action, which allow to offer continuous and integral care to a determined population if assistance is

provided at the right time, in the right place, at the right cost, with the right quality, in a humane and safe way and with equity. (p. 84)

Figure 2-1 presents a polyarchic organization of healthcare networks.

Figure 2-1.

Polyarchic organization of healthcare networks



Source: Ministério da Saúde et al. (2012). Redes de Atenção à Saúde no Sistema Único de Saúde

The concept of healthcare networks was coined in the year 1920 and first described in the *Dawson Report* (Dawson, 1964), however it was not until the 1990s that integrated healthcare systems started to be implemented in the United States, followed by some of the European countries (de Arruda Leite & Carneiro, 2015). Positive effects, achieved by other countries in integrating their healthcare system after implementing networks, were encouraging for Brazil to

follow this path. This required subdividing the healthcare system into *'health regions'* and defining the *networks' target populations* (de Arruda Leite & Carneiro, 2015). Indeed, soon after the decentralization of the healthcare system, the pressure for regionalization of services grew, which resulted in the creation of health regions as well as micro-regions in 2001 (Ministério da Saúde, 2001; de Arruda Leite & Carneiro, 2015).

Adhering to the 1988 *Constitution,* healthcare services were initially organized in regional hierarchical networks, meaning that following *Act 8080/90,* municipalities, in cooperation with states, became responsible for the planning and organization of healthcare networks, ensuring delivery of primary care to their communities and access to secondary and tertiary levels of care through negotiating the delivery of these services with other municipalities (Vargas et al., 2015).

The Brazilian Ministry of Health document "*Health Pact*" (*'Pacto pela saude'*) (Ministério da Saúde, 2006) emphasized further the need for regionalization of the healthcare system and integration of services through healthcare networks (de Arruda Leite & Carneiro, 2015). Subsequently, *Ordinance 4.279* (Ministério da Saúde, 2010), published in 2010, highlighted the organization of the healthcare networks, defining them as "*organizational arrangements, actions, and health services to be integrated by technical, logistical, and management support systems, seeking to ensure comprehensive care*" (de Arruda Leite & Carneiro, 2015, p.101). These two documents, together with *Decree 7508* in 2011, led to the establishment of new guidelines regarding the organization of healthcare networks (Vargas et al., 2015).

Within the next few years, a new model of care in networks has been gradually constructed and developed, including implementation of thematic networks, such as the Psychosocial Care

Network, Mental Health Network, Emergency Care Network, Elderly Health Network, Stork Network, Women's Health Network, among others (de Arruda Leite & Carneiro, 2015).

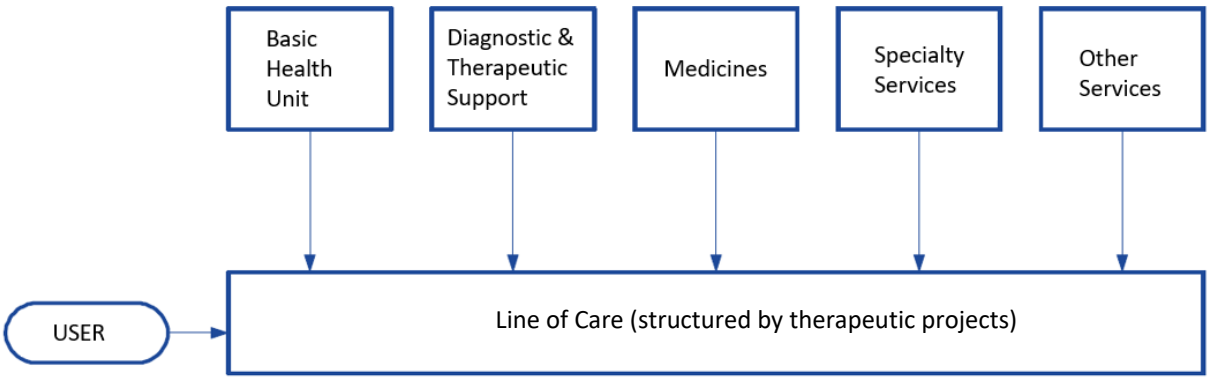
To efficiently manage these networks, *Lines of Care* (LC) were created (Franco and Magalães, 2004), such as the Mental Line of Care, Pregnant and Postpartum Line of Care, Children's Health Line of Care, Diabetes Line of Care, Arterial Hypertension Line of Care, Trauma Care Line of Care, among others (Ministério da Saúde 2010; de Arruda Leite & Carneiro, 2015). LC are:

> form[s] of joint resources and production practices among health care units in a given region for timely, responsive, and unique treatment of users by way of diagnosis and therapy. The goal is to coordinate care along the continuum and the connectivity of roles and tasks of different professionals and points of attention. The implementation of the LC occurs from the Primary Health Units, which have responsibility for care coordination and management of the network. (de Arruda Leite & Carneiro 2015 p.102)

Figure 2-2 presents the operational structure of a Line of Care.

Figure 2-2

Operational structure of a Line of Care-organization of assistance at each point in the service network



Source: Adapted from Franco & Magalhães (2004). Integralidade na assistência à saude – a organizacão das linhas do cuidado

The implementation of each Line of Care involved preparation of a *Clinical Guidance Manual* and *Care Line Manual*, which specified the organization of the user flow in the health unit and in the service network (Sala, 2016).

Organization of health services based on networks is beneficial for health professionals as well as the communities they serve, as it allows for better coordination of services, referrals, and counter-referrals, sharing of data and information within each network, and addressing health problems of communities in a more efficient way. Integrated services allow managers and other actors involved to effectively use information systems and improve provided services (Shortell et al., 1993). Integrated healthcare systems have been found to be successful in ensuring continuity of care (Pointer et al., 1997; Wan et al., 2002); integration of outpatient and hospital services (Micaleff, 2000); improved integrated information and logistics systems (Warner, 2001); active control of flows under a single management (Sunol et al., 1999; Warner 2001); better focus on patient and community needs (Warner 2001); and the strengthening of PHC (Griffith, 1997).

However, successful integration of services between health units and clinics, and across varied levels of healthcare (primary, secondary and tertiary) requires investment in infrastructure and good organization, qualified professionals, efficient work processes (Ramos & Rosa, n.d.), systematic information and knowledge management (Juliani et al., 2017). It is also pivotal that healthcare models and networks were linked to the users and were organized in a way to meet the population's growing needs (Ramos & Rosa, n.d.; Juliani et al., 2017).

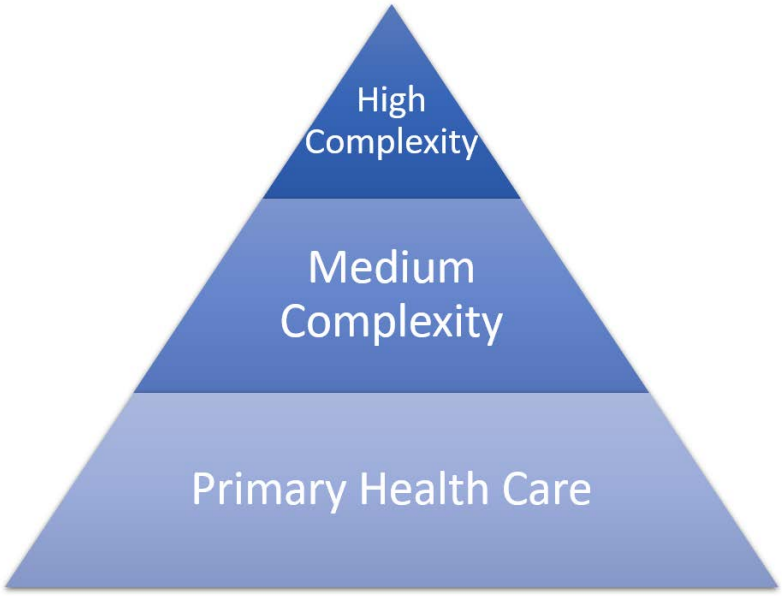
2.3 BRAZIL'S PRIMARY HEALTH CARE MODEL

The shift from the hierarchical model to the polyarchic model

Since the conception of the SUS in 1994, the PHC model has been evolving. The initial SUS *hierarchical model* consisted of three levels: primary health care, responsible for the provision of basic care services; medium complexity level; and high complexity level (figure 2-1).

Figure 2-3.

SUS: Hierarchical Levels of Care



Source: Adapted from Mendes (2011). As redes de atenção à saúde. Brasília: Organização Pan Americana da Saúde.

Each category had a different role in the system and its own network of facilities (Table 2-1).

Table 2-1.

SUS: Characteristics of Levels of Care

	Characteristics	Role
Primary Health Care network	The UBS (the primary health care unit) counts on generalist health workers. The core of this network is the Family Health Strategy (FHS)	This level is responsible for health promotion, preventive healthcare, diagnosis and treatment of 85% more common diseases and conditions and for referring patients requiring specialized care to the remaining networks
Medium-complexity network	Health facilities count on professionals with specialization in cardiology, endocrinology, nephrology, and orthopedics, among others	This level is responsible for specialized treatment and some minor surgery procedures
High-complexity network	Hospital Centers count on a team of professionals with a higher degree of specialization such as neurosurgery or pediatric, oncology, etc.	This level is responsible for the most complex health cases that need invasive treatments, such as chemotherapy and surgery procedures

Source: Adapted from Coelho et al. (2017). Voices from Cidade Tiradentes, São Paulo, Brazil' in the Shaping Health programme on Learning from international experience on approaches to community power, participation and decision-making in health, Brazilian Centre for Analysis and Planning: TARSC

PHC became the entry level to the Brazilian healthcare system, focusing mostly on preventive medicine and health promotion, and defined as:

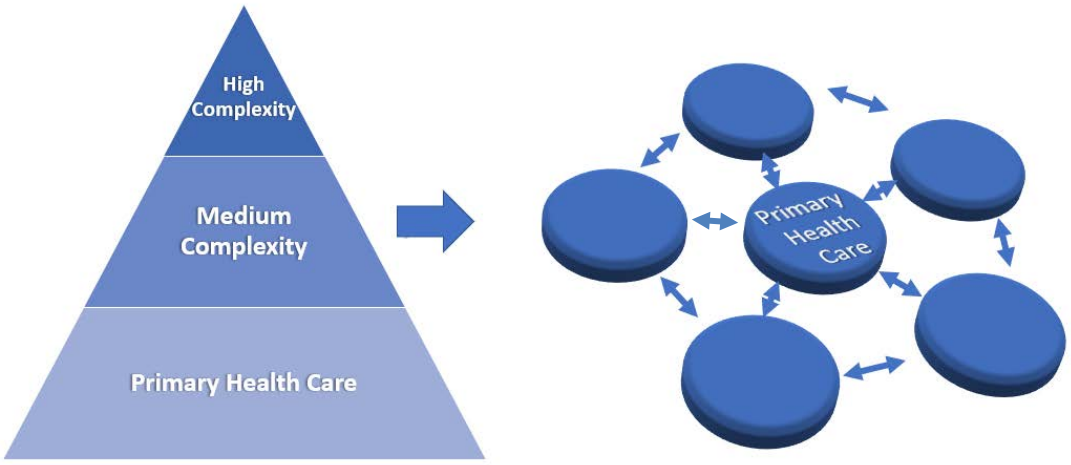
> the set of actions of health, individual and collective, which includes the promotion and protection of health, disease prevention, diagnosis, treatment, rehabilitation and health maintenance. It is developed through the exercise of management and sanitary democratic and participatory practices, through teamwork, driven to populations of well defined territories, for which it is bared the responsibility for health, considering the dynamics existing in the territory in which these people live; the uses of high complexity and low density technologies, which should solve the health problems

> of greater frequency and relevance in their territory (…). It is guided by the principles of universality, accessibility and coordination of care, bond and continuity, comprehensiveness, accountability, humanization, equity and social participation. PHC considers the subject in its uniqueness, complexity, and completeness in the socio-cultural integration and seeks health promotion, prevention and treatment of diseases and harm reduction or suffering that may compromise their ability to live healthily. (Ministério da Saúde, 2006 b, as cited in Baratieri, 2013, para 4)

As mentioned in Subsection 2.2 of this chapter, *Ordinance No. 4, 279/2010* (Ministério da Saúde, 2010) instituted *horizontal healthcare networks* within the scope of the SUS because the *hierarchical model* proved to be fragmented. The creation of horizontal networks became important in order to promote the integration of health actions and services and ensure provision of comprehensive and continuous care, following the principles and guidelines of the SUS (Ministério da Saúde et al., 2012). This led to the shift in the model of PHC in Brazil, from the *hierarchical system* toward the *polyarchic healthcare network* (Figure 2-4).

Figure 2-4.

Shift from the fragmented hierarchical system to horizontal polyarchic healthcare networks



Adapted from Mendes (2011). As redes de atenção à saúde. Organização Pan Americana da Saúde

The following six characteristics became inherent to this new conceptual network matrix (Ministério da Saúde et al. 2012):

i) *Horizontal relationship between points of care* – venues where healthcare is provided. Unlike the pyramidal model, which categorized the complexity of each level of care, the horizontal healthcare network has no hierarchy among the points of care. The polyarchic network guarantees a continuum of services within a horizontal network of different *levels of attention*, which possess different technological densities, where each of these points is equally important and accessible to fulfill users' needs (e.g. an emergency room and a specialty center);

ii) *PHC as a communication center* – PHC is not only the main gateway to the healthcare system but also the main venue which coordinates all of the activities and services between all points of care in the network and the flow of information, maintaining constant contact with the user, who transfers between other points of care;

iii) *Plans and organized actions* must be according to the health needs of a specific population, based on the assessment of the needs in the catchment area of each PHC team and takes into consideration the social determinants of health. The actions must be based on scientific evidence;

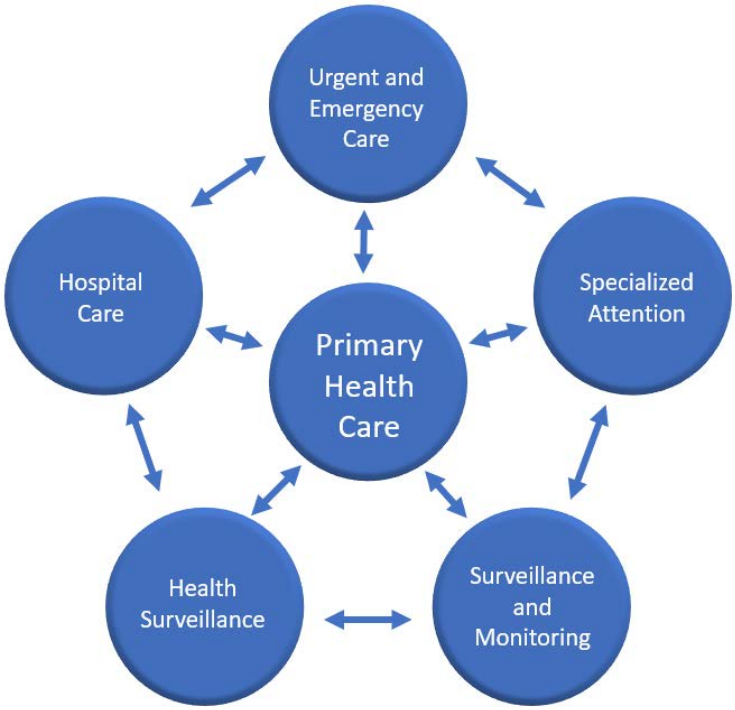
iv) *Integrated services* must ensure *comprehensive* and *continuous care* to users. PHC can manage and solve the majority of health issues and must maintain continuity of care across different levels of care;

v) Multi-professional care must be provided by a *multidisciplinary team,* since health problems are multi-causal and complex, therefore, need different professional perspectives to ensure proper management. Sharing of knowledge and co-responsibility of health practices among multi-professionals is important;

vi) *Each health team must specify objectives* and be committed to fulfill them; for instance health/sanitary objectives (e.g. greater and better service to the population) and economic objectives (e.g. better allocation of human, technological and financial resources) in order to generate high-quality, cost-efficient care for the population (Ministério da Saúde et al. 2012).

Figure 2-5.

Horizontal polyarchic healthcare network



Source: Adapted from Ramos & Rosa (n.d.). Planejamento e Gestao de Serviçeos de Saúde

The horizontal polyarchic healthcare network is formed by *points of attention* and links between them that integrate different types of services (Ministério da Saúde et al., 2012). PHC has a central role in structuring the network, coordinating flows and counter-flows of care (Ministério da Saúde et al., 2012). In the network, PHC provides health services and coordinates with other points of care, including secondary and tertiary healthcare venues where more specialized health services are offered. Hospitals include several points of care, such as outpatient clinics, outpatient surgery units, surgical centers, maternity wards, and intensive care units. Specialized

centers may offer services such as specific types of dental care, HIV/AIDS counseling, and rehabilitation services.

Since PHC must address socio-epidemiological needs of the served population, organization of services and programming of actions must be based on data derived from a health surveillance system (Santos et al., 2019). A continuous process of monitoring is necessary to assess implemented actions and polices and plan strategies to improve services (Santos et al., 2019). The healthcare network is complemented by diagnostic and therapeutic support systems, pharmaceutical assistance, telecare and health information systems (Secretaria de Estado da Saúde, 2017).

The differences between the hierarchical and polyarchic model is described in Table 2-2.

Table 2-2.

Differences between the hierarchical model and polyarchic model of PHC

FEATURE	FRAGMENTED SYSTEM	HEALTH CARE NETWORK
Form of organization	Hierarchy	Polyarchy
Coordination of care	Non-existent	Made by primary health care
Communication between components	Non-existent	Made by effective logistics systems
Focus	In acute conditions using emergency care units	In acute and chronic conditions through a health care network
Goals	Partial objectives of different services and unmeasured results	Objectives for improving the health of a population with measured clinical and economic results
Population	Aimed at isolated individuals	Aimed at an enrolled population stratified by risk sub-populations and under the responsibility of a health care network

Subject	Patient receiving prescriptions from healthcare professionals	Agent co-responsible for own health
The form of the system's action	Reactive and episodic, triggered by user demand	Proactive and continuous, based on the care plan of each user, carried out jointly by the professionals and the user
Emphasis on healing and rehabilitations on established conditions	Reactive and episodic, triggered by user's demand	Promotional, preventive, curative, caregiving, rehabilitating or palliative, acting on intermediary and proximal social determinants of health and on established health conditions
Health care model	Fragmented by health care point, without risk stratification and focused on the established health conditions	Integrated, with risk stratification, and focused on intermediary and proximal health determinants and on established health conditions
Management model	Management by isolated structures (hospital management, PHC management, management of specialized clinics, etc.)	Systemic governance that integrates PHC, health care points, support systems and network logistics systems
Planning	Offer planning, based on historical services and defined by the interests of providers	Needs planning, defined by the situation of the health conditions of the enrolled population and their values and preferences
Emphasis of care	Professional care centered on professionals, especially doctors	Collaborative care provided by multi-professional teams and users and their families, with an emphasis on supported self-care
Clinical knowledge and action	Focused on professionals, especially doctors	Shared by multi-professional teams and users
Information technology	Fragmented, unaffordable and with low capillarity in the components of the health care	Integrated from the identity card of users and electronic medical records and articulated in all components of the health care network
Territorial organization	Political-administrative territories defined by a political logic	Health territories defined by the health flows of the population in search of attention

Financing system	Financing by procedures at isolated health care points	Financing by global value or by capitation of the entire network
Social participation	Passive social participation and the community seen as caregiver	Active social participation through health councils with a presence in network governance

Source: Adapted from Mendes (2011). As redes de atenção à saúde. Brasília: Organização Pan Americana da Saúde.

Different thematic networks (e.g. maternal, mental health, psychosocial etc.) can be created and developed within the municipalities. Regardless of the type of thematic network, PHC takes on a central role as the *coordinating center*. Indeed, different healthcare networks can be found within the Brazilian municipalities and states depending on the regional needs. However, regardless of region, networks must consider the prevalent burden of NCDs. For this reason, healthcare models must ensure attention not only to acute conditions, but also to chronic conditions in creation of the healthcare networks (Mendes, 2011).

Attributes of PHC

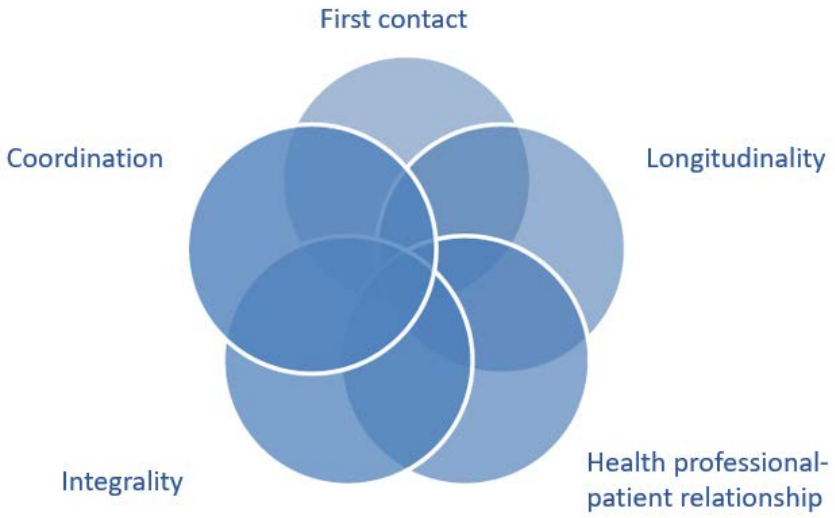
In the reformulated version of the *National Primary Care Policy* (2011), PHC was defined as:

> a set of health actions, at the individual and collective level, which covers health promotion and protection, disease prevention, diagnosis, treatment, rehabilitation, harm reduction and health maintenance with the objective to develop comprehensive care that impacts the health and autonomy of people and the determinants and health conditions of communities (...). It should be the users' preferred contact, the main gateway and communication center of the health care network. (Ministério da Saúde, 2011)

Brazilian PHC is based on five fundamental attributes: first contact, longitudinality, comprehensiveness/integrality, coordination and health professional-patient relationship (Figure 2-6).

Figure 2-6.

Fundamental attributes of primary health care



Source: Adapted from Sala, A. (2016). Atenção Básica: organização do trabalho na perspectiva da longitudinalidade e da coordenação do cuidado. Secretaria de Estado da Saúde, São Paulo

First contact refers to the basic care, which is accessible to everyone who seeks healthcare services. Longitudinality denotes continuity of care and referrals to more complex levels of care if needed. Longitudinality also promises the reliance on long-term care through establishing bonds with health professionals and using health resources over an extended period of time at the primary health care level. Comprehensiveness of care implies the population's biological, psychological and social needs can be addressed through a range of services including preventive, curative, rehabilitative, and palliative care. The coordination attribute relates to "deliberate organization of patient care activities" (McDonald et al., 2014, p. 6) and involves

integration between all points of care within the network and between all levels of healthcare system (de Figueiredo et al., 2017); as well as communication and exchange of information between all partners involved in this process, including patients. In the process of continuity of care, coordination of healthcare resources and positive interpersonal relationships and trust between healthcare professionals and patients are paramount.

The Basic Health Units and role of healthcare teams

PHC is provided by Basic Health Units (BHUs) (*Unidades Básicas de Saúde,* UBS), otherwise known as community-based PHC clinics or centers.

BHUs, under the FHS model, offer a wide range of services to communities. Each BHU covers a defined geographic area (health territory), providing basic services to 20,000–40,000 individuals. Each BHU zone is divided into multiple macro-areas, assigned to FHS teams, and on average seven FHS teams are associated with each of the BHUs. Each FHS team is assigned to a spatially demarcated population of 800-1000 families, equating to about 4000 community members (dos Santos et al., 2016).

Each FHS team, composed of a doctor, a nurse, at least one nurse assistant, and a few community health workers, provides longitudinal care to all community members in the designated geographical area by counseling families and providing advice, sanitary education, health promotion and prevention of diseases; providing immunization and health surveillance; and overseeing the recovery process and patients' adherence to treatment. FHS teams also arrange doctors' appointments, coordinate care and referral processes with other clinics and

hospitals and link their patients to social programs and public health campaigns (dos Santos et al., 2016; Macinko & Harris, 2015).

Each community health worker is responsible for an assigned micro-area (the smallest territorial unit) and conducts monthly home visits in their catchment area, which is comprised of 150 households (Macinko & Harris, 2015).

To extend the scope of offered services, some of the BHUs include groups of allied health professionals, namely Family Health Support Units (*Núcleo de Apoio à Saúde da Família*) which may consist of professions from different disciplines, for instance a psychologist, physiotherapist, speech therapist, social worker, and nutritionist (Macinko & Harris, 2015; Souza & Calvo, 2018). These groups of allied professionals work in cooperation with FHS teams, supporting the work of FHS teams in their catchment areas, and expanding health practices, ultimately improving healthcare services and management of BHUs and the FHS (dos Reis Moreira & O'Dwyer, 2013).

The composition of a BHU depends on the needs of the community and the technical and educational support needs of the FHS (Souza & Calvo, 2018).

2.4. MANAGEMENT OF THE PRIMARY HEALTH CARE SYSTEM

2.4.1 Management and leadership in healthcare

The role of the healthcare manager becomes increasingly complicated due to the increasing complexity of the healthcare organization. *"Complexity refers to the number of subsystems within an organization and is measured in terms of hierarchical degree, number of departments across an organization, and number of geographical locations" (*Awowale, 2017; p. 8). Complexity is further emphasized by the existence of "*multiple vertical and horizontal interconnections*" (p. 308), which are characteristic for healthcare networks, in addition to *"a high level of formal control coupled with a high degree of individual professional autonomy and influence"* (Vainieri et al. 2019; p. 308).

The terms *management, administration,* and *leadership* are often used interchangeably, despite being distinct.

Sheldon (2019) associates the term *administration* with the "*function of industry concerned in the determination of corporate policy, the co-ordination of finance, production, and distribution, the settlement of the compass of the organization, and the ultimate control of the executive*", (p.32), while *management* with the *"function in industry concerned in the execution of policy, within the limits set up by administration, and the employment of the organization for the particular objects set before it*" (p. 32).

In this context, the position of an *administrator* is associated with the top executive level, having policy-making and decision-making power, while a *manager* is responsible for the implementation of the policy and guiding an organization upon a shared vision and mission, towards achieving mutually agreed upon goals and objectives of the organization.

According to Buchbinder and Shanks (2017), an *administrator* (senior executive or director), has to ensure that *managers* "*have the knowledge and skills to provide effective leadership to achieve desired levels of organizational performance"* (p.41).

The term *leadership* here implies the importance of possessing special aptitudes which are necessary for a leader to set direction for change. Goodwin (2006) similarly expressed his view of a leader as someone who is implementing a vision for future change, by defining leadership as *"a dynamic process of pursuing a vision for change, in which the leader is supported by two main groups: followers within the leader's organization, and influential players and other organizations in the leader's wider, external environment*" (p. 22).

The need for strong management and leadership in the healthcare industry is paramount. Moreover, it becomes crucial that a manager of a healthcare organization is also a good leader. Healthcare system managers are needed to provide leadership and direction to staff to ensure that each division, department, or health unit is working in the best possible way for patients to receive timely, high-quality care. They must ensure a high level of institutional performance and efficient use of resources (Buchbinder and Shanks, 2017). Furthermore, effective leadership is vital "*to address changes essential for implementation of integrated primary care"* (Nieuwboer et al., 2019). Managerial leadership has been recognized as a foundation for coordinated care and integrated healthcare services (Sfantou et al., 2017), necessary for directing interprofessional teams towards organizational goals (Nieuwboer et al., 2019), ensuring high quality of care and strengthening of the healthcare system (Sfantou et al., 2017).

According to Thompson (2007), there are two main domains that influence healthcare management work: external domain and internal domain (Table 2-3).

Table 2-3.

Domains of Health Services Administration

External	**Internal**
Community demographics	Staffing
Licensure	Budgeting
Accreditation	Quality services
Regulations	Patient satisfaction
Stakeholder demands	Physician relations
Competitors	Financial performance
Medicare and Medicaid	Technology acquisition
Managed care organizations/insurers	New service development

Source: Thompson, J. M. (2007). Health services administration. In S. Chisolm (Ed.), *The health professions: Trends and opportunities in U.S. health care* (pp. 357–372). Sudbury, MA: Jones and Bartlett.

The external domain is comprised of all factors outside the organization that affect the functioning of the healthcare institution and managerial work. These include community demographics and needs, epidemiological changes, governmental policies, legislations and regulations, licenses and accreditations, competitors, governmental funding, reimbursements from insurance companies. The internal domain includes internal factors that affect the work of managers, but where the manager has some control. These include budgeting, number of health workers and their qualifications, staff relations, patient satisfaction, and quality of services (Thompson, 2007).

Different tasks and responsibilities are associated with managerial positions on varied levels of the hierarchy. According to Buchbinder and Shanks (2017) "*the hierarchy of management means that authority, or power, is delegated downward in the organization, and lower-level managers have less authority than higher-level managers" (p.34).*

Managers in a complex organization, such as healthcare, occupy positions within the varied hierarchy levels: upper, middle, and lower levels. As such, a manager at the upper level (director, administrator, senior manager) makes top decisions and takes responsibility for the overall functioning of the healthcare organization, while a service line manager takes control over the organization of a specific division, department or clinic (i.e. cardiology, physiotherapy) and does planning, budgeting and oversees staff performance, among other responsibilities. A service line management model has been found effective in many healthcare facilities including clinical services, and was linked to better quality of services, higher patient satisfaction and lower costs (Duffy & Lemieux, 1995; Buchbinder and Shanks, 2017). The lower level of the hierarchy is occupied by unit management (team management). Managers at this level manage teams to ensure work is completed effectively (Buchbinder & Shanks, 2017).

Regardless of the hierarchy level, managers are expected to carry out the management functions to ensure effective provision of high-quality healthcare services to the population they serve. This requires planning, organizing, and controlling various types of activities in order to provide services in a safe and efficient manner. In this process, healthcare managers have to cooperate with authorities and other managerial staff, employees and healthcare users and create an environment aimed at fulfilling the institutional goals and objectives.

"Goals and objectives are desired end points for activity and reflect strategic and operational directions for the organization. They are specific, measurable, meaningful, and time oriented" (Buchbinder and Shanks, 2017; p. 39). Each unit's goals and objectives need to reflect the organization's needs and expectations since they work collaboratively towards the organization's mission (Buchbinder & Shanks, 2017).

The main function of a healthcare organization is the provision of healthcare services, therefore, the PHC sector should strive to deliver high-quality services to the populations they serve.

As described in Chapter 1 and mentioned at the beginning of Chapter 2, the managerial position within the health organization becomes more challenging because of the increasing complexity of the healthcare system and growing demands for better quality, cost-effective and efficient, and a more sophisticated healthcare system, which should satisfy patient and community needs. It is crucial to understand healthcare managers' roles and duties. The next subsection will describe the fundamental roles of the manager and competencies which are needed to efficiently perform the managerial role.

2.4.2 Fundamentals of the managerial role: functions and competencies

Managerial functions

Longest et al. (2000) describe six fundamental functions that each manager performs: planning, organizing, staffing, controlling, directing, and decision-making.

Planning involves assessing what needs to be accomplished and determining what the priorities and targets are. This function also involves setting directions. Determining tasks and assigning roles and teamwork assignments within the specific unit, division, or provision of service are critical components of the organizing function. Staffing involves hiring and implementing strategies to maintain a sufficient workforce. Controlling is associated with monitoring and assessing employees work and taking correctional actions in order to improve their performance. Directing refers to taking on leadership, motivating subordinates and effectively communicating with them. Finally, critical to all the above described functions is decision-making, which needs to be made based on a cost-benefit analysis of alternative options (Longest et al, 2000).

Dunn (2006) asserts that the following five functions of managers: planning, organizing, staffing, influencing, and controlling, form the management cycle and each of these functions affects the performance of the other functions because they are interrelated. According to Dunn (2006), planning constitutes the main function as it involves not only setting goals and objectives but also formulating strategies and a framework within the all other functions can be performed; the managerial organizing function involves division of work and assigning tasks to subordinates, while the staffing function involves selecting and hiring people.

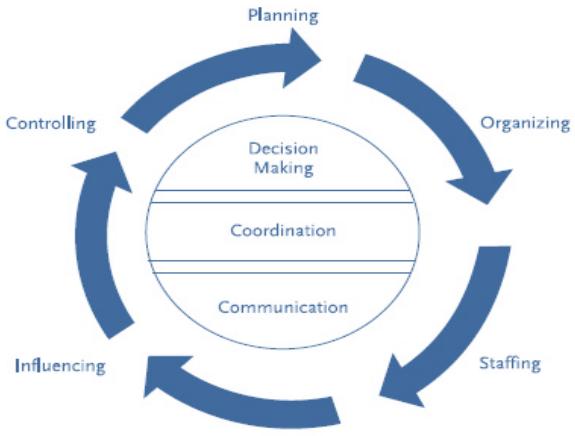
Dunn (2006) puts a strong emphasis on the managerial influencing function. This function is associated with leading and directing staff in performing orders in ways that motivate them and encourage them to develop their abilities and reach their potential in order to accomplish tasks for achieving best results. According to Dunn (2006), *"through the influencing function, the supervisor seeks to model performance expectations and create a climate conducive to employee satisfaction while achieving the objectives of the institution"* (p. 17).

The function of controlling is closely related to planning, since the role of the manager involves reflecting on the assigned plans, goals and objectives, while determining progress, fulfillments and shortcomings. According to Dunn (2006), all the functions are closely interrelated and blend together.

The management cycle (Figure 2-7) represents a system of interdependent functions and processes, where the three processes (decision-making, coordination, and communication) complement the five managerial functions (planning, organizing, staffing, influencing and controlling). Even though these functions are distinct in theory, in practice they blend together and the output of each function gives input to other (Dunn, 2006).

Figure 2-7.

Cycle of supervisory functions



Source: Dunn (2006). Haimann's Healthcare Management Health Administration Press, Chicago, Illinois.

Decision-making processes are the core of each managerial job and an essential part of all functions since decision-making must be exercised while performing all managerial functions (Dunn, 2006). According to Dunn (2006), decision-making is "*the process of selecting one*

alternative from a number of other alternatives" (p. 41). This process can be influenced by many factors, including internal/organizational factors (other staff, departments, goals of organization etc.) or external factors (governmental requirements, technology, economy, politics etc.) (Dunn, 2006). The categories of factors listed by Dunn (2006) corroborate with Thomson's (2007) external and internal domains, described in the first subsection of this chapter.

Highly complex organizations like healthcare, characterized by the existence of multiple specialized units and departments, require extensive coordination of activities and services to ensure smooth transitions and referral of patients between units and high standards of medical expertise and specialized care. This however creates more pressure on health management towards synchronizing channels of communication, sharing data and resources, and linking together activities to achieve desired goals. The manager is involved in the process of coordinating all activities while performing each of the managerial functions (Dunn, 2006).

The third process on the managerial cycle is communication, which links all the managerial functions and constitutes the most effective tool for transmission of messages within the health organization, using formal and informal channels (Dunn, 2006).

Managerial competencies

To carry out the functions effectively, managers should possess a wide range of competencies (Dunn, 2006). Competency refers to "*a state in which an individual has the requisite or adequate ability or qualities to perform certain functions*" (Buchbinder & Shanks, 2017; p.33).

The key competencies of effective managers identified by scholars, like Katz (1974), Dunn (2006) and Buchbinder & Shanks (2017) can be classified into the three categories: conceptual, interpersonal and technical. Conceptual skills enable a manager to critically analyze encountered

problems or situations and find the best solution to solve them (Buchbinder & Shanks, 2017). Interpersonal skills are human relation skills, which enable effective communication with others within the organization, regardless of the hierarchy level. Technical skills represent expertise in a specific area and are different depending on the health unit, clinic or department.

In summary, the management role has many functions which are interdependent and blend together. A successful healthcare manager also needs to possess conceptual, interpersonal and technical skills. The next section will describe the role of health services management within the PHC model in Brazil, followed by the challenges faced by health services management in Brazil.

2.4.3 HEALTH SERVICES MANAGEMENT IN THE BRAZILIAN CONTEXT

The creation of the SUS led to the formulation of ordinances, basic operational rules, program guiding documents and other recommendations needed for the implementation of the FHS and development of BHUs by the Ministry of Health. *Laws No. 8080* and *8142* of 1990 defined the philosophical, doctrinal and operational bases related to health services in Brazil and management in PHC (Ramos & Rosa, n. d.). Furthermore, *Law No. 8142*, enacted in 1990, highlighted the important role of social participation, including in all spheres of management of the SUS (Flávia et al., 2016).

Ordinance No. 2488 of 2011 redefined the role and functioning of PHC, and the duties of all professionals who compose the FHS team. Guidelines and standards for the organization of PHC for the FHS and the Community Health Agent Program (*PACS*) were established including the

guides for the structure of work processes of professionals and services provided by PHC (Ramos & Rosa, n. d.).

Health management in Brazil involves "*the management of networks, healthcare public spheres, hospitals, laboratories, clinics and other institutions and healthcare services"* (Lorenzetti et al., 2014). Management of public health services in PHC is anchored to principles and guidelines set by the SUS and follows the municipal government plan, programs and strategies.

Flávia and colleagues (2016) assert that there are two spheres in which health management in Brazil takes place: the political and the technical. The political area relates to:

> the exercise of management aimed at the public interest and the realization of health as a right of citizenship. The technical performance is based on the formulation of policies and planning of actions, on the financing of the system, and on the coordination, regulation, control, evaluation of services and direct provision. (Flávia et al., 2016 para 2)

After the enactment of *Ordinance No. 2488* of 2011, the role of health management was further emphasized in the implementation of programs, evaluation of their effectiveness and assessment of health actions undertaken with the aim of improving quality of care and provision of services in order to meet population needs (Flávia et al., 2016).

An integrated management vision, teamwork, and cooperation with other staff, community and supportive organizations are at the core of the health services management position within the healthcare network.

In order to deliver quality services to the population, health services management needs to work in close cooperation with health professionals and other workers at the service delivery level as well as community members. Managers need to be supportive for health professionals working in multidisciplinary teams, ensuring equal treatment and appreciation for each contribution. This means managers, health professionals, and community health agents must value each other's work and observations, and closely collaborate to create collective solutions to address the difficulties encountered in the workplace and in their territory, through sharing experiences and learning together, while still maintaining the maximum autonomy for each professional (Ramos & Rosa, n. d.).

Communication serves a fundamental role in carrying out group activities and in the formulation of action plans, and is a central component which articulates the entire work system (Flávia et al., 2016). The manager is expected to adopt situational leadership by considering the needs of all staff and addressing difficult situations in the work environment; encouraging dialogue between all parties involved, including community members; and collaborating towards fulfilling shared goals.

The work of health services management should be carried out horizontally and must be based on teamwork (Ramos & Rosa, n. d.). Cooperation with other workers and agents in the network should lead to the production of high-quality services. According to Ramos & Rosa (n. d.) three important structural elements in this context are *people, sensitivity* and *dynamics*. Managers, in collaboration with other health workers, must be able to identify and address population needs. This requires possessing a high level of sensitivity to community needs; prompt assessment of an

epidemiological situation in the territory and health needs of the population in a defined health area; and taking appropriate steps addressing community needs. Managers must be aware of the dynamics of each situation, and must be open for change. This often requires getting out of their "*comfort zone*" and being proactive (Ramos & Rosa, n. d.).

According to Ramos & Rosa (n. d.) the work of managerial staff '*must be dynamic enough'* to

> suit the needs of people in their catchment area; to implement changes in care networks and proper strategies at different levels of health management; to adopt new health technologies; and to respond in a timely and appropriate way to rapid situations, such as epidemics or environmental disasters. (p. 6)

The manager also needs to collaborate with agents from other sectors, in order to address intersectoral issues and cooperatively work to solve them.

Intrasectoral actions (comprehensive network assistance) and intersectoral actions (cooperation with other sectors) are an important part of the work of health professionals and managers (Bezerra & Guerriero, 2019). Intersectoral (also called cross-sectoral) actions require collaborative work in planning and addressing local issues with other sectors, including education, housing, social assistance, public security (dos Reis Moreira & O'Dwyer, 2013).

PHC in the Brazilian context prefers the *horizontal model* of management as opposed to rigid management structures, typical for *vertical hierarchies* (top-bottom), with *centralized decision-making processes* and little or no possibility for workers to participate in the decision-making process (Ramos, n. d.). Ramos and Rosa (n. d.) assert that "*the experience in UBS management*

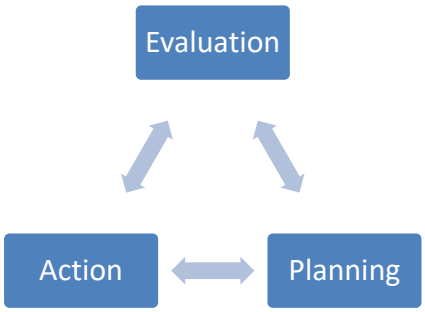
has shown that the organization of the work process does not work if it is hierarchized, centralized and prescriptive" (p.35). Furthermore,

> a fragmented, vertical and authoritarian organization, centered on the productivity of actions and on the control and compliance with administrative rules, promotes the alienation of the professional" who subsequently "is not involved in the care process as a whole, tending not to be responsible for the final objective of the intervention itself, thus compromising the result of the action. (Ramos, n. d., p.41)

In the Brazilian PHC model, a good working environment means *a collective construction* (Ramos & Rosa, n. d.). In this model, both healthcare workers and users participate in the creation of internal flows and work strategies; and plan and prioritize actions that need to be undertaken (Ramos & Rosa, n. d.). This process consists of three fundamental phases: evaluation, planning and action (Figure 2-8) and these actions repeat (Ramos & Rosa, n. d.).

Figure 2-8.

Work process



Source: Adapted from Ramos & Rosa (n. d.). Planejamento e Gestão de Serviços de Saúde

Such a collective construction empowers and motivates people (Ramos & Rosa, n. d.). It also allows for sharing of responsibilities. The management role is to design a form of intervention,

and define goals and deadlines agreed upon with health teams and community representatives through the participation process (Ramos, n. d., p. 45).

Studies conducted in Brazil highlight the importance of collaborative dialogue (Arnold & Silva, 2014) and transparency in sharing action plans with the professionals and communities (Flávia et al., 2016), as a lack collective work hinders information flow, doesn't take into consideration the multiple facets of users' health needs and doesn't align with the proposal set by PHC (Flávia et al., 2016).

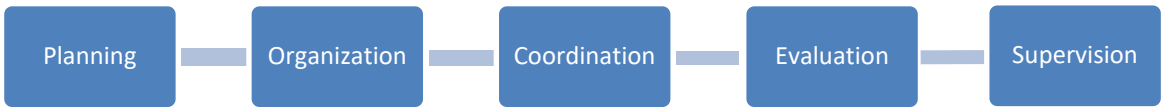
Negotiation between all parties involved plays an important role for the better understanding of each situation encountered in their health district, supporting decision-making. The negotiation, defined as a "*dynamic process in which agreements can be constantly renewed, as the problem-solving skills and capacities are expanded"* (Ramos, n. d., p.46) allows for making collective agreements, which is essential in participatory and integrated management (Ramos, n. d.). This helps identify obstacles and difficulties and determine the path by redefining strategies to achieve the established goals (Ramos, n. d.).

The management of healthcare services and healthcare professionals must involve the organization of *work processes* to produce actions of high-quality, aligned with the recommendations of policies, strategies and programs, and local needs (Ramos & Rosa, n. d.). The health work process is understood as a *"microscopic dimension of the daily work in health, that is, the practice of health workers/professionals inserted in the daily production and consumption of health services*" (Peduzzi and Schraiber, 2009, p 323).

Figure 2-9 presents the managerial daily actions and functions.

Figure 2-9.

Management actions and functions



Source: Adapted from Ramos & Grigoletto (n. d.). Gestão de serviços de saúde

The *National Primary Care Policy* (2011) defined the responsibilities of the different levels of SUS management. Among the various aspects addressed are: the importance of the strengthening of the FHS as a priority modality in the organization of PHC in Brazil; the defining of health plans, priorities, goals and strategies for the organization PHC; the use of Information Systems in planning, monitoring and evaluation of PHC; providing education of the teams' workforce; and encouraging community participation (Ramos & Grigoletto, n. d.).

To meet challenges associated with the growing demands for better quality healthcare services, the manager also needs to be actively involved in the cooperative work with agents involved in provision of services at other points of care (clinics, hospitals, etc.) of healthcare networks, as well as the governmental and non-governmental organizations, health councils, politicians, funders and insurance companies.

Challenges of health services management

While *Ordinance No. 2488* of 2011 contributed towards re-defining the role of PHC and reconstructing the model of care in Brazil, creating a path for the development of an integrated, horizontal and participatory model of management in PHC, in practice health services management faces many challenges with its full implementation and the rigid, vertical management structures still prevail in many healthcare settings (Ramos, n. d.). Furthermore, according to Ramos (n. d.), additional entities, such as Coordination, Supervisions, Health Districts, and Technical areas, implemented in recent years in large municipalities, although necessary, made the health management even more bureaucratic. The development of new strategies for health management based on cooperative work with multidisciplinary teams within the participatory paradigm remains a challenge (Lorenzetti et al., 2014).

The literature identifies weaknesses in the managerial workforce, especially insufficient training, lack of professionalism, and difficulties of separating from the hierarchical traditional model (Lorenzetti et al., 2014). As a result, healthcare management in Brazil still does not have sufficient capacity and does not always adequately respond to demands associated with the reoriented healthcare system (Peres, 2006), thus does not meet the needs of the integrative model of PHC (Lorenzetti et al., 2014). The high turnover of managers is also very concerning. In addition to these challenges, management faces pressure from communities, who express dissatisfaction from healthcare services (Lorenzetti et al., 2014).

2.5 HEALTH SERVICES MANAGEMENT RESEARCH

It was mentioned in previous chapters that managers possess an important role of managing healthcare facilities and are responsible for ensuring their smooth operation and delivery of high quality health services to populations. Decisions they make affect the overall effectiveness of healthcare organizations in many dimensions, including users' satisfaction, improved population health outcomes, efficient use of human and financial resources, effectiveness of implemented strategies and health programs, staff training and competency level of health workers, among others. In order to efficiently manage any healthcare organization, health network or clinic, managers need to have appropriate knowledge and resources.

As such, strong research evidence is needed not only in clinical practice, but also when making decisions in regards to assessing the effectiveness of implemented health services, programs and interventions, or when planning for efficient use of resources. Evidence-based management should be a vital component of health services management practice.

Evidence-based management was coined in the late 1990s and was derived from the concept of "evidence-based medicine" (Guo et al., 2017). Evidence-based management is defined as "*the systematic application of the best available evidence to management decision-making, aimed at improving the performance of healthcare organizations"* (Janati, et al., 2018, p. 306).

The adoption of evidence-based management in the practice of administrators is much slower than evidence-based medicine in clinical practice (Walshe & Rundall, 2001), however, is gradually getting attention, as can be observed by the number of journals in the field of health management (i.e. Journal of Healthcare Management; Health Services Management Research;

Journal of Public Health Management & Practice; International Journal of Health Planning and Management; Human Resources for Research) and growing volume of publications.

The field of health services research can support evidence-based management by providing managers with knowledge and implementable evidence in regards to effective use of strategies to strengthen the healthcare system and enable efficient delivery of health services (Robinson et al., 2019).

Health services research is often defined as:

> the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately […] health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations. (Lohr & Steinwachs, 2002, p.16)

The range of domains in health services research reveals the wide spectrum of this field, which draws on theories from a variety of disciplines, including social and behavioral sciences, psychology, sociology, epidemiology, biostatistics, medicine, nursing, health economics, political science and anthropology (Robinson et al., 2019; Wan, 2002).

Scholars in health services management in Brazil often explored concepts related to the organization of health services within the BHUs and the FHS (Carvalho et al., 2014), human resources, hiring process, contracts and procurement, administration practices, work process, and

users' perspectives (Ravioli et al., 2018). In the area of health system's management, topics often explored were regulations, financing, participatory management, and evaluation of services (Santos & Teixeira, 2016). Much more scarce is the research related to health services management models in Brazil, mostly with non-conclusive results from comparative analysis of the co-existing modalities within the healthcare networks and their impact on the organization and functioning of the integrated healthcare system (Ravioli et al., 2018).

While researchers mostly assess healthcare governance, health services, and performance of health professionals and managers, studies which aim to identify priorities for health services research are non-existent in Brazil. Given the fact that funding for health research is very limited, setting priorities becomes essential, to ensure allocation of resources to the most important issues (Schafer, 2011). This is of utmost importance in Brazil, in light of growing demands for better quality of healthcare services and pressure for effective management of the public healthcare system (Lorenzetti et al., 2014) to ensure the delivery of comprehensive PHC.

This chapter presented the context in which the study took place, defining and explaining basic concepts relating to the comprehensive PHC model in Brazil and the role and function of health services managers within healthcare networks. The significance of evidence-based management in decision-making was highlighted. Lastly, the importance of setting research priorities in health services management was explained. The next chapter will describe the research methodology implemented in this project and the method, which allowed defining the top research priorities for health services management in the Eastern area of São Paulo.

Chapter 3 METHODOLOGY

The research methodology chapter comprises the following subsections:

Subsection 3.1 describes the method implemented in this study and explains its appropriateness for this research; Subsection 3.2 presents the study design describing in detail the four phases of this project; Subsection 3.3 describes the participatory approach adopted for this research; Subsection 3.4 contains details about the knowledge translation and dissemination.

3.1 METHOD

3.1.1 The Delphi Method

The Delphi method is a structured group communication process (Hung et al., 2008) for attaining reliable consensus (Dalkey & Helmer, 1963) on a particular topic that has uncertainty, insufficient empirical evidence (Daim et al., 2013; Powell, 2003) or absences a proper theoretical foundation (Helmer, 1967). The method is designed to address an incomplete state of knowledge that experienced persons can overcome (Keegan, 2000). A group or 'panel' of experts uses their intuitive judgment and knowledge (Ieroncig, 1983) throughout the process toward a common goal. The use of experts as panelists enables the decision-making process to be based on substantial relevant knowledge and experiences (Daim et al., 2013).

Panelists work independently, providing their individual opinions (Meijering and Tobi, 2014), yet collaboratively, collectively reviewing and assessing each panelists opinion, to achieve a unified vision. It's based on the premise that collective group opinion is more valid and reliable than individual opinion (De Villiers et al., 2005; Glasper & Rees, 2016; Keeney et al., 2011).

The core principles underpinning the Delphi method include (1) iteration; (2) anonymity of responses; (3) controlled opinion feedback; and (4) statistical aggregation of group response (Humphrey-Murto et al., 2020; Skulmoski et al., 2007).

The Delphi process involves a series of iterations which are facilitated by a principal researcher who collects and consolidates the panelists opinions (Daim et al., 2013). The iterations are in the form of sequential 'rounds' of data collection. There is a minimum of two survey rounds in the process (Meijering & Tobi, 2016). The initial survey round is an exploratory phase which stimulates idea generation through an open-ended question (Skulmoski et al., 2007). Subsequent survey rounds build on the responses of the prior round through having panelists reflect and provide their independent quantitative judgments on the other panelists' opinions (Armstrong, 2001).

Panelists do not interact directly with other panel members (Guzys et al., 2015) when providing their opinions and judgments. Panelists respond to survey questions independently and their responses are anonymized before being presented to the rest of the panel, ensuring the provenance of individual responses is not known to panelists. Only the principal researcher can associate responses with individual participants.

At the commencement of each subsequent Delphi round after the initial round, the researcher provides controlled opinion feedback to panelists, which informs them about the other panelists' opinions (Daim et al., 2013) from the previous round.

The individual opinions are statistically aggregated by the researcher at the completion of the final round and as a whole form the collective group opinion (Dalkey, 1969; Keegan, 2000) on the topic under study which can be analyzed and interpreted (Skulmoski et al., 2007).

3.1.2 Appropriateness of method for the study

The Delphi technique has proven to be useful in defining managerial priorities (Okoli & Pawlowski, 2004), exploring specific issues in health services research (Jones and Hunter, 1995), and is widely used in setting research priorities in the healthcare sector (Keeney et al., 2011; Schneider et al., 2016).

An area as broad as health services management in primary health care can have a wide range of questions that require research. Considering limited research resources, involving knowledgeable stakeholders in the prioritization of questions for future research is an effective and efficient approach.

The Delphi method is inclusive of various perspectives (Wolf, 2019). The broad nature of health services management in primary health care warrants an approach that fosters diversity of opinion. Furthermore, the Delphi method has been proven to be superior to other structured group techniques and result in more accurate opinions (Daim et al., 2013). This method provides participants with an opportunity to deliberate and reflect upon an issue, which may lead to responses with greater thought and consideration than other structured group techniques (IGI Global, 2017).

The anonymous nature of the Delphi method provides participants with an equal opportunity to express their opinions (Gnatzy et al., 2011). It eliminates the potential for the opinions of socially assertive or high-status individuals to be imposed on others (Garson, 2014), which is considerably important in healthcare where there are tiered levels of power (Walker & Selfe, 1996). It also avoids the biasing effects of “groupthink” and conformity that can occur when participants interact directly (Daim et al., 2013; Fletcher & Marchildon, 2014; Garson, 2014; Kloker et al., 2016). In addition, the Delphi method allows for the collection of expert opinion

and for providing dialog between experts in an anonymous way, even when they know each other or work together. The quasi-anonymity (Keeney et al., 2011) is pivotal for this study in order to obtain objective opinions from participants, without having them feel pressured, or under the influence by those who have more power or voice within the organization (Colton and Hatcher, 2004).

The Delphi method is also superior to traditional surveys as it provides a means for a rigorous inquiry of experts' knowledge (Okoli & Pawlowski, 2004). Its twofold purpose of eliciting and prioritizing expert opinion through iterations and controlled opinion feedback produces richer data than traditional surveys (Okoli & Pawlowski, 2004).

Technological advancements have caused a shift from the use of the traditional Delphi approach, which utilizes postal mail and paper-based surveys, toward an e-Delphi approach, which utilizes e-mail and web-based surveys (Keeney et al., 2011). The online format makes the Delphi process a convenient engagement method (Khodyakov et al., 2020) which offers flexibility for professionals with limited availabilities to complete the self-administered questionnaires at their convenience. The convenience of the technique can increase participation and reduce attrition.

3.2 STUDY DESIGN

A Delphi study design was developed that could facilitate the achievement of the aims of the study. The Delphi process was complemented by face-to face discussion meetings with participants; first meeting prior to the two rounds of surveys, and the second meeting after the iterative Delphi rounds. The research project progressed through several phases: planning,

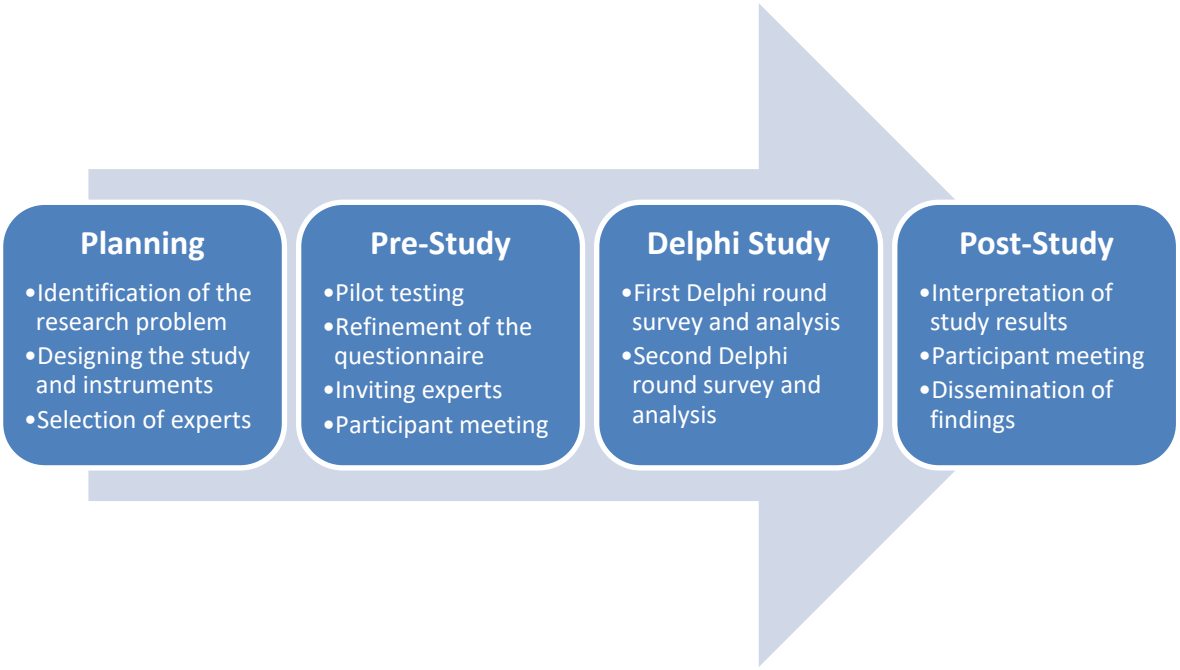
pre-study, Delphi study, and post-study. An integrated knowledge translation approach occurred throughout the research process.

3.2.1. Research phases

An overview of the four phases of the research process can be seen in Figure 3-1.

Figure 3-1.

Delphi study research phases



Source: Developed for this research

Phase 1: Planning

Identification of the Research Problem

Discussions between stakeholders of APS Santa Marcelina and the McGill University

Department of Family Medicine led to the identification of the need for guidance in research direction for studies undertaken on primary health care in Eastern São Paulo, Brazil. A review of the literature confirmed primary health care research priorities for Eastern São Paulo as a research gap, leading to the research problem identification.

Designing the study

A method that was suitable to address the research problem and had a rigorous data collection process was determined based on a review of the literature. Stakeholder meetings were held to determine the scope of the study, develop the research instruments, and define the eligibility criteria for participants.

The questionnaires have been designed to be accessible in two formats, on mobile devices and personal computers, for greater accessibility. Questionnaires were developed following Dillman and colleagues (2014) guidelines for writing open- and closed-ended questions. The open-ended questions were designed to elicit ideas. The option to provide an explanation or justification of each opinion was also provided. Although seeking this additional qualitative data is an optional feature in Delphi studies (Okoli & Pawlowski, 2004), it can help clarify the research questions and categorize them after the consolidation process (Okoli & Pawlowski, 2004). The closed-ended questions in the subsequent round were designed to obtain a quantitative judgment.

In accordance with standard e-Delphi procedures, study correspondences were planned to be sent by e-mail to participants. Brazilian collaborators suggested to also send study correspondences to participants via WhatsApp, a text messaging app (WhatsApp, 2019). WhatsApp is widely used in LMICs healthcare settings due to its efficiency, reliability, and user-friendliness (Giordano et al., 2017).

Panelists were informed that a summary report of the study's results would be provided to them after the completion of the study, serving as a motivational factor to participate (Hsu & Stanford, 2007). Panelists were also informed about the expected time commitment for each questionnaire (15-20 minutes).

Selection of the Expert Panel

The study aimed to reach stakeholders of APS Santa Marcelina with expertise in health services management from diverse backgrounds to obtain a comprehensive view.

The Delphi process relies on qualified individuals with in-depth knowledge, experience and understanding of the area under study, therefore does not require a representative sample size (Okoli & Pawlowski, 2004). While Delphi studies employ various numbers of panelists, some scholars assert that even a small sample of knowledgeable subject matter experts with experience in the field of inquiry is sufficient for providing insightful responses (Fefer et al., 2016). The recommended Delphi panel size of 10 to 18 experts was sought (Delbecq et al., 1986; Okoli & Pawlowski, 2004; Santaguida 2018).

This study aimed to engage various roles within health services management to obtain a broad range of perspectives. Including a variety of stakeholders is important to ensure opinions of all relevant stakeholders will be taken into consideration when determining the research priorities. A combined sampling approach was adopted, in which purposive and snowball sampling strategies were used (Santaguida et al., 2018). This ensured that relevant stakeholders were offered the opportunity to participate.

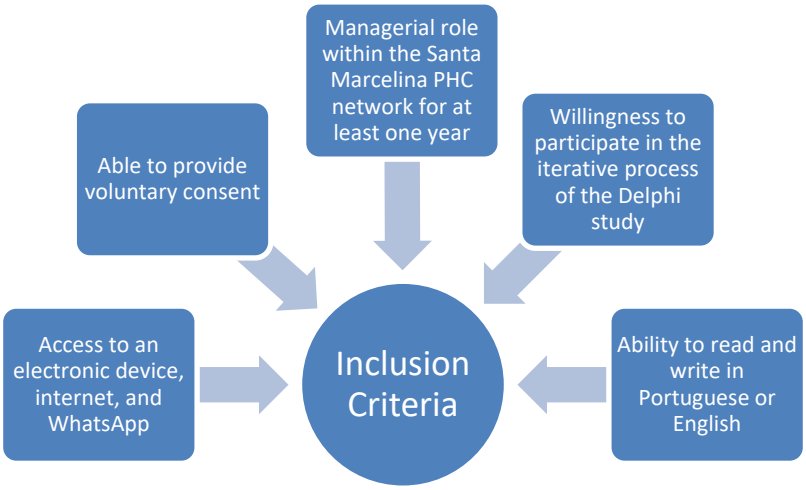
Potential participants were identified by the Brazilian research partners as they were aware of who has the knowledge and experience to address the topic under study (Hsu & Stanford, 2007). Eligible panelists were given the opportunity to nominate additional experts.

The selection of participants by individuals in the area of expertise is a credible approach (Hsu & Stanford, 2007). Hence, it was assumed that a larger response rate from the organizational managers will be achieved when our cooperators will be involved in nominating and creating a list of potential participants, since they are familiar with the organizational structure of their network, with the expertise of managerial staff, and their experience. Moreover, being invited by both, researchers as well as representatives of their own organization increases the likelihood for a greater response from the invited pool of potential participants (Hoekstra, 2017).

In addition to the expertise in the required area of health services management, the experts were selected based on pre-determined criteria including a minimum of one year of work experience at APS Santa Marcelina; willingness to complete all rounds of the study and signing voluntary consent; access to an electronic device, internet and WhatsApp; and the ability to read and write in English or Portuguese (figure 3-2). The list of potential participants was verified by the principal investigator.

Figure 3-2.

Participant eligibility criteria

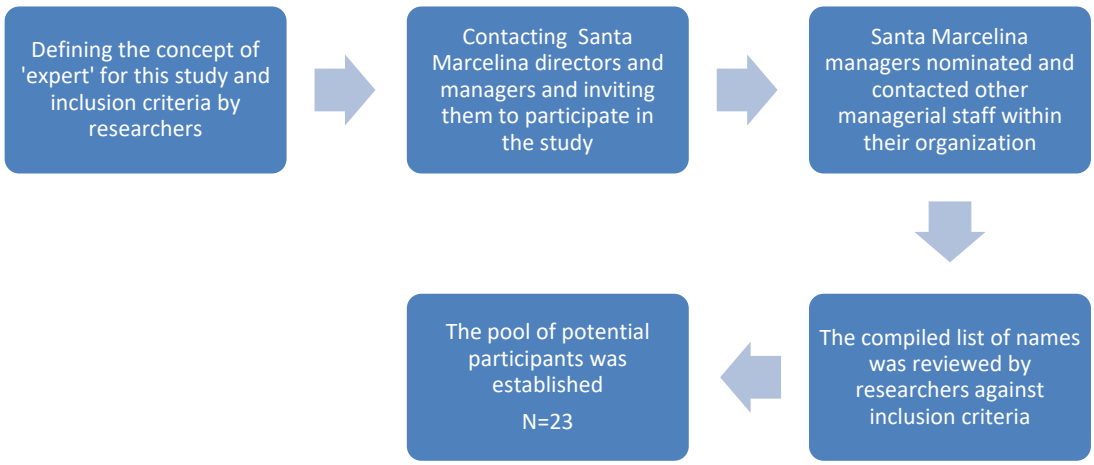


Source: Developed for this research

The process of selecting participants, comprised of four steps, is presented in figure 3-3.

Figure 3-3.

Process of selecting participants



Source: Developed for this research

The selection of participants through the purposeful and snowball strategies resulted in the creation of a pool of potential participants consisting of 23 experts, representing various managerial functions in the hierarchy of the Santa Marcelina network. Out of this pool of 23 experts, 16 agreed to participate. The identified stakeholders with various educational backgrounds and managerial roles within health services management at APS Santa Marcelina ensured a range of perspectives, yet the composition of the panel was not sufficient to compare the perspectives of stakeholders holding various managerial functions and roles due to the limited and unequal number of individuals in each of the distinct managerial roles.

Phase 2: Pre-study

Pilot testing

Pilot testing is an essential component of a research study to identify and address potential problem areas in the research instruments prior to the full study (Hassan et al., 2006). Since the first Delphi round is the foundation for subsequent rounds, piloting the first round is important and has been identified as the most frequently used approach to pilot testing a Delphi study (Clibbens et al., 2012). Concerns about the validity of questions presented in the first round of Delphi studies have been raised by Moseley and Mead (2001). Piloting can increase the questionnaire's validity and ensure greater rigor of the study (Clibbens et al., 2012). In addition, piloting can ensure the system could run without problems on different devices. A pilot test of the first round was conducted in January 2020 prior to the implementation of the Delphi study.

Refinement of the questionnaire

Feedback received during pilot testing was used to modify the phrasing of the data collection tool (Quinn & Sullivan, 2000) and validate the survey.

Inviting experts to the study

Experts were invited through two communication channels, e-mail and WhatsApp. In the study invitations, information on the purpose of the study, procedures, and the time commitment required was provided.

Participant meeting

Participants were invited to attend an in-person study information session prior to the execution of the Delphi study (Appendix I). The objectives of the in-person session were to provide prospective participants with an overview of the Delphi study; a survey demonstration; and research question formulation workshop.

Phase 3: Delphi study

The objective of the Delphi study was to identify pertinent research questions relating to health services management in primary health care and prioritize them according to their importance to be addressed through research. The Delphi process was carried out in two sequential questionnaire rounds which were administered via LimeSurvey between February and April 2020. Participants were given a deadline to respond to each survey which is especially important considering the iterations (Hsu & Stanford, 2007). Participation was encouraged through personal contact and sending reminders to non-responders, an essential process of conducting an effective Delphi study (Hsu & Stanford, 2007).

First Delphi round

Demographic questions were provided at the beginning of the questionnaire, followed by an open-ended question seeking the opinion of participants on their perceived most important research questions concerning health services management in primary health care. The first Delphi round's questionnaire was distributed as an online link via e-mail and WhatsApp to eligible individuals. Delphi participants each listed their five most important questions they believed should be addressed through research.

The data from the first Delphi round was collated and underwent thematic analysis. The principal investigator (AM) grouped the survey items conceptually into categories (Okoli & Pawlowski, 2004) and used them to create a structured questionnaire which formed the second Delphi round's data collection tool (Hsu and Sanford, 2007). Presenting the survey items in discrete categories served to aid comprehension among participants (Okoli & Pawlowski, 2004). The consolidated list of survey items was sent to the Brazilian partners for validation prior to its distribution to participants (Okoli & Pawlowski, 2004).

Second Delphi round

Closed-ended questions were created based on responses collected from the first round. The goal of the second Delphi round was to rate the importance of each identified research question in order to reduce the range of research questions to the highest priorities and reach a consensus on the top priorities.

The Round 2 Delphi questionnaire was distributed to individuals who completed the Round 1 questionnaire. Delphi participants each rated the importance of each of the research questions suggested by all the panelists.

The data from the second Delphi round was statistically aggregated. The mean and standard deviation was produced for each research question and the consensus percentage was calculated. The highest rated research questions that attained positive consensus were identified.

Phase 4: Post-study

Interpretation of results

The results of the study have been interpreted and compared against existing literature.

Participant Meeting

It is suggested that the obtained findings from the Delphi study were verified (Skulmoski et al., 2007). For this reason, a face-to-face meeting (Discussion Forum) (Appendix J) with participants and Santa Marcelina cooperators will follow, constituting the final step in this consultation process, allowing for the validation of the Delphi outputs and establishment of the rank order of research questions for their future implementation. During this meeting, the results from the study will be presented, analyzed and discussed. The open discussion forum will end with a plenary session (Keeney et al., 2011) where the Santa Marcelina stakeholders will be asked to individually and anonymously complete the Prioritization Matrix (Appendix J) for in-depth evaluation of the top ten research questions based on their feasibility, answerability**,** sustainability, equitability, and effectiveness. This will not only validate the obtained results but also will allow them to feel ownership of results, motivating them to implement findings from this study into their research agenda.

Dissemination of findings

A final report containing a summary of the study results on key areas of research within health

services management will be provided to participants of the Delphi study and the Santa Marcelina cooperators (Appendix F).

3.2.2. Integrated Knowledge Translation

An integrated Knowledge Translation approach (Bowen & Graham, 2013) has been used to disseminate and exchange knowledge through the partnership with APS Santa Marcelina.

The goal for the knowledge translation plan is to (1) disseminate knowledge (through the thesis, publication of a manuscript, summary report, and conferences), (2) exchange knowledge and hold consultations with APS Santa Marcelina stakeholders (professional networking; discussion forums, workshops, and video conference calls), (3) promote collaborative research and practice (co-production of knowledge and tools).

The primary targets of this knowledge translation plan will be (1) *managerial and administrative staff of the Santa Marcelina network,* (2) *health professionals working at primary health care clinics (physicians, nurses, etc.).* The secondary targets will be (3) *researchers, scholars, and academics,* who may expand the prioritization process to other stakeholder groups, build on the results and conduct more in-depth future research. The tertiary targets will be (4) *policy makers,* (5) *funding bodies,* and *(6) the Ministry of Health in Brazil.*

Academic tools

Taking into consideration the range of knowledge users and targeted audience, there will be a wide dissemination of findings. A manuscript of the study results will be submitted for academic publication. The findings will be submitted to a peer-reviewed journal to reach a health services

management audience and potentially the public, academic community, and other knowledge users. Additionally, the results of this research study will be disseminated during conferences, in the form of an abstract, oral presentation and a poster.

Series of in-person meetings, conference calls, and emails

To promote collaborative research and practice between McGill University and APS Santa Marcelina, knowledge and tools will continue to be co-produced through stakeholder engagement. Discussions will be held between McGill University and APS Santa Marcelina about the incorporation of the findings into the research agenda and planning the conduction of future studies in the identified areas (adopting varied research methods, including a focus group, survey, systematic review, etc.)

Possible ways to acquire funding for research and educating health workers to become engaged in implementing future research findings will be investigated as well as assessing options of integrating research activities with their clinical duties. Finally, building on the strong relationships with the stakeholders, the prioritized research topics will be presented to the Brazilian policy makers, the Ministry of Health in Brazil, and funding bodies.

3.3 PARTICIPATORY APPROACH

Stakeholders can contribute to the formulation of relevant research goals and enable the results of the investigation to be useful to the local study context (Pinto et al., 2011). This study engaged stakeholders of APS Santa Marcelina as research partners.

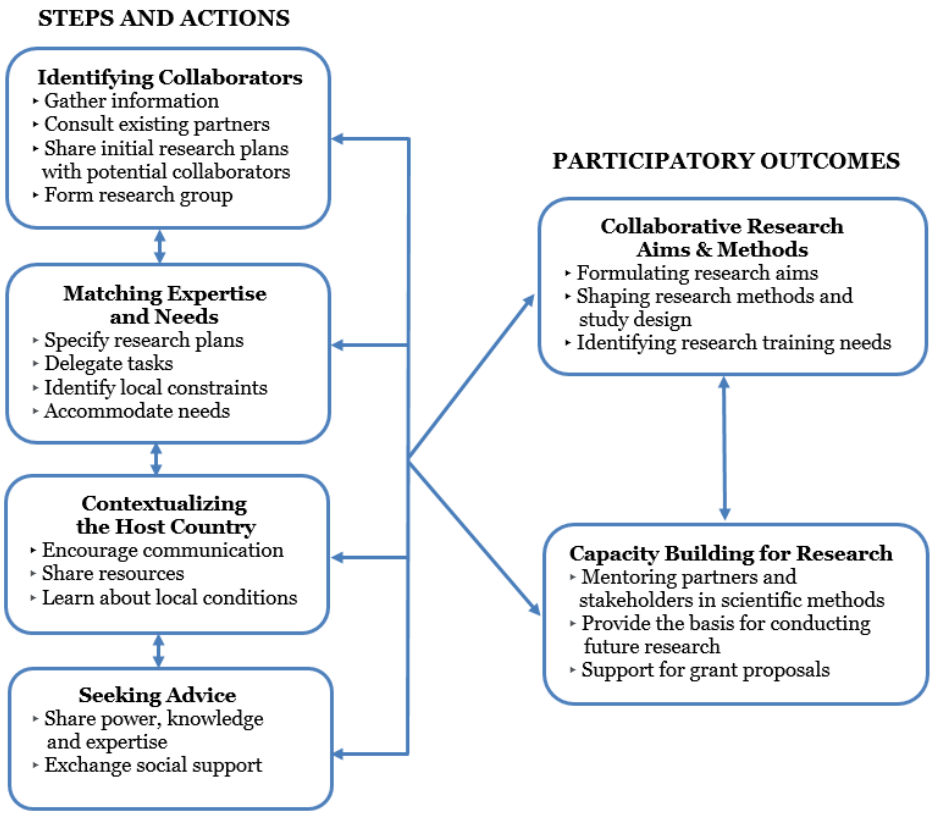
The development and sustainability of research partnerships relies on the engagement of stakeholders throughout the research process (Corbie-Smith et al., 2018). Continuous engagement of stakeholders promotes transparency, develops relationships of mutual trust, respect, and benefit, and enables the sharing of knowledge and power (Corbie-Smith et al., 2018).

This study adopted a participatory approach to address the research question and achieve the aims of the study. Following the Participatory Action Research methodology (Fletcher & Marchildon, 2014), local stakeholders were engaged in all steps of the research process, from the initial planning of the study to the dissemination of findings.

Engaging stakeholders before initiating the research is an important component for successfully utilizing findings (Mcilfatrick & Keeney, 2003). Moreover, for the research findings to be successfully integrated and applied to practice, it is vital that stakeholders not only generate the knowledge but also share ownership of the results as they have the capacity to implement the findings (Soanes et al., 2000). The participatory approach was guided by the International Participatory Research Framework (Pinto et al., 2011) (Figure 3-4).

Figure 3-4.

International participatory research framework



Source: Adapted from Pinto et al. (2011). International participatory research framework: triangulating procedures to build health research capacity in Brazil.

3.3.1 Participatory research steps and actions

Identifying research collaborators

Research collaborators were identified from the existing partnership between McGill University and APS Santa Marcelina. The identification of additional research collaborators relied on support from existing research partners at APS Santa Marcelina, who shared the preliminary

research plans with potential collaborators from the network to seek interested individuals.

Matching expertise and needs

All research partners mutually defined and agreed upon roles for the research process. As the research study evolved and expanded, additional tasks were delegated to research partners according to the interests and expertise of each individual. It is important to capitalize on the strengths of each partner to collectively create new knowledge (Pinto et al., 2011) and accommodate their needs to ensure each partner has an equal opportunity to contribute.

Contextualizing the host country

Visits to the study site of Eastern São Paulo were made to interact with the local research partners and potential study participants. This enabled the research plans to be further developed, built trust with the local stakeholders, and motivated them to participate in the study. Meeting with stakeholders of APS Santa Marcelina and prospective study participants allowed their questions about the study to be directly addressed. The research trips also were beneficial to become familiar with the local conditions and cultural norms which were considered throughout the study. Research partners of APS Santa Marcelina shared local reports and articles relevant to the research study.

Seeking advice and guidance

Power was shared among all research partners throughout the research process to allow each to shape the study to be the most relevant to their local context. The scope of the study was defined collaboratively among all partners during stakeholder meetings. Stakeholders commented on and verified the study design, research method and data collection instruments proposed by the

principal investigator (AM). The study design and materials were reviewed and verified by stakeholders of APS Santa Marcelina, who commented on the content for greater relevance and corrected the English-to-Portuguese translation for enhanced readability.

Collaborators of APS Santa Marcelina helped overcome the language barrier through facilitating the face-to-face meeting, which consisted of the study information session and research question workshop for study participants. This provided local stakeholders with the opportunity to develop and refine their research skills and learn about a research method.

Social support was exchanged throughout the research process which motivated research partners and strengthened the relationships between partners.

3.3.2 Participatory research outcomes

Collaborative Research Aims and Methods

Co-creation of research aims and methods enabled research outcomes to be relevant to the local context of the study. Regular stakeholder meetings were essential throughout the research process for providing stakeholders with the opportunity to have an active role in all steps of the study. Stakeholders also assisted in the identification of their training needs.

Capacity Building for Research

The engagement of each research partner is necessary to guarantee the research process will develop capacity for future research (Corbie-Smith et al., 2018).

The study information conveyed to stakeholders introduced them to the scientific method. The conducted research question formulation training not only helped equip stakeholders with the

necessary skills needed to participate in the Delphi study but also developed and refined their research skill set to conduct their own meaningful research projects in the future.

Through co-creation and co-ownership of the study's findings, the research output can provide the basis for relevant future research conducted in health services management at APS Santa Marcelina. The findings may also provide evidence-based support on the importance of the identified research areas for grant proposals.

3.4. CONSTRUCTION OF THE DELPHI INSTRUMENTS

The current study employed two iterations of Delphi questionnaires. The design of each questionnaire incorporated the principles for constructing Web Surveys (Dillman at al., 1999) and guidelines for writing open- and closed-ended questions (Dillman et al., 2014).

The unstructured format of the first round's questionnaire, comprised of an open-ended question, allowed each participant to brainstorm and generate up to five research questions. The open text field following each research question was designed to provide each participant with the opportunity to explain why they believe the identified research question should be addressed through research.

The second round's questionnaire had a structured format with closed-ended questions and comprised the list of the compiled research questions from Round 1 collectively generated by all panelists.

The task of each participant was to assess the importance of the research questions collectively generated in the previous round, using a five-point Likert scale (figure 3-4).

The analysis of the questions rated by participants allowed for the identification of the ten most important research questions, while at the same time revealed the extent of the agreement between participants (Jorm, 2015).

We opted for the Likert scale as a suitable tool to measure the extent to which participants judge the importance of the generated research questions. The Likert scale consists of multiple points and assigned labels (choices/options), with equal distance between them. Delphi panelists were asked to choose only one option for each listed research question (*item*), which best aligns with their perspective in regards to the extent of importance for each research question to be addressed in future research.

To measure the importance of each research question, a five-point scale was implemented: 1- Not important; 2- Slightly important; 3- Average importance; 4- Very important; 5- Absolutely necessary. Table 3-1 contains a description of each point of the scale.

Table 3-1

Term Definition: Level of Importance of the Research Question

Level of Importance of Research Question (RQ) when compared against other options	
Not important	RQ with no relevance. Should not be researched
Slightly important	RQ of little importance (relevance) to be addressed by research
Average importance	RQ of average importance
Very Important	RQ of significant importance to be researched. Second-order
Absolutely necessary	Most relevant RQ, extremely important to be addressed by research

Source: Developed for this research

Figure 3-5 presents the structure of the Likert scale for the Round 2 questionnaire. The legend defines the numerical points from 1 to 5 on the Likert scale.

Figure 3-5.

The structure of the Likert scale for the Round 2 questionnaire

Legend

1 – NOT IMPORTANT
2 – SLIGHLY IMPORTANT
3 – AVERAGE IMPORTANCE
4 – VERY IMPORTANT
5 – ABSOLUTELY NECESSARY

Research question	**Level of Importance**				
	1	**2**	**3**	**4**	**5**
Theme 1: xxx					
Item 1:					
Item 2:					
Item 3:					
Theme 2: xxx					
Item 1:					
Item 2:					
Item 3:					

Source: Developed for this research

The literature suggests that a five-point scale is readily comprehensible to participants (Marton-Williams, 1986) and can contain a sufficient amount of distinctive and easy to-understand scale descriptors (Dawes, 2008). Indeed, we opted for an uneven, five-point linear Likert scale presented on the continuum from the “not important” to the “absolutely necessary” option, with a moderate option in the middle of the scale.

The questionnaires were designed using LimeSurvey® software. This online survey tool has an advantage over the paper and pen method, because it has pre-designed templates with layouts suitable for a computer screen and mobile device, and allows for real-time monitoring of data collection. It also contains built-in features like a progress indicator which is important for participants to know the extent of their survey completion (IGI, 2017).

Validation of the study instruments

The instruments were presented to participants in English and Portuguese versions prior to the start of the study. Santa Marcelina coordinators reviewed the Portuguese version of instruments for appropriate wording and ease of understanding. Both, English and Portuguese versions of instruments were subsequently validated through the pilot study. Revision in wording was made where necessary, based on the suggestions of the coordinators and participants of the pilot study.

Chapter 4 Results and Analysis

The following chapter contains the manuscript: “Developing Research Priorities for Primary Health Care in Eastern São Paulo, Brazil: A Focus on Health Services Management”

Developing Research Priorities for Primary Health Care in Eastern São Paulo, Brazil: A Focus on Health Services Management

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Abstract

Health services management is vital to the effectiveness and organization of primary health care. This study aimed to achieve consensus on health services management research priorities for primary health care from the perspective of managerial personnel in Eastern São Paulo, Brazil. A three-stage study, consisting of two Delphi rounds and stakeholder meetings, was conducted to determine research priorities among primary health care managers and administrators. Round 1 involved generation of research questions on health services management and analysis of results using thematic analysis. Round 2 involved evaluating the questions importance for research on a five-point Likert scale and analysis of results using descriptive statistics. Consensus was obtained on the priority research questions. Priorities related to comprehensive healthcare; coordination of care across care levels and units; effective communication strategies and assistance processes; use of data of health indicators as tools in care management; strategies to alleviate maternal mortality; application of information technology (IT) resources and technological tools in management and monitoring; and managerial competencies. The identified high-priority research questions reflect stakeholders' views of the greatest research needs. The priorities can direct future research and development in health services management for primary health care in Eastern São Paulo and other regions with similar needs.

Keywords: Delphi, research priorities, health services management, primary health care

Introduction

The Brazilian Unified Healthcare System (*Sistema Único de Saúde*, SUS) has made a large investment in Primary Health Care (PHC) reform in attempt to deliver universal, comprehensive and integrative primary care and clinical services for the entire population. Despite substantial progress in improving access to healthcare and reducing health inequalities in Brazil, this progress varied in the different geographical regions of this country.[1] Indeed, major disparities exist between Brazilian states and even among sub-municipalities of large urban areas, like São Paulo, with significant inequalities and variations in health indicators. Furthermore, austerity measures implied in 2016, paired with the recent epidemiological and economic hardship, create an enormous burden for publicly funded PHC. The heavily populated urban centers are the first to feel this impact, especially the poorer districts of the city. This puts pressure on health services management to align the system's capacity with the local population needs and ensure delivery of cost-effective, efficient and high standard services to its users.

A wide array of literature document that management practices have an impact on the organizational and financial performance of healthcare institutions, which ultimately affects their quality and sustainability.[2] Thus, decisions that healthcare managers make have tremendous importance for the functioning of the healthcare sector and efficient use of resources, which can ensure effectiveness and quality of services provided to populations.

Health services management is vital to the organization and effectiveness of PHC. It is a wide area of practice with complex issues, involving planning and oversight of the daily operations of the entire PHC network, however, its evidence-base is limited. Research in health services

management can increase the evidence-base and advance the processes of PHC.[3] Research evidence can support leaders and managers in their decision-making in regards to the organization of the healthcare system's[4] design of adaptive strategies to manage healthcare resources;[5] implementation of supportive technologies;[3] adoption of best strategies for making improvements and enriching the provision of health services;[6] integration between different levels of care;[3] enhancement of the healthcare team's relationships with patients[3] and strengthening of the healthcare system.[6] Research in health services management is paramount for the resourceful and sustainable organization of healthcare services.[4]

Research at the macro-level, undertaken across specific regions or countries, can cater to unique issues experienced by health systems of these areas.[7] Research conducted at the meso-level (organizational level) can be beneficial for a specific organization as it relates to the uniqueness of the health services in the local area. Furthermore, setting priorities for health services can be vital for an organization, since it can direct attention to gaps in research evidence needed for the decision-making of its health services managers. Setting priorities for research becomes paramount where healthcare resources are constrained and limited funding for health services research exists.[4]

Lomas and colleagues (2003)[8] described two approaches used in developing research priorities for health services: technical and interpretive. When applying technical approaches, research priorities are formulated based on existing quantifiable epidemiological data, such as prevalence of diseases, or cost analysis data for technologies or treatment.[8]

In contrast, interpretive approaches seek consensus views of informed stakeholders, generated in an interactive and iterative manner.[8] The main premise is the consultation process facilitated by a

researcher, in which stakeholders exchange their views and assumptions on current health system problems, identify issues that they perceive as the most important priorities for the next few years, translate them into priority research themes and validate them to make sure that the final research priorities reflect their truly expressed views on the most pressing needs.[8]

This study will explore health services research priorities at the organizational level through an interpretive approach[8] by eliciting the opinions of administrators and medical managers working within the Santa Marcelina PHC network, an organization that serves the vulnerable and marginalized populations in Eastern São Paulo. This is the first study which will define research priorities for health services management of PHC in this area.

The aim of this study was to determine the ten most important research priorities for health services management at the Santa Marcelina PHC network.

Method

Design overview

Formulation of the ten most important research topics for health services management is comprised of three-stages: (1) face-to-face meeting and workshop; (2) Delphi consultation process; and (3) face-to-face meeting to validate the results.

The Delphi method adopted for this study enabled collective opinions and judgments of experts to be obtained [9] through a systematic process of synthesizing individual expert opinion into group consensus.[10]

Ethical approval was granted by the Research Ethics Committee of Santa Marcelina Hospital, São Paulo, Brazil and the McGill University Faculty of Medicine Institutional Review Board (IRB Study Number A11-E71-19A / 19-11-036).

Stakeholder involvement

Lomas et al. (2003)[8] implies that close and ongoing "linkage and exchange" between researchers and healthcare managers during the entire research process is necessary and that the involvement of participants in all phases of the research promotes a sense of ownership and ultimately motivation to utilize the research findings. Indeed, the project adopted a participatory approach, in which participants were actively involved in all phases of this research. A series of meetings were conducted at the initial stages of the project with collaborators from the Santa Marcelina PHC network to discuss various aspects and the logistics of conducting this project.

Participants

The Delphi method required participants to be "qualified to make the judgments sought by the researcher" (p.121), thus were considered "experts" in the area under study.[11] In this study, experts were defined as persons with knowledge and experience in health services management at the Santa Marcelina PHC network.

The purposefully selected heterogeneous group of stakeholders included managerial personnel with varied backgrounds and experience in the PHC setting. Participants were required to have a minimum of one-year of work experience at the network and be willing to participate in all survey rounds. The selected participants represented various managerial positions within the hierarchy of the healthcare organization, including administration and service delivery. Their

involvement in setting priorities for health services research was paramount, since they possess first-hand experience and knowledge about varied issues in the area of inquiry. They are also in the best position within the organization to apply the findings from health services research.[8] While there is no standard requirement stipulating the number of participants, panel sizes of 10-100 are most commonly used. [9] We opted for 10-18 participants following the suggestion in literature.[12]

Study procedure and design

The overall study procedure can be seen in figure 2. A study invitation presenting the study aim, study information booklet, and presentation slides was distributed electronically to potential participants (n = 23).

Stage one: First face-to-face meeting and workshop

The first face-to-face meeting with participants aimed to familiarize participants with the purpose of this study and the need for defining research areas for health services management within their organization. Participants received an overview of the study and a survey demo to prepare them for the two rounds of the subsequent Delphi consultation process. The meeting was facilitated by the Santa Marcelina PHC coordinators (SSF and JSM) with the active presence of the principal investigator (AM) and research supervisor (TS). The meeting was followed by a workshop, "How to Formulate Precise and Meaningful Research Questions", which aimed to refine participants' skills in formulating research questions. Multiple examples of research questions were formulated by participants and discussed together with researchers.

Stage two: Delphi consultation process

To elicit and collate individual stakeholders' opinions about the most important research areas for health services management, the Delphi method was used, which was comprised of two consecutive rounds of surveys. The Delphi method is commonly used to identify research priorities in healthcare. Anonymity of responses was maintained to ensure independence of judgments. The application of the Delphi method allows for the assessment of the level of consensus in the absence of group pressure.

A small-scale pilot test (n = 5) was conducted in January 2020 during a group meeting with stakeholders of Santa Marcelina PHC, facilitated by SSF, prior to the distribution of the Round 1 questionnaire in order to test its face validity. A discussion was held during this meeting among Santa Marcelina and McGill University partners to identify potential problems in the survey instrument. The questionnaire was amended (i.e. problematic wording modified, instructions clarified) where necessary according to feedback received from stakeholders during the pilot test.

Two rounds of Delphi surveys were conducted between February and April 2020. The web-based surveys have been constructed using LimeSurvey®, a web-based survey software. Questionnaires were developed following Dillman and colleagues (2014)[13] guidelines for writing open- and closed-ended questions. The open-ended questions were designed to elicit ideas. The option to provide an explanation or justification of each opinion was also provided. Although seeking this additional qualitative data is optional in Delphi studies, it can help clarify the research questions and categorize them after the consolidation process.[14] The closed-ended questions in the subsequent round were designed to obtain a quantitative judgment.

Round 1: Research question generation

The Round 1 questionnaire contained two sections. In the first section, Delphi participants were asked to provide their consent for participating in the Delphi study and information on their demographics. In the second section, participants were asked to provide the five pertinent research questions as free-text relating to health services management they deemed most important to be addressed through research. Participants were also given the option to provide a written justification for each of their research questions. Participants had two weeks to respond.

Round 2: Research question evaluation

The research questions generated by the panel in Round 1 under the identified thematic categories were presented in the Round 2 questionnaire. Surveys were sent to those who participated in the generation of research questions in Round 1. In Round 2, participants were asked to rate each of the 64 questions' level of importance to be addressed through research on a five-point Likert scale (1 = not important to 5 = absolutely necessary).

The attainment of consensus in a Delphi study indicates general agreement among the majority of experts[12] however no universally agreed upon level of agreement for consensus exists. [15] Thus, variability is observed in studies in defining consensus, ranging from 55% to 100%, with the most commonly accepted threshold being 70% [9]

This study defined positive consensus on a research priority as agreement of at least 80% of respondents rating a research question as 'very important' or 'absolutely necessary' for research, corresponding to scores of 4 and 5, respectively on a five-point Likert scale.[16]

Stage Three: Face-to-face meeting and research questions validation

It is important to bring the panel together and discuss study outcomes[9] to collectively refine and validate the importance of prioritized research questions through the interpretive process in order to agree on their rank order of importance [8] and plan for their implementation. Indeed, the validation of the ten most important research questions from the Delphi consultation process will constitute a vital step, giving stakeholders of Santa Marcelina PHC the opportunity to critically appraise each research priority identified in the Delphi process for its answerability, sustainability, equalitability, effectiveness, feasibility, and potential for translation. This final stage will occur at a later date due to the present COVID-19 circumstances.

Data Analysis

The proposed research questions were analyzed qualitatively by AM using inductive thematic analysis.[17] Research questions were coded, and emerging themes were identified. The research questions were consolidated, which involved removing duplicate questions and combining similar questions. Textual comments, when provided, were used to help interpret the meaning of original responses[18] and rephrase for clarity, if necessary. The original wording of the questions was preserved to the greatest extent possible.[15] Responses that did not address the research question (i.e. responses deemed out of scope) were not carried forward [19] to the second Delphi round.

Similarly to Hamlet et al. (2018)[15], the qualitative data analysis was examined and refined by the research supervisor (TS). Uncertainties in the interpretation of questionable survey items' meanings were resolved in a discussion between AM and TS. These steps reduced the potential for researcher bias, ensuring methodological rigor.[15]

This process resulted in a set of unique research questions which served as the items for the Round 2 questionnaire, grouped by thematic category.

Quantitative data was prepared for statistical analysis by AM. Descriptive statistics were used to analyze the demographics and research questions. The mean rating, standard deviation, and consensus percentage were produced for each research question.

Based on the data analysis, the ten research questions that achieved the highest mean scores with positive consensus were deemed the top ten research priorities.

Results

Participants

A response rate of 70% (16/23) was obtained for Round 1 and 56% (9/16) for Round 2.

The demographic details of the Delphi respondents by round are shown in Table 1. Participants were predominantly technical advisors (50%), female (87%), had post-graduate education (75%) as their highest level of education and worked full-time (81%) at the Santa Marcelina PHC network. Most respondents worked across more than one district.

Research priorities for Health Services Management

In total, experts (n = 16) provided 80 health services management research questions in Round 1. After qualitative analysis, the list was reduced to 64 mutually exclusive research questions for appraisal in the subsequent round. Experts (n = 9) rated the importance of each research question in Round 2. The Delphi expert panel reached positive consensus on the ten highest rated research questions.

The top ten research priorities with their corresponding means and standard deviations are presented in Table 2. The ten highest rated research questions' mean rating ranged from 4.33 to 4.67, with higher importance for research being indicated by higher mean scores. Lower standard deviations indicate higher agreement among the panel on the research questions' level of importance for research.

The ten highest rated research questions achieved positive consensus, ranging from 89-100%. Four of these research questions had 100% consensus (Table 2, questions 1, 2, 4, 10) and the remaining six questions had 89% consensus (Table 2, questions 3, 5, 6, 7, 8, 9).

The identified priorities related to comprehensive healthcare; coordination of care within health care networks and units; effective communication strategies and assistance processes; use of data of health indicators as tools in health services management; strategies to alleviate maternal mortality; application of information technology (IT) resources and technological tools in management and monitoring; and managerial competencies.

Discussion

Comprehensive health care

Comprehensive healthcare emerged as a key priority in the opinion of health services managers. (Table 2, question 1).

Comprehensive healthcare, one of the principles of the SUS in Brazil,[20] aims to provide a wide range of health services and preventive actions to meet the broad spectrum of biological, psychological, and socioeconomic issues of individuals and families, ensuring continuity of care.

In this context, the formation of a bond between the provider and user is paramount as it can promote longitudinality of care [21] and ensure consistency in providing therapeutic treatments.[22] Bonding implies reliance on the PHC team for an extended period of time and the recognition of PHC as the main provider of care for patients and community needs.[21]

Continuity of care can be ensured by proper follow-up of PHC patients requiring specialized services or hospitalized care including communication of diagnosis and test results,[22] administered medications, and implemented interventions. Insufficient follow-up can compromise the effective therapeutic process and affect the users' satisfaction level of the services.[22] Continuity of care can also be ensured by patients' loyalty in adherence to medical treatment and consistent use of healthcare services offered by the main provider.

The existence of a pluralistic healthcare system and various modalities within the Brazilian healthcare system sometimes impedes the opportunity to make regular visits to one provider. The lack of coordination between the private and public system can affect follow-up and continuity of care. In addition, simultaneous use of various modalities in situations of suboptimal collaboration between them[23] or insufficient communication and coordination between healthcare providers may lead to unnecessary duplication of tests and medical procedures.[24-25]

Inconsistencies in using healthcare modalities and changing healthcare providers are often observed in Brazil. Growing demands for more complex healthcare coupled with unmet needs; negative experiences with the healthcare system; and little faith in services offered by public clinics, due to their insufficiencies, prompt people to change providers, seek care in the private subsector, go straight to a hospital, or avoid seeking care altogether.[25]

The Protasio et al. (2017) study[26] documented that the capacity of the PHC unit being able to assist users in solving their problems and the feeling of being respected by health professionals were the most important factors that affected users' satisfaction with services. Positive experiences and user satisfaction are pivotal since they can increase the likelihood of users returning to the same provider.

O'Donnell (2007)[27] highlighted the reasons why poor people in developing countries receive less care than their wealthier counterparts. On the supply side, this might be caused by insufficient provision of services, geographical unavailability or poor quality services that may discourage users from returning.[27] Taking into consideration the demand side, individuals might not use services which are available due to financial constraints, cultural and educational factors as well as personal beliefs that may cause them to dismiss an illness and healthcare services which they may benefit from. [27]

Hempel and colleagues (2018)[28] imply that it is important to have a balance between both: (1) user's needs and preferences; and (2) supply of high-quality services, with continuous improvement in response to growing user needs and expectations. According to the participants of the Hempel et al. (2018) study[28] this is possible to achieve with effective and supportive management.

Inconsistent use of healthcare services hinders the opportunity for continuity of care; therefore, it is important to identify barriers preventing people from accessing care and reasons for not using healthcare modalities in a consistent way by the population in an area.

Coordination of care within the primary health care network

Among the top ten research questions identified by participants in this study, two concerned the coordination of care within the network (Table 2, questions 3 and 7). Specifically, one research question related to coordination between different levels of care, and the second to coordination of care between several units within a network.

Coordination of care across healthcare levels or within the same level has been acknowledged in the literature as critical for effective organization and delivery of integrated services to populations, ensuring access and continuity of care[24]

Healthcare services in Brazil are managed and organized at the municipal levels in the form of a network of organizations[29] responsible for provision of equitable health services and health prevention actions to a defined territorially population.[20]

Coordination of care, necessary for the delivery of comprehensive healthcare, entails the harmonious interconnection between primary care, specialized care and diagnostic services within the network. This includes coordinated actions with all levels of care.[21] PHC, serving the function of a preferred entry door to the healthcare system and the initial care point, is accountable for coordinating activities with all care points within the system, integrating all types of services provided for patients.[20]

Coordination of care comprises: *information coordination*, which ensures that patient clinical data is shared among all providers;[30] *administrative coordination* to enable access to all necessary services and a smooth transfer between all points of care; and *clinical management coordination*, related to reaching an agreement on clinical guidelines[29] to ensure sequential and complementary care [29-30]

Coordination of healthcare services, with the aim of providing an appropriate referral process, timely transition of patients between levels or units of care and guaranteed continuity of care, is paramount to achieve integration of services.[31] However, a large body of literature confirms that coordination of care in many instances is hampered by insufficient communication between levels of care, especially between hospital and PHC, affecting the follow-up process of patients in the community[31] and therefore hampering continuity of care. Other studies report difficulties in patient access to specialized care and the referral process,[32] lack of efficient coordination between referral centres,[29] inadequate tools and strategies, necessary for supporting and transitioning patients across services.[31]

In light of scarcity of research in this area,[23-24] identifying factors that lead to insufficient coordination of services across healthcare levels and points of care within the healthcare network is important, as it can help better plan and organize care processes ensuring continuity of care.

Improving the referral process and coordination of care between general practitioners and specialists or hospital care will allow for timely and smooth transitioning of patients from one level or point of care to another, better exchange of information and efficient use of resources, leading to better quality of care and promotion of an integrative healthcare system.

Effective strategies for intrasectoral and intersectoral communication

The organization of health services within a network is based on teamwork and collaborative work with other agents. Collaborative practices involve interdisciplinary teamwork, intrasectoral and intersectoral actions, as well as collaboration with the population.[33]

Interdisciplinary teamwork is a core component of the work within public PHC in Brazil, rooted in shared understanding and exchange of knowledge and observations between professionals,

while working towards common goals. Intersectoral actions are actions taken by sectors other than healthcare (e.g. education, housing, transportation, social assistance, waste management) but in cooperation with the healthcare sector. Since intersectoral actions address social determinants of health and disease in a more sustainable way, they are key aspects for improving health outcomes of communities.[34]

In Brazil, intersectoral and intrasectoral actions are guided by Law Number 8080/90, but studies on intersectorality within the Brazilian PHC report challenges in the development of collaborative relationships and mixed results when comes to intersectoral work.[34]

Interdisciplinary teamwork and collaboration with other sectors and services within health networks should focus on the needs of the communities they serve; and environmental, social and economic factors that adversely affect the health status of the population. Their joint efforts and actions have a chance to improve local infrastructure and access to services, which is especially important in underdeveloped areas, since it can improve quality of life, economic and health status, as well as the social well-being of marginalized populations.

Building a collaborative network requires transparent exchanges of information, expanded dialogue, and effective communication between all parties involved, including patients and communities. This is of utmost importance, since collaborative practices and effective communication enhance the management and quality of care.[33]

It is therefore not surprising that two questions in the theme of effective communication (Table 2, questions 6 and 10) were highly prioritized by the participants, who are looking to learn more about effective strategies for improving inefficiencies of the intersectoral work and care processes within the healthcare network.

Health indicators as tools in health services management

Two of the top ten priorities for research in health services management related to the practical implementation of health indicators by professionals working in the service network (Table 2, questions 4 and 5). Health indicators are important measures of "specified health characteristics of a given population" [35] that present "relevant information on different attributes and dimensions of health status and performance of a health system".[35]

Knowledge of health indicators can be very useful for service managers since it can be used to monitor the health status of a population and epidemiological trends, assess its healthcare issues and determine the groups with the greatest needs. This information is needed for decision-making when planning actions aiming to improve the health status of a target population and reduce preventable health inequalities. Monitored changes over time can help assess the effectiveness of health actions, implemented programs and policies.[35]

Strategies to alleviate maternal mortality

Maternal mortality, a largely avoidable cause of death, is one of the health indicators, however, significant discrepancies in this indicator are observed between developed and developing countries and even between regions within a country, mostly accountable for differences in the provision and quality of obstetric care.[36] Participants in this study identified the need to conduct more research in identifying effective strategies that can alleviate maternal mortality (Table 2, question 4).

Reducing maternal mortality has been the top priority in Brazil during the last decades.[37] The maternal mortality ratio (MMRatio) indicates the number of women who die from pregnancy-

related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births.[38] Esteves-Pereira and colleagues (2016)[38] imply that the MMRatio "is a marker of the performance of health services, because most maternal deaths are avoidable if all women have convenient access to good-quality care".

The gradual reduction of the MMRatio in Brazil was observed between the years 1990 and 2017, from 141/100,000 live births in 1990[39] to 60 deaths/100,000 live births in 2017[40] however the Millennium Development Goal of reducing the MMR by 75% before the year 2015 has not been attained.[39] The MMRatio in Brazil is much higher than in other Latin American countries with similar economic levels.[37,40] For example, while Brazil reported 60 deaths/100,000 live births in 2017, Mexico and Argentina reported 33 and 39, respectively.[40]

The MMRatio is high among the poorest segments of the Brazilian population.[37] The inequalities in access to maternal care between regions are evident as well as disparities in the capacity and quality of obstetric healthcare between the public and private sector.[37] Our findings support Guarra and colleagues (2019) [39]notion that more research in this area is necessary. Exploring the strategies for alleviating maternal mortality constitutes a relevant topic for further research.

Application of IT resources and technological tools in management and monitoring

Two priorities generated by participants were within the theme of IT tools (Table 2, questions 8 and 9).

Technological advances and tools have become increasingly important in healthcare. Health information systems are practical and reliable instruments for managers and decision-makers, useful for the organization, analysis, and dissemination of information.[7] Innovative

technologies, like computerized medical records, can allow for smooth flow of information between varied points of care within the health network, vital for coordination of care and strengthening the healthcare system.[7] Using monitoring and evaluation tools became necessary to assess the skills and performance in healthcare settings.

The emphasis placed on this theme by participants suggests value of adopting technological innovations and tools in their practice and managers' willingness to enrich their knowledge about the function and role of these tools in maintaining control, monitoring and assessing the performance of staff and quality of health services.

Managerial competencies

One of the top research questions formulated by participants concerns the need for defining the managerial competencies and skills necessary for ensuring effectiveness of health services within the integrative PHC network (Table 2, question 2).

A highly qualified workforce is necessary for the efficient functioning of the healthcare system.[41] The manager serves a central role within an organization, responsible for the day-to-day operations of the healthcare facility and for acquiring, retaining and leading healthcare staff towards achieving organizational goals.

According to scholars, effective management and leadership is a critical factor for integrative primary care to implement changes necessary for the development of high-quality comprehensive care, yet there is scarce research in this area.[42] The high prioritization of this topic highlights the evidence gap.

Limitations

The study aimed to define research priorities for health services management in the underserved areas of Eastern São Paulo but the findings may also have relevance to PHC networks in other Brazilian regions and globally, as managerial personnel in different PHC settings pursue common goals and may share similar issues of concern.[5]

There was a relatively low response rate in the second round of the questionnaire, caused by the rapidly developing COVID-19 situation, which prevented some of the participants from continuing their participation. However, the retention rate for this study was within the 50-80% usual retention rate of participants in Delphi studies.[43]

Conclusion

Considering limited funding for health services management research, it is paramount to set priorities for research to ensure allocation of resources to the most pressing needs in PHC management. Healthcare managers and administrators are best suited to identify research needs in their area of work, look for new solutions, and implement changes within their organization based on scientific evidence.

This study provided valuable insight into important research needs in health services management for PHC.

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Author contributions

AM designed the study and led all phases of the project, including facilitating the priority setting exercise, collecting data, conducting analysis of the data, and drafting the manuscript. TS provided supervision of all phases of the study, provided assistance during the qualitative data analysis, and read and commented on the manuscript. YB provided co-supervision during the study and read and commented on the manuscript. JSM and SSF created the initial participant list, oversaw all administrative activities in Brazil, and helped facilitate the pilot study, first meeting and workshop with participants. All authors have read and approved the final version of this manuscript.

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Chapter 5 Summary, Discussion and Conclusion

This study was conducted and is reported in compliance with the reporting standard for Conducting and Reporting of Delphi Studies (CREDES) (Jünger et al., 2017).

The purpose of this study was to involve managerial personnel of the Santa Marcelina PHC network in obtaining perspectives about the most essential research needs for health services management within their organization. We aimed to obtain consensus on the ten most important research questions for further research in the health services management area. To achieve this goal, the Delphi method consisting of two rounds of surveys was employed in addition to face-to-face meetings with participants.

This chapter presents themes generated during the two-round Delphi consultation process and offers a discussion of the top rated topics from the second round in relation to other studies, which explored similar topics, then elaborates on the questions that reached high consensus among participants, but were not found on the list of the top ten most important, followed by the topics that did not reach consensus. Subsequent sections of this chapter present strengths and limitations of this study, and recommendations for conducting in-depth discussions about the obtained results, highlighting the need for expanding on these findings through further research.

5.1. PRIORITY THEMES AND TOPICS IN HEALTH SERVICES MANAGEMENT

5.1.1. Identified themes

The Delphi process implemented in this study identified research needs for health services management in a wide range of areas.

Sixty-four research questions generated by participants in Round 1 of the Delphi process represented eight categories of themes: education and training (15 questions); manager profile and recruitment (3 questions); PHC team (1 question); quality of PHC services (19 questions); administrative procedures (4 questions); coordination of healthcare services (9 questions); healthcare management (4 questions) and tools and technology (9 questions).

The subsequent rating exercise conducted in Round 2 led to the top ten questions, that according to panelist should be addressed in future research. These questions represent five out of the eight categorized themes: coordination of healthcare services (3 questions); quality of PHC services (2 questions); tools and technology (3 questions); education and training (1 question); manager profile and recruitment (1 question) (Appendix H, Figure 3).

5.1.2. Consensus Issues

The ten most prioritized topics (research questions) with high consensus

Priority topics for research, identified within these five themes, obtained a high level of consensus among the participants and are broad in scope. According to the panelists in this study, the area of research needs relates to the topics of comprehensive care and coordination of care between the levels of care (primary and secondary care), and coordination between health units within the network to ensure continuity of care and provision of high-quality integrated services to the population. Competencies of managers, which are central to the effective functioning of the healthcare network, have been equally highly prioritized. Panelists also highlighted the need for conducting research in defining the appropriate training of healthcare workers which can improve their communication skills and abilities in providing effective

assistance to patients. Finally, the panelists pointed out to conducting more research in the usefulness of IT resources and tools for managing the network, monitoring staff and assessing their performance, as well as using the knowledge of health indicators as an effective management tool to improve the health status of the population and reduce maternal mortality.

Considerable consistency exists between many of the research topics identified by participants in this study and the priorities defined in the studies conducted in LMICs (da Silva, et al., 2015; Goodyear-Smith et al., 2019; Lorenzetti et al., 2014) and globally (Synnot et al. 2018).

The topics related to the horizontal integration (within the multidisciplinary team), intersectoral referrals and integration between primary and secondary levels of care were defined as a significant research gap in the study conducted by Goodyear-Smith and colleagues (2019). Coordination of services and communication skills training for health services personnel and health professionals were identified as the top research issues at the health services level in the Synnot et al. (2018) study. Harrison and colleagues (2019) highlighted the need for managers with abilities to work collaboratively with teams, agents of other health services and sectors, and with patients. Findings from the da Silva et al. (2015) study called for better training of interprofessional teams working in networks, with stronger emphasis in education on coordination of services and collaborative work between teams and other networks. Similarly, Peduzi et al. (2013) asserted that interprofessional training is critical in the Brazilian context since an integrated approach to healthcare requires cooperation, collaboration and efficient communication between all individuals involved in the provision of healthcare services.

The results obtained from this study appear to provide valuable insights into the perceptions of managerial personnel on the existing research gaps within health services management of the healthcare network. Although some research in the identified priority areas may have been conducted, there is a need for greater research efforts in these areas.

The identified research questions will be refined during the meeting with participants to ensure their feasibility and rank order for the implementation planning and the researchers involved in this study will continually work with the coordinators of the Santa Marcelina PHC network conducting further research on these topics.

Other topics (research questions) which reached high consensus

Among the other research questions, which achieved a high level of consensus (89%), however, have not been found in the top ten research questions, were topics related to: the evaluation of impact of education and training of healthcare workers and its practical application when working in PHC teams; improvement of managers' recruitment process; defining the indicators to monitor care management and to evaluate healthcare services; and integration of mental health into the primary healthcare network and its impact on referrals and strengthening of the networking.

5.1.3. Non-Consensus Issues

Research questions which obtained 78% (but did not reach our threshold level of 80%), related to: the role of monitoring in improvement of management; training of collaborative leaders; development of the healthcare team's awareness and empathy in order to improve patient satisfaction; improvement of managerial competencies when mediating conflicts in the primary

care setting; improvement of health management indicators; improvement of healthcare networks' effectiveness and reducing waiting times for patients; enhancement of loyalty of patients and making them aware of longitudinal healthcare; defining effective strategies and tools to monitor the work of PHC teams; and assessment of healthcare professionals' adherence to protocols and established lines of care.

5.2. IMPLICATIONS OF THE STUDY

A number of scholars report that many factors can impede the process of setting research priorities in LMICs, including the involvement of local stakeholders (McGregor et al., 2014). Nevertheless, this study indicates that collaborative effort based on a sustainable partnership is promising for defining research areas of importance to the local PHC stakeholders.

The identified priorities can guide future research efforts in primary health care to areas of greatest importance for the region of Eastern São Paulo. Furthermore, healthcare administrators and managers as well as policy-makers can consult with these research priorities while prioritizing and allocating resources for PHC management in Eastern São Paulo. The results of this study can provide support in funding applications for prospective studies aiming to address these research areas and therefore assist funders in determining where to allocate limited research funding.

Identified priority areas may guide researchers and healthcare managers in leading, conducting, and participating in health services management research and development. Examining the identified research priorities through future research studies can expand the evidence-base for

PHC management, which can help optimize the management and delivery of PHC services through valid and robust research evidence.

5.3. STRENGTHS AND LIMITATIONS OF THE STUDY

5.3.1. Strengths of the Study

This study provided the first opportunity to date for managerial personnel to contribute research suggestions for the enhancement of health services management in PHC for the marginalized and poor urban areas of Eastern São Paulo. Direct involvement of stakeholders of the Santa Marcelina PHC network throughout the entire research process allowed them to have ownership of results.

The study provided an equal opportunity for each participant to shape the research priorities. Each panelist had the opportunity to contribute five research questions and subsequently had their ratings of the panel-generated questions weighted equally among the panel (Avella, 2016; Gurusamy et al., 2019) in determining the top priorities.

The Delphi method enabled sharing of knowledge among the diverse stakeholder group (Avella, 2016) within the expert panel, contributing to the successful achievement of consensus on the panel-generated health services management research priorities. The high level of consensus reached in this study in relation to the ten top research questions is one of the indicators of the validity of results (Mitroff & Turoff, 2002; Pare' et al., 2013).

This project allowed research partners from Santa Marcelina and McGill University to closely cooperate, further strengthening and sustaining the research partnership and building research capacity.

5.3.2. Limitations of the Study

This study sought the opinions of managerial personnel working for the Santa Marcelina PHC network in Eastern São Paulo, Brazil. Nonetheless, despite the limitation that the sample was drawn from one healthcare organization, the findings may also be relevant for the management of PHC in additional underserved communities in Brazil and other LMICs. The identified research priority areas are a representation of the Santa Marcelina PHC network's needs, but might be similar to those of other PHC settings, highlighting the importance of conducting further research in this area to strengthen the PHC services in low-resource settings.

The research questions identified by participants were not checked if they have been addressed in scientific literature. It has been implied that if participants rated a question as important for research, it reflects sufficient empirical evidence is lacking. Therefore, when consulting these research priorities, a review on whether a significant gap in evidence exists is necessary.

The possibility of researcher bias exists (i.e. misinterpretation of survey responses) despite steps taken to minimize its occurrence, including having a second member of the research team review the qualitative data analysis and holding discussions to address uncertainties. All possible steps also have been taken to avoid misinterpretation of the data as a result of its translation from Portuguese to English. This included the involvement of our Brazilian collaborators in the entire process of this study, including the translation and conduction of a critical review of obtained

data and analysis that has been conducted by the researchers after the thesis manuscript was written. Fluent in both languages, native Portuguese PHC physician (SSF) checked the translation of the entire project to ensure accuracy of the used terminology and understanding of all concepts, unique for the local context of this research. To ensure clarity of research questions elicited from panelists, the free text box was provided in the first round asking participants to justify each of the research questions they composed. This helped understand the participants' reasoning behind each of the research questions they defined, improving the clarity of each research question and ultimately increasing the validity of the results (Pare´ et al., 2011).

The participant retention rate between the first and second round was 56%. A 70% participant retention rate across rounds is recommended to reduce the potential for bias (Jorm, 2015). However, this retention rate was within the 50-80% usual retention rate of participants in Delphi studies (IGI Global, 2018). The similar trends in retention rates were also observed in other Delphi studies (Bjorkman et al., 2017; Fefer et al., 2016; Schneider et al., 2017)

The potential for withdrawal from a research is high in Delphi method, due to repeated iterations of questionnaires requiring an extended commitment from participants, distractions between rounds, and possible tiredness of participants (Keeney et al., 2011). While high attrition rates can be concerning for drawing conclusions and can lead to the study results not representing the a true priorities of all stakeholders (Hall et al., 2018), we do not anticipate that the attrition rate in our study has influenced the results considerably since the panel participated in the second round comprised of a balanced amount of experts representing all managerial functions, roles and educational backgrounds compared to Round 1 (Valentijn et al, 2015).

Likewise, according to scholars, similar expertise and knowledge of the field among a sparse number of experts “allows for effective and reliable utilization of a small sample” (Akins et al., 2005, p.10) and even nine experts who are experienced and highly knowledgeable in the field of inquiry is sufficient for providing insightful ideas (Fefer et al., 2016).

5.4. FUTURE DIRECTIONS

5.4.1. Recommendations for action

The findings of this study must be expanded upon and validated by stakeholders of APS Santa Marcelina. Assessment of the answerability, feasibility, and potential for translation of research questions and the subsequent collective validation of the research questions during the future face-to-face meeting with stakeholders will constitute an important step towards the successful implementation of results into the research agenda and planning for future research in the agreed upon areas. Implementation of the knowledge translation plan will ensure the research findings will be effectively communicated to knowledge-users. A comparison of the identified research priority areas for Brazil to those of other LMICs is necessary determine whether a global consensus exists.

5.4.2. Recommendations for further study

It is necessary for researchers and healthcare managers to act on the identified priority areas for research. Future research studies addressing the priority research areas are needed to fill the knowledge gaps to increase the management evidence-base and lead to further advancements in PHC in Eastern São Paulo, Brazil.

5.5. CONCLUSION

The increasing complexity of the healthcare system puts more pressure on healthcare management to explore, develop and implement new strategies to respond to the growing challenges and demands for the provision of high quality services within the limited financial resources.

Managers and leaders should continuously strive to look for new evidence. They should also actively engage in research in order to identify and assess issues, and plan for the adoption of best approaches to implement changes which can satisfy the needs of their healthcare organization and the communities they serve.

The involvement of managers and administrators in defining and prioritizing research areas is crucial since they possess experiential knowledge and have capacity to assess the gaps in scientific knowledge which they need to consult for their decision-making.

Limited funding for health services management research requires judicious planning of future research. Setting priorities for research can define the most pressing needs in PHC management and promote efficient allocation of resources.

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APPENDICES

APPENDIX A

Dear Primary Health Care member,

You are being invited to participate in a research study coordinated by the Assistant Director of APS Santa Marcelina Vilma Rodrigues Venâncio Moreira and conducted in close cooperation with researchers from the McGill University Department of Family Medicine: Amanda Marcinowska, BSc, MSc (c) , Dr. Tibor Schuster, PhD, Dr. Yves Bergevin, MD, MSc, Dr. Isabelle Vedel, PhD and Dr. Julie Silvia Martins, Dr. Samuel Soares Filho and Dr. Alex Cassenote, from APS Santa Marcelina. This letter and the attached documents provide important information about this research and about your participation in this study.

We are looking to obtain the perspectives of directors, managerial, and coordination staff on research needs in primary health care in the underserved areas of the Eastern region of São Paulo, served by the Santa Marcelina network. This study will direct future research in this sector and may help to guide funding for the most urgent research needs in this region. Your participation in this study is essential for the development and implementation of a local research agenda.

The first round of the survey will take place on 02/21/2020 at 9:00 am.
We kindly ask that you reserve your time for this activity.

On this day you will be invited to create research questions that reflect perceived needs for research in your professional practice, which can adress the uncertainties that you have or difficulties that occur in your day-to-day work.

In order to provide you with more information about the research, we have attached the "Study information manual" and a presentation that will be used on the day of our meeting. This presentation provides guidance on how to create research questions.

We will discuss the study during the meeting on 02/21, before starting the research, but you can already take ownership and think about research questions that you consider important.

We count on your participation

Sincerely,

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

Diretoria

Coordenação APS Santa Marcelina
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APPENDIX B

STUDY INFORMATION BOOKLET

Research Study:

Identifying Primary Health Care Research Priorities in Underserved Regions of Eastern São Paulo, Brazil:

A Delphi Study among Stakeholders of the Santa Marcelina Network

Principal Researchers:

Amanda Marcinowska, BSc, MSc (c)
Dr. Tibor Schuster, PhD
Dr.Yves Bergevin, MD, MSc

Study Committee:

Dr Tibor Schuster, PhD
Dr.Yves Bergevin, MD, MSc
Dr. Isabelle Vedel, MD, PhD, MPH
Dr. Alex Cassenote, PhD

You are invited to participate in a research study being conducted within the Santa Marcelina Network.
This booklet outlines important information regarding your participation in the study.

Study Site: Santa Marcelina Network, São Paulo, Brazil

Why have I been selected?

You have been asked to take part in the study because you are a member of Santa Marcelina Network and your opinion about the research needs in primary health care is valuable. As an employee of this organization, you have a first-hand experience and knowledge about the issues affecting primary health care and research needs in Eastern São Paulo.

Your participation in this study may be essential to the development and implementation of a future research agenda in the underserved areas of Eastern São Paulo. Your commitment to this endeavor is critical to its success.

What will I be asked to do in the study?

If you are willing to take part in this research, you will be asked to sign the Consent Form, which also explains details of the study. You will be asked to indicate whether or not you agree to participate in the study. If you agree, you must put your full name and date. Next, you will be directed to the demographic survey with questions about gender, age, education, and your work at APS Santa Marcelina. These will take approximately 10 minutes to complete.

Then, you will be asked to take part in all rounds of the Delphi study, which will consist of online surveys. Each survey will take approximately 15-20 minutes to complete. Surveys will be conducted online via http://www.LimeSurvey.com.

Please read this Information Booklet carefully before you decide to participate in this study and complete the Consent Form and Demographic Survey.

You are probably aware about the existing partnership between Santa Marcelina Primary Health Care and the Department of Family Medicine at McGill University in Montreal, Canada. Part of this partnership involves increasing research capacity within the Santa Marcelina Network and conducting studies in the local context to improve work and the care provided in the area served by Santa Marcelina. This project was developed in close partnership with the McGill research team.

PURPOSE OF THE STUDY

The purpose of the study is to identify primary health care research priorities in the underserved areas of East São Paulo. We aim to consolidate participants' opinions about the most urgent research questions that require in-depth research. This will stimulate the development of a research agenda for this region and create the roadmap for conducting more in-depth research studies, which ultimately will benefit the Brazilian primary health care system and Brazil's disadvantaged communities.

STUDY DESCRIPTION

This study is conducted by McGill University, Department of Family Medicine researchers with the cooperation of the Santa Marcelina network. The study will employ the Delphi technique, which is a systematic method of collecting data using a series of questionnaires. The questionnaires will be sent to participants at regular time intervals. The responses of participants will be compiled after each survey round. This study will consist of three surveys.

PROCEDURES

Step 1. Selecting Participants

Participants in this study will include representation from the management and coordination of the Santa Marcelina Network and selected members of the multi-disciplinary teams involved in the provision of the primary health care in the São Paulo districts. Eight panels will be created, each working on defining research priorities in at least one of the following domains: Child and maternal health, Communicable diseases, Non-communicable diseases, Mental health, Urgent and emergency care, Patient safety, Care coordination, and Health services management. APS Coordination will forward a list with the name and email of the potential survey participants to the researchers.

Step 2. Signing the Informed Consent Form and filling out the Demographic Survey

In the next section, you will see the Informed Consent From. You must read this and decide whether you would like to participate in this study. If you are interested in participating, you will be asked to fill out your full name and your email. You will then be directed to fill out the demographic survey. Once these steps have been completed, you will be ready to start the Delphi study.

Step 3. Iterative Rounds of Delphi surveys

Surveys will be conducted at regular time intervals. Each survey should take approx.15-20 minutes to complete and will be conducted online. Participants will receive detailed instruction and a link to the survey prior to launching each round of the study. For your convenience there will be a 1-week slot for completing each survey, however, each survey must be completed and submitted before the stated deadline.

- In the first survey, you will be asked to list 5 most important research questions in the specific PHC domain for your expertise area. Aggregated research questions from Round 1 will be grouped thematically and presented in the Round 2 questionnaire.

- In the second survey, you will be asked to rate the importance of every research question in the PHC domain(s) on a scale from 1-5, where [1] represents that the research question is "*not important"* to be addressed through research*; and [5]* represents that the research question is *"absolutely necessary" (extremely important)* to be addressed through research.

Step 4. Obtaining Summary of Results

Participants who take part in all rounds of Delphi surveys will receive a copy of the results of this study.

PARTICIPANT SELECTION REQUIREMENTS

- Being a college-level professional
- At least one-year of work experience at APS Santa Marcelina Network
- Willingness to participate in all survey rounds (completion of each survey will take approx. 20 minutes).

VOLUNTARY PARTICIPATION

Your participation in this study is completely voluntary.There is no penalty for not participating. However, your participation in all rounds of the Delphi survey is highly recommended and will be valuable for obtaining high-quality results.

POTENTIAL BENEFITS

You may experience some intrinsic benefit of knowing that you took a part in an important study and your input will be of great value in creating the list of important research questions, which subsequently will direct future research with the aim of improving the provision of primary health care in Eastern São Paulo. This study may be also of scientific value, which will contribute to the existing body of knowledge about the community-based primary health care research needs in Brazil.

POTENTIAL RISKS

There is no risk associated with participation in this study except the time spent on the reading and filling out the surveys.

ANONYMITY AND CONFIDENTIALITY OF PARTICIPANTS' INFORMATION

Your identity will be kept confidential at all stages of the research study, and will never be revealed in any report from this study or published work. Your information will be assigned a code number, which will be used only on your surveys and in correspondence with you. Only the principal investigator will have access to your email and personal data, which is solely needed for statistical purposes. Data will be stored in a password secured computer and will be deleted upon the completion of the study. Demographic data will only be presented in an aggregated form. The online survey tool to collect data will be password protected and there will be no link between data and your email or IP address.

While our Family Medicine Department closely cooperates with the Santa Marcelina Network, this survey is not affiliated with your organization and no one from your organization will have access to the data collected from any of the participants who are employees of Santa Marcelina Network.

RIGHT TO WITHDRAW PARTICIPATION

You have the right to withdraw from this study at any time at your own discretion, without penalty.

WHO TO CONTACT

Should you have any questions about the study or problems with accessing the survey please contact the research team:

Amanda Marcinowska, BSc, MSc (c)
E-mail: amanda.marcinowska@mail.mgill.ca
Phone: +1 647-960-4529
Department of Family Medicine McGill University

Dr. Tibor Schuster, PhD
E-mail: tibor.schuster@mcgill.ca
Phone: +1 514-398-7375
Department of Family Medicine McGill University

This study received ethical approval from the Research Ethics Board (Institutional Review Board) McGill University, the Santa Marcelina Hospital Research Ethics Committee and from the Research Ethics Committee of the São Paulo.

If you have any questions, comments, concerns or complains resulting from your participation in this study or ethical issues please feel free to contact through the email or phone number:

The Research Ethics Board (Institutional Review Board)
Faculty of Medicine McGill University
E-mail lynda.mcneil@mcgill.ca
Phone: 514 398 6831

The Santa Marcelina Hospital Research Ethics Committee
177 Santa Marcelina Street
E-mail: comissoes@santamarcelina.org
Phone: 2070- 6433

Research Ethics Committee of the São Paulo
Municipal Health Secretarial
E-mail: smscep@gmail.com
Phone: 3397-2464

APPENDIX C

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Language: English

Delphi Round 1: Health Services Management

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

Next

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Language: English

Informed consent form

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

You are being invited to participate in a research study entitled "**Identifying research priorities in Santa Marcelina Primary Health Care**", conducted by researchers Vilma Rodrigues Venâncio Moreira, Alex Cassenote, Julie Silvia Martins and Samuel Soares Filho of APS Santa Marcelina and Amanda Marcinowska, Dr. Tibor Schuster, Dr. Yves Bergevin and Dr. Isabelle Vedel of McGill University.

This research is the result of a partnership between Santa Marcelina Primary Health Care and McGill University and aims to identify research priorities for Eastern Sao Paulo.

After reading this Consent Form, if you are interested in participating in the survey, indicate your decision at the end of the text.

Research proposal: Based on your daily practice, in the first round you will be asked to identify issues in your daily practice and use them to create research questions that would be important to be researched, whose results could bring benefit your work and/or to the community where you operate. Since the survey will involve 8 thematic areas, most of which coincide with the existing structure of Santa Marcelina Primary Health Care, we will ask you to provide 5 questions related to the primary health care domain in which you have expertise. In the second round, you will receive all the questions stated by you and your colleagues in the previous round and you will evaluate each of the questions according to the degree of importance (using a Likert scale from 1 to 5). In the third round, you will be asked to arrange the top 10 research questions which have been established in the second round, in order of importance, from the highest to lowest priority. Once you submit the Round 3 survey, your participation in the study will be complete.

If you would like more information about the research study, please call the Research Sector of the Coordination of APS Santa Marcelina, 2344-4600 and speak to Dr. Julie Silvia Martins at Ramal 1138. You may also contact her at: (11) 98150-79-69 or speak to her in person at the Technical Nucleo de Ensino e Pesquisa of APS Santa Marcelina at Rua Harry Dannenberg, 276 – Itaquera.

In case of doubt regarding this document, you can seek the Research Ethics Committee of the Santa Marcelina Hospital, located at Rua Santa Marcelina, 177, phone (11) 2070.6433 and e-mail (comissoes@santamarcelina.org). If you agree to participate in the survey, we ask you to fill in the requested data below.

✱ After being fully informed about the research "**Identifying primary health care research priorities for Santa Marcelina Primary Health Care"**

☐ I agree to participate in the study

✱ Full name

First name

Last name

✱ Date

Format: mm-dd-yyyy

Previous Next

McGill

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25%

Language: English

Demographic survey

✱ What is your gender?

Choose one of the following answers

○ Male

○ Female

✱ What is your age?

Choose one of the following answers

- 18-24
- 25-34
- 35-44
- 45-54
- 55-65
- Over 65

✱ What is your highest level of education?

Choose one of the following answers

- Post-graduate studies
- Graduate education (Doctoral studies)
- Graduate education (Master studies)
- Full college/university education
- Incomplete college/university education
- Other:

✱ Describe your professional background / qualifications

✱ Which district(s) do you work for?

Check all that apply

- Guaianases
- Itaim Paulista
- Itaquera
- São Miguel Paulista
- Cidade Tiradentes

✱ What is your current position at Santa Marcelina Primary Health Care?

Choose one of the following answers

- ○ Director
- ○ Modality stakeholder
- ○ Technical advisor
- ○ Sector leader
- ○ Team leader
- ○ Medical management division
- ○ Education and research division
- ○ Clinic manager
- ○ Clinic nurse
- ○ Clinic physician
- ○ Other:

✱
How many years and months have you had this position (specified above)?

Only numbers may be entered in these fields.

Years:

Months:

✱ How many hours per week do you work at Santa Marcelina Primary Health Care?

Only numbers may be entered in this field.

✱
How long have you worked for Santa Marcelina Primary Health Care? (years and months)?

Only numbers may be entered in these fields.

Years:

Months:

Previous

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Delphi Round 1: Introduction

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

Dear Participant,

Thank you for agreeing to participate in the survey. We are now ready to start the Delphi study. You are in a group of panelists who will provide interesting insights about the most important research needs in the primary health care sector of Eastern São Paulo. I hope you will find the Delphi process an interesting and valuable experience.

In the first round, we will ask you to list five research questions that, in your opinion, are the most important research needs in the **Health Services Management** domain of primary health care. Please feel free to make comments (if any) about your personal decision when it comes to the clarification or importance of your listed research questions.

The second round will involve rating the list of research questions created in the first round by you and the other experts in your panel.

Please feel free to contact me if you have any questions or concerns. Thank you for your time and effort in this important project.

Amanda Marcinowska, BSc, MSc (c)
Department of Family Medicine, McGill University
E-mail: amanda.marcinowska@mail.mgill.ca
Phone: 647 960 - 4529

Dra. Julie Silvia Martins
Núcleo Técnico de Ensino e Pesquisa da APS Santa Marcelina
E-mail: julie@aps.santamarcelina.org
Telefone: (11) 2344-4600 Ramal: 1140

✱ I have read and understood the information presented above

☐ Yes

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Language: English

Delphi Round 1: Survey

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

Based on your knowledge and experience in the primary health care sector, what are the five most important research questions in the **Health Services Management** domain that should be addressed in future research?

Please list five important research questions.

You may include a one-sentence description of the research question or rationale for choosing it in the box below each research question.

✱ Research question (1)

You may justify, clarify or comment on the importance of **research question (1)**

✱ Research question (2)

You may justify, clarify or comment on the importance of **research question (2)**

✱ Research question (3)

You may justify, clarify or comment on the importance of **research question (3)**

✱ Research question (4)

You may justify, clarify or comment on the importance of **research question (4)**

✱ Research question (5)

You may justify, clarify or comment on the importance of **research question (5)**

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APPENDIX D

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Language: English

Delphi Round 2 - Health Services Management

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

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Language: English

Delphi Round 2: Introduction

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

Dear Participant,

Welcome to the second round of the Delphi survey.

First of all, I would like to thank you for your valuable answers in the first Delphi round. We are now entering the second round of the Delphi study, which aims to assess the importance of the list of research questions generated in the first round.

Central to this study is the collection of views and perceptions of participants from various teams on the research needs in Santa Marcelina Primary Health Care. In the first round, you listed 5 research questions in the following domain of primary health care: **Health Services Management**.

In this round, we would like you to rate the importance of each of these research questions using the Likert scale from 1-5, where the number [1] represents that the research question is "not important" to be addressed through research and the number [5] means that the research question is "absolutely necessary " (extremely important) to be addressed through research. The perception and opinion of each participant matters, so feel comfortable to respond what you really think. Please be assured that your name and your responses will be kept confidential and only the researchers directly involved with the study will have access to the information.

Should you require any further information about this survey, please do not hesitate to contact me or Dr. Julie Silvia Martins. Thank you for your contribution.

Amanda Marcinowska, BSc, MSc (c)
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Phone: +1 647 960 – 4529

Dr. Julie Silvia Martins
Núcleo Técnico de Ensino e Pesquisa da APS Santa Marcelina
E-mail: julie@aps.santamarcelina.org
Telefone: (11) 2344-4600 Ramal: 1140

✱ I have read and understood the information presented above

- [ ] Yes

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Delphi Round 2: Survey

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

This survey details the research priorities identified in the first round that you were involved with.

After the first round, the questions asked by all participants in that domain have been compiled and you are now being invited to give your opinion on the importance of each of the questions for Santa Marcelina Primary Health Care. In this step, you will use the 5-point Likert scale, where '1' means not important to be addressed through research and '5' means absolutely necessary to be addressed through research.

To complete this research step, familiarize yourself with the legend and click the circle for the priority level that you think is best to describe the importance of each research question.

The research questions have been grouped into themes. Each of the following sections contains research questions for a specific theme (indicated in the section).

Please rate the level of importance for each of the research questions using the legend below.

Legend:
1 - NOT IMPORTANT
2 - SLIGHTLY IMPORTANT
3 - AVERAGE IMPORTANCE
4 - VERY IMPORTANT
5 - ABSOLUTELY NECESSARY

*** EDUCATION AND TRAINING**

	1	2	3	4	5
Do knowledge, beliefs and attitudes developed during educational meetings with primary health care workers influence their performance within their practice?	○	○	○	○	○
How can the impact of education, training and development action for workers be assessed, considering goals, processes and results?	○	○	○	○	○
How do the educational processes offered by the primary health care institution affect the outcomes of care?	○	○	○	○	○
To what extent do professionals apply the knowledge obtained from educational processes aimed at the priority lines of care of the primary health care teams?	○	○	○	○	○

Does the training of community companions of Therapeutic Home Services, at the time of hiring, qualify them to be a facilitator and provide assistance in people management (for oncoordinator)?					
Is there a need for managers to possess practical and theoretical knowledge to develop the management practice (processes and people management)?					
Can supporter monitoring applications or programs contribute to better management?					
How can primary health care staff be trained to become collaborative leaders?					
How can the needs for building internal resources (resilience, coping potential, etc) be identified from the perspective of the primary health care worker that can help deal with unfavorable outcomes?					
How can the performance of employees be improved for satisfactory health care delivery considering the institutional standards and needs of users?					
What do health professionals perceive to be important in order to prevent staff turnover?					
How can the health care teams' awareness and empathy in providing health care services be developed to improve patient satisfaction?					
How can the health care teams' communication and effectiveness of assistance processes be improved?					
How can the commitment of employees be developed in face of the minimum requirements related to the goals of the Management Contract?					
What are the perceptions of residents of Family and Community Medicine or Multiprofessional about the Supporter's contribution to their education and professional development?					

*** MANAGER PROFILE AND RECRUITMENT**

	1	2	3	4	5
What managerial competencies are needed to ensure effectiveness in health services?					
What managerial competencies are needed to mediate conflicts in the primary health care scenario?					
How can the process of recruiting managers be improved?					

*** PRIMARY HEALTH CARE TEAM**

	1	2	3	4	5
What are effective strategies and tools to monitor the work of primary health care teams?					

*** QUALITY OF PRIMARY HEALTH CARE SERVICES**

	1	2	3	4	5
What are the indicators to monitor care management in health services?	○	○	○	○	○
What are the best indicators to evaluate a service?	○	○	○	○	○
What factors are associated with high quality health care services?	○	○	○	○	○
How has the National Access and Quality Improvement Program affected the practice of health teams?	○	○	○	○	○
How can strategies to leverage maternal mortality indicators be improved in primary care?	○	○	○	○	○
How can strategies to leverage health management indicators in primary care be improved?	○	○	○	○	○
What are the barriers to accessing primary health care services in Eastern São Paulo?	○	○	○	○	○
What are the reasons for seeking primary health care services? Are they related to the proposed line of care?	○	○	○	○	○
What is the effectiveness of the Family Health Strategy in relation to the traditional Basic Unit?	○	○	○	○	○
What are the advantages of having community health workers in the territory and is it cost-effective as a strategy?	○	○	○	○	○
How can health care networks be more effective?	○	○	○	○	○
How do health professionals and patients assess the health services offered by different units?	○	○	○	○	○
How could elderly patients be effectively monitored after a multidimensional assessment of elderly people is carried out by the health care team?	○	○	○	○	○
How can health care services better address users' needs and desires?	○	○	○	○	○
Do users seek emergency services because the Basic Health Units cannot meet their needs?	○	○	○	○	○
What is the most appropriate model of specialized care?	○	○	○	○	○
What is the impact of the implementation of teams on the management of quality of care of the population?	○	○	○	○	○
How has the loyalty of patients impacted the improvement of health outcomes and made the patients aware of longitudinal health care in the model of primary care teams?	○	○	○	○	○
How can comprehensive health care be guaranteed for the entire enrolled population in view of the access limitations "versus" the available capacity of care and the high rate of absenteeism among the registered?	○	○	○	○	○

*** ADMINISTRATIVE PROCEDURES**

	1	2	3	4	5
Is the current people management policy similar to those present in the labor market globally and still aims to facilitate the work of managers in health services?	○	○	○	○	○
Do health professionals adhere to protocols / lines of care?	○	○	○	○	○
Are health services that are not managed effective in daily practice?	○	○	○	○	○
To what extent, frequency and capacity do managers participate with the institutional coordination of the elaboration of new guidelines, regulations and flows?	○	○	○	○	○

*** COORDINATION OF HEALTHCARE SERVICES**

	1	2	3	4	5
How can health care services be enhanced to ensure the coordination of care for users who transition between several units?	○	○	○	○	○
What are the main difficulties in coordinating care between the different levels of care in the health care network?	○	○	○	○	○
Has the integration of mental health into the primary care network reduced the number of unnecessary referrals and strengthened the networking?	○	○	○	○	○
What is the percentage of hospitalizations for conditions sensitive to primary care in the Santa Marcelina network? How can better routing and follow-up protocols be established for the units in this regard?	○	○	○	○	○
How can patients appointments be more effective using FILA H in all sectors of the basic health units?	○	○	○	○	○
How can effective communication strategies be developed to make networking and intersectoral work feasible for a complete service to the user?	○	○	○	○	○
What management resources can be used to improve users' waiting times at the reception?	○	○	○	○	○
What actions does the team develop for the implementation of the Bolsa Família program?	○	○	○	○	○
Is there integration of all institutional health information systems?	○	○	○	○	○

*** HEALTH CARE MANAGEMENT**

	1	2	3	4	5
How can risk management be improved in primary care services?	○	○	○	○	○
How can time management be performed from the point of view of management activities?	○	○	○	○	○
What are the biggest challenges in service management from the perspective of the local health manager?	○	○	○	○	○
What are the main lines of work in the management of health services?	○	○	○	○	○

*** TOOLS AND TECHNOLOGY**

	1	2	3	4	5
Do monitoring processes of Singular Therapeutic Project, via management monitoring, decrease the number of absenteeism and discharge due to abandonment?	○	○	○	○	○
How can the application of IT resources help as tools for analysis and monitoring, contributing to management decisions in the health area?	○	○	○	○	○
How can an ombudsman be used as a management tool to implement improvements in care processes?	○	○	○	○	○
How can process mapping help to understand the complexities of health services?	○	○	○	○	○
How can technological tools help in the management of team care and management monitoring?	○	○	○	○	○
What is the impact of the implementation of new technologies in primary health care on the population?	○	○	○	○	○
How can the satisfaction survey contribute as an instrument for managing health service processes?	○	○	○	○	○
How can the data of health indicators be used as effective tools in care management by professionals working in the service network?	○	○	○	○	○
To what extent and how can electronic monitoring (i.e. through (real-time) video surveillance) be used to follow discussions held at individual patient consultations so that the management board gains better understanding of the different health services being offered in the sector.	○	○	○	○	○

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APPENDIX E

#	Research Question	Theme	Mean	Standard Deviation	Consensus percentage*
Top Ten Research Priorities					
1	How can comprehensive health care be guaranteed for the entire enrolled population in view of the access limitations "versus" the available capacity of care and the high rate of absenteeism among the registered?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.67	0.71	89%
2	What managerial competencies are needed to ensure effectiveness in health services?	MANAGER PROFILE AND RECRUITMENT	4.67	0.71	89%
3	What are the main difficulties in coordinating care between the different levels of care in the health care network?	COORDINATION OF HEALTHCARE SERVICES	4.56	0.53	100%
4	How can strategies to alleviate maternal mortality indicators be improved in primary care?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.56	0.73	89%
5	How can the data of health indicators be used as effective tools in care management by professionals working in the service network?	TOOLS AND TECHNOLOGY	4.44	0.53	100%
6	How can effective communication strategies be developed to make networking and intersectoral work feasible for a complete service to the user?	COORDINATION OF HEALTHCARE SERVICES	4.44	0.73	89%

7	How can health care services be enhanced to ensure the coordination of care for users who transition between several units?	COORDINATION OF HEALTHCARE SERVICES	4.44	0.73	89%
8	How can the application of IT resources help as tools for analysis and monitoring, contributing to management decisions in the health area?	TOOLS AND TECHNOLOGY	4.33	0.50	100%
9	How can technological tools help in the management of team care and management monitoring?	TOOLS AND TECHNOLOGY	4.33	0.71	89%
10	How can the health care teams' communication and effectiveness of assistance processes be improved?	EDUCATION AND TRAINING	4.33	0.71	89%
11th to 64th Research Priorities					
11	How can strategies to leverage health management indicators in primary care be improved?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.33	0.87	78%
12	How can the impact of education, training and development action for workers be assessed, considering goals, processes and results?	EDUCATION AND TRAINING	4.22	0.67	89%
13	What are the indicators to monitor care management in health services?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.22	0.67	89%

14	How can the process of recruiting managers be improved?	MANAGER PROFILE AND RECRUITMENT	4.22	0.67	89%
15	What management resources can be used to improve users' waiting times at the reception?	COORDINATION OF HEALTHCARE SERVICES	4.22	0.83	78%
16	What managerial competencies are needed to mediate conflicts in the primary health care scenario?	MANAGER PROFILE AND RECRUITMENT	4.22	1.09	78%
17	To what extent and how can electronic monitoring (i.e. through (real-time) video surveillance) be used to follow discussions held at individual patient consultations so that the management board gains better understanding of the different health services being offered in the sector?	TOOLS AND TECHNOLOGY	4.22	1.09	78%
18	Can supporter monitoring applications or programs contribute to better management?	EDUCATION AND TRAINING	4.11	0.78	78%
19	How can primary health care staff be trained to become collaborative leaders?	EDUCATION AND TRAINING	4.11	0.78	78%
20	How can the health care teams' awareness and empathy in providing health care services be developed to improve patient satisfaction?	EDUCATION AND TRAINING	4.11	0.78	78%

21	What are effective strategies and tools to monitor the work of primary health care teams?	PRIMARY HEALTH CARE TEAM	4.11	0.78	78%
22	How can health care networks be more effective?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.11	0.78	78%
23	Do health professionals adhere to protocols / lines of care?	ADMINISTRATIVE PROCEDURES	4.11	0.78	78%
24	Has the integration of mental health into the primary care network reduced the number of unnecessary referrals and strengthened the networking?	COORDINATION OF HEALTHCARE SERVICES	4.11	0.60	89%
25	To what extent do professionals apply the knowledge obtained from educational processes aimed at the priority lines of care of the primary health care teams?	EDUCATION AND TRAINING	4.00	0.50	89%
26	What are the best indicators to evaluate a service?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.00	0.87	89%
27	How can the performance of employees be improved for satisfactory health care delivery considering the institutional standards and needs of users?	EDUCATION AND TRAINING	4.00	0.87	67%

28	What are the advantages of having community health workers in the territory and is it cost-effective as a strategy?	QUALITY OF PRIMARY HEALTH CARE SERVICES	4.00	1.00	56%
29	What is the percentage of hospitalizations for conditions sensitive to primary care in the Santa Marcelina network? How can better routing and follow-up protocols be established for the units in this regard?	COORDINATION OF HEALTHCARE SERVICES	4.00	1.12	67%
30	How can time management be performed from the point of view of management activities?	HEALTH CARE MANAGEMENT	4.00	1.12	67%
31	How has the loyalty of patients impacted the improvement of health outcomes and made the patients aware of longitudinal health care in the model of primary care teams?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.89	0.60	78%
32	How can the needs for building internal resources (resilience, coping potential, etc.) be identified from the perspective of the primary health care worker that can help deal with unfavorable outcomes?	EDUCATION AND TRAINING	3.89	1.05	67%
33	Is the current people management policy similar to those present in the labor market globally and still aims to facilitate the work of managers in health services?	ADMINISTRATIVE PROCEDURES	3.89	0.78	67%

34	How can risk management be improved in primary care services?	HEALTH CARE MANAGEMENT	3.89	1.05	67%
35	What is the impact of the implementation of new technologies in primary health care on the population?	TOOLS AND TECHNOLOGY	3.89	1.05	44%
36	How can process mapping help to understand the complexities of health services?	TOOLS AND TECHNOLOGY	3.78	0.67	67%
37	Do knowledge, beliefs and attitudes developed during educational meetings with primary health care workers influence their performance within their practice?	EDUCATION AND TRAINING	3.78	0.83	56%
38	How do health professionals and patients assess the health services offered by different units?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.78	0.83	56%
39	How can the satisfaction survey contribute as an instrument for managing health service processes?	TOOLS AND TECHNOLOGY	3.78	0.83	56%
40	How can the commitment of employees be developed in face of the minimum requirements related to the goals of the Management Contract?	EDUCATION AND TRAINING	3.78	0.97	67%

41	How can health care services better address users' needs and desires?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.78	0.97	67%
42	How can an ombudsman be used as a management tool to implement improvements in care processes?	TOOLS AND TECHNOLOGY	3.67	0.71	56%
43	How could elderly patients be effectively monitored after a multidimensional assessment of elderly people is carried out by the health care team?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.67	0.87	44%
44	What are the main lines of work in the management of health services?	HEALTH CARE MANAGEMENT	3.67	1.12	67%
45	What factors are associated with high quality health care services?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.56	0.73	67%
46	Does the training of community companions of Therapeutic Home Services, at the time of hiring, qualify them to be a facilitator and provide assistance in people management (for oncoordinator)?	EDUCATION AND TRAINING	3.56	0.73	44%
47	Is there a need for managers to possess practical and theoretical knowledge to develop the management practice (processes and people management)?	EDUCATION AND TRAINING	3.56	1.01	44%

48	Do users seek emergency services because the Basic Health Units cannot meet their needs?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.56	1.01	44%
49	What are the biggest challenges in service management from the perspective of the local health manager?	HEALTH CARE MANAGEMENT	3.56	1.13	56%
50	What is the effectiveness of the Family Health Strategy in relation to the traditional Basic Unit?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.56	1.42	56%
51	How do the educational processes offered by the primary health care institution affect the outcomes of care?	EDUCATION AND TRAINING	3.44	0.53	44%
52	What is the most appropriate model of specialized care?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.44	0.88	56%
53	What are the barriers to accessing primary health care services in Eastern São Paulo?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.44	1.42	44%
54	To what extent, frequency and capacity do managers participate with the institutional coordination of the elaboration of new guidelines, regulations and flows?	ADMINISTRATIVE PROCEDURES	3.33	0.71	44%

55	Do monitoring processes of Singular Therapeutic Project, via management monitoring, decrease the number of absenteeism and discharge due to abandonment?	TOOLS AND TECHNOLOGY	3.33	1.12	33%
56	What do health professionals perceive to be important in order to prevent staff turnover?	EDUCATION AND TRAINING	3.33	1.41	33%
57	How can patients' appointments be more effective using FILA H in all sectors of the basic health units?	COORDINATION OF HEALTHCARE SERVICES	3.22	0.97	33%
58	What is the impact of the implementation of teams on the management of quality of care of the population?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.22	1.09	44%
59	Is there integration of all institutional health information systems?	COORDINATION OF HEALTHCARE SERVICES	3.22	1.20	33%
60	How has the National Access and Quality Improvement Program affected the practice of health teams?	QUALITY OF PRIMARY HEALTH CARE SERVICES	3.22	1.30	33%
61	Are health services that are not managed effective in daily practice?	ADMINISTRATIVE PROCEDURES	3.22	1.30	33%

62	What are the reasons for seeking primary health care services? Are they related to the proposed line of care?	QUALITY OF PRIMARY HEALTH CARE SERVICES	2.89	1.27	33%
63	What actions does the team develop for the implementation of the Bolsa Família program?	COORDINATION OF HEALTHCARE SERVICES	2.67	1.00	22%
64	What are the perceptions of residents of Family and Community Medicine or Multiprofessional about the Supporter's contribution to their education and professional development?	EDUCATION AND TRAINING	2.56	1.13	22%

*Consensus percentage is the percentage of Delphi participants that rated the research question a 4 or 5 on a five-point Likert scale

APPENDIX F

McGill University

2020

ATENÇÃO PRIMÁRIA À SAÚDE
SANTA MARCELINA
ENTIDADE FILANTRÓPICA

HEALTH SERVICES MANAGEMENT

RESEARCH PRIORITIES

Results of a Delphi study with health care managers and administrators of APS Santa Marcelina

What managerial competencies are needed to ensure effectiveness in health services?

How can comprehensive health care be guaranteed for the entire enrolled population in view of the access limitations “versus” the available capacity of care and the high rate of absenteeism among the registered?

What are the main difficulties in coordinating care between the different levels of care in the health care network?

How can strategies to alleviate maternal mortality indicators be improved in primary care?

RESEARCH PRIORITIES

- How can the data of health indicators be used as effective tools in care management by professionals working in the service network?
- How can effective communication strategies be developed to make networking and intersectoral work feasible for a complete service to the user?
- How can health care services be enhanced to ensure the coordination of care for users who transition between several units?
- How can the application of IT resources be enhanced to ensure the coordination of care for users who transition between several units?
- How can technological tools help in the management of team care and management monitoring?
- How can the health teams' communication and effectiveness of assistance processes be improved?

APPENDIX G

McGill

Faculty of Medicine
3655 Promenade Sir William Osler
#633
Montreal, QC, H3G 1Y6

Faculté de médecine
3655, promenade Sir William Osler
#633
Montréal, QC H3G 1Y6

Fax/Télécopieur:
(514) 398-3870
Tél/Tel: (514) 398-3124

November 14, 2019

Dr. Tibor Schuster
Department of Family Medicine
5858 Côte-des-Neiges, 3rd Floor, Suite 300
Montreal, Quebec
H3S 1Z1

RE: IRB Study Number A11-E71-19A / 19-11-036
Identifying primary health care research priorities in underserved regions of Sao Paulo, Brazil: a Delphi study among stakeholders of the Santa Marcelina Network

Dear Dr. Schuster,

Thank you for submitting, on behalf of your Master's student, Amanda Marcinowska, the above-referenced study for an ethics review.

As this study involves no more than minimal risk, and in accordance with Articles 2.9 and 6.12 of the 2nd Edition of the Canadian Tri-Council Policy Statement of Ethical Conduct for Research Involving Humans (TCPS 2 2018) and U.S. Title 45 CFR 46, Section 110 (b), paragraph (1), we are pleased to inform you that approval for the study (IRB dated October 2019) was provided by an expedited/delegated review on 14-Nov-2019, valid until **13-Nov-2020**. The study proposal will be presented for corroborative approval at the next meeting of the Committee.

The Faculty of Medicine Institutional Review Board (IRB) is a registered University IRB working under the published guidelines of the Tri-Council Policy Statement 2, in compliance with the Plan d'action ministériel en éthique de la recherche et en intégrité scientifique (MSSS, 1998), and the Food and Drugs Act (17 June 2001); and acts in accordance with the U.S. Code of Federal Regulations that govern research on human subjects (**FWA 00004545**). The IRB working procedures are consistent with internationally accepted principles of good clinical practice.

The Principal Investigator is required to immediately notify the Institutional Review Board Office, via amendment or progress report, of:

- Any significant changes to the research project and the reason for that change, including an indication of ethical implications (if any);

- Serious Adverse Effects experienced by participants and the action taken to address those effects;
- Any other unforeseen events or unanticipated developments that merit notification;
- The inability of the Principal Investigator to continue in her/his role, or any other change in research personnel involved in the project;
- A delay of more than 12 months in the commencement of the research project, and;
- Termination or closure of the research project.

The Principal Investigator is required to submit an annual progress report (continuing review application) on the anniversary of the date of the initial approval (or see the date of expiration).

The Faculty of Medicine IRB may conduct an audit of the research project at any time.

If the research project involves multiple study sites, the Principal Investigator is required to report all IRB approvals and approved study documents to the appropriate Research Ethics Office (REO) or delegated authority for the participating study sites. Appropriate authorization from each study site must be obtained before the study recruitment and/or testing can begin at that site. Research funds linked to this research project may be withheld and/or the study data may be revoked if the Principal Investigator fails to comply with this requirement. A copy of the study site authorization should be submitted the IRB Office.

It is the Principal Investigator's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The McGill IRB wishes you and your colleagues every success in your research.

Sincerely,

Roberta Palmour

Roberta Palmour, PhD
Chair
Institutional Review Board

cc: Amanda Marcinowska
Associate Dean, Research Medicine
A11-E71-19A/19-11-036

AMANDA MARCINOWSKA, BSc, MSc (c)

DR. TIBOR SCHUSTER, PhD

DR. YVES BERGEVIN, MD, MSc

DR. ISABELLE VEDEL, MD, MPH, PhD,

DR. ALEX CASSENOTE, PhD

Research Project:

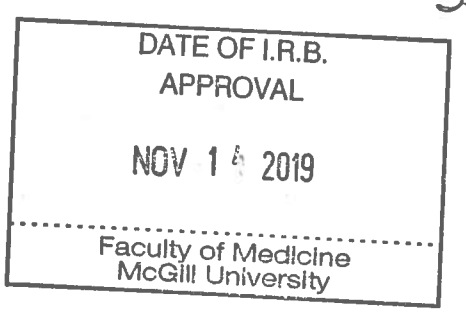
Identifying Primary Health Care Research Priorities in Underserved Regions of East São Paulo, Brazil:

A Delphi Study among Stakeholders of the Santa Marcelina Network

Research proposed by McGill University Master's student to be conducted in partnership with APS Santa Marcelina to be submitted to the Research Ethics Committee of Santa Marcelina Health House and São Paulo Municipal Health Secretariat .

Concentration Area: Family Medicine

Student Principal Investigator: Amanda Marcinowska



Advisors: Dr. Tibor Schuster (supervisor)
Dr. Yves Bergevin (co-supervisor)

Thesis Committee: Dr. Isabelle Vedel
Dr. Alex Cassenote

Oct. 2019

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Identificando prioridades de pesquisa na Atenção Primária à Saúde Santa Marcelina

Pesquisador: VILMA RODRIGUES VENANCIO MOREIRA
Área Temática:
Versão: 1
CAAE: 26491419.4.0000.0066
Instituição Proponente: Casa de Saúde Santa Marcelina
Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.753.127

Apresentação do Projeto:
A pesquisa em Atenção Primária à Saúde é essencial em países de baixa e média renda, para melhorar os resultados em saúde e reduzir as desigualdades em saúde. A definição de prioridades de pesquisa é uma estratégia eficaz para direcionar a pesquisa em saúde e fortalecer os serviços de saúde. As prioridades identificadas podem fornecer orientação e foco para pesquisas futuras e financiamento para as necessidades mais urgentes. Isso é especialmente importante em áreas com recursos limitados. Este estudo será realizado na APS Santa Marcelina, localizada na zona leste do município de São Paulo. Essa região apresenta grandes desvantagens, incluindo piores indicadores de saúde, piores condições socioeconômicos, maiores desigualdades sociais e um índice de pobreza mais alto do que a média da cidade de São Paulo.

Objetivo da Pesquisa:
Identificar sistematicamente as prioridades de pesquisa na Atenção Primária à Saúde Santa Marcelina, na perspectiva dos profissionais que atuam no nível de gestão, coordenação e nas Unidades Básicas de Saúde, considerando o conhecimento experiencial dos mesmos nas áreas de saúde materno-infantil, doenças transmissíveis, doenças crônicas não transmissíveis, saúde mental, atendimento de urgência e emergência, segurança do paciente, coordenação do cuidado e gestão de serviços de saúde.

Avaliação dos Riscos e Benefícios:

Benefícios: Os resultados da pesquisa poderão ajudar a melhorar a qualidade da Atenção Primária à Saúde oferecida à população;

Riscos: A previsão de riscos é mínima pois a pesquisa envolve apenas o preenchimento da pesquisa online.

Comentários e Considerações sobre a Pesquisa:

Trabalho bem descrito, tema relevante para área de pesquisa.

Considerações sobre os Termos de apresentação obrigatória:

Termos de acordo.

Conclusões ou Pendências e Lista de Inadequações:

Trabalho aprovado.

Considerações Finais a critério do CEP:

Considerações: Partindo da análise supracitada, o Comitê de Ética em Pesquisa da Casa de Saúde Santa Marcelina, de acordo com as atribuições definidas na Resolução CNS nº 466 de 2012 e na Norma Operacional nº 001 de 2013 do CNS, assente pela aprovação do projeto de pesquisa proposto.

Informamos que a assinatura do coordenador é obrigatória, porém não necessariamente foi o analista do projeto.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_1471331.pdf	03/12/2019 14:39:26		Aceito
Declaração de Instituição e Infraestrutura	termo_responsabilidade.pdf	03/12/2019 14:32:10	ANDRESSA RUPEREZ MARTINEZ	Aceito
Folha de Rosto	folha_de_rosto.pdf	03/12/2019 14:28:42	ANDRESSA RUPEREZ MARTINEZ	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	Termo_pronto.pdf	29/11/2019 16:03:47	JULIE SILVIA MARTINS	Aceito

Projeto Detalhado / Brochura Investigador	Projeto_de_pesquisa_pronto.pdf	29/11/2019 16:03:12	JULIE SILVIA MARTINS	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

SAO PAULO, 09 de Dezembro de 2019

Assinado por:
Belmiro José Matos
(Coordenador(a))

APPENDIX H

Table 1. Demographic details of Delphi respondents

	Round 1 (N = 16)	**Round 2** (N= 9)
Gender, n (%)		
Male	2 (13)	2 (22)
Female	14 (87)	7 (78)
Age Range, n (%)		
25-34	1 (6)	0 (0)
35-44	11 (69)	6 (67)
45-54	3 (19)	2 (22)
55-65	1 (6)	1 (11)
Highest Level of Education, n (%)		
Graduate education (Master'sdegree)	3 (19)	2 (22)
Graduate education (Doctoraldegree)	1 (6)	1 (11)
Post-graduate education	12 (75)	6 (67)
Role at Santa Marcelina PHC, n (%)		
Director	1 (6)	1 (11)
Medical Management division	1 (6)	1 (11)
Clinic manager	2 (13)	1 (11)
Technical advisor	8 (50)	4 (44)
Modality stakeholder	2 (13)	1 (11)
Education and research division	1 (6)	0 (0)
Other	1 (6)	1 (11)
Years of experience in Role, n (%)		
<1 year	3 (19)	1 (11)
1-5 years	3 (19)	1 (11)
6-10 years	7 (44)	4 (44)
11-15 years	2 (13)	2 (22)
>15 years	1 (6)	1 (11)
Experience at APS Santa Marcelina, n (%)		
1-5 years	2 (13)	2 (22)
6-10 years	2 (13)	0 (0)
11-15 years	4 (25)	1 (11)
16-20 years	4 (25)	4 (44)
21-30 years	4 (25)	2 (22)
Hours per week at APS Santa Marcelina, n (%)		
Full-time (40 hours)	13 (81)	6 (67)
Part-time (20-25 hours)	2 (13)	2 (22)
< 20 hours	1 (6)	1 (11)
District, n (%)[a]		
Guainases	5 (31)	5 (56)
ItaimPaulista	6 (38)	4 (44)
Itaquera	10 (63)	5 (56)
São Miguel Paulista	4 (25)	4 (44)
Cidade Tiradentes	3 (19)	3 (33)

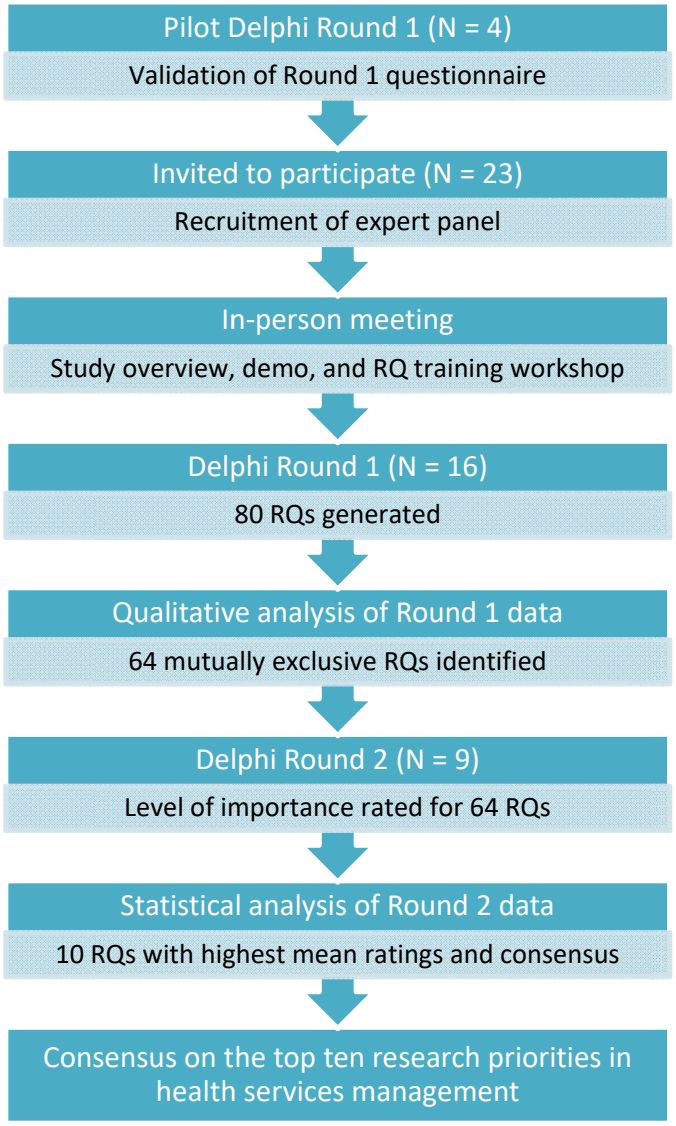
[a] Some respondents selected >1 district.

Table 2.Top Ten Research Priorities in Health Services Management

#	Research question	Mean (SD)
1	How can comprehensive healthcare be guaranteed for the entire enrolled population in view of the access limitations "versus" the available capacity of care and the high rate of absenteeism among the registered?	4.67 (0.71)
2	What managerial competencies are needed to ensure effectiveness in health services?	4.67 (0.71)
3	What are the main difficulties in coordinating care between the different levels of care in the health care network?	4.56 (0.53)
4	How can strategies to alleviate maternal mortality indicators be improved in primary (health) care?	4.56 (0.73)
5	How can the data of health indicators be used as effective tools in care management by professionals working in the service network?	4.44 (0.53)
6	How can effective communication strategies be developed to make networking and intersectoral work feasible for a complete service to the user?	4.44 (0.73)
7	How can health care services be enhanced to ensure the coordination of care for users who transition between several units?	4.44 (0.73)
8	How can the application of IT resources help as tools for analysis and monitoring, contributing to management decisions in the health area?	4.33 (0.50)
9	How can technological tools help in the management of team care and management monitoring?	4.33 (0.71)
10	How can the health care teams' communication and effectiveness of assistance processes be improved?	4.33 (0.71)

SD, standard deviation

Figure 2. Flowchart of the Delphi process



RQ, research question

Figure 3 Priority themes; areas of research to be addressed

RQ, research question; PHC, primary health care.

Box 1. Implications for researchers and healthcare managers

- The identified research priorities can guide future research, support funding applications, and motivate healthcare managers to lead, conduct, or participate in health services management research and development
- The results may also aid healthcare managers in decision-making on allocation of resources in primary health care

APPENDIX I

Each participant is invited to participate in the study and attend the Workshop

Thank you for your time and interest in this study

First Meeting

Face-to-face meeting with participants

Aim 1: Presentation of the research topic and study procedure
Aim 2: Training in formulating research questions

Steps

1. Set-up of the meeting with Santa Marcelina coordinators
2. Preparation of the materials for presentation including power-point slides
3. Inviting all prospective participants via personalized e-mail and WhatsApp
4. Face-to-face meeting with participants

Meeting Agenda

1. Presentation of the study aim, research plan and steps
2. Inclusion/Exclusion criteria for participants
3. Importance of the Informed Consent
4. Ethical considerations (confidentiality and anonymity)
5. Presentation of the study materials
6. The meaning of an iterative nature of the Delphi method
7. Questions and Answers (Q &A)
8. Break

9. WORKSHOP: hands-on training in formulating research questions

APPENDIX J

Each participant is invited to anonymously validate the top ten research questions using the attached Prioritization Matrix

Please fill-out the form and insert it into the box placed on the table

Thank you for your valuable input in this study

Discussion Forum

Face-to-face meeting with participants

Aim: Validation of the ten most important research questions from Round 2 of the Delphi study

Steps

1. Set-up of the Discussion Forum with Santa Marcelina coordinators
2. Preparation of the final materials for presentation
3. Inviting all study participants via personalized email and WhatsApp
4. Discussion Forum (Face-to-face meeting with participants)

Meeting Agenda

1. Presentation of the study goal and implemented procedure
2. Presentation of the study results using power-point presentation (infographics with summary of findings will be distributed to participants before discussion session begins)
3. Facilitated discussion about the top ten research questions and their importance level as assessed by study participants in the second round of the Delphi
4. Familiarizing participants with the set of criteria for validating the top ten research questions
5. Open discussion
6. Questions and Answers (Q &A)
7. Prioritization Matrix completion
8. Each participant is invited to anonymously validate the top ten research questions using the attached Prioritization Matrix
9. Distribution of the personalized Thank You gifts to all participants and Santa Marcelina coordinators

Prioritization Matrix

Dear participant,

On the scale from 1-5 (where '1' means least likely, and '5'most likely), assess the following research questions within each of the criteria below (circle only one point for each criterion)

Criteria

Feasibility Likelihood that the research will be doable and deliverable taking into consideration the local context

Answerability Likelihood that the research will generate important new knowledge and fill the research needs gap

Sustainability Likelihood that the research will address long term needs of the population and healthcare system

Equitability Likelihood that the knowledge generated through the proposed research would address health inequalities

Effectiveness Likelihood that the knowledge generated through the proposed research would be implemented and have an impact on policy and practice

Point Scale

1 → **5**

Least likely — Most likely

Prioritization Matrix

Health Services Management	**Delphi Round 2 Results**		**Your evaluation of research question**				
Research question	Mean	SD	Criterion 1 Feasibility	Criterion 2 Answerability	Criterion 3 Sustainability	Criterion 4 Equitability	Criterion 5 Effectiveness
1			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
2			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
3			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
4			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
5			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
6			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
7			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
8			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
9			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
10			1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5